SCIENCE AND BRAZILIAN DEVELOPMENT

Report of a Workshop on
Contribution of Science and Technology to Development

April 11-16, 1966
Itatiaia, Brazil

PART III

Under the Auspices of
The Brazilian National Research Council
and
National Academy of Sciences—National Research Council

In Cooperation with
Agency for International Development
SCIENCE AND BRAZILIAN DEVELOPMENT

REPORT OF A WORKSHOP ON

CONTRIBUTION OF SCIENCE AND TECHNOLOGY TO DEVELOPMENT

April 11-16, 1966
Itatiaia, Brazil

PART III
BACKGROUND INFORMATION

Under the Auspices of
The Brazilian National Research Council
and
National Academy of Sciences - National Research Council
In Cooperation with
Agency for International Development
This report has been prepared by the Office of the Foreign Secretary, National Academy of Sciences-National Research Council, for the Latin American Bureau, Agency for International Development, Washington, D. C., under Contract No. AID/la-125.
PART III

BACKGROUND INFORMATION FOR
BRAZIL-U.S. WORKSHOP ON SCIENCE, TECHNOLOGY AND DEVELOPMENT

I. Institutions of Higher Learning in Brazil

II. Brazilian Scientific and Technological Research and Planning Organizations

III. Foreign Aid and Loans to Brazil: 1962-1965

IV. Maps and Tables on Brazil's Economy

Prepared by
Office of the Foreign Secretary
National Academy of Sciences
Washington, D.C.

February 1966
# INSTITUTIONS OF HIGHER LEARNING IN BRAZIL

## Table of Contents

### Higher Education in Brazil

1. Public Institutions
   - Universidade da Bahia
   - Universidade do Brasil
   - Universidade de Brasília
   - Universidade de Ceará
   - Universidade do Estado do Guanabara
   - Universidade de Minas Gerais
   - Universidade de Paraná
   - Universidade de Recife
   - Universidade do Rio Grande do Sul
   - Universidade do São Paulo
   - Universidade Federal do Estado do Rio de Janeiro

2. Private Institutions
   - Pontifícia Universidade Católica do Rio de Janeiro
   - Pontifícia Universidade Católica do Rio Grande do Sul
   - Pontifícia Universidade Católica de São Paulo
   - Universidade Católica de Pernambuco
   - Universidade Mackenzie

3. Technical and Specialized Schools (both public and private)
   - Escola de Administração de Empresas de São Paulo
   - Escola de Engenharia Mauá
   - Instituto Electro-técnico de Itajubá
   - Instituto Tecnológico de Aeronáutica (ITA)
   - Universidade Rural
   - Universidade Rural do Estado de Minas Gerais
The development of the Brazilian system of higher education is somewhat unique. During the colonial period, a student wishing professional training had to go out of the country. With the establishment of the Portuguese monarchy in Brazil in the 1800's, development of indigenous "faculties" was begun. The first attempt to merge the independent faculties into a form we know as a university came in Curitiba, Paraná, in 1912, when the University of Paraná was formed. The success of this experiment led to the formation of the University of Brazil in Rio de Janeiro in 1920. Now there are over 20 major universities in Brazil.

Degree courses are usually three, four or five years. The degree in medicine is given after six years of university study. More than half of the undergraduate programs of study offered are in the arts, philosophy and letters, and half of the graduate programs. In 1963, about 40% of 121,000 undergraduates were in law & philosophy, and about 5% in public and business administration, agronomy, statistics, chemical engineering, transportation and veterinary science, combined. The distribution of university faculties follows this trend.

In 1962 the number of graduates in engineering was less than 800 for the whole nation, 49 in chemical engineering, 283 in architecture, 1,342 in medicine, 1,315 in dentistry, 144 in veterinary science, 438 in pharmacy, 375 in nursing, less than 400 in agriculture compared to 1,423 in economics, more than 3,600 in law, and almost 5,800 in philosophy and letters. In agriculture, the Ministry of Agriculture reported in 1964 a shortage of about 12,000 professionals for research and extension offices.

Following is a list of the larger universities and their student and faculty population in 1961 (from Plano Orientador da Universidade de Brasília, 1962).

<table>
<thead>
<tr>
<th>Universities</th>
<th>Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>São Paulo</td>
<td>2372</td>
<td>10014</td>
</tr>
<tr>
<td>Brasil</td>
<td>2381</td>
<td>7589</td>
</tr>
<tr>
<td>Rio Grande do Sul</td>
<td>1968</td>
<td>4724</td>
</tr>
<tr>
<td>Minas Gerais</td>
<td>1019</td>
<td>4251</td>
</tr>
<tr>
<td>Recife</td>
<td>917</td>
<td>3706</td>
</tr>
<tr>
<td>Paraná</td>
<td>624</td>
<td>3542</td>
</tr>
<tr>
<td>Rio de Janeiro</td>
<td>448</td>
<td>3263</td>
</tr>
<tr>
<td>Ceará</td>
<td>476</td>
<td>2386</td>
</tr>
<tr>
<td>Bahia</td>
<td>569</td>
<td>2276</td>
</tr>
</tbody>
</table>

In this report only the larger universities are described, plus several of the better-known small specialized schools that have been very productive. Undoubtedly there are many other fine institutions of higher learning; their exclusion from this list does not signify that they have been judged unimportant.
Unless otherwise indicated, all budget figures are in U.S. dollars. Many of the budgets were converted from cruzeiros, based on year-end free market exchange rates, and due to the rapid changes in the value of the cruzeiro, must be considered approximate. The symbol FT following number of professors stands for full-time. Reference numbers correspond to the numbered bibliography which follows the section of foreign aid.
The University of Bahia is one of the few universities that is not planning a University City. It has two campuses: a new one for engineering and the old one where the remainder of the divisions are located. In the scientific realm certain bright spots exist, such as the current development of a geology department and the integrated combined teaching and research institutes in chemistry, physics and mathematics.

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>Budget</th>
<th>Fac.</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>Hernani Savio Sobral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics (1934)</td>
<td>Manuel Pinto de Aguiar</td>
<td>31</td>
<td>133</td>
<td></td>
</tr>
<tr>
<td>Law (1891)</td>
<td>Dr. Orlando Gomes</td>
<td>31</td>
<td>508</td>
<td></td>
</tr>
<tr>
<td>Medicine (1808)</td>
<td>Benjamin da Rochas Salles</td>
<td>$25,078</td>
<td>135</td>
<td>470</td>
</tr>
<tr>
<td>Preventive Med.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tropical Med. &amp;</td>
<td>Dr. Aluizio Prata</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infectious Dis.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital das Clinicas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odontology (1882)</td>
<td>Jose Torres Homen</td>
<td>12</td>
<td>236</td>
<td></td>
</tr>
<tr>
<td>Pharmacy (1832)</td>
<td>Adolfo Diniz Goncalves</td>
<td>10</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td>Geology (1958)</td>
<td>Ramiro de P. Alegre Muniz</td>
<td>$156,097(61)</td>
<td>21</td>
<td>75</td>
</tr>
<tr>
<td>Philosophy (1943)</td>
<td>Jorge C. Moniz Bittencourt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td>23 (64)</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td></td>
<td>18</td>
<td>&quot;</td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td></td>
<td>8</td>
<td>&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Schools</th>
<th></th>
<th>1962</th>
<th>1962</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polytechnic</td>
<td>Alceu Hiltner</td>
<td>84</td>
<td>529 (64)</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td></td>
<td>378</td>
<td></td>
</tr>
<tr>
<td>Petroleum Engineering</td>
<td></td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td></td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td></td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Librarianship (1942)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing .(1946)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture &quot;Cruz das Almas&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
<td></td>
<td>300 (64)</td>
</tr>
<tr>
<td>Institutes</td>
<td>Head</td>
<td>1962 Budget</td>
<td>Fac.</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------------------------</td>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td>Economics &amp; Finances of Bahia</td>
<td>Dr. Thales de Azevedo</td>
<td>$12,540</td>
<td></td>
</tr>
<tr>
<td>Mathematics &amp; Physics</td>
<td>Humphrey (Stanford U)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational Orientation</td>
<td>Milton Almeida dos Santos</td>
<td></td>
<td>12 FT</td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petroleum Geology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab. of Geomorphology &amp; Regional Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
UNIVERSIDADE DO BRASIL
Avenida Pasteur, 250, Rio de Janeiro

Rector: Pedro Calmon Moniz de Bittencourt

The national university
Founded: 1920
Faculty: 1,402 (1962)
Students: 8,225 (1962)
Budget:

The national university has a complex structure with many faculties and schools scattered throughout the city of Rio de Janeiro and at least one (School of Mines and Metallurgy in Ouro Preto, Minas Gerais) located several hundred miles distant. A University City is being constructed on the outskirts of Rio but prospects for moving all faculties and schools to this new campus are dim. Most of the faculty members of the University are part-time, many maintaining private offices in the center of the city. The Centro Brasileiro de Pesquisas Físicas, the Inst. de Microbiologia and the Instituto de Biofísica are carrying out outstanding research programs. These institutions are described in the section on research institutions.

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>Budge.</th>
<th>1962</th>
<th>Fac.</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine (1832)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institute of Biophysics</td>
<td>Dr. Carlos Chagas</td>
<td>70</td>
<td>(60)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dept. of Biochemistry</td>
<td>Dr. Paulo Lacacz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dept. of Pharmacology</td>
<td>Lauro Solero</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Microbiology</td>
<td>Dr. Paulo de Goes</td>
<td>$51,619*</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Med. Microbiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen. Microbiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Tuberculosis &amp; Pneumonia</td>
<td>Dr. Helio Fraga</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Gynecology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Nutrition</td>
<td>Dr. Clémentino Fraga, Jr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Neurology</td>
<td>Dolinod Couto</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Psychology</td>
<td>Dr. Nilton Campos</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Pediatrics</td>
<td>José Martinho da Rocha</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Psychiatry</td>
<td>José Leme Lopes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dept. of Parasitology</td>
<td>Dr. Gilberto de Freitas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Departments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odontology (1934)</td>
<td>Dr. Chryso de Leão</td>
<td>47</td>
<td></td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Pharmacy (1945)</td>
<td></td>
<td>41</td>
<td></td>
<td>131</td>
<td></td>
</tr>
</tbody>
</table>

* For 1960-62, plus Rockefeller funds
## UNIVERSIDADE DO BRASIL (continued)

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>1962 Bbudg.</th>
<th>1962 Fac.</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophy (1939)</td>
<td>José de Faria G. Sobrinho</td>
<td>201</td>
<td>1056</td>
<td></td>
</tr>
<tr>
<td>Res. Center of Geography</td>
<td>Dr. Hilgard O. Sternberg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Res. Center of Brazilian Geography</td>
<td>Dr. Hilgard O. Sternberg $9,404*</td>
<td>3FT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural History</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center of Genetics Research</td>
<td>Dr. Antonio Lodges Cavalcanti</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td>T. A. Texeria Coelho, Jr.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center of Science Studies &amp; Research</td>
<td>Dr. João C. Cardoso</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center of Endocrinological Research</td>
<td>Clementino Farga, Jr.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endocrinology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gastroenterology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver Pathology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazilian Center for Physics Research (1'49)</td>
<td>General Edmunco de Macedo Soares</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architecture (1945)</td>
<td>Wladimir Alves de Souza</td>
<td>115</td>
<td>666</td>
<td></td>
</tr>
<tr>
<td>Economics (1938)</td>
<td>Dr. T. Brandão Cavalcanti</td>
<td>122</td>
<td>410</td>
<td></td>
</tr>
<tr>
<td>Law (1892)</td>
<td>Hermes Lima</td>
<td>22</td>
<td>1367</td>
<td></td>
</tr>
<tr>
<td>Schools</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering (1810)</td>
<td>Alfanso H. de Brito</td>
<td>247</td>
<td>1541 (63)</td>
<td></td>
</tr>
<tr>
<td>(65/66 catalogue)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td>Abraão Lzechkson</td>
<td>226</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>Metallurgical</td>
<td>Ferrucio Fabiani</td>
<td>30</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td>Ernani de Mota Rezende</td>
<td>226</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>Civil</td>
<td></td>
<td>248</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>Naval Construction</td>
<td></td>
<td>32</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>Common Studies</td>
<td></td>
<td>779</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>Central Office for Chemical Engr. Progs.</td>
<td>Alberto Coimbra (Coordinator)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grad. Engr. Progs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Engr. Prog.</td>
<td>Giulio Massarani</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mech. Engr. Prog.</td>
<td>Francisco N. de Farias</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>El. Engr. Prog.</td>
<td>Ostend A. Cardim</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Excluding salaries*
**UNIVERSIDADE DO BRASIL (continued)**

<table>
<thead>
<tr>
<th>Schools</th>
<th>Head</th>
<th>1962 Fac.</th>
<th>1963 Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining and Metallurgy (Ouro Preto) (1876)</td>
<td>Joaquim Maia</td>
<td>32</td>
<td>303</td>
</tr>
<tr>
<td>Civil, Mines &amp; Metallurgy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Mining Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry (1934)</td>
<td>Dr. Annibal C. Bittencourt</td>
<td>73</td>
<td>399</td>
</tr>
<tr>
<td>Common Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Chemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Ana Neri&quot; Sch. of Nursing ('23)</td>
<td>D. Walesca Paixão</td>
<td>64</td>
<td>119</td>
</tr>
</tbody>
</table>

**Institutes**

<table>
<thead>
<tr>
<th>Chemistry</th>
<th>Dr. Athos da Silveira Ramos</th>
<th>10 (62)</th>
</tr>
</thead>
</table>
The law creating the University established that it be administered by an autonomous, non-governmental foundation. This foundation is directed by a Council composed of six full members and two alternates nominated by the President of the Republic for four-year terms. The Chairman of this Council, elected by the members, becomes automatically the Rector. In setting up the foundation, provisions were made to provide adequate independent sources of income. In addition to initial grants from the Federal Government, the University of Brasilia Foundation was assured independent sources of income from shares of the National Steel Company, from land of twelve urban super-sections in Brasilia, and half the income of the National Radio. One of the guiding principles of the University is to emphasize the need of science and technology in a developing country. The intention is to have only full-time professors. There is high quality research in organic chemistry.

Faculties
- Architecture & City Planning
- Public Service
- Diplomacy
- Law
- Education
- Economic Sciences
- Business Administration
- Medical Sciences
  - Medicine
  - Dentistry
  - Pharmacy
  - Nursing
- Farm Sciences
  - Agronomy
  - Veterinary & Zootechnical Sciences
  - Forestry Engineering
- Technology
  - Civil Engineering
  - Mining
  - Metallurgy
  - Mechanics
  - Electricity & Electronics
  - Industrial Chemistry
  - Hydraulics
- Library Sciences

Institutes
- Applied Mathematics
- Physics
- Chemistry
- Earth-Sciences
- Biology
- Social Sciences
- Arts
- Letters

* October 19, 1965, after dismissal of 15 professors on charges of "subversion," 156 other faculty members resigned, forcing the university to close. (New York Times, 10/20/65)
UNIVERSITY OF CEARA
Rua Visconde de Gauípe, 2853, Fortaleza, Ceara

Rector: Dr. Antonio Martins Filho

Federal university
Founded: 1955
Faculty:
Students:
Budget:

An impressive feature of this university is the "Six-Year Development Program (1960-66), which was conceived and worked out with full faculty participation. This plan opens with a valid statement of objectives (carefully determined to meet regional needs), and the manner in which these objectives are to be achieved, namely specific programs, personnel organization, and needed staffing. Estimates of staffing for instruction, research and administration have been made for the six-year period. A problem exists relative to the quality and training of the faculty but it is believed that the rector is aware of this. Staff is currently being sent abroad for training. If financial resources and quality staff can be found in adequate amount, and the projections implemented, the University of Ceara should become a strong institution."

<table>
<thead>
<tr>
<th>Schools</th>
<th>Head</th>
<th>1962</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agronomy (1918)</td>
<td>Prisco Bezerra</td>
<td>50</td>
</tr>
<tr>
<td>Agricultural Botany</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural Economics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Physics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Zoology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering (Civil) (1955)</td>
<td>Genesio M. de Araujo</td>
<td>60</td>
</tr>
<tr>
<td>Nursing, S. Vicente de Paulo (1943)</td>
<td>Sister C. de C. Bonfim</td>
<td>32</td>
</tr>
<tr>
<td>Social Service (1950)</td>
<td>Giacinto Pietromacchi</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutes</th>
<th>Head</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics Inst. of Ceara (1954)</td>
<td>F. S. Cavalcante</td>
<td>$31,708 (61)</td>
</tr>
<tr>
<td>Clovis Bevilaqua Institute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anthropology Institute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meteorology Institute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry &amp; Technology</td>
<td>Manuel M. Ventura</td>
<td></td>
</tr>
<tr>
<td>Rural Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine Biology Station</td>
<td>Melquiades Pinto</td>
<td>$987,460 (62)</td>
</tr>
<tr>
<td>Faculties</td>
<td>Head</td>
<td>1962 Students</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Economics</td>
<td>T. Gomes da Silva</td>
<td>31</td>
</tr>
<tr>
<td>Inst. of Econ. Res.</td>
<td></td>
<td>294</td>
</tr>
<tr>
<td>Law (1903)</td>
<td>M.A. de A. Furtado</td>
<td>45</td>
</tr>
<tr>
<td>Pharmacy &amp; Odontology (1916)</td>
<td>Ailton Gondim Lossis</td>
<td>24</td>
</tr>
<tr>
<td>Biology</td>
<td></td>
<td>172</td>
</tr>
<tr>
<td>Clinical Odontology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics &amp; Chemistry Prosthesis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Science &amp; Letters (Fortaleza)</td>
<td>Pe. Francisco Batista Luz</td>
<td>113 (64)</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td>42</td>
</tr>
<tr>
<td>Philosophy, D. José de Sobral (1947)</td>
<td>Otávio Farias</td>
<td>53</td>
</tr>
<tr>
<td>Philosophy, Sciences &amp; Letters of Crato</td>
<td>José Waldemar de Alcantra e Silva</td>
<td>137</td>
</tr>
<tr>
<td>Medicine (1948)</td>
<td></td>
<td>421</td>
</tr>
<tr>
<td>Hospital das Clinicas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institute of Anatomy &amp; Legal Medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institute of Preventive Medicine</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
UNIVERSIDADE DO ESTADO DO GUANABARA  
(University of the State of Guanabara)  
Travesta Ermícles de Mayo 17, Rio de Janeiro

Rector: Haroldo Lisboa da Cunha

Public institution  
Founded: 1951  
Faculty: 68 (1963)  
Students: 682 (1963)

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Heads</th>
<th>1963 Fac.</th>
<th>1964 Studs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Sciences</td>
<td></td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>Felippe dos Santos Reis</td>
<td>292</td>
<td></td>
</tr>
<tr>
<td>Civil</td>
<td></td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>Common Studies</td>
<td></td>
<td>197</td>
<td></td>
</tr>
<tr>
<td>Law</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Sciences &amp;</td>
<td>Attila Magno da Silva</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center of Mathematics</td>
<td>Beatriz de Segadas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1960)</td>
<td>Alcântara Gomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1963 | 1964
UNIVERSIDADE DE MINAS GERAIS
Rua Guajajaras, 176, Belo Horizonte, Minas Gerais

Rector: Orlando Magalhães Carvalho

Federal university
Founded: 1927
Faculty: 816
Students: 3,601
Budget: 

The faculties of this university are scattered throughout Belo Horizonte and form completely independent units both administratively and in terms of their unrelated curricula. In the long-term future the various campuses will doubtless disappear as the institution is rebuilt on a suburban location, called Cidade Universitaria. The School of Engineering shows a progressive attitude. The School of Medicine is one of the better medical schools in Brazil, particularly as far as teaching and research in the basic sciences are concerned.

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>Fac.</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine (1911)</td>
<td>Dr. Oscar V. Caldeira</td>
<td>188</td>
<td>441</td>
</tr>
<tr>
<td>Infectious &amp; Tropical Diseases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>Dr. Santiago A. Freire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphology</td>
<td>Dr. Oromar Moreira</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biophysics &amp; Radiobiology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathological Anatomy &amp; Physiology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microbiology</td>
<td>Dr. Luigi Bogliolo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parasitology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy (1940)</td>
<td>Artur V. Velloso</td>
<td>183</td>
<td>476</td>
</tr>
<tr>
<td>Institute of Biology</td>
<td>Dr. Giorgio Schreiber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td>5</td>
<td>19 (63)</td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td>7</td>
<td>40 &quot;</td>
</tr>
<tr>
<td>Economics (1942)</td>
<td>Francisco de Assis Castro</td>
<td>48</td>
<td>388</td>
</tr>
<tr>
<td>Law (1892)</td>
<td>Alberto Deodato</td>
<td>24</td>
<td>781</td>
</tr>
<tr>
<td>Odontology &amp; Pharmacy</td>
<td>Henrique Luiz Lacombe</td>
<td>32</td>
<td>382</td>
</tr>
<tr>
<td>(1907)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### UNIVERSIDADE DE MINAS GERAIS (continued)

<table>
<thead>
<tr>
<th>Schools</th>
<th>Head</th>
<th>1962</th>
<th>1962 Fac.</th>
<th>1963 Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture (1931)</td>
<td>Jose Amadee Peret</td>
<td>66</td>
<td>225</td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanism</td>
<td></td>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Engineering (1911)</td>
<td>Joaquin Klein Teixeira</td>
<td>$943,396</td>
<td>274</td>
<td>1394</td>
</tr>
<tr>
<td>Civil</td>
<td></td>
<td></td>
<td></td>
<td>521</td>
</tr>
<tr>
<td>Electrical-Mechanical</td>
<td></td>
<td></td>
<td></td>
<td>248</td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
<td></td>
<td></td>
<td>121</td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
<td></td>
<td>287</td>
</tr>
<tr>
<td>Mining-Metallurgy</td>
<td></td>
<td></td>
<td></td>
<td>128</td>
</tr>
<tr>
<td>Chemical</td>
<td></td>
<td></td>
<td></td>
<td>89</td>
</tr>
<tr>
<td>Veterinary</td>
<td>Leonidas M. Magalhaes</td>
<td>$481,132</td>
<td>46 (63)</td>
<td>130 (62)</td>
</tr>
<tr>
<td>Morphology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physiology &amp; Pharmacology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microbiology &amp; Parasitology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veterinary Clinics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal Husbandry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlos Chagas School of Nursing (1933)</td>
<td>Sister Emilia Clarizia</td>
<td>50</td>
<td>47 (62)</td>
<td></td>
</tr>
</tbody>
</table>
UNIVERSITY OF PARANA
Rua 15 de Novembro s/n, (Caixa Postal 441), Curitiba, Paraná

Rector: Dr. José Nicolau dos Santos
Vice Rector: B. Pinheiro Machado

Federal university
Founded: 1912
Faculty: 637
Students: 5019
Budget: 1961
$1,467,807 for scientific salaries
$1,117,073 for scientific material

The University of Parana has the foundation for a strong university. Nearly all the faculty is part-time, but in a few departments the principle of full-time has been established. The Engineering Faculty will be chiefly if not wholly full-time. The most vital research seems to be found in the institutes of biology and technological research and of agricultural etomology and agronomy. The biochemistry research is particularly outstanding. In the school of chemistry there is no basic research in progress and no equipment for it. The student body is of good quality as judged by the relatively large number who select study in the sciences. There is no study for advanced degrees.

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>1962</th>
<th>1962</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law (1912)</td>
<td>Ildefonso Marques</td>
<td>35</td>
<td>586</td>
</tr>
<tr>
<td>Economics (1945)</td>
<td>Ulysses de Campos</td>
<td>37</td>
<td>271</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>Carlos Stellfeld</td>
<td>32</td>
<td>140</td>
</tr>
<tr>
<td>Odontology</td>
<td>Levy de Brito Buquira</td>
<td>13</td>
<td>303</td>
</tr>
<tr>
<td>Medicine (1912)</td>
<td>Anchises Marques de Faria</td>
<td>31</td>
<td>820</td>
</tr>
<tr>
<td>Inst. of Biochemistry</td>
<td>Dr. Metry Bacila</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dept. of Pediatrics</td>
<td>Dr. Homero de Mello Braga</td>
<td>24</td>
<td>FT</td>
</tr>
<tr>
<td>Philosophy, Sciences &amp; Letters</td>
<td></td>
<td>92</td>
<td>810</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td>7</td>
<td>40 (63)</td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td>9</td>
<td>39</td>
</tr>
<tr>
<td>Human Genetics</td>
<td>Dr. Newton Freire Maia</td>
<td>Cr$ 1.4</td>
<td>10</td>
</tr>
<tr>
<td>Laboratory</td>
<td>(excellent research)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### UNIVERSITY OF PARANA (continued)

<table>
<thead>
<tr>
<th>Schools</th>
<th>Head</th>
<th>Bbudg.</th>
<th>Fac.</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering (1912)</td>
<td>Ralph Jorge Leitner</td>
<td>97</td>
<td>720</td>
<td>(63)</td>
</tr>
<tr>
<td>Civil</td>
<td></td>
<td></td>
<td>232</td>
<td>&quot;</td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
<td>67</td>
<td>&quot;</td>
</tr>
<tr>
<td>Architectural</td>
<td></td>
<td></td>
<td>73</td>
<td>&quot;</td>
</tr>
<tr>
<td>Common Studies</td>
<td></td>
<td></td>
<td>348</td>
<td>&quot;</td>
</tr>
<tr>
<td>Chemistry (1924)</td>
<td>Dr. Nilton Emilio Buhrer</td>
<td>61</td>
<td>205</td>
<td></td>
</tr>
<tr>
<td>Agriculture &amp; Veterinary Science (1918)</td>
<td>Lycio Grein de Castro</td>
<td>Cr$41.1</td>
<td>52</td>
<td>237</td>
</tr>
<tr>
<td>Agronomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forestry</td>
<td>João Maria Belo Lisboa</td>
<td></td>
<td>87</td>
<td></td>
</tr>
<tr>
<td>Librarianship</td>
<td>Maria de Lourdes Tavares</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

### Institutes

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineralsology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paleontology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petrography</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geology, General &amp; Brazilian Sedimentology &amp; Stratigraphy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geochemistry &amp; Mining</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A University City is being constructed. The Antibiotics Institute, at least the microbiology and biochemistry sections, seems to measure up to international standards. The Institutes in Oceanography, Mycology, Biological Sciences, Chemistry, and Nutrition are well-organized and carrying out some good research. The Institute of Hygiene has a very good Schistosoma mansoni laboratory.

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>1962 Budg.</th>
<th>1962 Fac.</th>
<th>1962 Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine (1940)</td>
<td>Antonio S. dos Santos</td>
<td>33</td>
<td>668</td>
<td></td>
</tr>
<tr>
<td>Inst. of Hygiene</td>
<td>Dr. Federico S. Barbosa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Chemistry ('59)</td>
<td>Dr. Marcionilo Lins</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Nutrition</td>
<td>Dr. Nelson Chaves</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics (1942)</td>
<td></td>
<td>40</td>
<td>330</td>
<td></td>
</tr>
<tr>
<td>Public Administration</td>
<td></td>
<td>16</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Law (1828)</td>
<td></td>
<td>66</td>
<td>779</td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td>Jonio S. P. de Lemos</td>
<td>48</td>
<td>115</td>
<td></td>
</tr>
<tr>
<td>Odontology</td>
<td>R. Torres è Silva</td>
<td>70</td>
<td>162</td>
<td></td>
</tr>
<tr>
<td>Pharmacy (1903)</td>
<td>Ferreyra dos Santos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hygiene &amp; Pharmacology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Exp. Pharmacology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy (Pernambuco)</td>
<td>Niio de Oliveira Pereira</td>
<td>150</td>
<td>511</td>
<td></td>
</tr>
<tr>
<td>(1950)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural History</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Schools</td>
<td>Head</td>
<td>Budg.</td>
<td>Esc.</td>
<td>Students</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------</td>
<td>-------</td>
<td>------</td>
<td>----------</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Francisco G. da Costa</td>
<td>59</td>
<td>135</td>
<td>(64)</td>
</tr>
<tr>
<td>Chem. Engr.</td>
<td>Lima</td>
<td></td>
<td>83</td>
<td>&quot;</td>
</tr>
<tr>
<td>Industrial Chem.</td>
<td></td>
<td></td>
<td>37</td>
<td>&quot;</td>
</tr>
<tr>
<td>Engineering (1895)</td>
<td>Newton da Silva Maia</td>
<td>126</td>
<td>444</td>
<td>&quot;</td>
</tr>
<tr>
<td>Civil</td>
<td></td>
<td></td>
<td>136</td>
<td>&quot;</td>
</tr>
<tr>
<td>Mining</td>
<td></td>
<td></td>
<td>31</td>
<td>&quot;</td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
<td></td>
<td>141</td>
<td>&quot;</td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
<td>136</td>
<td>&quot;</td>
</tr>
<tr>
<td>Librarianship (1950)</td>
<td></td>
<td>16</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Nursing (1950)</td>
<td></td>
<td>12</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Institutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geology (1957)</td>
<td>Ivan de Albuquerque</td>
<td>$68,290</td>
<td>17 (64)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loureiro</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mineralogy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paleontology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petrography</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen. Geology &amp; Brazilian Geology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geochemistry and Mining</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antibiotics</td>
<td>Oswaldo Lima</td>
<td>20</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Physics &amp; Mathematics</td>
<td>Luis Freire</td>
<td>$35,610</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>(1954)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiology</td>
<td>Dr. Luis Tavares</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tropical Medicine</td>
<td>Rui Joao Marques</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mycology (1954)</td>
<td>A. Chaves Batista</td>
<td>$121,950*</td>
<td>65 FT</td>
<td></td>
</tr>
<tr>
<td>Herbarium</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zymology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mycogynecopathology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mycopediatry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermatology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veterinary Mycology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Mycology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Mycology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maritime Biology &amp;</td>
<td>Francois Ottmann</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oceanography (1952)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Excluding salaries
UNIVERSIDADE DO RIO GRANDE DO SUL
Avenida Joao Pessoa s/n, Porto Alegre, R.G.S.

Rector: Dr. Jose Carlos Fonseca Milano
Vice-Rector: Pery Pinto Diniz da Silva

Federal university
Founded: 1936
Faculty: 1,065
Students: 5,238
Budget: $4,779,411 (98% from Federal Government) (1960)

URGS is well administered and attempts to direct its program towards the needs of the Rio Grande do Sul area. Although most of the faculty is part-time, the value of full-time professors is realized and the more progressive units have several such professors. Each school and faculty provides instruction in the basic sciences by members of its own staff, as is the case with most Brazilian universities. Active research programs are being carried out in the Institutes of Physics, Mathematics, Hydraulic Research and Natural Sciences. The Dept. of Genetics in the Institute of Natural Sciences is one of the best genetics departments in Brazil, if not Latin America. (Genetics is one of the best developed research specialties in Brazil.)

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>% of Total</th>
<th>1962</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law (1900)</td>
<td>Galeno V. de Lacerda</td>
<td>10.80</td>
<td>179</td>
</tr>
<tr>
<td>Law, Pelotas (1912)</td>
<td>Dr. Bruno de Medonca</td>
<td>1.965</td>
<td>391</td>
</tr>
<tr>
<td>Economics (1909)</td>
<td>Dr. Pery P. D. da Silva</td>
<td>3.07</td>
<td>39</td>
</tr>
<tr>
<td>Philosophy (1942)</td>
<td>Ary Nunes Tiebbuhl</td>
<td>6.53</td>
<td>74</td>
</tr>
<tr>
<td>Architecture (1952)</td>
<td>Joao Baptista Pianca</td>
<td>7.24</td>
<td>132</td>
</tr>
<tr>
<td>Medicine, Porto Alegre (1899)</td>
<td></td>
<td>4.02</td>
<td>59</td>
</tr>
<tr>
<td>Anatomy</td>
<td>Dr. Jose F. Milano</td>
<td>2.26</td>
<td>29</td>
</tr>
<tr>
<td>Exp. Physiology</td>
<td>Dr. Pery R. Correa</td>
<td>6.53</td>
<td>74</td>
</tr>
<tr>
<td>Biophysics</td>
<td>Homero so Jobim</td>
<td>7.24</td>
<td>132</td>
</tr>
<tr>
<td>Clinical Therapeutics</td>
<td>Dr. Eduardo Faraco</td>
<td>4.02</td>
<td>59</td>
</tr>
<tr>
<td>Propedeutics</td>
<td>Dr. Rubens Garcia Maciel</td>
<td>2.26</td>
<td>29</td>
</tr>
<tr>
<td>Medicine, Sta. Maria (1965)</td>
<td>Jose da Rocha, Jr.</td>
<td>3.50</td>
<td>47</td>
</tr>
<tr>
<td>Odontology (1952)</td>
<td>Dr. Othan S. de Silva</td>
<td>3.50</td>
<td>47</td>
</tr>
<tr>
<td>Odontology, Pelotas ('12)</td>
<td>G. C. P. Duarte ($201,263)*3,01</td>
<td>47</td>
<td>141</td>
</tr>
<tr>
<td>Pharmacy (1896)</td>
<td>Germano Roman Ros</td>
<td>3.05</td>
<td>47</td>
</tr>
<tr>
<td>Pharmacy, Sta. Maria('32)</td>
<td>Dr. Jose da Rocha, Jr.</td>
<td>3.05</td>
<td>47</td>
</tr>
</tbody>
</table>

* 1963
** 1964
<table>
<thead>
<tr>
<th>Schools</th>
<th>Head</th>
<th>1962</th>
<th>1963</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering (1897)</td>
<td>Dr. Luiz L. de Faria</td>
<td>413</td>
<td></td>
</tr>
<tr>
<td>Common Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil</td>
<td></td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Mining</td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
<td>141</td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td>364</td>
<td></td>
</tr>
<tr>
<td>Metallurgy</td>
<td></td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Agr. &amp; Vet. Medicine</td>
<td>Outubrinho Correa</td>
<td>387</td>
<td></td>
</tr>
<tr>
<td>Agr. Biology</td>
<td>J. P. da Costa Neto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agr. Engineering</td>
<td></td>
<td>241</td>
<td></td>
</tr>
<tr>
<td>Agronomy &amp; Horticulture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geology</td>
<td>I. D. Pinto</td>
<td>87**</td>
<td></td>
</tr>
<tr>
<td>Librarianship</td>
<td>Z. G. Marquez</td>
<td>32**</td>
<td></td>
</tr>
<tr>
<td>Nursing (1951)</td>
<td>Celina M. da Cunha</td>
<td>63**</td>
<td></td>
</tr>
</tbody>
</table>

| Institutes                    |                         |      |      |
| Chemistry (under Engr. Fac.)  | Manuel L. Leao          | 23*  |      |
| Physics (1948)                | Ernesto de M?           | 16*  |      |
| Mathematics                   | Ary Nunes Tietbohl       | 10*  |      |
| Economic Science              |                         | 44*  |      |
| Hydraulic Research ('53)      | Jose L. de Souza        | 50*  |      |
| Natural Sciences              |                         | 150* |      |
| Genetics                      | Dr. Francisco M. Salzano|      |      |
| Electro-Technics              | Rubem P. Rodrigues      |      |      |
| Alimentary Technology         | Oscar Maximiliano Homrich|     |      |

* 1960
** 1962
The University of Sao Paulo has the largest enrollment of all Brazilian universities. For the past six years, its average growth has been 400 to 600 students each year. 1308 diplomas were awarded by the University in 1962. In many divisions a larger proportion of the teaching staff and the student body is full-time than in other universities. According to some sources, the staff has shown unusual competence and the research program, great vitality. The need for combining departments such as mathematics, physics, and chemistry of the several institutes and faculties is more clearly recognized and incorporated in plans than elsewhere.20

The Faculty of Medicine of Ribeirao Preto is an example of a school in which the triology of research, teaching & patient care, together with a great interest in the development problems of the country created an exciting school staffed by a forward-looking faculty. Dr. Zeferino Vaz, dean for the first eight years, built up both the basic science and the clinical departments. This school is certainly one of the best in Latin America, and by some is considered the best school in Brazil. One of its great advantages is the absolute adherence to the full-time principle. This was achieved with the strong support of the Rockefeller Foundation. 15

The Faculty of Medicine in Sao Paulo is excellent as far as teaching and medical care are concerned. The Faculty of Philosophy, Sciences and Letters is unique among the universities of Brazil in the high quality of research in the sciences by members of its faculty. The Department of Chemistry of this faculty is said to be the most active department in Brazil, both in teaching and research.20 The "Luiz de Queiroz" Agricultural School has the largest staff, student body, and budget of any Brazilian agricultural school. 28 The School of Geology is one of the most active earth science departments in Sao Paulo. The Sao Carlos Engineering School has an active research program.
Faculties | Directors | Budg. 1962 | Fac. Students 1964
---------|----------|--------|----------------|
Medicine, S. P. (1913) | Dr. H. V. de Carvalho | 183 | 1454
Inst. "Oscar Freire" (Legal Medicine) | | |
Histology & Embriology | L. C. U. Junqueira | |
Physiology | Dr. Alberto C. da Silva | |
Biochemistry | Jayme A. Cavalcanti | |
Microbiology | Dr. Carlos da Silva Lacacz | |
Pharmacology | Dr. Charles Corbett | |
Surgery | | |
Inst. of Trop. Med. (1959) | Dr. Antonio F. do Amaral | |
Parasitology | | |
Center for Nuclear Medicine (1959) | Dr. Tede Eston | $80,645 (64) | 20
Ribeirao Preto Medicine | Dr. M. Rocha e Silva | $744,390 (61) | 110 | 671
Medical Psychology | Dr. Hernan R. D. Corte | 5 |
Clinical Medicine | Dr. Helio de L. de Oliveira | 18 |
Surgery | Dr. Ruy E. Pereiti | 12 |
Obs. & Gynaecology | Dr. Alberto Martinez | 6 |
Pediatrics | Dr. J. Renato Wojski | 5 |
Orthopedics | Dr. Jose M. de Souza | 6 |
Dermatology | | 4 |
Psychiatry | | |
Ophthalmology | Dr. A. P. de Azeredo | 1 |
Otorhinolaringology | | |
Neurology | Dr. Jorge A. L. Figueiredo | 4 |
Morphology | Dr. Lucien Lison (histochemist) | 9 |
Physiology | Dr. Miguel Covian (neuroelectrophysiologist) | 8 |
Biochemistry | Dr. Jose J. Goncalves | 5 |
Microbiology | Dr. Jose O. de Almeida | 5 |
Parasitology | Dr. Mauro Pereiro Barretto | 4 |
Pharmacology | Dr. Mauricio R. e Silva | 5 |
Pathology | Dr. Fritz Koeberle | 8 |
Preventive Medicine | Dr. Jose J. L. P. de Freitas | 5 |
Hygiene & Public Health | Alvaro Guimaraes, Jr. | |
Statistics | | |
Sanitary Engr. | | |
Pharmacology & Biochemistry ('34) | Dr. Antonio A. Correa | $695,624 (62) | 43 | 145
Odontology, S.P. | 98 | 319
Odontology, S. Jose dos Campos | | 47
Odontology & Pharmacy of Barua | | 47
Pharmacy & Odontology | Raphael Lia Rolfsen | $564,390 (61) | 16 (63)
### UNIVERSIDADE DE SÃO PAULO (continued)

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Directors</th>
<th>Bdg. (61)</th>
<th>1962 Fac.</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veterinary Medicine ('35)</td>
<td>Dr. E. O. Martins</td>
<td>$243,900</td>
<td>127</td>
<td>1964</td>
</tr>
<tr>
<td>Zootecnhics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Med. Zoology &amp; Parasitology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Therapeutics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Histology &amp; Embriology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Sciences &amp; Letters, S.P. ('34)</td>
<td>Dr. Mario G. Ferri</td>
<td>$1,695,450(62)</td>
<td>240</td>
<td>3228</td>
</tr>
<tr>
<td>Physics</td>
<td>Mario Schemberg</td>
<td>15</td>
<td>354</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td>Dr. Simão Mathias</td>
<td>103</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>Paulo Sawaya</td>
<td>191</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine Biology Station, S. Sebastião</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td>Dr. Crodowaldo Pavan</td>
<td>15</td>
<td>20</td>
<td>124</td>
</tr>
<tr>
<td>Botany (1934)</td>
<td>Dr. Mario G. Ferri</td>
<td>9</td>
<td>100</td>
<td>158</td>
</tr>
<tr>
<td>Geology</td>
<td>Paulo Sawaya</td>
<td>191</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Sciences &amp; Letters, Marília</td>
<td></td>
<td>20</td>
<td>63</td>
<td>1702</td>
</tr>
<tr>
<td>Law (1827)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics &amp; Business Administration (1946)</td>
<td>Candido L. da Silva Dias</td>
<td>28</td>
<td>28</td>
<td>1082</td>
</tr>
<tr>
<td>Architecture &amp; Town Planning (1948)</td>
<td>Candido L. da Silva Dias</td>
<td>65</td>
<td>65</td>
<td>333</td>
</tr>
</tbody>
</table>

### Schools

| Polytechnic (1893)                  | Tharcisio D. de S. Santos      | 271       | 2419      |
| Common Studies                      |                                | 362       |           |
| Civil Engineering                   |                                | 344       |           |
| Electrical Engineering              |                                | 216       |           |
| Mining Engineering                  |                                | 28        |           |
| Mechanical Engineering              |                                | 241       |           |
| Metallurgy                          |                                | 71        |           |
| Naval                               |                                | 80        |           |
| Chemical Engineering                |                                |           |           |
| Geology and Paleontology            |                                | 10        | 158       |
| Engineering of São Carlos (1952)    |                                | 88        | 417       |
| Agr. "Luiz de Queiroz" (1901)       | Hugo de Almeida Leme           | 98        | 528       |
| Sociology & Pol Sci. (1938)         |                                | 20        | 96        |
| Ribeirão Preto Nursing (1954)       | Glete de Alcantara             | 26        |           |
| Nursing São Paulo (1943)            |                                | 59        | 52        |
| Obstetrics                          |                                | 16        | 69        |
Affiliated Institutions: Instituto de Pesquisas Tecnologicas, Instituto de Electrotécnica (1940), Instituto Astronómico e Geofísico, Instituto "Oscar Freire," Escola de Enfermagem, Escola de Enfermagem de Ribeirão Preto, Hospital das Clínicas, Instituto de Administração, Instituto Oceanográfico, Instituto de Estudos Portuguese, Centro de Medicina Nuclear, Hospital das Clínicas de Ribeirão Preto, Instituto de Pesquisas e Aperfeiçoamento Industrial da Escola de Engenharia de São Carlos.

UNIVERSIDADE FEDERAL DO ESTADO DO RIO DE JANEIRO
Rua Coronel Gomes Machado, Niterói, Rio de Janeiro

Rector: Dioclécio Dantas de Araujo

Federal university
Founded: 1960
Faculty:
Students:
Budget:

Faculties
- Economic Sciences
- Law
- Pharmacy
- Medicine
- Odontology
- Veterinary Medicine
- Philosophy, Sciences & Letters
- Mathematics

Head
Durval de Almeida Baptista

Schools
- Engineering
  - Civil
  - Electrical
  - Mechanical
  - Metallurgy
  - Common Studies
- Nursing
- Social Service

1964 Students
- 59
- 494
- 84
- 48
- 46
- 106
- 210
At present this university lacks the scientific personnel necessary to make it into a creatively productive scientific center. It would serve well within its present plans, and with the necessary basic scientific equipment, as a center for instruction and student experimentation in preparing students in the basic sciences and with further development in engineering.

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>Budg.</th>
<th>Fac.</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophy (1941)</td>
<td>Paulo C. M. da Silva</td>
<td>98 (64)</td>
<td>508 (64)</td>
<td></td>
</tr>
<tr>
<td>Social Sciences</td>
<td></td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td></td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polytechnic School (1947)</td>
<td>Carlos A. del Castillo</td>
<td>176</td>
<td>964 (64)</td>
<td></td>
</tr>
<tr>
<td>Civil Engineering</td>
<td></td>
<td>108</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td></td>
<td>181</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Engineering</td>
<td></td>
<td>207</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Studies</td>
<td></td>
<td>468</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institute of Physics</td>
<td>Father F. X. Roser</td>
<td>$75,000</td>
<td>12</td>
<td>300</td>
</tr>
<tr>
<td>Institute of Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Law (1941)</td>
<td>Dr. Luiz A. de R. Monteiro</td>
<td>43</td>
<td>346</td>
<td></td>
</tr>
<tr>
<td>School of Social Service (1946)</td>
<td>Aracy Cardoso</td>
<td>60 (64)</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Postgraduate School (medicine)</td>
<td>Dr. Geraldo Siffert</td>
<td>32</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>School of Nursing</td>
<td>&quot;Luiza de Marillac&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Luiza de Marillac&quot; (1939)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inst. of Pol. and Soc. Sciences</td>
<td></td>
<td>24</td>
<td>131</td>
<td></td>
</tr>
<tr>
<td>Inst. of Applied Psychology</td>
<td>R. F. Antonius Benko, SJ</td>
<td>18</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>Inst. of Dentistry (graduate)</td>
<td>Dr. O. Prado, Filho</td>
<td>9</td>
<td>318</td>
<td></td>
</tr>
<tr>
<td>Summer Training Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for Secondary School Science Teachers (CATEC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PONTIFICIA UNIVERSIDADE CATOLICA DO RIO GRANDE DO SUL

Praça D. Sebastião, Porto Alegre

Rector: Irmão José Otão Stefani

Private university

Founded: 1948

Faculty: 300

Students: 2,000

Budget: Cr$4 million (for instruments & material)

Nearly all of the faculty is part-time, drawn mostly from neighboring University of the Rio Grande do Sul. No evidence of research was observed in the institution.21

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Directors</th>
<th>Fac.</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics &amp; Pol. Sci (1932)</td>
<td>Dr. Antonio César Alves</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Law (1947)</td>
<td>Dr. Baltazar Gama Barbosa</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Philosophy, Passo Fundo</td>
<td>P. Alcides Guareschi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Santa Maria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Ijui</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, M. Champagnai</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Porto Alegre (1940)</td>
<td>Ir. Faustino João</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Catholic Philosophy (Pelotas)</td>
<td>P. João Zatera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering (Civil)</td>
<td>Alvaro Leão de C. da Silva</td>
<td>42</td>
<td>177</td>
</tr>
<tr>
<td>Odontology (1953)</td>
<td>Daniel Juckowski</td>
<td>45</td>
<td></td>
</tr>
</tbody>
</table>

Schools

Social Service (1945)  | Lucía Gavello Castillo 29
Psychology Institute  | Hugo Danilo
Sociology Institute   | José Canton de Oliveira
### Faculties

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics &amp; Accounting (1938)</td>
<td>Pa. Enzo Campos Gusso</td>
<td>42</td>
</tr>
<tr>
<td>Paulista of Law (1946)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Sciences &amp; Letters, S. Bento (1936)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Sciences &amp; Letters, Sedes Sapientiae (1933)</td>
<td>Joaquim Ferreira Filho</td>
<td>555</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicine of Sorocaba (1951)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Engineering, S.P. (1946)</td>
<td>Joaquim Ferreira Filo</td>
<td>555</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Engineering, S. Bernardo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Scis. Letters, Sta. Ursula</td>
<td>Mdre. Maria I. de Carvalho</td>
<td></td>
</tr>
</tbody>
</table>

### Schools

- Business Administration (1936)
- Social Service (1936)
- Heart of Mary Nursing (1951)

### Institute

- Social Service (1940)
UNIVERSIDADE CATOLICA DE PERNAMBUCO
Rua do Príncipe, 526, Recife, Pernambuco

Rector: Pe. Aloisio Mosca de Carvalho

Private university
Founded: 1951
Faculty:
Studies:
Budget:

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Sciences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Law</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Sciences &amp; Letters</td>
<td>Pe. José Torres Costa, S. J.</td>
<td>36</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

| Schools                        |                                     |          |
| Nursing                        |                                     |          |
| Politechnic                    | José Torres Pires                   | 444      |
| Common Studies                 |                                     | 190      |
| Civil Engineering              |                                     | 140      |
| Electrical Engineering         |                                     | 43       |
| Industrial Chemistry           |                                     | 8        |
| Mechanical Engineering         |                                     | 63       |
The Mackenzie University is one unit of the Mackenzie Institute which covers all levels of education. Although the Institute is legally a corporation of the State of New York, its main governing body is now a board of trustees in São Paulo. About 7,000 students use the over-all Mackenzie plant on a part-time basis. There has been no appreciable development of research, since the faculty is employed part-time merely to teach.21

Faculties

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Head</th>
<th>Fac</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture (1947)</td>
<td>Roberto Frade Monte</td>
<td>341</td>
<td></td>
</tr>
<tr>
<td>Economics (1951)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Law (1955)</td>
<td>Francisco B. Hoffman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy, Sciences &amp;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letters (1947)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

School

<table>
<thead>
<tr>
<th>Engineering (1896)</th>
<th>Jaroslav Smit</th>
<th>76</th>
<th>1138</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil</td>
<td></td>
<td>462</td>
<td></td>
</tr>
<tr>
<td>Electrical, Electronics,</td>
<td></td>
<td>265</td>
<td></td>
</tr>
<tr>
<td>Electrotechnics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td></td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td>213</td>
<td></td>
</tr>
<tr>
<td>Metallurgy</td>
<td></td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Chemical</td>
<td></td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>Chemistry &amp; Metallurgy</td>
<td></td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Institute of Technology &amp; Research</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ESCOLA DE ADMINISTRACAO DE EMPRESAS DE SAO PAULO
Rua Martins Fontes 190 (Caixa Postal 5534), Sao Paulo, S.P.

Private - Under the Getulio Vargas Foundation
Founded: 1954 with the cooperation of ICA and the technical assistance of Michigan State University

Faculty:
Students: 30, 24 full-time (1959)

Budget:

The school's objectives are to carry out investigations and studies on problems related to business administration and to divulge the results obtained and the principles or methods established, and to lend technical assistance to companies to improve their level of efficiency. The administration and direction of the schools is organized over a base of an Administrative Council and a Director, assisted by the Technical Administrative Council and the Assembly of the Teaching Body, made up of Brazilian professors and professors from Michigan State University. Each department of the school is directed by a Brazilian professor and assisted by a professor from MSU. A Center of Investigations works in collaboration with the departments. Postgraduate courses are offered. Courses are also given to administrators of industry. Actual cases are analyzed and solved.

Departments
Production
Merchandizing
General Administration
Industrial Relations
Accounting

Departments
Finances and Control
Sociology
Psychology
Legislation
Director: José Justino Castilho

Private, formed under the sponsorship of the Engineering Society of São Paulo

Founded: 1961

Faculty:

Students: 631 (1963)

Budget:

The Institute is operated as a non-profit agency and obtained its initial endowment and operating resources from national and state government agencies, industrial and agricultural organizations, as well as individual contributions. It provides training in the fields of mechanics, electricity, metallurgy, chemistry and mining. Rigid requirements for student attendance and scholastic achievement are maintained. Courses extend over a period of five years.

Departments

Electrical Engineering

Electronics

Electrotechnics

Mechanical Engineering

Metallurgical Engineering

Chemical Engineering
INSTITUTO ELECTROTECNICO DE ITAJUBA
(Electrical-Mechanical Engineering Institute of Itajuba)
Rua Coronel Reno 7, Itajuba, Minas Gerais

Director: Pedro Mendes dos Santos

Federal university
Founded: 1913
Faculty: 26, 7 full-time (1960)
Students: 288 (63)
Budget: $196,078 (70% from GOB and 30% from COSUPI) (1960)

The institution is limited to the training of engineers for the power industry with the objective of increasing the power production of Brazil. Hence, studies culminate in the study of hydro-electric power, steam generation and steam-electric power generation and transmission. At the end of five years, mechanical-electrical degree is awarded. The students are serious, giving full-time attention to their classes. 65% of entering students graduate.
INSTITUTO TECNOLOGICO DE AERONAUTICA (ITA)
Sao Jose dos Campos, Sao Paulo

Rector: Marco A. G. Cecchini

Civilian institution, operated & financed by Ministry of Aeronautics, under the Centro Tecnico de Aeronautica.

Founded: 1948
Faculty: 120, majority (or all) full-time
Students: 537
Budget: $15,000 library, $80,000 equip & services, $300,000 salaries annually - paid by the Air Force

Structured on the American pattern by a series of American rectors, and aided by numerous consultants from the U.S., the institute shows many characteristics of an American institute of technology. The study body is highly selected (100 accepted out of 1665 applications in 1962) and class attendance is said to be compulsory. Twenty of the faculty have Ph.D. degrees and 12 are now (1963) on leave completing Ph.D. degrees. ITA is producing some of the finest electrical engineers of all Latin America. The courses in mechanical engineering have been notably strengthened by virtue of massive support (US$1,000,000) provided through an AID/U. of Michigan contract. Research in physics, electronics, aerodynamics, metallurgy, and meteorology is of high quality.

<table>
<thead>
<tr>
<th>Departments</th>
<th>Heads</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Engineering</td>
<td>Dr. Jose Thomaz Senise</td>
<td>134</td>
</tr>
<tr>
<td>Aeronautical Engineering</td>
<td>Padraic C. Dunne</td>
<td>130</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>Jeremias Chrispim</td>
<td></td>
</tr>
<tr>
<td>Common Studies</td>
<td>Marco Guglielmo Cecchini</td>
<td>225</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Francisco Lacaz Netto</td>
<td></td>
</tr>
<tr>
<td>Physics and Chemistry</td>
<td>Mario Alves Guimaraes</td>
<td></td>
</tr>
<tr>
<td>Humanities</td>
<td>Paulo Ernesto Tolle</td>
<td></td>
</tr>
<tr>
<td>Data Processing Laboratory</td>
<td>Tercio Pacitti</td>
<td></td>
</tr>
</tbody>
</table>

1963

*State Department Airgram 5/28/64.*
The curriculum includes five years in either agronomy or veterinary medicine, two of which are basic preparation and three of a more specialized nature. Instruction generally is limited to introductory and intermediate levels. No evidence of really advanced work was found. Research by individual professors is minimal and most professors are not full-time. All departments are located on the same campus.  

<table>
<thead>
<tr>
<th>Schools</th>
<th>Head</th>
<th>(1962)</th>
<th>(1963)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>Honorio da C. Monteiro, Filho</td>
<td>382</td>
<td></td>
</tr>
<tr>
<td>(1913)* 33 depts.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veterinary Sciences</td>
<td>Dr. Jadyr Vogel</td>
<td>$62,900</td>
<td>153</td>
</tr>
<tr>
<td>(1913) 18 depts.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialized Ext. Courses</td>
<td>Eloy C. de Alguquerque</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forestry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postgraduate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Because of interruptions and changed plans, this school did not have a graduating class until 1934.*
In 1904, the University was reorganized, the new structure reflecting the Land Grant College concepts in the prominence given to extension and research. (The three lines of work—extension, research, and teaching—are to be coordinated in each department.) In October, 1964, the State General Assembly passed a law which set up the University as an autarchy which allows freedom for the University in certain areas without the approval of any branch of the Government. The state has decided to turn over all its agricultural research functions to the University, although the manner in which it was to be done has not yet been decided. UREMG graduated 80 agronomos in 1964. The Graduate program has awarded 40 M.S. degrees in the four years of its existence.

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Head</th>
<th>1962 Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry School</td>
<td>Geraldo M. Chaves</td>
<td>342</td>
</tr>
<tr>
<td>Agricultural School</td>
<td>Jose R. Torres (also Dir. of Research, State Dept. of Agriculture)</td>
<td></td>
</tr>
<tr>
<td>UREMG Research Service</td>
<td>Cibas Vieira</td>
<td></td>
</tr>
<tr>
<td>Graduate School</td>
<td>Gilberto Pereira de Melo</td>
<td>130</td>
</tr>
<tr>
<td>Extension School</td>
<td>Maria das Dores de Carvalho Ferreira</td>
<td>90</td>
</tr>
<tr>
<td>Superior School of Home Economics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superior School of Veterinary Medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institute of Rural Economy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Distribuição da matrícula inicial, em 1964, segundo as modalidades do ensino

<table>
<thead>
<tr>
<th>Modalidades do Ensino</th>
<th>Total</th>
<th>De Sexo Feminino</th>
<th>Matrícula no Início do Ano Letivo</th>
<th>% em Relação à Matrícula</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL</strong></td>
<td>142509</td>
<td>41949</td>
<td>45461</td>
<td>32991</td>
</tr>
<tr>
<td>Administração</td>
<td>2556</td>
<td>421</td>
<td>884</td>
<td>423</td>
</tr>
<tr>
<td>Agronomia</td>
<td>3678</td>
<td>179</td>
<td>1308</td>
<td>1060</td>
</tr>
<tr>
<td>Agrimensura</td>
<td>39</td>
<td>24</td>
<td>134</td>
<td>9</td>
</tr>
<tr>
<td>Arquitetura</td>
<td>2488</td>
<td>521</td>
<td>594</td>
<td>536</td>
</tr>
<tr>
<td>Artes Domésticas</td>
<td>103</td>
<td>103</td>
<td>37</td>
<td>35</td>
</tr>
<tr>
<td>Artístico*</td>
<td>168</td>
<td>66</td>
<td>167</td>
<td>20</td>
</tr>
<tr>
<td>Belas Artes</td>
<td>1138</td>
<td>919</td>
<td>283</td>
<td>238</td>
</tr>
<tr>
<td>Biblioteconomia</td>
<td>790</td>
<td>752</td>
<td>328</td>
<td>263</td>
</tr>
<tr>
<td>Ciências Econômicas</td>
<td>14360</td>
<td>1261</td>
<td>5212</td>
<td>3901</td>
</tr>
<tr>
<td>Desenho Industrial</td>
<td>52</td>
<td>36</td>
<td>30</td>
<td>22</td>
</tr>
<tr>
<td>Diplomacia</td>
<td>13</td>
<td>2</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Direito</td>
<td>30974</td>
<td>5665</td>
<td>8782</td>
<td>6753</td>
</tr>
<tr>
<td>Educação Física</td>
<td>774</td>
<td>362</td>
<td>398</td>
<td>213</td>
</tr>
<tr>
<td>Enfermagem</td>
<td>911</td>
<td>881</td>
<td>368</td>
<td>240</td>
</tr>
<tr>
<td>Engenharia</td>
<td>20923</td>
<td>328</td>
<td>7110</td>
<td>4485</td>
</tr>
<tr>
<td>Eng. Química - Quim. Ind. (fundamental)</td>
<td>425</td>
<td>47</td>
<td>296</td>
<td>109</td>
</tr>
<tr>
<td>Estatística</td>
<td>374</td>
<td>69</td>
<td>228</td>
<td>78</td>
</tr>
<tr>
<td>Geologia</td>
<td>457</td>
<td>8</td>
<td>200</td>
<td>88</td>
</tr>
<tr>
<td>Farmácia</td>
<td>2320</td>
<td>921</td>
<td>873</td>
<td>668</td>
</tr>
<tr>
<td>Filosofia, Ciências e Letras</td>
<td>22380</td>
<td>21245</td>
<td>12041</td>
<td>8904</td>
</tr>
<tr>
<td>Jornalismo</td>
<td>1265</td>
<td>617</td>
<td>664</td>
<td>336</td>
</tr>
<tr>
<td>Medicina</td>
<td>14183</td>
<td>1981</td>
<td>3015</td>
<td>2355</td>
</tr>
<tr>
<td>Museologia</td>
<td>73</td>
<td>59</td>
<td>36</td>
<td>23</td>
</tr>
<tr>
<td>Música</td>
<td>913</td>
<td>805</td>
<td>325</td>
<td>287</td>
</tr>
<tr>
<td>Nutrição</td>
<td>339</td>
<td>210</td>
<td>141</td>
<td>251</td>
</tr>
<tr>
<td>Odontologia</td>
<td>5949</td>
<td>1505</td>
<td>1963</td>
<td>1586</td>
</tr>
<tr>
<td>Química Industrial</td>
<td>99</td>
<td>13</td>
<td>37</td>
<td>32</td>
</tr>
<tr>
<td>Serviço Social</td>
<td>2834</td>
<td>2478</td>
<td>1100</td>
<td>888</td>
</tr>
<tr>
<td>Sociologia e Política</td>
<td>823</td>
<td>344</td>
<td>332</td>
<td>216</td>
</tr>
<tr>
<td>Veterinária</td>
<td>1516</td>
<td>119</td>
<td>681</td>
<td>372</td>
</tr>
</tbody>
</table>

FONTE: Serviços de Estatística da Educação e Cultura — SEEC.

### Conclusões do Curso, no período 19-10-1963, discriminadamente, quanto às modalidades do ensino mais procuradas

<table>
<thead>
<tr>
<th>ANOS</th>
<th>TOTAL</th>
<th>Agronomia</th>
<th>Arquitetura</th>
<th>Ciências Exatas</th>
<th>Direito</th>
<th>Enfermaria</th>
<th>Farmácia</th>
<th>Filosofia, C. e Letras</th>
<th>Medicina</th>
<th>Odontologia</th>
<th>Química Industrial</th>
<th>Veterinária</th>
<th>Outros</th>
</tr>
</thead>
</table>

**Fonte:** Relações de Estatísticas do Ensino e das Firms - 25th.
Organograma do Ensino - Brasil - 1962

1º Nível

EP - Escola Primária, de 4 anos
Ciências: Curso Antigo; 3º ano forma Bacharéis; 4º ano forma Licenciados (Professores secundários)
Curso Recent: 4º ano forma Bacharéis ou Licenciados; cursos distintos

Engenharia: Curso Regular, de 5 anos, inclusive de Engenharia Química
M - Mestre em Ciências; Pós-graduação.

2º Nível

Exame final
Exame de ingresso

3º Nível
Diagrama dos Efeitos - Brasil - 1962

1. EP: Escola Primária
2. EM: Escola Média; Colegio, Escola Técnica, Instituto de Educação
3. C: Faculdade de Filosofia, Ciências e Letras (Matemática, Física e Química)
4. E: Faculdade ou Escola de Engenharia
5. dci: Diploma de Licenciado em Bacharel, em Ciência
6. dci: Diploma de Engenheiro ou Arquiteto
7. dci: Diploma de Químico-industrial
8. osi: Outro ensino

População Nacional: 75.271.000
Fator: 8,5.
BRZILIAN SCIENTIFIC AND TECHNOLOGICAL RESEARCH
AND PLANNING ORGANIZATIONS

Prepared by the
Office of the Foreign Secretary
National Academy of Sciences
Washington, D. C.

February 1966
# BRAZILIAN SCIENTIFIC AND TECHNOLOGICAL RESEARCH
AND PLANNING ORGANIZATIONS

## Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>- Academia Brasileira de Ciências</td>
<td>2</td>
</tr>
<tr>
<td>- Conselho Nacional de Pesquisas (CNPq)</td>
<td>3</td>
</tr>
</tbody>
</table>

## Agriculture and Plant Sciences

- CEPLAC                                                                 | 4    |
- Jardim Botânico                                                        | 5    |
- Serviço Nacional de Pesquisas Agronômicas (SNPA)                       | 5    |
- Instituto de Oleos                                                     | 7    |
- Instituto de Química Agrícola                                         | 7    |
- Instituto de Pesquisas e Experimentação Agropecuárias do Norte (IPEAN) | 7    |
- Instituto Agronômico do Sul (IAS)                                     | 8    |
- Serviço Florestal da Secretaria da Agricultura do Estado de São Paulo  | 9    |
- Centro de Pesquisas Florestais e Conservação da Natureza              | 10   |
- Centro Pan-Americano de Febre Aftosa                                  | 10   |
- IBEC Research Institute                                               | 11   |
- Instituto Agronômico de Campinas                                     | 11   |
- Instituto Agronômico de Minas Gerais                                  | 12   |
- Instituto Biológico da Bahia                                          | 13   |
- Instituto Biológico de São Paulo                                      | 14   |
- Instituto de Botânica, São Paulo                                      | 14   |
- Instituto Nacional de Pesquisas da Amazônia                           | 15   |
- Museu Paraense Emílio Goeldi                                          | 16   |

## Marine Sciences and Oceanography

- Instituto de Pesquisas da Marinha (IPqM)                              | 17   |
- Instituto Oceanográfico, Universidade do Recife                       | 17   |
- Instituto Oceanográfico, Universidade de São Paulo                    | 18   |
Table of Contents (continued)

### Medical and Biological Sciences

<table>
<thead>
<tr>
<th>Institution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instituto Adolfo Lutz</td>
<td>19</td>
</tr>
<tr>
<td>Instituto Brasileiro de Pesquisas</td>
<td>20</td>
</tr>
<tr>
<td>Instituto Butantan</td>
<td>20</td>
</tr>
<tr>
<td>Instituto de Biofísica, Universidade do Brasil</td>
<td>21</td>
</tr>
<tr>
<td>Instituto de Ciências Naturais</td>
<td>21</td>
</tr>
<tr>
<td>Instituto Gonçalo Moniz</td>
<td>22</td>
</tr>
<tr>
<td>Instituto Nacional de Endemias Rurais</td>
<td>22</td>
</tr>
<tr>
<td>Instituto de Microbiologia, Universidade do Brasil</td>
<td>23</td>
</tr>
<tr>
<td>Instituto Oswaldo Cruz</td>
<td>23</td>
</tr>
<tr>
<td>Museu Nacional</td>
<td>24</td>
</tr>
<tr>
<td>Serviço Especial de Saúde Pública (SESP)</td>
<td>24</td>
</tr>
<tr>
<td>Instituto Evandro Chagas</td>
<td>25</td>
</tr>
<tr>
<td>Serviço Nacional de Cancer</td>
<td>25</td>
</tr>
</tbody>
</table>

### Mathematics

<table>
<thead>
<tr>
<th>Institution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instituto de Matemática, Universidade de São Paulo</td>
<td>26</td>
</tr>
<tr>
<td>Instituto de Matemática, Universidade do Rio Grande do Sul</td>
<td>26</td>
</tr>
<tr>
<td>Instituto de Matemática Pura E Aplicada</td>
<td>27</td>
</tr>
</tbody>
</table>

### Chemistry

<table>
<thead>
<tr>
<th>Institution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departamento de Química, Universidade de São Paulo</td>
<td>28</td>
</tr>
<tr>
<td>Instituto de Química, Universidade do Brasil</td>
<td>28</td>
</tr>
</tbody>
</table>

### Physics

<table>
<thead>
<tr>
<th>Institution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centro Brasileiro de Pesquisas Físicas (CEPF)</td>
<td>29</td>
</tr>
<tr>
<td>Departamento de Física, Universidade de São Paulo</td>
<td>29</td>
</tr>
<tr>
<td>Instituto de Energia Atômica</td>
<td>30</td>
</tr>
<tr>
<td>Instituto de Física, Universidade do Rio Grande do Sul</td>
<td>31</td>
</tr>
<tr>
<td>Instituto de Pesquisas Radioactivas, Universidade Minas Gerais</td>
<td>31</td>
</tr>
</tbody>
</table>
### Table of Contents (continued)

#### Geology

<table>
<thead>
<tr>
<th>Organization</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratorio da Produção Mineral</td>
<td>32</td>
</tr>
</tbody>
</table>

#### Technology

<table>
<thead>
<tr>
<th>Organization</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instituto de Electrotécnica, Universidade de São Paulo</td>
<td>32</td>
</tr>
<tr>
<td>Instituto de Pesquisas E Desenvolvimento da Aeronáuticas</td>
<td>33</td>
</tr>
<tr>
<td>Instituto de Pesquisas Tecnológicas de São Paulo (IPT)</td>
<td>34</td>
</tr>
<tr>
<td>Instituto Nacional de Tecnologia (INT)</td>
<td>35</td>
</tr>
<tr>
<td>Instituto Tecnológico, Estado do Rio Grande do Sul</td>
<td>36</td>
</tr>
<tr>
<td>Instituto de Tecnologia Industrial</td>
<td>37</td>
</tr>
</tbody>
</table>

#### Economics and Planning

<table>
<thead>
<tr>
<th>Organization</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundação Getulio Vargas</td>
<td>37</td>
</tr>
<tr>
<td>Instituto Brasileiro de Administração</td>
<td>37</td>
</tr>
<tr>
<td>Instituto Brasileiro da Economia</td>
<td>38</td>
</tr>
<tr>
<td>Northeastern Economic Surveys Department (ETENE)</td>
<td>38</td>
</tr>
<tr>
<td>Comissão do Vale de São Francisco (CVSF)</td>
<td>39</td>
</tr>
<tr>
<td>Serviço do Vale do Paraíba (SVP)</td>
<td>39</td>
</tr>
<tr>
<td>Superintendência de Desenvolvimento Econômico do Nordeste (SUDENE)</td>
<td>40</td>
</tr>
<tr>
<td>Superintendência do Plano de Valorização do Fronteira Sudoeste (SPVF)</td>
<td>41</td>
</tr>
<tr>
<td>Superintendência do Plano de Valorização Econômica da Amazônia (SPVEA)</td>
<td>42</td>
</tr>
</tbody>
</table>

#### Science Promotion Organizations

<table>
<thead>
<tr>
<th>Organization</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundação de Amparo A Pesquisa do Estado de São Paulo (FAPESP)</td>
<td>43</td>
</tr>
<tr>
<td>Fundação Para o Desenvolvimento da Ciência na Bahia</td>
<td>43</td>
</tr>
<tr>
<td>Sociedade Brasileira Para o Progesso da Ciência (SBPC)</td>
<td>44</td>
</tr>
</tbody>
</table>
Table of Contents (continued)

<table>
<thead>
<tr>
<th>Education</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comissão Supervisora do Plano dos Institutos (COSUPI)</td>
<td>45</td>
</tr>
<tr>
<td>Coordinação do Aperfeiçoamento de Pessoal de Nível</td>
<td>45</td>
</tr>
<tr>
<td>Superior (CAPES)</td>
<td></td>
</tr>
<tr>
<td>Instituto Brasileiro de Educação, Ciencia y Cultura</td>
<td>46</td>
</tr>
<tr>
<td>(IBECC) Sèccao de São Paulo</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations for Organizations                                             47

Alphabetical Listing of Institutions                                         48
INTRODUCTION

In this section we have attempted to describe the major organizations engaged in economic planning and the development of science, technology and education in Brazil. Because of the broad nature of this report, the listing is by no means complete. Undoubtedly some significant institutions have been excluded.

The organizations described here have been broadly grouped into sections according to various fields, e.g., Agriculture and Plant Sciences, Physics, Economics and Planning, and so on. These organizations with activities encompassing more than one field have been placed in the section corresponding to their major concern. Wherever possible, the data compiled for each organization includes structure, budget, officers, and a short description of the character and function of the organization.

A list of abbreviations used and an alphabetical index of the organizations described are included at the end of this section.

Reference numbers correspond to the numbered bibliography which follows the section on foreign aid.

The budget figures are in U.S. dollars, unless otherwise indicated, and are approximate. (See last paragraph, Higher Education in Brazil -- first section of this report.)
ACADEMIA BRASILEIRA DE CIENCIAS
(Brazilian Academy of Sciences)
Caixa Postal 229, Rio de Janeiro, Ganaabara

Officers: President, Carlos Chagas
Secretary-General; Walter Mors
Vice Presidents: Aristides Pacheco Leão
Paschoal Senise
Secretary: Paulo Erichsen de Oliveira
Treasurer: Hugo de Souza Lopes

Private institution
Founded: 1916
Budget:

Divisions: Mathematics
Physics
Chemistry
Geology
Biology

The Academy works for the development of science and its application.
It supports, with all the means at its disposal, the scientific in­
vestigations of its members; publishes original studies in the Anais da
Academia Brasileira de Ciências; and gives awards for outstanding work.

Senior members: 120.    Junior members: 80.
CONSELHO NACIONAL DE PESQUISAS (CNPq)  
(National Research Council)  
Av. Marechal Camara, 350, Rio de Janeiro

Officers:  President:  Dr. Antonio Moreira Couceiro  
Vice President:  Dr. Raimundo Augusto de Castro  
Moniz de Aragao

Independent statutory body directly responsible to the  
President of the Republic
Founded:  1951
Budget:  $3,350,000 (1965/66). In addition, some 600,000  
dollars have been made available for staffing and  
other administrative costs of the Council. Ford and  
Rockefeller Foundations give assistance, and an IDB  
loan of US$4 million has been made for equipment.

Divisions:  Technical-Scientific Division. Director:  Manoel  
da Frota Moreira  
Brazilian Institute of Bibliography and Documentation  
Institute of Pure and Applied Mathematics (IHPA)  
National Institute of Amazonian Investigations (INPA)  
Institute of Highway Research (IPR)

The CNPq was created to stimulate and promote the development of  
scientific and technological research in all fields. Carries out work by  
awarding financial grants-in-aid, by fellowships and by the creation of  
research institutes in the areas needed. The Council advises on the  
formulation and execution of scientific policy. Public Law No. 4533 re-  
vitalized the Council and gave it much broader authority. It brought  
representatives of two more federal agencies into the Council (Ministry  
of Health and BNDE), making it consist of 27 persons. (The term of office  
is three years.) It authorized the Council to set up those committees and  
 commissions for special purposes which it deems necessary without having to  
submit recommendations for Presidential action, as was the case in the past.  
It authorizes the Council to create new research institutes and scientific  
centers as needed. It provided the council with a global budget for all  
its activities.

Breakdown of 1965-66 budget: 

<table>
<thead>
<tr>
<th>Research Area</th>
<th>U.S. Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agronomical research</td>
<td>218,750</td>
</tr>
<tr>
<td>Biological research</td>
<td>750,000</td>
</tr>
<tr>
<td>Physics research</td>
<td>607,500</td>
</tr>
<tr>
<td>Geological research</td>
<td>300,000</td>
</tr>
</tbody>
</table>
CONSEJHO NACIONAL DE PESQUISAS (CNPq) (continued)

Breakdown of 1965-66 budget (continued):

<table>
<thead>
<tr>
<th>Mathematics research</th>
<th>143,750</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical research</td>
<td>375,000</td>
</tr>
<tr>
<td>Technological research</td>
<td>406,250</td>
</tr>
<tr>
<td>Technical sector</td>
<td>86,250</td>
</tr>
<tr>
<td>Supplement to the Biennium Plan*</td>
<td>100,000</td>
</tr>
<tr>
<td>Specialized institutes</td>
<td>1,083,125</td>
</tr>
</tbody>
</table>

\[ \text{Total: } 4,169,375 \]

*Supplement to the "Five-Year Plan" which was prepared in 1961 and proposes support in the following areas: astronomy & astrophysics; pure & applied math; physics; geophysics & geology, chemistry, microbiology, botany & zoology, particularly in the tropical areas.

AGRICULTURE AND PLANT SCIENCES

CEPLAC

Bahia

Under Banco do Brasil Budget: Funds derived from an export tax on cacao: 15% on beans and 5% on semi-processed materials (chocolate-liquor, cake and cocoa butter).

In 1962, a powerful, well-financed effort was initiated under CEPLAC, which is the Executive Commission for the Plano de Recuperacao Economico-Rural da Lavoura Cacauera. This effort has made considerable progress in building a structure under which valuable, much-needed research, extension and credit work is being done. CEPLAC has responsibility and authority for all work with cacao in Brazil.

CEPLAC will work mainly in cocoa problems, but has begun work on crop diversification and will make recommendations and give assistance in this direction also. Their intention is to become the agency for research and extension in all fields concerning the cacao grower including, eventually, home economics.

CEPLAC's central research station near Itabuna is known as CEPEC (Centro de Pesquisas do Cacau). Conditions there for field research and testing are excellent. At CEPEC are central offices, technical library, chemistry and pathology laboratories, soils laboratory, entomology laboratories, an engineering or bean processing laboratory, a large screened greenhouse and propagating facilities.
A technical staff of some twenty professional people is working. Only one of them, Dr. P. T. Alvim, the Technical Coordinator, has a U.S. Ph.D. (Cornell-plant physiology). He is an employee of IICA-Turrialba on assignment to CEPIAC-Itabuna. One other staff member, Dr. Laravalhaes, an able chemist, has a doctorate from the south of Brazil. CEPIAC has about 70 agronomists engaged either actively in extension and credit work or in training at Itabuna for extension and credit supervision work. They have 21 small offices now operating as centers for credit and extension work.

JARDIM BOTANICO
Rua Jardim Botanico 1000, Rio de Janeiro

Director: Dr. Carlos Rizzini

Under the Forestry Service, Ministry of Agriculture
Founded: 1879

The objectives of the Jardim Botanico are to study the different branches of botany and carry out investigations, and in particular to classify the indigenous plants and investigate their geographic distribution and ecology. The research facilities include an herbarium of about 100,000 specimens and a large botanical library. Research is conducted in plant anatomy and systematic botany. It has an outstanding living collection of tropical plants of the New World. The Laboratory of Electron Microscopy, headed by Dr. Raul D. Machado, has the only functioning electron microscope in Brazil. It was installed in 1962 and is in excellent condition.

SERVICIO NACIONAL DE PESQUISAS AGRONOMICAS (SiPA)
National Agricultural Research Service
Ministerio de Agricultura (Caixa Postal 1928), Rio de Janeiro

Director: Oswaldo Castos de Menezes

Under the Departamento de Pesquisas e Experimentacao Agropecuarias, Ministry of Agriculture
Founded: 1943

Budget: 1962 $159,811 (SiPA expenses only)
SERVICIO IACIONAL DE PESQUISAS AGROICICAS (SUPA) (continued)

Divisions: Instituto de Pesquisas e Experimentacao Agropecuarias do Nordeste (IPEAN) Belém, Para
do Nordeste (IPEAN) Recife, Pernambuco
do Leste (IPEAL) Campo Grande, M~nas Gerais
de Centro Sul (IPEACS) Pelotas, Rio Grande do Sul
de Fermentacao (IF) Rio de Janeiro
de Oleos (IO) Rio de Janeiro
de Quimica Agricola (IQA) Rio de Janeiro
Seccion de Estadistica Experimental (SEE)

<table>
<thead>
<tr>
<th>Institute</th>
<th>1962 USS Budgets</th>
<th>No. of Exp. Stations</th>
<th>No. of Exp. Sub-stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPEA</td>
<td>795,325</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>IF</td>
<td>774,300</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>IO</td>
<td>279,380</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IQA</td>
<td>2,6,900</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IPEAL</td>
<td>670,220</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>IPEACS</td>
<td>555,500</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>IPEAS</td>
<td>909,850</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>IPEAH</td>
<td>755,490</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>SUPA</td>
<td>169,200</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

SUPA is responsible for directing and coordinating the agricultural research of the country. Of the 1,205 crop research experiments in progress in 1961, 57% were concerned with the development of testing of crop varieties and with fertilizer experiments. The following are the more important: 1) research on phosphate fertilizers with a view to producing them in Brazil (SUPA, IAC, IAS, IAO, IAE); 2) research on sugar cane fertilizers (SUPA, IEEA); 3) mineral fertilizer for corn in the State of Rio de Janeiro (IAO); 4) testing best varieties of coffee in various regions of Brazil (SUPA, IEEA, IAC, IAE, IAO, IAC); 5) research on best fertilizer of coffee (SUPA, IEEA, IAC, IAO, IAC); 6) research on corn yields in relation to temperature and rainfall at various periods of growth (SUPA, IEEA, IAE, IAO, IAC); 7) Evaluate varieties of hybrid corns in distribution through the north and south of the country (SUPA, IEEA, IAE, IAO, IAC); 8) study most effective spacing and density of coffee plants (SUPA, IEEA, IAE, IAO, IAC); 9) study the effect of mineral fertilizer for corn on soil fertility in Goias and Brasilia (SUPA, IAO, ETAS 36 and 44 and IRFA of Goias).
INSTITUTO DE OLEOS  
(Institute of Oils)  
Av. Baracana, 252, Rio de Janeiro  

Director: Dr. Cezaliva Rodrigues Fernandes  

Under the Ministry of Agriculture  
Founded: 1933  
Budget: $249,690  

Sections:  

- Agronomic Research  
  Head: Dr. Honorio da C. H. Netto  

- Analytic Research  
  Head: Dr. Armando Illian  

- Industrial Research  
  Head: Dr. Carlos C. de Alencastro  

- Documentation and Dissemination  
  Head: vacant  

Instituto de Oleos has laboratories and scientific equipment to carry out its research.

INSTITUTO DE QUÍMICA AGRÍCOLA  
(Institute of Agricultural Chemistry)  
Rua Jardim Botanico 1024, Rio de Janeiro  

Director: Dr. Walter Hors (1961)  

A department of the Ministry of Agriculture  
Founded: 1910  

The only center (as of 1961) doing extensive work in organic chemistry. Most of the Institute's work is concerned with the chemistry of alkaloids. The research team is active and competent although small in comparison to what is needed to cope with the problems in the chemistry of Brazilian natural products.

INSTITUTO DE PESQUISAS E EXPERIMENTAÇÃO ACROPECUARIAS DO NORTE (IPEAN)  
(Institute of Agropecuarian Research and Experimentation of the North)  
Belém, Pará  

Director: Dr. Jose Maria Pinheiro Conduru  

Under the Director of Research, Ministry of Agriculture  
Founded: 1939 under the name Instituto Agronomico do Norte, name changed in 1962.  
IPEAN (continued)

Divisions:
- Commission for Coordination of Technical Works
- Biological Research Service
- Engineering and Rural Technology Service
- Statistics and Rural Economy Section
- Documentation and Dissemination Section

Experiment Stations: Porto Velho, (Rondondia); Paredes, (Maranhao); Baixo Amazonas (Iaçacu, Para); Alto Solimoes (Tefe, Amazonas); Manaus (Amazonas); Içá (Amapa); Servicio de Multiplicacao de Sementes de Juta (Alenquer, Pa.)

IPEAN legally has responsibility for federal agricultural research in the Amazon Valley—almost half of Brazil's total area. It has seven substations up the Amazon; some quite large. In each substation there is one technician who is in daily contact with Belem. There are 36 technicians working at the main station in Belem.

This Institute is noteworthy for its long-time basic research program conducted in systematic botany of Amazonian plants, recently in cooperation with the New York Botanical Garden. Rubber, native oil and fiber producing plants are presently receiving special attention. A well-curated modern herbarium of 130,300 specimens is located at the Institute, which is an excellent base for botanical exploration in the lower Amazon.

**Istituto de Pesquisas e Experimentacao Agropecuaria do Sul**
(Institute of Agricultural Research and Experimentation of the South)
Caixa Postal "B", Pelotas, Rio Grande do Sul

Director: Ing. Agr. Paulo Tholozan Dias da Costa

Under the Servicio Nacional de Investigaciones Agronómicas, Ministry of Agriculture

Founded: 1943
Budget: $1,362,202 (1962)

Divisions:
- Biological Research Service (Sections: Phytopathology; Entomology and Parasitology; Horticulture; Phytotechnics and Genetics; Agricultural Botany)
- Engineering and Rural Technology (Sections: Soils; Agricultural Climatology; Irrigation and Draining; Rural Technology; Soil Conservation)
- Auxiliary Technical Section
- Documentation and Statistics Section

Experiment Stations (Pelotas, Passo Fundo, Río Cacador, Curitiba, Ponta Grossa)
The Institute is charged with promoting research and conducting experimental work for agricultural development in the area under its jurisdiction. Principal research work is on: entomology - fruit, potato, Solanaceae, cereal, corn plagues and insect diseases; phytopathology - fruit and vegetable diseases; corn, wheat, rice, etc. improvement; forage crops, oil plants, winter fruit growing, etc. 34

Eleven full-time agricultural engineers are employed and 34 part time.

SERVICIO FLORESTAL DA SECRETARIA DA AGRICULTURA DO ESTADO DE SAO PAULO
(Forestry Service of the Sec. of Agriculture of the State of Sao Paulo)
Horto Florestal, Caixa Postal 1322, Sao Paulo

Director: Ing. Agr. Roberto de Pello Alvarenga

Under the Sao Paulo Secretariat of Agriculture
Founded: 1885, became Forestry Service in 1911.
Budget: $2,361,191 (1962)

Divisions: Forest Biology State Forests (31)
Forest Protection State Parks (4)
Introduction of Essences Orchards (10)
Parks, Gardens and Arborization Forest Reserves (6)
ization Nurseries (2)
Seed Production
Forestry Pathology Laboratory
Otavio Vecchi Forestry Museum
School of Charao

This Forestry Service was created to study the Brazilian forest trees and the woods which they produce. Today it is responsible for all official forest policy, including investigation, production, development, etc. Each species of economic value is studied as to ideal time to collect seeds and fruits, germination tests, ratio between seed and fruit by weight, methods of seeding, pretreatment of seed, storing and transplanting, fertilizing, etc. Research is planned on adaptability and susceptibility to disease of various species of the genus Pinus, fertilizer studies in view of the macro-nutrients in the soil, methods of preparing the soil, etc. 34

Nine full-time agricultural engineers are employed.
CENTRO DE PESQUISAS FLORESTAIS E CONSERVAÇÃO DA NATUREZA
(Forest Research and Nature Conservation Center)
Estrada da Vista Chinesa, 741, Alto da Boa Vista, Tijuca

Administered by the Forest Service, State of Guanabara

Recently developed to provide the city of Rio de Janeiro with research and education in these fields, the Center conducts work through two new small biological stations near Rio: one in the forested Tijuca Mountains serves as headquarters for all work; the other fronts the seacoast lagoon and restinga of Naranjada. Both are located within the 11 square-mile area of the Jacarepagua Biological Reserve, which consists primarily of largely undisturbed montane forest. The Tijuca center has a small modern combined dormitory and research facility with space for about six visiting scientists, whose board and lodging are contributed gratis if their work falls within the interests of the Center. Facilities include small herbarium, laboratory and library. Aims are to make a complete biotic survey of the Reserve and assistance from foreign scientists is desired in its preparation.8

CENTRO PAN-AMERICANO DE PEDAS AFRIOSA
(Pan American Foot-and-Mouth Disease Center)
Caixa Postal 589, Rio de Janeiro

Director: William H. Henderson

Under the Organization of American States
Founded: 1951
Budget: 1964 - $1,152,000

The Pan American Foot-and-Mouth Disease Center is a project of the Program of Technical Cooperation of the Organization of American States and is administered by the Pan American Health Organization. The principal objective of the project is to assist in maintaining the freedom of those countries not affected with F-and-M and to assist those that are in achieving its control and eradication. The program of the Center includes research, a service of virus diagnosis and identification, a training program, an advisory and consultative service, field studies and the collection and dissemination of information.

Twelve professionals and about 135 other persons are employed.
IBEC RESEARCH INSTITUTE

Non-profit organization founded by Nelson & David Rockefeller

Budget: $400,000 (1963) - money from Rockefeller Brothers Fund, Ford and 90 local firms.

The research program employed 12 technically-trained persons in 1962. It has shown special interest in the use of fertilizers (including improvement of the campos cerrados soils), and animal nutrition. The Institute has 40 professionals.

INSTITUTO AGRONOMICO DE CAMPINAS
(Agricultural Institute of Campinas)

Avda. Barão de Itapura 1481, Caixa Postal 28, Campinas, São Paulo

Director: Dr. José Elias de Paiva Neto

Under Secretary of Agriculture, State of São Paulo

Founded: 1887

Divisions: Agronomy (Sections: Cotton, Temperate Fruits, Tropical Fruits, Oil Plants, Coffee, Fiber Plants, Sugar Cane, Tobacco, Medicinal and Insecticide Plants, Tropical Plants, Cereals, Legumes, Roots and Tubers, Citrus Fruits, Viticulture)

Biology (Sections: Botany, Phytopathology, Cytology, Genetics, Entomology, Plant Introduction, Physiology, Virology)

Soils (Sections: Agrogeology, Agricultural Mechanics, Soil Conservation, Chemistry, Soil Fertility, Agricultural Technology, Irrigation, Fiber Technology)

Agricultural Mechanics and Technology

Other Sections: Experimental Technology, Agricultural Climatology; Office of Coordination of Technical Diffusion; Central Experiment Station of Campinas.

Experiment Stations: Capão Bonito, Monte Alegre, Santos, Ipanema, São Roque, Pindamonhangaba, Jaú, Pindorama, Tatuí, Jundiaí, Piracicaba, Tietê, Limeira, R. Prudente, Ubatuba, Mococa, Ribeirão Preto, Vale do Ribeira.

The Instituto Agronomico de Campinas is said to be one of the best agricultural research centers in the country, and has worked effectively for improvement of agricultural practices in the state. It has 19 experiment stations in the State of São Paulo and 130 research workers.
INSTITUTO AGRONOMICO DE MINAS GERAIS
Caixa Postal 515, Belo Horizonte, Minas Gerais

Director: José Santos Daniel

Under State Secretariat of Agriculture
Founded: 1947
Budget: 1963 $273,685 - personnel
$126,315 - materials
$400,000

Sections:
Coffee Eng. Agr. José Santos Daniel
Phytopathology Textile Plants Eng. Agr. José Alípio de Souza
Soil Conservation & Water
Vegetable Chemistry Quim. Félix Seiler
Agricultural Chemistry Eng. Agr. Octavio P. de Carvalho &
Botany Tec. Agr. Alberico A. de Resende &

Statistics
Horticultura Tec. Agr. Dobrivoje Techarevic
Vegetables and Forage Crops Engs. Agrs. Cícero Ferreira &
Milho Marcos Eustáquio de Andrade
Ornamental Plants

Experiment Stations:
Prudente de Morais (604 ha) Engrs. Agrs. Bernardo Carvalho e
(Central Experiment Station) Paulo Calheiros de Barros
Carmo de Mata, Zona Oeste Tec. Agr. Francisco de M. Neto
(85 ha)
Ouro Preto - Metallurgic Tec. Agr. Gabriel E. Barbosa
Zone Patos de Minas, High Zone of Tec. Agr. Luiz A. da Silva
Leopoldina, Mata Zone (341 ha)
Fonta Nova, Mata Zone (374 ha) Eng. Agr. Marcio V. Martins
INSTITUTO AGRONÔMICO DE MINAS GERAIS (continued)

Dedicated to study and research in the field of agriculture and related sciences: genetics, biology, agricultural and vegetable chemistry, botany, silviculture, fruit culture phytopathology, entomology and rural engineering. The main experiment station is at Prudente de Morais. The substations are divided into the fields of cultures, forages, natural and artificial forests, orchards, etc.

INSTITUTO BIOLOGICO DA BAHIA
(Biological Institute of Bahia)
Caixa Postal 553, Salvador, Bahia

Director: Dr. Fúlvio José Alice

Under Secretariat of Agriculture, Industry and Commerce of the State of Bahia
Founded: 1947
Budget: $343,414 (1961)

Divisions: Sanitary Protection and Animal Biology.
Animal Sanitary Defense (Animal Sanitary Defense; Epizooty and Enozooty; Preparation & Analysis of Veterinary Products)
Animal Biology Service (Zoology & Parasitology; Bacteriological Immunity & Virus; Pathology & Physiology)
Sanitary Defense and Vegetable Biology
Vegetable Sanitary Defense Service (Vegetable Sanitary Protection; Epiphytics; Chemical Phyto-sanitation)
Vegetable Biology (Phytopathology, Botany and Vegetable Physiology; Entomology and Agricultural Zoology; Mycology; Bacteriology and Virus)

The Institute carries out research on animal pathology, vegetable pathology, and animal and vegetable sanitary protection.

Thirteen scientists are employed in the main Institute and 19 in the interior of the State of Bahia.
INSTITUTO BIOLOGICO DE SÃO PAULO
(Biological Institute of São Paulo)

Director: Dr. Rocha Lima

Operated as an independent unit administratively, responsible
directly to the Rector of the University of São Paulo.

Divisions: Plant Biology  Plant Protection
          Animal Biology  Animal Protection
          Science        Experimental Agriculture

This is a well-established institution with a record of achievements in research on animal and plant diseases, the purpose for which it was originally designed some 25 or more years ago. It is housed in a main 6-7 story building, surrounded by a variety of smaller, more temporary structures and facilities, animal quarters, greenhouses, field plots, including a small coffee plantation within the city of São Paulo. Additional facilities for field work are located at Campinas.

The Institute is perhaps best known for its pharmacological research, formerly under the direction of M. Rocha e Silva, and the production of vaccines. It is still an important center of biological research, especially in plant and animal pathology. It apparently has been a significant instrument in the development of plant and animal husbandry throughout the state and country, and it maintains quarantine services.

There are about 70 scientists on the staff.

INSTITUTO DE BOTANICA
Caixa Postal 4005, São Paulo, São Paulo

Administered by the Agriculture Department of the State of São Paulo
Founded: 1938
Budget: $ 695,924 (1962)

Divisions: Phytology  Botanical Garden of São Paulo
          Cryptogams  Plant Introduction
          Flowers    State Orchids
          Morphology Biology and Research Station
          and Anatomy
          Geobotany  Botanical Museum
The principal functions of the Institute are to survey the vegetable natural resources of the country, study the morphology, anatomy, ecology, phytogeography of the flora with a view to their economic value, and also negative aspects such as toxic plants.

The Institute is interested in becoming the main center for research and advanced research training in tropical botany in South America, and welcomes foreign scientists or students to utilize its facilities. Besides a vigorous young U.S.-trained staff and an active building program, it offers a good herbarium especially rich in both cryptogams and phanerogams; an ample associated library; a fine botanical garden with an excellent living orchid collection; a small phytotron for controlled physiological studies; a mobile laboratory for field research in physiology and ecology; and a substantial acreage of natural forest adjacent to the Institute buildings.

Sixteen full-time and fifteen part-time scientists are employed.

INSTITUTO NACIONAL DE PESQUISAS DA AMAZÔNIA
(National Research Institute of Amazonia)
Rua Guilherme Moreira, 116. Caixa Postal 478, Manaus

Director: Dr. Djalma da Cunha Batista
Division of the Conselho Nacional de Pesquisas
Founded: 1952, placed under the CNPq in 1954

Divisions: Natural Resources Research (Sections: Limnology, Inorganic Chemistry, Organic Chemistry, Spectrochemistry, Cellulose, Geology)
Biological Research (Sections: Medical-Clinical, Biochemistry and Nutrition, Medical Zoology, Hematology, Bacteriology and Mycology, Pathological Anatomy)
Center of Forestry Research (Sections: General Botany, Phytopathology, Wood Anatomy, Silviculture)
Museu Paraense Emílio Goeldi (Belém)

The Institute is in two coordinated parts: the Institute proper in Manaus and the Museu Goeldi in Belém. All of the research deals with the Amazon basin, with the objective of developing the area and improving the economy, health and culture of the inhabitants.
INSTITUTO NACIONAL DE PESQUISAS DA AMAZONIA (continued)

Research is under way in the chemistry of plant extractives, especially on an unstable material poisonous to rodents which is found in the large tubers of a native potato. Dr. Cerqueira, the entomologist, has a very active program on identification and biology of biting flies, especially the Culicidae and the Simuliidae. Dr. Mario A. P. de Moraes, head of biological research, is studying indigenous parasitic diseases, especially several mycoses. Dr. Rodriguez has an active program in several botanical fields and is interested in the qualities of the Amazon woods. The herbarium is adequate, but appears to be used as a working, reference collection rather than as a research collection. In 1963 there were about 30 employees (only three full-time). (Report – H. Mills, NSF Rio 5/63)

MUSEU PARAENSE EMILIO GOELDI
Caixa Postal 399, Av. Independencia 364, Belém, Pará

Director: Dr. Dalcy de Oliveira Albuquerque

Under the Instituto Nacional de Pesquisas da Amazonia
Founded: 1867
Budget: $ 75,235 (1962)

Divisions: Anthropology Botany
Geology Botanical Garden
Zoology Zoological Park

The Museum signed a 20-year agreement in 1954 which placed it under the administrative and technical responsibility of the Instituto Nacional de Pesquisas da Amazonia (which is under the CNPq). The Museum combines a research atmosphere, museum collections and a zoological garden which permits work with living animals. Work goes on currently in the fields of anthropology, botany, entomology, ichthyology and limnology, and systematic collections are maintained in very fine condition in these fields. There is an excellent fish laboratory; geology is being reorganized with its first full-time geologist in many years; a primate laboratory is under construction; a good photographic laboratory is being mounted. Library facilities are unusually good. (H. Mills)

The Director is dynamic and appears to thrive on his present job of reorganizing the museum. It is a fine center with possibilities for collaborative research in tropical medicine and biology. There are 15 full-time scientists and many assistants.
INSTITUTO DE PESQUISAS DA MARINA (IPqM)
(Institute of Marine Investigations)
1er. Distrito Naval, Rio de Janeiro

Director: Captain of the Sea and War, Naval Engineer
José Claudio Beltrão Frederico

Under the Ministry of the Navy
Founded: 1959
Budget: $ 548,589 (1962)

Departments: Electronics
General Sciences
Methodology

The objectives of the Institute are to promote, carry out and
intensify scientific and technological investigation of interest to the
Navy and to promote the development of researchers and technicians.

The initial program is the installation and activation of two
laboratories: a Laboratory of the Chemistry of the Sea and a
Laboratory of Marine Biology. The chemistry laboratory will a) examine
the methods of analysis of the chemical and organic constituents of the
sea; b) study chemical putrefaction of the water of the sea; c) study
radiochemistry of sea water, radioactive pollution, applicable radio-
chemical methods of studying the movement of the water and biological
assimilation. The biology laboratory will a) investigate the biolog-
ical indicators of masses of water; b) study action of organisms on
maritime structures; c) study the physiology and biological cycle of
important organisms.

INSTITUTO OCEANOGRÁFICO, UNIVERSIDADE DO RECIFE
(Oceanographic Institute, University of Recife)
Praia da Piedade, Caixa Postal 1076, Recife, Pernambuco

Director: Dr. Ramon Nobrega

Under the University of Recife
Founded: 1958, under the name Institute of Marine Biology;
name changed in 1962.
Budget: $ 31,578 (excluding salaries which are paid by the
Government. $ 14,736 is for scientific materials. (63)

The stated objectives of the Institute are to carry out oceanographic research
and to give postgraduate courses in oceanography. The areas of research
represented are: chemistry, geology, physical and biological oceanography,
algology, diatoms, crustacea, molluscs, ecology, marine fungi, plancton. The ecology group is making a qualitative ecological survey of the immediately surrounding area. They work from small boats by diving. Studies concerned with identifying organisms of the region are being carried out.

The Institute is housed in a modern two-story building of about a dozen laboratories, all in good order. The library is very small. No biologist of the Institute teaches, nor do students have instruction at the laboratory. There is a scientific staff of 12, all holding the doctorate.

**INSTITUTO OCEANOGRAFICO. UNIVERSIDADE DE SAO PAULO**

(Oceanographic Institute, University of São Paulo)

Av. Eduardo Prado, 698, Caixa Postal 9074, São Paulo, S.P.

Director: Dr. Ingvar Emilsson

Affiliate of the University of São Paulo

Founded: 1946, incorporated into the University in 1951, reorganized in 1960.

Budget: $373,040 (1962). Support comes from the University and the Brazilian Navy.

Divisions: Physical Oceanography (Sections: Physics, Chemistry, Sedimentology, Marine Meteorology)

Biological Oceanography. Head: Dra. Marta Vannucci.

(Sections: Plancton, Necton, Benthos, Fish Biology)

Bases and Instruments (Radio Communication, Fleets, Transportation)

Stations: São Paulo, Cananeia, Ubatuba and Santos

The Oceanographic Institute at São Paulo has the key role in fundamental oceanographic studies in Brazil. Its work is primarily concerned with marine biology, with almost exclusive emphasis upon description, identification, and classification. Physical and chemical oceanography seems limited to collection and analysis of sea water samples collected by Wansen bottles, together with temperature data from reversing thermometers. In meteorology, the principle effort is presently directed toward sea productivity measurements, relative to solar radiation. Surface meteorological data is also collected routinely at the shore stations.

The Santos laboratory is a joint operation with the State Department of Animal Production and is concerned with landing statistics and linear and weight measurements on samples of commercial catches of fish. The Cananeia laboratory is carrying out studies on the systematics of sharks.
which are used commercially as food and on fish migration. Meteorological physical and sediment measurements are being made simultaneously with biological studies in the small laboratory at Ubatuba. The group at São Paulo is largest and is concerned with basic studies of the tropical ocean between Brazil and Africa. The Brazilian program is under the direction of its Navy, but the Oceanographic Institute is deeply involved in the organization and execution of the studies. There are 150 persons working in São Paulo, Santos and Cannaneia, and one in Ubatuba.

Plans for the construction of new laboratories at University City are being developed. This will ultimately bring the Institute into close proximity with the basic science departments as well as with engineering and provide adequate research facilities.

MEDICAL AND BIOLOGICAL SCIENCES

INSTITUTO ADOLFO LUTZ
São Paulo

Under the Secretary of Public Health and Welfare of the State of São Paulo.

Divisions: Technical and Auxiliary Service (Culture media, clinical analysis, animal production, photography, statistics, etc)
Pathology Service
Food Analysis and Chemistry
Microbiology and Laboratory Diagnosis. Head: Dr. L. de S. Gomez
(Sections: Bacteriology, Parasitology, Mycology, Virology - Head: Dr. Luis do Valle, Serology)

This Institute serves as the laboratory branch of the São Paulo Secretariat of Public Health and Welfare and is internationally known for the caliber of its research. The Microbiology Section is doing work on influenza, isolation of adenoviruses, arthropod-borne viruses in São Paulo.
INSTITUTO BRASILEIRO DE PESQUISAS
(Brazilian Research Institute)
Salvador, Bahia

Director: Dr. Jose Silveira

Private institution

Budget: Entirely from private sources

This Institute's chief interest is in basic and clinical research in tuberculosis control and other infectious diseases. It is extremely well-equipped and maintains good international relationships mostly with European countries. This Institute is somewhat isolated from the scientific community, both in Bahia and Brazil in general, but offers excellent opportunities for studies in infectious diseases.15

INSTITUTO BUTANANT
Avenida Dr. Vital Brasil s/n (fim), Caixa Postal 65, Bairro Butantan, Sao Paulo

Director: Dr. Aristides Vallejo-Freire

Under the Secretary of Public Health and Welfare, State of Sao Paulo
Founded: 1901
Budget: $911,578, plus funds from the CNPq and other sources. (1963)

Divisions: Bacteriology Heads
Virology Dr. Jandyra Planet do Amaral
Physiopathology Dr. Aristides Vallejo-Freire
Genetics Laboratory Dr. Gastao Rosenfeld
Arthropods Dr. Willy Becak

This Institute, known throughout the world for its research several years ago on the physiology, pharmacy and biochemistry of snake venoms as well as for other studies on pharmacology of other natural products, has suffered considerably during the past years due to political unrest, change of administration, etc.15

The Institute also does work on the finer parts of the nervous system and a good deal of general physiology and biochemistry.8 It gives courses to doctors and technicians in the techniques of serum preparation handling and application, and these courses are open to specialists from all countries of the world.16 47 scientists are employed, 23 full-time. There are some very able scientists on the staff.15
INSTITUTO DE BIOFISICO, UNIVERSIDADE DO BRASIL
(Biophysics Institute, University of Brazil)
Av. Pasteur, 458, Rio de Janeiro

Director: Dr. Carlos Chagas

Under the administrative control of the Rector, but otherwise operates as an independent unit.

The Institute continues to be one of the world's outstanding centers for many research activities. Its programs are usually original and varied. Its activities are coordinated with other leading research institutes and it sponsors a substantial amount of interchange of scientific personnel. Its research activities encompass a broad but coordinated program in "functional aspects" of biology, but pertinent areas such as histology, protein biochemistry and enzyme action are covered as well. It is best known for its contributions in cell physiology (electrophysiology and related subjects). 21

Dr. Chagas has insisted upon the procurement of modern equipment and personnel of international reputation. Every member of the staff speaks English fluently. In addition to the Institute's research activities, it acts as a training center for many Medical School courses, having one of the best equipped laboratories in Brazil for the study of biophysics. Of a total staff of 78 persons, 52 are physicians and scientists. 16

INSTITUTO DE CIENCIAS NATURAIS
(Institute of Natural Sciences)
Caixa Postal 531, Porto Alegre, Rio Grande do Sul

Director: Dr. Alarich R. Schultz

Under the University of Rio Grande do Sul
Founded: 1954
Budget: $ 46,000 (63)

Sections: Biology Botany
Geology and Paleontology
Geology
Center of Oceanographic Investigations

The Institute offers to the faculties of the University complementary education in natural sciences and carries out basic and applied research in the natural sciences. 34

14 scientists are employed, 10 full-time.
INSTITUTO CONÇALDO MONIZ
Salvador, Bahia

Director: Dr. Aluizio Prata (Professor of Tropical & Infectious Diseases at the University of Bahia)

State Organization
Budget: About $40,000 per year from state tax revenues.

The Institute was founded for the production of vaccines and biological preparations. It also carries out many specialized laboratory tests and is about the only institution working on medical mycology. The laboratories appear to be active and the chiefs quite well trained. Dr. Prata has 16 professionals working under him, representing the fields of parasitology, protozoology, virology, immunology, hematology, bacteriology, mycology, biochemistry, electrophoresis, tissue culture, entomology, vaccine production, and urine analysis. Of this group, 11 are engaged in research. The buildings housing the research activities at "As Brotas" are excellently built and can be easily and cheaply renovated and made into fine laboratories and animal quarters. Dr. Prata hopes this can become a center for studies of tropical diseases at which national and foreign investigators can work.

INSTITUTO NACIONAL DE ENDEMIAS RURAIS (INER)
(National Institute of Rural Endemics)
Belo Horizonte, Minas Gerais

Technical Director: Dr. José Rodrigues da Silva
(Professor of Tropical Medicine in Rio)

Under the federal Ministry of Health

The laboratories in Belo Horizonte have a very excellent physical setup and are probably the best of this national service. Probably the best laboratory work in parasitic diseases in Brazil is taking place in these labs, particularly in the service of Dr. V. Lobato Paraense, who is the Chief of the Division of Malacology of INER. It has a well-equipped laboratories for activity of extracts and chemical substances against malaria, Chagas diseases, and schistosomiasis.

In 1963, the Institute set up the Schistosomiasis Snail Identification Center for the Americas through an agreement between the Brazilian Health Minister and the Director of PAHO. It is the hemisphere's first international center set up to collect and classify information on medically important snails.
INSTITUTO DE MICROBIOLOGIA, UNIVERSIDADE DO BRASIL
(Institute of Microbiology, University of Brazil)
Av. Pasteur, 250, Rio de Janeiro

Director: Dr. Paulo de Goes

Under the Faculty of Medicine, University of Brazil
Founded: 1955
Budget: $51,619, plus Rockefeller Funds (1960-62)

Divisions: General Microbiology Dr. Amadeu Cury
Virology Dr. Manuel Bruno Lobo
Immunology Dr. Moysés A. Fuks
Medical Microbiology

This Institute is carrying out an active research program in its excellently-equipped laboratories, and maintains an active training center for Brazilian and other Latin American microbiologists. Research is being done on virology and microbiology, mycology, virus epidemics, heterologous antibodies, etc. 15, 25

INSTITUTO OSWALDO CRUZ
Avenida Brasil, Manguinhos, Rio de Janeiro

Director: Dr. Francisco de Paula da Rocha Lagoa

Supported by the federal Ministries of Health and Education

Divisions: Medical Zoology Dr. Herman Lent (entomologist)
Microbiology
Virology
Chemistry Dr. Gilberto Villela
Endocrinology Dr. Fernando Ubatuba
Physiology Dr. Moussatache
Pathology Dr. Walter Oswaldo-Cruz

The Institute has two main functions: preparation of biological products such as sera and vaccines and biomedical research. The former is done under the auspices and authority of the Ministry of Health, and the latter under the Ministry of Education. Research is neglected at present due to the emphasis on public health (vaccine production). However there are well-equipped laboratories and an excellent library for chemistry and biology.

The most active group is the section of pathology. Dr. Oswaldo-Cruz has a large staff of full-time medical researchers, gives very good postgraduate training to them, and maintains relations with laboratories throughout the world. The work in this laboratory is almost entirely concerned with the mechanism of hemostasis. 15
MUSEU NACIONAL
(National Museum)
Quinta da Boa Vista, Rio de Janeiro

Director: Dr. Newton Dias dos Santos

Founded: 1818

Divisions: Geology  Mineralogy
          Botany   Zoology
          Anthropology  Ethnography
          Education

Brazil's largest display and research museum, the Museum has large research collections in most fields of natural sciences including botany, entomology, herpetology, ichthyology, mammalogy, ornithology, paleontology, etc. The herbarium of over 300,000 specimens is the largest in Brazil. Visiting scientists are welcome and research space is available.

The divisions of anthropology and ethnography are actively working not only with the current diversified population, but also with indigenous tribes. The divisions of zoology and botany have, for many years, had active collaboration with U.S. institutions and hope that this can be extended since previous expeditions from the U.S. to Brazil have not been complete in covering all scientific disciplines. The staff of the Museum would also welcome joint programs of investigations in the fields of biology and medical science with institutions in the U.S.

SERVICO ESPECIAL DE SAUDE PUBLICA (SESP)
(Special Public Health Service)

Director:

A semi-autonomous organization, formerly under the Minister of Health, State of Para.

Budget: Funds secured directly from Congress.

SESP takes care of the health and sanitation needs in a large part of Brazil outside of the cities. It is especially active in the North and Northeast of Brazil. Originally developed as a cooperative program with the U.S. (Office of Inter-American Affairs) during World War II, it has gradually decreased the number of U.S. personnel involved until at present it is completely manned by Brazilians.

It administers the Instituto "Evandro Chagas" which originally had responsibility for all of the laboratory work involved in bacterial and parasitic diseases of the northern part of Brazil.
**INSTITUTO EVANDRO CHAGAS**

Avenida Almirante Barros 230, Caixa Postal 621, Belém, Pará

Acting Director: Dr. Miguel Azevedo

Under the Special Public Health Service, State of Pará
Founded: 1936
Budget: $97,000

Sections: Public Health Investigations

The Institute was created to investigate rural medical problems in the Amazon region. It is charged with planning and executing examinations, investigations, advising, and patronizing technical and other scientific works. Functioning as part of the Institute are the Malaria Laboratory (founded: 1945), the Belem Virus Laboratory (1955) and the Tissue Culture Section (1961). The Malaria and Virus Laboratories were developed by Dr. Ottis Causy, a Rockefeller scientist. There are six professionals and 9 laboratory technicians on the staff of the Virus Laboratory, which is headed by Dr. J. P. Woodall. The Tissue Culture Laboratories, headed by Dr. Francisco Paulo Pinheiro and his wife Dra. Maria Siqueira Pinheiro, are outstanding. Principal research being carried out in the laboratories: studies on arborvirus in the Amazon region, intestinal parasites, ectoparasites, and tentative isolation of Pasteurella. The Institute employs 26 scientists full-time.

The Institute will serve as staff of the Medical School of the University of Pará and the students will have the advantage of close association with the routine and research activities of the Institute.

Together with IPEAN, the Institute is planning an ecological research area, comprising 66 acres on the property of IPEAN, in the tropical rain forest in the outskirts of Belém.

**SERVICIO NACIONAL DE CANCER**
(National Cancer Service)
Avenida Rio Branco, 124, 17º andar, Rio de Janeiro

Director: Prof. Antonio Prudente

Under the federal Ministry of Health
Founded: 1954
Budget: $2,155,800: $1,171,160 to private entities to fight cancer, $984,640 for its own expenses (1962)

Divisions: General Administration
National Institute of Cancer Dr. Sergio de Azevedo, Chief Organization and Control

The National Cancer Service is responsible for organizing the fight against cancer, orienting, coordinating and funding public and private institutions, and offering technical and material assistance. Research is
being done in biochemistry, enzymes, synthesis of chemical therapeutics, radioactive isotopes, and is being planned in investigation of neoplastic cells in circulation and identification of the malignant melanomas by means of isotopes. Research scientists and resident physicians are full-time.

MATHMATICS

INSTITUTO DE MATEMÁTICA, UNIVERSIDADE DE SAO PAULO
(Institute of Mathematics, University of Sao Paulo)
Rua Maria Antonia, 294, Caixa Postal 8105, Sao Paulo

Director: Dr. Benedito Castrucci

Under the Faculty of Philosophy, Sciences & Letters, U. of Sao Paulo
Founded: Head
Budget:

Chairs: Infinitesimal Calculus Prof. Elza Comide
Analytic; Projective and
Descriptive Geometry Prof. Benedito Castrucci
Differential Equations Prof. Chaim Honig
Higher Geometry Prof. Candido da Silva Dias
Superior Analysis Prof. Edison Farah
Examination of Principles Prof. Fernando de Almeida

There are 14 assistants and instructors. Research is carried out in each division in the various fields of mathematics.

INSTITUTO DE MATEMÁTICA, UNIVERSIDADE DO RIO GRANDE DO SUL
(Institute of Mathematics, University of Rio Grande do Sul)
Rua Venancio Aires, 127, Porto Alegre

Director: Prof. Manoel Silva Neto

Under the University of Rio Grande do Sul Founded: $ 46,526 (1963)
Budget:

Divisions: Pure Mathematics
Applied Mathematics
Education and Dissemination
The activities of the Institute are: a) collaboration in the teaching in the Faculty of Philosophy and the School of Engineering of the University; b) extension and advanced courses and seminars for faculty and students; c) formation of specialized personnel for education and research in courses of advanced study in institutes and universities at home and abroad. Seven scientists and engineers are employed.

INSTITUTO DE MATEMATICA PURA E APLICADA
(Institute of Pure and Applied Mathematics)
Rua São Clemente, 265, Rio de Janeiro.

Director: Dr. Lelio I. Gama

Under the Conselho Nacional de Pesquisas
Founded: 1952
Budget: $50,156 (1962)

Divisions: Pure Mathematics
Applied Mathematics
Teaching and Exchange

The Institute is recognized as being of excellence by all the South American countries, and students from most of them study here. Its current areas of research are in the fields of algebraic topology, differential geometry, calculus of variations, functional analysis, partial differential equations, and linear programming.

A number of the staff have studied in the United States and Europe. There are four chiefs of research and six research assistants.
DEPARTAMENTO DE QUIMICA, UNIVERSIDADE DE SAO PAULO
(Department of Chemistry, University of Sao Paulo)
Rua Maria Antonia, 294, Sao Paulo, S.P.

Director: Prof. Dr. Simao Mathias

Under the Faculty of Philosophy, Sciences & Letters, U. of Sao Paulo
Founded: 1934
Budget: $9,741 (1963) from CNPq and FAPESP

Divisions: General and Inorganic Chemistry
Physical Chemistry
Analytic Chemistry
Organic Chemistry
Biological Chemistry

The department has 15 professors and scientists and ten graduate students working on their doctorate. Since its founding, 300 students have received their bachelor or licenciado degree and 30 a doctor of sciences.

INSTITUTO DE QUIMICA, UNIVERSIDADE DO BRASIL
(Institute of Chemistry, University of Brazil)

Director: Prof. Athos da Silva Ramos (President of Directive Council)

Under the University of Brazil
Founded: 1959
Budget: $193,684 (1963)

Divisions: Organic Chemistry
Inorganic Chemistry
Chemical Technology
Physics-Chemistry
Biochemistry
Chemical Engineering
Education
Research

Heads
Prof. Claudio Costa Neto
Prof. Werner Gustav Krauledat
Prof. Alcides da Silva Jardim
Prof. Joao Cristovao Cardoso
Prof. Paulo da Silva Lacaz
Prof. Alberto Luiz Coimbra
Profa. Eloisa B. Mano (Coordinator)
Profa. Aida Espinola (Coordinator)

The Institute carries on research and postgraduate education with a view to development of the chemical industry in Brazil. Research is being performed in all the above divisions. Personnel (professors, scientists, postgraduate students) involved in research number about 50. About 1,000 students are enrolled in the pre-graduate courses with about 100 instructors.
PHYSICS

CENTRO BRASILEIRO DE PESQUISAS FISICAS (CBPF)
(Brazilian Center for Physical Research)
Av. Wenceslau Braz, 71 -- ZC-82, Rio de Janeiro

President: Prof. Darcy Ribeiro
Scientific Director: H. G. Carvalho

Private, non-profit organization
Founded: 1949
Budget: Most of its funds come from the Federal Government, partly direct appropriations and partly grants from CNPq.
62/63 subvention: $316,614, plus loans.

Divisions: Molecular & Solid State Physics
Jaque Danon
Nuclear Emulsions Laboratory
G. Schwacheim
Cockroft-Walton Generator Lab
Jayme Tiomno
Solid State Physics Laboratory
Hervasio de Carvalho
Nuclear Physics
Horacio C. M. Macedo
Theoretical Physics
Radioactivity

The CBFF is the principal center in Brazil for research in physics. On the experimental side, they are determining scattering properties of high energy particles, recording cosmic rays, and observing solar radio noise. Much of their interest has been in high energy particles and cosmic rays. The Center has the largest group of theoretical physicists in Latin America. The Teaching Department organizes courses and teaches general and experimental physics with the help of the scientific personnel. The Center has conducted graduate and postgraduate courses for the University of Brazil since 1950.

The scientific personnel of the Center consists of more than ten professors with Ph.D. degrees from renowned institutions such as Princeton, M.I.T., Birmingham (England), Columbia and Berkeley. The professors are full-time employees, and teaching and research are coordinated functions. The faculty is highly productive.

DEPARTAMENTO DE FISICA, UNIVERSIDADE DE SAO PAULO
(Department of Physics, University of Sao Paulo)
Rua Maria Antonia, 294, Caixa Postal 8105, Sao Paulo

Director: Dr. Mario Schenberg

Under the Faculty of Philosophy, Sciences & Letters, U. of Sao Paulo
Founded: $457,052 (1963) from the University, the Ministry of Education and Culture, COSUPT, CNEN, CNPq and FAPESP.
Research Sections:

- Betatron Laboratory
- Electrostatic Accelerator Lab
- Nuclear Emulsions Laboratory
- Solid State & Low Temps Lab
- Molecular Spectroscopy Lab
- Electronics Laboratory
- Theoretic Physics

The Department is directed by a Council of Professors which annually elect the Director. There were 400 students enrolled in 1963, 30 postgraduate. 60 scientists are employed for research and teaching and 20 technicians assist in the research work. There are usually eight to ten foreign scientists working in the Department.

**INSTITUTO DE ENERGIA ATOMICA**

(Institute of Atomic Energy)

Cidad Universitaria de São Paulo, Caixa Postal 11049, São Paulo

Director: Prof. Luiz Cintra do Prado

Under the National Commission of Nuclear Energy and the University of São Paulo. Until 1962, it was dependent upon the CNPq,

Founded: 1956

Budget: $1,263,157 (1963)

Divisions: Nuclear Physics Nuclear Engineering

Reactor Physics Nuclear Metallurgy

Radiochemistry Chemical Engineering

Radiobiology

This is the Nuclear Institute of the Brazilian Atomic Energy Commission and is the principal center for nuclear research in Brazil. It possesses a five Megawatt swimming pool reactor and a Cockcroft-Walton generator. The functions of the Institute are: a) carry out research on the peaceful uses of nuclear energy; b) produce radioisotopes and tagged substances; c) contribute to the development of trained technicians and scientists specialized in nuclear energy; and d) establish bases, constructive data, and prototypes of reactors destined for industrial utilization of nuclear energy.

The Institute employs 52 scientists, 47 full-time.
INSTITUTO DE FISICA, UNIVERSIDADE DO RIO GRANDE DO SUL  
(Institute of Physics, University of Rio Grande do Sul)  
Av. Luiz Englert, Porto Alegre

Director: Prof. David Mesquita da Cunha

Under the Rectorate of the University of Rio Grande do Sul  
Founded: 1959  
Budget: $84,210 (1963)

Divisions:  
Theoretical Physics - 11 scientists  
Experimental Physics - 9 scientists  
Radiochemistry - 2 scientists  
Electronics - 7 scientists  
Education - 6 scientists

The objective of the Institute is to promote education, study and research in the field of physics. It is directed by a Director, the Deliberative Council, and the Scientific-Technical Council. The Deliberative Council is made up of representatives of the Faculties of Philosophy, Architecture, and Medicine, Schools of Engineering, Agronomy and Veterinary Medicine, and Geology, and the Institute of Mathematics. The Scientific-Technical Council is made up of the Director and Division Chiefs. The Institute conducts courses and seminars and grants scholarships as well as an active research program.

INSTITUTO DE PESQUISAS RADIOACTIVAS, UNIVERSIDADE MINAS GERAIS  
(Institute of Radioactive Research, University of Minas Gerais)  
Rua Espírito Santo, 35, Belo Horizonte, Minas Gerais

Director: Prof. Cásio Mendonça Pinto  
Vice Director: Prof. Milton Campos

Divisions:  
Electronics  
Nuclear Physics & Radioactivity  
Geology  
Radioactive Research  
Analytic Chemistry

Prof. Haroldo Rocha Vianna  
Prof. Omar Campos Ferreira  
Eng. Luis de Oliveira Castro  
Prof. Harry Gomes  
Prof. Milton Campos

The Institutes activities are: a) research on locating minerals of interest for nuclear energy; b) scientific and technological research on these minerals and production of materials of nuclear usefulness; c) study of effects of radiation on solids; d) production of radionuclides for medicine and research; e) technical and scientific studies in the field of physics, chemistry and metallurgy of importance to nuclear energy; f) formation of nuclear energy technicians. 49 engineers and researchers and 16 medium-level technicians are employed.
LAbORATORIO DA PRODUCAO MINERAL
(Laboratory of Mineral Production)
Av. Pasteur 404, Rio de Janeiro

Director: Dr. Oswaldo Erichsen de Oliveira

Under the Ministry of Mines and Energy; forms part of the National Department of Mineral Production.

Founded: 1933
Budget: About $300,000 for technical-scientific personnel yearly.

Divisions:
Analytic (primarily minerals) Jorge da Cunha
Hydrochemistry Nicolau Braile
Extraction & Improvement of Minerals Mario R. Antionelli
Physics-Chemistry Luiz Miranda
Crenologia Mauro Vilanova Machado

Sections for analysis of silicates, combustibles and precious metals.

The Laboratory was created to expand the studies of chemistry and mineral technology of the country. The Laboratory carries out minerals analysis, analyzes and classifies minerals found in the sea, studies methods for extracting and improving minerals, studies the application of physical-chemical methods, and the medicinal action of sea minerals. Approximately 70 chemist-technologists and ten engineers are employed part-time. Few are involved in technical work, most carry out legal work.

TECHNOLOGY

INSTITUTO DE ELETROTECNICA, UNIVERSIDADE DE SÃO PAULO
(Electrotechnic Institute, University of Sao Paulo)
Caixa Postal 6233, Sao Paulo
Substitute Director: José Luiz da Cruz Passos

Within the Polytechnic School, University of Sao Paulo
Founded: 1940
Budget: About $152,000 (1963)
INSTITUTO DE ELETROTECNICA (continued)

Divisions: High Tension Eng. José Luiz dos Santos Pereira Jr.
Electronics Eng. João William Merge
Photometry Eng. Decio Geraldo Silveira
Machines Eng. Shigueharo Deyama
Measurements Eng. Euclydes Paschoal Casella
Library Alice Camargo Guarnieri

The functions of the Institute are practical teaching and laboratory and investigation work. Its activities are: a) proportioning means for the perfection of graduates; b) serving as State Laboratory of Materials and Electrical Apparatus Testing, working in collaboration with the Brazilian Association of Technical Norms; c) collaboration in the formulation of technical norms for products of the electrical industry; d) material testing work for private and public organizations.

INSTITUTO DE PESQUISAS E DESENVOLVIMENTO DA AERONÁUTICA
(Institute of Research and Development of Aeronautics)
São José dos Campos, São Paulo

Director: Ten. Cel. Av. Eng. George Soares de Moraes

Part of the Technical Aeronautics Center, under Ministry of Aeronautics
Founded: $526,315 plus funds for specific research projects (1963)

Sections: Aircraft Maj. Av. Eng. Hugo de Oliveira Piva
Motors Eng. Paul Johan Köhler

This Institute is located adjacent to the Instituto Tecnologico de Aeronautica (ITA) which is also financed by the Ministry of Aeronautics and contributes to the stature of ITA through staff contracts, and through student awareness of research and development areas.

The Institute is an organization of research, development, cooperation, promotion and execution of scientific and technological activities to aid the development of aeronautics in Brazil. Research projects are being carried out in aircraft development, propulsion, electronics, and materials. The staff in 1963 consisted of: 35 researchers; 10 engineers; 31 medium-grade technicians; and 52 specialists - a total of 128.
INSTITUTO DE PESQUISAS TECNOLOGICAS DE SAO PAULO (IPT)
(Institute of Technological Research of São Paulo)
Caixa Postal 7141, São Paulo

Superintendent: Prof. Francisco João Maffei (Dean, Polytechnic School)
Asst. Superintendent: Eng. Antonio Dias Ferraz N. Neto

Autonomous institution with the U. of São Paulo's Polytechnic School
Founded: 1899, began research work in 1934
Budget: $322,580 (estimated 1964)

Divisions: Concrete and Coal Brick
Structures
Woods (aeronautics, Testing & Industrialization, Identification and Preservation Sections)
Metallurgy (1961 budget: US$114,000)
Metrology
Chemistry
Soils, etc.

The Institute is dedicated to applied research and technical assistance to engineering and industry. It does work on contract for business and government and in addition supports research and development programs from University funds. Its activities include: a) materials control and testing; b) research activities: attempt to solve determined problems in the technological field and related sciences; c) making available to interested persons and institutions the experience and knowledge of its technicians, by means of publications, conferences, classes, etc. IPT makes available scholarships for students, especially those from the Polytechnic School and has carried out extension courses for soil technicians, metrologists, aviation institutions, etc.; d) production on a semi-industrial scale of certain indispensable products such as special alloys, casted pieces, etc.

Lately IPT has developed an intense program of research in the field of nuclear energy in collaboration with the Conselho Nacional de Pesquisas. The Metallurgy Division, under the direction of Dr. Ing. Luiz Corrêa da Silva, is carrying on an excellent practical program of research. It includes research on casting, alloys, metallography, microscopy, and large-scale testing of steel and concrete. The laboratory was organized in 1927.

All the Institute's personnel are full-time. There were 83 engineers, chemists & physicists on the staff in 1963.
INSTITUTO NACIONAL DE TECNOLOGIA (INT).
(National Institute of Technology)
Av. Venezuela 82, Rio de Janeiro

Director: Dr. Sylvio Frões Abreu
Vice Director: Dr. Jayme Santa Rosa

Under the Ministry of Industry and Commerce, GOB
Founded: 1921, under the name Combustible & Minerals Experiment Station; present structure dates from 1938.
Budget: $471,580 (1963)

Divisions:
- Inorganic Industrial Chemistry
  Heads: Nilza Hasselman de Figueiredo
- Organic Industrial Chemistry
  Heads: Moacyr Silva
- Metallurgy
  Heads: Arnaldo da Silveira Feijó
- Construction
  Heads: Paulo Guimarães Pereira
- Sugar and Fermentation
  Heads: Nancy de Queiroz Araújo
- Industrial Physics
  Heads: Aimone Camardella
- Combustives, Lubricants and Thermal Motors
  Heads: Heroldo de Souza Mattos
- Electricity
  Heads: Elde Fíres Braga
- Plastics
  Heads: Aluizio Alves de Araújo
- Textiles, Cellulose & Paper
  Heads: Walmir T. de Carvalho
- Ceramics, Refractives & Glass
  Heads: Fleming Zeeman
- Education and Documentation
  Heads: Fernando Barbosa Carneiro
- Applied Mechanics

The objectives of INT are to study raw materials and national products, promote the obtainment and use, under the most favorable conditions, of these materials and products, and to assist, in any way possible, the national technology and industry. It serves as a consulting organism for the Federal Government. INT executes its program through two types of activities: a) investigation studies to procure new products, new techniques, and new manufacturing processes, and b) routine work to determine characteristics of products through applications of known processes.

It has interests in nearly all the fields of interest related to the development of the country, especially petroleum, anhidric alcohol, bagasse, construction materials, iron working, coke, cosmic rays, industrial chemicals, fermentation, and so on. It has a program of solar energy including studies of solar refrigeration and the solar drying of Brazilian shale. Some of the work is in the field of testing, specifications and standards. In 1952, the Centro de Mecânica Aplicada was created.

Courses are given for students in the schools of Engineering and Chemistry. The orientation of the instruction is essentially practical and experimental. About 200 students enroll each year.

INT employs 100 technicians (engineers, chemists, technologists) and 150 administrative and auxiliary personnel.
INSTITUTO TECNOLOGICO, ESTADO DO RIO GRANDE DO SUL
(Technological Institute, State of Rio Grande do Sul)
Av. Osvaldo Aranha, 271, Porto Alegre, Rio Grande do Sul

Director: Dr. João Baptista Perlott

Autonomous institution
Founded: 1963
Budget: $352,421

Divisions:
- Agglomerants and Concrete: Eng. Alfieri Gobetti
- Botanical Technology: Eng. Alarich Schultz
- Structures: Eng. Danilo Coelho Smith
- Metals and Metallography: Eng. Werner Grundig
- Metrology: Eng. Milton Guterres
- Inorganic Chemistry: Quim. Franklin Jorge Gross
- Soils and Foundations: Eng. Casemiro Jose Munárski

A total of 127 persons are employed in the various divisions, including technicians, laboratory assistants, technologists, etc.

INSTITUTO DE TECNOLOGIA INDUSTRIAL
(Institute of Industrial Technology)
Rua da Bahia 52, Belo Horizonte, Minas Gerais

Director: Dr. Abel de Oliveira Machado

Under the Secretariat of Agriculture of the State of Minas Gerais
Founded: 1944
Budget:

Sections:
- Chemical Analysis Laboratory
- Spectroscopy Laboratory
- Fibers and Fabrics Laboratory
- Combustibles Laboratory
- Oils and Dyés Laboratory
- Wood and Metrology Laboratory
- Metallurgy and Physics Service
- Mechanical Technology

The Institute concerns itself with geology, mineralogy, metallurgy, chemistry and physical chemistry. 61 technicians are employed full-time.
FUNDACAO GETULIO VARGAS  
(Getulio Vargas Foundation)  
Praia de Botafogo, 186, Rio de Janeiro  
President: Dr. Luis Simões Lopes  
Executive Director: Dr. Alim Pedro  
Private institution  
Founded: 1944  
Budget:  
Divisions: Brazilian Economic Institute  
Brazilian Institute of Administration  
Department of Education  
The Foundation has a technical-educational character with the  
objectives of promoting studies and investigations in the public and  
private domain, promoting the formation, the specialization, and the  
perfecting of personnel for private and public functions, and serving as  
a documentation center for systematizing and divulging technical activities.  
The directive organisms are the General Assembly, the Advisory Council, the  
President, the Directive Council, and the Executive Director.  
It is supported by funds from the Federal Government, state  
governments, foundations, and payment for services rendered. Its  
activities are carried out through the various organizations listed above  
under Divisions.

INSTITUTO BRASILEIRO DE ADMINISTRACAO  
(Brazilian Institute of Administration)  
Praia de Botafogo, 186, Rio de Janeiro  
Director:  
Part of the Getulio Vargas Foundation  
Founded:  
Budget:  
This Institute carries out one of the fundamental objectives of the  
Foundation: training and technical assistance for public administration  
and companies. Its activities are realized through the Brazilian School  
of Public Administration of Rio de Janeiro and the School of Administration  
of Enterprises of São Paulo. The Brazilian School of Public Administration  
was created in 1952 under the auspices of the United Nations. It trains  
personnel for the responsibilities of public service in state, federal and  
municipal government. It has a Center of Investigations.
INSTITUTO BRASILEIRO DA ECONOMIA
(Brazilian Institute of Economy)
Praia de Botafogo, 186, Rio de Janeiro.

Part of the Getulio Vargas Foundation

Divisions: Fiscal Studies
Industrial Relations Studies
Center of Analysis of Economic Opportunity

This Institute is one of the most important organizations of research and analysis of the Brazilian economy. Its most distinguished activities are the studies on the evolution of the national income, recognized as the only official studies in the country. It also prepares indices of prices and the cost of living, and provides technical advice for the National Congress and the Ministry of Finances. It carries out training programs for economists.

It is in contact with the Rockefeller Foundation, the aid program of the U.S. Government, the Department of Economic and Social Affairs of the O.A.S., the Ford Foundation, etc. to carry out various research projects in different fields of the Brazilian economy.

NORTHEASTERN ECONOMIC SURVEYS DEPARTMENT (ETENE)
Fortaleza, Ceará

A department of the Banco do Nordeste do Brasil, S.A. which was created in 1952, installed in 1954.

ETENE is responsible for economic research and surveys upon which the drafting of the Bank's operational policies are based. Its first work was a preliminary diagnosis of the regional economy, followed by several other surveys, including: (a) agricultural surveys on sisal, manioc, foraging palma (Puntia speciosa) and moco cotton; (b) studies on cattle raising economy; (c) general aspects of agriculture; (d) sundry industrial surveys; (e) economic aspects of northeastern handicrafts. ETENE has contributed to the organization of state planning agencies and to the creation of the Working Group for the Development of the Northeast (GTDN), the cell which was expanded into SUDENE.
COMISSÃO DO VALE DE SAO FRANCISCO (CVSF)
(San Francisco Valley Commission)
Rio de Janeiro

Director:

Federal organization
Founded: 1948
Budget: $10,000,000 (1960), receives 1% of Federal revenues

CVSF was created to promote economic development in the San Francisco River area. The river rises in Minas Gerais, in the region of Belo Horizonte, flows north through Bahia, then east to the Atlantic. The total area administered by the CVSF is 620,000 square kilometers.

Its program includes regulation of streamflow, flood control, development of hydro-electric power potentialities, large-scale irrigation, improvement of transport and communications by both river and road, and improvement of production and social services. Expenditures for 1956-60 were distributed as follows: Canals - 34.7%; Improved electricity supply - 16.8%; Transportation - 16.3%; Improved production methods - 13%, Health - 11.7%, Irrigation, drainage - 4%, Study and research - 1.8%, Education - 1.7%.

The technical staff of CVSF includes 45 agronomists, 23 veterinarians, and 14 agricultural technicians. Objectives have included improvement and increased production of rice, onions, grapes, figs, cotton & oil crops.

SERVICO DO VALE DO PARAIBA (SVP)
(Paraíba Valley Service)

Administered by the Department of Water & Electric Energy of São Paulo

Although the Paraíba Valley extends from São Paulo into Rio de Janeiro and Minas Gerais, the SVP has so far been concerned only with the State of São Paulo. Most of the studies made so far have been of natural resources. An effort is being made to raise the standard of living by educational and sanitary improvements and instruction in agricultural practices.

A plan was prepared in 1962 by the SVP and the National Development Council's Working Group for the Paraíba River Basin. It contains a 15-year program for the period from 1962 to 1977, and calls for a budget of about $246,250,000 for the entire basin, allocated as follows:

<table>
<thead>
<tr>
<th>State</th>
<th>Thousands of Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minas Gerais</td>
<td>60,000</td>
</tr>
<tr>
<td>Rio de Janeiro</td>
<td>85,000</td>
</tr>
<tr>
<td>Guanabara</td>
<td>1,250</td>
</tr>
<tr>
<td>São Paulo</td>
<td>100,000</td>
</tr>
</tbody>
</table>
SUPERINTENDENCIA DE DESENROLVIMENTO ECONOMICO DO NORDESTE (SUDENE)
(Superintendency of Economic Development of the Northeast)
Recife, Pernambuco

Directly subordinated to the President of the Republic
Founded: 1959
Budget: Never less than 2% of the revenues of the Union, plus 50% of the value of agios collected in conformity with the legislation in force, through the auction of currencies derived from the exportation of goods produced in the Northeast, after deduction of bonuses paid to the region's exporters. Resources of other federal agencies may also be granted to SUDENE.

Departments:
Office of the Superintendent
Research on Mineral Resources
Divisions: Agrology, Hydrology, and Geology
Basic Economic Activities
Divisions: Power, Industrial, and Transportation
Special Studies
Manpower and Colonization Division
Control and Emergency Action
Technical Assistance and Personnel Training
Internal Activities
Cartography Division
Capital of the Republic Office
Regional Offices

SUDENE was created for the purpose of preparing surveys and programs deemed necessary to the understanding of the Northeast economy, as well as to a more efficient federal action for the development of the region. On the basis of surveys and studies made, SUDENE prepared a Guiding Plan for the Development of the Northeast, to be executed during the five-year period 1961-1965. SUDENE's activities are largely planning and coordination.

The region administered by SUDENE has an area of 1.6 million square kilometers. The activities incumbent upon SUDENE require the participation of all federal agencies that act in the Northeast as well as that of the state governments, even in the planning stage. The highest authority in SUDENE is vested in a Deliberative Council composed of: (a) the Governors of the States of the Northeast (9); (b) representatives of the following Ministries: Agriculture, Education and Culture, Finance, Health, Labor, Industry and Commerce, Transportation and Public Works (6); (c) representatives of the National Bank for Economic Development (BNDE), Bank of Brazil, and the Bank of the Northeast of Brazil (BNB) (3); (d) Superintendent of SUDENE, General Director of the National Department for Works against Droughts (DNDE), Superintendent of the São Francisco Valley Commission (CVSF). A total of 22 members.
SUDENE's plans incorporate four principal objectives: (1) to intensify industrial investment, aiming at the creation of centers of manufacturing; (2) to transform the agrarian structure of the humid coastal area by stimulating a more intensive utilization of land for sugar cane, thus making land available for food production; (3) to institute a progressive change in the economy of semi-arid zones; and (4) to give room for the population increase by developing the humid regions of Maranhão and southern Bahia.

The U.S. Government committed $131 million against a contribution of $145 million by the Government of Brazil to a two-year development program in April 1962.28 (both figures in U.S. dollars)

SUPERINTENDENCIA DO PLANO DE VALORIZACAO DO FRONTEIRA SUDOESTE (SPVF)
(Superintendency for Economic Improvement of the Southwest Frontier)
Porto Alegre; Rio Grande do Sul

Federal Organization
Founded: 1956, general directives drawn up in 1961.
Budget: $26,700,000 (proposed 1964)

The zone administered by SPVF includes 155 municipalities, some of them in Mato Grosso and Paraná, but the majority in Santa Catarina and Rio Grande do Sul. SPVF has outlined priorities for projects in Mato Grosso, Santa Catarina, Paraná and Rio Grande do Sul. The following fields of priority are ranked for each state according to its needs: (a) electrification, (b) transportation and communication, (c) health, and (d) agriculture.28

The 1964 budget was to be allocated as follows:

<table>
<thead>
<tr>
<th>Project</th>
<th>% of Budget</th>
<th>State</th>
<th>% of Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Improvement</td>
<td>45</td>
<td>Mato Grosso</td>
<td>24</td>
</tr>
<tr>
<td>Social Improvement</td>
<td>33</td>
<td>Paraná</td>
<td>20</td>
</tr>
<tr>
<td>Adminis. Improvement</td>
<td>16</td>
<td>Santa Catarina</td>
<td>16</td>
</tr>
<tr>
<td>Reserve</td>
<td>6</td>
<td>Rio Grande do Sul</td>
<td>40</td>
</tr>
</tbody>
</table>
SUPERINTENDENCIA DO PLANO DE VALORIZACAO ECONOMICA DA AMAZONIA (SPVEA)
(Superintendency for Economic Development of the Amazon Region)
Belém, Pará

Federal Organization
Founded: 1953 (began work in 1955)
Budget: SPVEA is allotted 3% of revenues from federal taxes (it usually receives less than 2%), 3% of the revenue of states, territories and municipalities within its sphere, plus the income it generates for itself from its own operations and extension of credit. During 1953-60, SPVEA received cr$15 billion from tax sources.

Technical Sections: Natural Resources
Agricultural Production
Credit and Commerce
Transport and Communications
Health
Cultural Development

Development projects of SPVEA are studies by a planning commission of fifteen members: Nine represent the states and territories of the Amazon region, and six are the chairmen of SPVEA's technical sections.

The region under SPVEA's administration is called "Amazônia Legal." It comprises all the Northern region, the part of Mato Grosso north of the latitude 16° South, the part of Goiás north of 13° South, and the part of Maranhão west of 46° West longitude.

The duties of SPVEA are to stimulate production of agricultural and extraction products, to encourage cattle breeding, industrial development, and mining, and to improve market conditions. Its activities are largely planning and coordination.

Since 1953 there has been a mission from FAO to advise SPVEA on problems pertaining to forestry and agricultural production. Programs have included training Brazilian personnel in a model sawmill and in logging and silviculture, a survey of about 20 million hectares of Amazon forests, a study of forest policy, and outlines for a forest research center. Other projects have been soils surveys; a study of animal diseases, studies of crop production and the rural economy, and examination of fisheries.

Geologists from UNESCO provided SPVEA with technical assistance for several years. The Escritório Técnico de Agricultura (ETA), a joint Brazilian and U.S. technical agency, supervises training and extension work in rubber cultivation and distribution of improved Hevea plants.
SCIENCE PROMOTION ORGANIZATIONS

FUNDACAO DE AMPARO A PESQUISA DO ESTADO DE SAO PAULO (FAPESP)
/Foundation for the Support of Research in the State of São Paulo/
Av. Paulista, 352-140, São Paulo

Director and Chairman of Technical-Administrative Council:
Jayme A. de Cavalcanti (Biochemistry Professor, U. of São Paulo)
Scientific Director: Dr. William Saad Hossne
Administrative Director: Mr. Celso A. Bandeira de Mello

State Organization
Founded: 1960 (began operations in 1962)
Budget: $600,000 (1964) By law FAPESP receives 1/2 of one percent of the total state tax revenues.

The name of this organization indicates its objectives. Of the approximately $925,000 available in 1962, 95% went for research grants and the remainder for fellowships. In addition, FAPESP supports scientific symposia.

The Scientific Director is responsible for evaluation of the scientific merits of all requests for research grants. A group of 13 experts, each from a different scientific field, advises him. In 1962 support was provided for research and study in the following fields: agronomy, biology, engineering and technology, medicine, chemistry, social sciences and humanities, geology, geography, history and the exact sciences (mathematics, physics and astronomy).

FUNDACAO PARA O DESENVOLVIMENTO DA CIENCIA NA BAHIA
/Foundation for the Development of Science in Bahia/
Praça da Sé, Edificio Themis, Salvador, Bahia

Directive Council: Seven members named by the Governor of Bahia

Autonomous institution under the State Secretariat of Education
Founded: 1950
Budget: $75,600 (1961). Receives 0.25% of state taxes.

The Foundation coordinates, stimulates and assists all areas of scientific work and research. At present the Foundation is subsidizing research in medicine, biochemistry, physics, mathematics, geography, sociology, anthropology, and microbiology. Various state institutions, including the University of Bahia, participate in these research programs.
SOCIEDADE BRASILEIRA PARA O PROGRESSO DA CIENCIA (SBPC)
(Brazilian Society for the Progress of Science)
Caixa Postal 11.230, São Paulo, S.P.

President: José Baeta Vianna
Vice President: Haiti Moussatché
Secretary General: Gastão Rosenfeld

Private Organization
Founded: 1948

The SBPC is an organization of scientists, institutions, students and persons interested in the development of science. Its members are spread throughout almost all the states of Brazil, and in some states there exist nuclei of members. It is directed by the Directive Office (five members), the Council (57 members) and the Regional Secretariats (17).

Its objectives are to stimulate scientific work, facilitate cooperation between scientists, augment public understanding of science and work for greater prestige for the scientist, and focus the attention of science on the problems of national development, industry, agriculture, medicine, economics, etc. This is to be achieved through conferences, science exhibits, support of scientific work, publication of scientific works, and journals, etc.
EDUCATION

COMISSÃO SUPERVISORA DO PLANO DOS INSTITUTOS (COSUPI)
(Supervisory Commission for Plans of Institutes)

Under the Ministry of Education and Culture, GOB
Founded: 1958

COSUPI no longer exists. In 1964 it was incorporated into CAPES since there are no more plans to form institutes and its activities are similar to those of CAPES and CNPq.

COSUPI was created to develop an intensive program for high-level technical instruction and to develop applied research in collaboration with universities and industry. During its six-year existence it created 14 institutes: mathematics and physics in Porto Alegre, electronics and mechanics in Belo Horizonte, mechanics and agricultural mechanics in Curitiba, chemistry in Salvador and Rio, geology in Recife, mineralogy and metallurgy in Ouro Preto, economics and rural economics in Rio, genetics in Piracicaba, and rural technology in Fortaleza. In 1959 it raised to Cr$ 590 million the amount for the reform of the structure of technical education at the superior level. For several years COSUPI was under the direct influence of Dr. Paulo de Goes.

COORDINAÇÃO DO APERFEIÇOAMENTO DE PESSOAL DE NÍVEL SUPERIOR (CAPES)
(Council for Advanced Training of University-Level Personnel)
Av. Marechal Camara, 210, Caixa Postal 5185, Rio de Janeiro

Director: Prof. Suzana Gonçalves

Under the Ministry of Education, GOB
Founded: 1951
Budget: $1,500,000 (1964), $2,723,000 (estimated 1965)

In 1964, the functions of COSUPI, Programa de Expansão de Ensino Tecnológico (PROTEC), and Campanha Nacional de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) were combined into one organization, the present CAPES. The objectives of the new CAPES are: 1) improvement in qualifications of personnel engaged in teaching at university and college levels under a priority system based on the requirements of the country's economic and social development; 2) collaboration with the universities and colleges throughout the country; 3) support to centers of advanced research and training; 4) coordination of national plans for expansion of enrollments in areas of greater demand, without infringing upon the autonomy of the universities; 5) surveys, studies and research on problems within the scope of the agency; 6) administration of grants offered by the Brazilian Government to foreign students in graduate and postgraduate courses in Brazil.

CAPES disperses loans from the IDB and Ford Foundation. See page 68, Section III, for distribution of IDB loan.
CAPES (continued)

The administration of the scholarship programs of CAPES cooperates with governmental and private institutions for the selection of candidates. The section of documentation and statistics maintains records of advanced training and qualified professional personnel in Brazil.

Since its inception CAPES has done a very creditable job of promoting scientific and technical postgraduate education in Brazil. It has sent a good number of qualified young Brazilian scientists to other Latin American countries, Europe and the U.S. for specialized training in a variety of scientific and technical fields, and even though the primary responsibility of CAPES is the training of teachers, many persons training for scientific careers have received assistance from CAPES.

INSTITUTO BRASILEIRO DE EDUCACAO, CIENCIA Y CULTURA (IBECC) SECCAO DE S.PAULO
(Brazilian Institute of Education, Science and Culture, Sao Paulo Section
Av. Arnaldo, Faculdade de Medicina da U. de Sao Paulo, Caixa Postal 2921,
Sao Paulo, S. P.

General Secretary & Scientific Director: Dr. Isaias Raw

Originated as the Brazilian affiliate of UNESCO, now an independent Brazilian foundation.
Founded: 1950
Budget: $636,000, mainly from federal and state governments.
(1963)

IBECC is recognized as the major center for the improvement of secondary science education in Brazil and perhaps all of Latin America. It has worked closely with the National Science Foundation. Its activities include: teacher training programs, program of translating or adapting books for science and mathematics, preparing films or translating them, summer institutes in physics, biology and chemistry.15

Dr. Raw has developed an extensive and successful program. His efforts have been designed primarily to create a greater interest in science among young students through publication of simple experiments in various sciences, accompanied by inexpensive kits, science fairs, talent searches and educational TV programs. The recent establishment of six regional centers for the improvement of science teaching by the Directorate for Secondary Education in the Ministry of Education and Culture was due to the success of Dr. Raw's efforts.

The Ministry of Education has given IBECC Cr$ 80 million for the development of a science teaching center at the University of Recife.
EDUCATION

TECHNOLOGICAL & SCIENTIFIC DEVELOPMENT FUND, BANCO NACIONAL DE DESENVOLVIMENTO ECONOMICO

Under the Banco Nacional de Desenvolvimento Economico
Created: 1964

The Fund's capital is expected to reach five billion cruzeiros (about US $2,272,728) by 1967. The initial capital of 250 million cruzeiros (US $113,182) is supplemented by a one percent levy on the annual investment resources of the BNDE.

Forty percent of the fund will be assigned to finance post-graduate studies in physics, chemistry and chemical engineering, metallurgical and mechanical engineering, and electrical engineering; and 60 percent will be earmarked for industrial research. Although BNDE will administer the Fund, specific operations are conducted by institutions of higher learning and agencies such as CAPES. (Social Progress Trust Fund: Fifth Annual Report, 1965)
### ABBREVIATIONS FOR ORGANIZATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNDE</td>
<td>Banco Nacional de Desenvolvimento Econômico</td>
</tr>
<tr>
<td>CAPES</td>
<td>Coordenação do Aperfeiçoamento de Pessoal de Nível Superior</td>
</tr>
<tr>
<td>CBPF</td>
<td>Centro Brasileiro de Pesquisas Físicas</td>
</tr>
<tr>
<td>CNPq</td>
<td>Conselho Nacional de Pesquisas</td>
</tr>
<tr>
<td>COSUFI</td>
<td>Comissão Supervisora do Plano dos Institutos</td>
</tr>
<tr>
<td>CVSP</td>
<td>Comissão do Vale de São Francisco</td>
</tr>
<tr>
<td>FAPESP</td>
<td>Fundação de Amparo à Pesquisas do Estado de São Paulo</td>
</tr>
<tr>
<td>IAC</td>
<td>Instituto Agronômico de Campinas</td>
</tr>
<tr>
<td>IAL</td>
<td>Instituto Agronômico do Leste</td>
</tr>
<tr>
<td>IANE</td>
<td>Instituto Agronômico do Nordeste</td>
</tr>
<tr>
<td>IAO</td>
<td>Instituto Agronômico do Oeste</td>
</tr>
<tr>
<td>IAS</td>
<td>Instituto Agronômico do Sul</td>
</tr>
<tr>
<td>IBECC</td>
<td>Instituto Brasileiro de Educação, Ciência e Cultura</td>
</tr>
<tr>
<td>IMPA</td>
<td>Instituto de Matemática Pura e Aplicada</td>
</tr>
<tr>
<td>INPA</td>
<td>Instituto Nacional de Pesquisas da Amazônia</td>
</tr>
<tr>
<td>INT</td>
<td>Instituto Nacional de Tecnologia</td>
</tr>
<tr>
<td>IPD</td>
<td>Instituto de Pesquisas e Desenvolvimento de Aeronáutica</td>
</tr>
<tr>
<td>IPEDAN</td>
<td>Instituto de Pesquisas e Experimentação Agropecuárias do Norte</td>
</tr>
<tr>
<td>IPEM</td>
<td>Instituto de Pesquisas da Marinha</td>
</tr>
<tr>
<td>IPEST</td>
<td>Instituto de Pesquisas Tecnológicas de São Paulo</td>
</tr>
<tr>
<td>SBPC</td>
<td>Sociedade Brasileira para o Progresso da Ciência</td>
</tr>
<tr>
<td>SESP</td>
<td>Serviço Especial de Saúde Pública</td>
</tr>
<tr>
<td>SNA</td>
<td>Serviço Nacional de Pesquisas Agronômicas</td>
</tr>
<tr>
<td>SPVEA</td>
<td>Superintendência do Plano de Valorização Econômica da Amazônia</td>
</tr>
<tr>
<td>SPVF</td>
<td>Superintendência do Plano de Valorização do Fronteira Sudoeste</td>
</tr>
<tr>
<td>SUDENE</td>
<td>Superintendência de Desenvolvimento Econômico do Nordeste</td>
</tr>
<tr>
<td>SVP</td>
<td>Serviço do Vale do Paraíba</td>
</tr>
</tbody>
</table>
## ALPHABETICAL LISTING OF INSTITUTIONS

<table>
<thead>
<tr>
<th>Institution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academia Brasileira de Ciências</td>
<td>2</td>
</tr>
<tr>
<td>Centro Brasileiro de Pesquisas Físicas</td>
<td>29</td>
</tr>
<tr>
<td>Centro de Pesquisas Florestais e Conservação da Natureza</td>
<td>10</td>
</tr>
<tr>
<td>CEPLAC</td>
<td>4</td>
</tr>
<tr>
<td>Centro Pan-Americano de Febre Aftosa</td>
<td>10</td>
</tr>
<tr>
<td>Comissão de Vale de São Francisco (CVSF)</td>
<td>39</td>
</tr>
<tr>
<td>Comissão Supervisora do Plano dos Institutos (COSUPI)</td>
<td>45</td>
</tr>
<tr>
<td>Conselho Nacional de Pesquisas (CNPq)</td>
<td>3</td>
</tr>
<tr>
<td>Coordenção do Aperfeiçoamento do Pessoal de Nível Superior (CAPES)</td>
<td>45</td>
</tr>
<tr>
<td>Departamento de Física, Universidade de São Paulo</td>
<td>29</td>
</tr>
<tr>
<td>Departamento de Química, Universidade do São Paulo</td>
<td>28</td>
</tr>
<tr>
<td>ETENE (Northeastern Economic Surveys Department)</td>
<td>38</td>
</tr>
<tr>
<td>Fundação de Amparo a Pesquisa do Estado de São Paulo (FAPESP)</td>
<td>43</td>
</tr>
<tr>
<td>Fundação Getulio Vargas</td>
<td>38</td>
</tr>
<tr>
<td>Fundação para o Desenvolvimento da Ciência na Bahia</td>
<td>43</td>
</tr>
<tr>
<td>IBEC Research Institute</td>
<td>11</td>
</tr>
<tr>
<td>Instituto Adolfo Lutz</td>
<td>19</td>
</tr>
<tr>
<td>Instituto Agronômico de Campinas</td>
<td>11</td>
</tr>
<tr>
<td>Instituto Agronômico de Minas Gerais</td>
<td>12</td>
</tr>
<tr>
<td>Instituto Agronômico do Sul (IAS)</td>
<td>8</td>
</tr>
<tr>
<td>Instituto Biológico da Bahia</td>
<td>13</td>
</tr>
<tr>
<td>Instituto Biológico de São Paulo</td>
<td>14</td>
</tr>
<tr>
<td>Instituto Brasileiro da Economia</td>
<td>38</td>
</tr>
<tr>
<td>Instituto Brasileiro de Administração</td>
<td>37</td>
</tr>
<tr>
<td>Instituto Brasileiro de Educação, Ciência y Cultura (IBECC)</td>
<td>45</td>
</tr>
<tr>
<td>Instituto Brasileiro de Pesquisas</td>
<td>20</td>
</tr>
<tr>
<td>Instituto Butantan</td>
<td>20</td>
</tr>
<tr>
<td>Instituto de Biofísica de la Universidade do Brasil</td>
<td>21</td>
</tr>
<tr>
<td>Instituto de Botânica, São Paulo</td>
<td>14</td>
</tr>
<tr>
<td>Instituto de Ciências Naturais, Universidade do Rio Grande do Sul</td>
<td>21</td>
</tr>
<tr>
<td>Instituto de Electrotécnica, Universidade de São Paulo</td>
<td>32</td>
</tr>
<tr>
<td>Instituto de Energia Atômica</td>
<td>30</td>
</tr>
<tr>
<td>Instituto de Física, Universidade do Rio Grande do Sul</td>
<td>31</td>
</tr>
<tr>
<td>Instituto de Matemática, Universidade de São Paulo</td>
<td>26</td>
</tr>
<tr>
<td>Instituto de Matemática, Universidade do Rio Grande do Sul</td>
<td>26</td>
</tr>
<tr>
<td>Instituto de Matemática Pura e Aplicada</td>
<td>27</td>
</tr>
<tr>
<td>Instituto de Microbiologia, Universidade do Brasil</td>
<td>23</td>
</tr>
<tr>
<td>Instituto de Oleos</td>
<td>7</td>
</tr>
<tr>
<td>Instituto de Pesquisas da Marinha (IPqM)</td>
<td>17</td>
</tr>
<tr>
<td>Instituto de Pesquisas e Desenvolvimento de Aeronáutica</td>
<td>33</td>
</tr>
<tr>
<td>Instituto de Pesquisas e Experimentação Agropecuárias do Norte (IPEAN)</td>
<td>7</td>
</tr>
<tr>
<td>Instituto de Pesquisas Radiactivas</td>
<td>31</td>
</tr>
<tr>
<td>Instituto de Pesquisas Tecnológicas de São Paulo (IPT)</td>
<td>34</td>
</tr>
<tr>
<td>Instituto de Química, Universidade do Brasil</td>
<td>28</td>
</tr>
<tr>
<td>Instituto de Química Agrícola</td>
<td>7</td>
</tr>
<tr>
<td>Instituto de Tecnologia Industrial</td>
<td>36</td>
</tr>
<tr>
<td>Instituto Evandro Chagas</td>
<td>25</td>
</tr>
<tr>
<td>Institution</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Instituto Gonçalo Moniz</td>
<td>22</td>
</tr>
<tr>
<td>Instituto Nacional de Endemias Rurais</td>
<td>22</td>
</tr>
<tr>
<td>Instituto Nacional de Pesquisas da Amazônia</td>
<td>15</td>
</tr>
<tr>
<td>Instituto Nacional de Tecnologia (INT)</td>
<td>35</td>
</tr>
<tr>
<td>Instituto Oceanográfico, Universidade do Recife</td>
<td>17</td>
</tr>
<tr>
<td>Instituto Oceanográfico, Universidade de São Paulo</td>
<td>18</td>
</tr>
<tr>
<td>Instituto Oswaldo Cruz</td>
<td>23</td>
</tr>
<tr>
<td>Instituto Tecnológico Estado do Rio Grande do Sul</td>
<td>36</td>
</tr>
<tr>
<td>Jardim Botânico</td>
<td>5</td>
</tr>
<tr>
<td>Laboratório da Produção Mineral</td>
<td>32</td>
</tr>
<tr>
<td>Museu Nacional</td>
<td>24</td>
</tr>
<tr>
<td>Museu Paraense Emilio Goeldi</td>
<td>16</td>
</tr>
<tr>
<td>Serviço do Vale do Páraiba (SVP)</td>
<td>39</td>
</tr>
<tr>
<td>Serviço Especial de Saúde Pública (SESP)</td>
<td>24</td>
</tr>
<tr>
<td>Serviço Florestal da Secretaria da Agricultura, Edo. de São Paulo</td>
<td>9</td>
</tr>
<tr>
<td>Serviço Nacional de Cancer</td>
<td>25</td>
</tr>
<tr>
<td>Serviço Nacional de Pesquisas Agronômicas (SNPA)</td>
<td>5</td>
</tr>
<tr>
<td>Sociedade Brasileira para o Progresso da Ciencia (SBPC)</td>
<td>44</td>
</tr>
<tr>
<td>Superintendência de Desenvolvimento Econômico do Nordeste (SUDENE)</td>
<td>40</td>
</tr>
<tr>
<td>Superintendência do Plano de Valorização do Fronteira Sudoeste (SPVF)</td>
<td>41</td>
</tr>
<tr>
<td>Superintendência do Plano de Valorização Econômica da Amazônia (SPVEA)</td>
<td>42</td>
</tr>
</tbody>
</table>
FOREIGN AID AND LOANS TO BRAZIL

INTRODUCTION 1
ABBREVIATIONS USED IN TABLES 2
BREAKDOWN OF FUNDS BY FIELD — ALL AGENCIES 3
AGRICULTURE AND PLANT SCIENCES 12
    Inter-American Development Bank 12
    Organization of American States 12
    Food and Agriculture Organization 13
    Pan American and World Health Organizations 14
    International Atomic Energy Agency 15
    U. N. Special Fund 15
    Agency for International Development 15
    U. S. Department of Agriculture 17
    Fulbright Scholars 19
    National Science Foundation 19
    Ford Foundation 20
    Rockefeller Foundation 20
MARINE BIOLOGY AND OCEANOGRAPHY 22
    Food and Agriculture Organization 22
    UNESCO 22
    U. N. Special Fund 22
    Agency for International Development 22
    Office of Naval Research 23
    Ford Foundation 23
    Rockefeller Foundation 23
MEDICAL AND BIOLOGICAL SCIENCES 24
    Pan American and World Health Organizations 24
    International Atomic Energy Agency 27
    Fulbright Scholars 28
    National Institutes of Health 28
    U. S. Public Health Service Postdoctoral Research Fellows 31
    National Science Foundation 32
    U. S. Army Research Grants 32
    Atomic Energy Commission 33
    Latin American Office of Aerospace Research 33
    Kellogg Foundation 34
    Rockefeller Foundation 36
DENTAL SCIENCES 40
    Pan American and World Health Organizations 40
    Kellogg Foundation 40
MATHEMATICS 42
    Fulbright Scholar 42
    National Science Foundation 42
    Latin American Office of Aerospace Research 42
    Rockefeller Foundation 42
CHEMISTRY 43
    Fulbright Scholars 43
    National Science Foundation 43
    Office of Naval Research 43
    Ford Foundation 43
    Rockefeller Foundation 44
    International Atomic Energy Agency 44
ENGINEERING
- Pan American and World Health Organizations
- U. N. Special Fund
- Agency for International Development
- Fulbright Scholar
- National Science Foundation
- Ford Foundation

PHYSICS
- International Atomic Energy Agency
- Agency for International Development
- Atomic Energy Commission
- Fulbright Scholars
- National Science Foundation
- U. S. Army Research Grants
- Latin American Office of Aerospace Research
- Ford Foundation
- Rockefeller Foundation

METEOROLOGY
- World Meteorological Organization
- Agency for International Development

GEOPHYSICS
- Latin American Office of Aerospace Research

NATIONAL RESOURCES (GEOLoGY, HYDROLOGY, SOILs, ETC.)
- UNESCO
- U. N. Special Fund
- Agency for International Development
- Fulbright Scholar
- National Science Foundation

INDUSTRY AND MANPOWER
- Inter-American Development Bank
- International Atomic Energy Agency
- International Labor Organization
- U. N. Technical Assistance Program
- Agency for International Development

POWER
- Inter-American Development Bank
- World Bank
- U. N. Technical Assistance Program
- U. N. Special Fund
- Agency for International Development

TRANSPORTATION
- U. N. Technical Assistance Program
- Agency for International Development

ECONOMICS AND PLANNING
- Inter-American Development Bank
- Organization of American States
- U. N. Technical Assistance Program
- Agency for International Development
- Ford Foundation
- Rockefeller Foundation
PUBLIC AND BUSINESS ADMINISTRATION

U. N. Technical Assistance Program 61
Agency for International Development 61
Fulbright Scholars 61
Ford Foundation 61

SOCIOLOGY

Organization of American States 63
UNESCO 63
U. N. Technical Assistance Program 63
Agency for International Development 63
Fulbright Scholars 63

EDUCATION AND GENERAL SCIENCE DEVELOPMENT

Inter-American Development Bank 64
Organization of American States 64
UNESCO 64
U. N. Special Fund 65
Agency for International Development 65
Ford Foundation 66
INTRODUCTION

This section contains a compilation of projects having components of science, technology and/or education supported by U.S. (private and governmental) and international organizations from 1962 through 1965 in Brazil. Only projects of the three major foundations, Kellogg, Ford & Rockefeller are included. The projects are listed according to field, e.g., Marine Biology and Oceanography, Chemistry, Meteorology, Geophysics, etc. Sociology projects are only touched upon.

It was not always possible to determine the exact amounts of money spent during this period on the projects: in some cases the amount indicated includes the years previous to 1962, in others the funding extends several years into the future. However, since this situation was encountered in most of the fields, the resulting figures indicate fairly accurately where the emphasis lies in foreign aid.

Fellowship figures are not included for Fulbright, Rockefeller Foundation, some U.N. agencies and the Organization of American States. The latter organization spent $176,000 in fellowships during 1963-64.

The tables on the following pages show distribution of each organization's funds by field, and a further breakdown for each field.
### Abbreviations Used in Tables

#### Granting and Lending Organizations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEC</td>
<td>Atomic Energy Commission</td>
</tr>
<tr>
<td>AID</td>
<td>Agency for International Development</td>
</tr>
<tr>
<td>FORD</td>
<td>Ford Foundation</td>
</tr>
<tr>
<td>KEL</td>
<td>Kellogg Foundation</td>
</tr>
<tr>
<td>IDB</td>
<td>Inter-American Development Bank</td>
</tr>
<tr>
<td>MIL</td>
<td>Army, Air Force, Navy Grants</td>
</tr>
<tr>
<td>NIH</td>
<td>National Institutes of Health</td>
</tr>
<tr>
<td>NSF</td>
<td>National Science Foundation</td>
</tr>
<tr>
<td>OAS</td>
<td>Organization of American States</td>
</tr>
<tr>
<td>ROCK</td>
<td>Rockefeller Foundation</td>
</tr>
<tr>
<td>UN</td>
<td>Agencies of the United Nations</td>
</tr>
<tr>
<td>USDA</td>
<td>U.S. Department of Agriculture</td>
</tr>
<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
</tbody>
</table>

#### Fields

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGR</td>
<td>Agriculture and Plant Sciences</td>
</tr>
<tr>
<td>CHEM</td>
<td>Chemistry</td>
</tr>
<tr>
<td>DENT</td>
<td>Dental Sciences</td>
</tr>
<tr>
<td>E&amp;P</td>
<td>Economics and Planning</td>
</tr>
<tr>
<td>EDUC</td>
<td>Education and General Science Development</td>
</tr>
<tr>
<td>ENG</td>
<td>Engineering</td>
</tr>
<tr>
<td>GEOP</td>
<td>Geophysics</td>
</tr>
<tr>
<td>I&amp;M</td>
<td>Industry and Manpower</td>
</tr>
<tr>
<td>MATH</td>
<td>Mathematics</td>
</tr>
<tr>
<td>MED</td>
<td>Medical and Biological Sciences</td>
</tr>
<tr>
<td>METO</td>
<td>Meteorology</td>
</tr>
<tr>
<td>NR</td>
<td>Natural Resources (Geology, Hydrology, Soils, etc.)</td>
</tr>
<tr>
<td>P&amp;B</td>
<td>Public and Business Administration</td>
</tr>
<tr>
<td>PHYS</td>
<td>Physics</td>
</tr>
<tr>
<td>POW</td>
<td>Power</td>
</tr>
<tr>
<td>OGY</td>
<td>Oceanography</td>
</tr>
<tr>
<td>SOC</td>
<td>Sociology</td>
</tr>
<tr>
<td>TRAN</td>
<td>Transportation</td>
</tr>
</tbody>
</table>
**SUMMARY: DISTRIBUTION OF FUNDS BY ORGANIZATION AND FIELD -- LOANS AND GRANTS COMBINED**

*During the Approximate Period 1962-1965* (in thousands of U.S. dollars)*

<table>
<thead>
<tr>
<th>IDB</th>
<th>WB</th>
<th>UN</th>
<th>OAS</th>
<th>AID</th>
<th>AEC</th>
<th>NHR</th>
<th>NSF</th>
<th>MIL</th>
<th>USDA</th>
<th>FORD</th>
<th>KEL</th>
<th>ROCK</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGR</td>
<td>13,750</td>
<td>3,323</td>
<td>191</td>
<td>11,808</td>
<td>411</td>
<td>726</td>
<td>1,405</td>
<td>337</td>
<td>31,977</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GGY</td>
<td>835</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>548</td>
<td>1,475</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MED</td>
<td>1,089</td>
<td>142</td>
<td>1,111</td>
<td>19</td>
<td>208</td>
<td>509</td>
<td>685</td>
<td>3,762</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DENT</td>
<td>11</td>
<td>91</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>139</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>111</td>
<td></td>
<td>566</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM</td>
<td>4</td>
<td></td>
<td>48</td>
<td>490</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td>566</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG</td>
<td>721</td>
<td>1,760</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,641</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS</td>
<td>22</td>
<td>16</td>
<td>122</td>
<td>101</td>
<td>213</td>
<td>100</td>
<td>1</td>
<td>575</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>METO</td>
<td>170</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>509</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR</td>
<td>716</td>
<td>76,622</td>
<td>155</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>77,494</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I&amp;M</td>
<td>2,650</td>
<td>163</td>
<td>244</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3,057</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POW</td>
<td>41,900</td>
<td>79,500</td>
<td>2,571</td>
<td>31,575</td>
<td>155,536</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRAN</td>
<td>34</td>
<td>12,044</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12,078</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E&amp;P</td>
<td>340</td>
<td>314</td>
<td>237</td>
<td>1,188</td>
<td>1,172</td>
<td>14</td>
<td>3,264</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P&amp;BA</td>
<td>5</td>
<td>5,852</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6,762</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC</td>
<td>4,000</td>
<td>1,519</td>
<td>4</td>
<td>3,761</td>
<td>4,562</td>
<td>13,843</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOC</td>
<td>17</td>
<td>4</td>
<td>445</td>
<td></td>
<td></td>
<td></td>
<td>466</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>62,640</td>
<td>79,500</td>
<td>11,514</td>
<td>436</td>
<td>145,443</td>
<td>264</td>
<td>1,111</td>
<td>777</td>
<td>509</td>
<td>726</td>
<td>8,796</td>
<td>637</td>
<td>1,609</td>
</tr>
</tbody>
</table>

*See Introduction. **Due to rounding, rows and columns may not equal total.*
### AGRICULTURE AND PLANT SCIENCES*

<table>
<thead>
<tr>
<th></th>
<th>IDB</th>
<th>OAS</th>
<th>UN</th>
<th>AID</th>
<th>USDA</th>
<th>NSF</th>
<th>FORD</th>
<th>ROCK</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Reform &amp; Colonization</td>
<td>2,000</td>
<td>6</td>
<td>227</td>
<td>194</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,427</td>
</tr>
<tr>
<td>Machinery and Equipment</td>
<td>9,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9,000</td>
</tr>
<tr>
<td>Development Programs, Productivity</td>
<td>2,750</td>
<td>63</td>
<td>1,910</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4,723</td>
</tr>
<tr>
<td>Extension, Education and Curriculum Planning and Related Institutional Development</td>
<td></td>
<td>186</td>
<td>2,844</td>
<td>9,210</td>
<td></td>
<td>700</td>
<td>41</td>
<td></td>
<td>12,981</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>705</td>
<td>1,346</td>
</tr>
<tr>
<td>Research, including Research Materials &amp; Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>42</td>
<td>726</td>
<td>411</td>
<td>297</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>13,750</td>
<td>191</td>
<td>3,323</td>
<td>11,808</td>
<td>726</td>
<td>411</td>
<td>1,405</td>
<td>337</td>
<td>31,977</td>
</tr>
</tbody>
</table>

*Figures in this and succeeding tables are in thousands of U.S. dollars and include both loans and grants.*
### Marine Biology and Oceanography

<table>
<thead>
<tr>
<th>Description</th>
<th>UN</th>
<th>AID</th>
<th>FORD</th>
<th>ROCK</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of Research &amp; Training and Related Institutional Development</td>
<td>17</td>
<td>2</td>
<td>548</td>
<td></td>
<td>567</td>
</tr>
<tr>
<td>Development of the Fishing Industry</td>
<td>818</td>
<td>90</td>
<td></td>
<td></td>
<td>904</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>835</td>
<td>90</td>
<td>2</td>
<td>548</td>
<td>1,475</td>
</tr>
</tbody>
</table>

### Medical and Biological Sciences

<table>
<thead>
<tr>
<th>Description</th>
<th>UN</th>
<th>NIH</th>
<th>NSF</th>
<th>MIL</th>
<th>AEC</th>
<th>KEL</th>
<th>ROCK</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education and Curriculum Planning and Related Institutional Development</td>
<td>342</td>
<td>19</td>
<td></td>
<td>509</td>
<td>445</td>
<td></td>
<td></td>
<td>1,335</td>
</tr>
<tr>
<td>Public Health Services and Planning</td>
<td>575</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>575</td>
</tr>
<tr>
<td>Research, including Research Equipment</td>
<td>172</td>
<td>1,111</td>
<td>208</td>
<td>142</td>
<td>240</td>
<td></td>
<td></td>
<td>1,873</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1,089</td>
<td>1,111</td>
<td>19</td>
<td>208</td>
<td>142</td>
<td>509</td>
<td>685</td>
<td>3,762</td>
</tr>
</tbody>
</table>
### DENTAL SCIENCES

<table>
<thead>
<tr>
<th></th>
<th>UN</th>
<th>KEL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Training</td>
<td>4</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Curriculum Development</td>
<td>7</td>
<td>33</td>
<td>39</td>
</tr>
<tr>
<td>Teaching Equipment</td>
<td></td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>TOTAL</td>
<td>11</td>
<td>128</td>
<td>139</td>
</tr>
</tbody>
</table>

### MATHEMATICS

<table>
<thead>
<tr>
<th></th>
<th>NSF</th>
<th>MIL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>91</td>
<td>20</td>
<td>111</td>
</tr>
</tbody>
</table>

### CHEMISTRY

<table>
<thead>
<tr>
<th></th>
<th>UN</th>
<th>MIL</th>
<th>FORD</th>
<th>ROCK</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>4</td>
<td>48</td>
<td></td>
<td></td>
<td>52</td>
</tr>
<tr>
<td>Research Equipment</td>
<td></td>
<td></td>
<td>490</td>
<td>24</td>
<td>514</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4</td>
<td>48</td>
<td>490</td>
<td>24</td>
<td>566</td>
</tr>
</tbody>
</table>
### Engineering

<table>
<thead>
<tr>
<th></th>
<th>UN</th>
<th>AID</th>
<th>FORD</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Development</td>
<td>721</td>
<td>1,760</td>
<td></td>
<td>2,481</td>
</tr>
<tr>
<td>Laboratory Equipment</td>
<td></td>
<td></td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>TOTAL</td>
<td>721</td>
<td>1,760</td>
<td>160</td>
<td>2,641</td>
</tr>
</tbody>
</table>

### Physics

<table>
<thead>
<tr>
<th></th>
<th>UN</th>
<th>AID</th>
<th>ABC</th>
<th>NSF</th>
<th>MIL</th>
<th>FORD</th>
<th>ROCK</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>22</td>
<td>16</td>
<td>122</td>
<td>101</td>
<td>213</td>
<td></td>
<td></td>
<td>474</td>
</tr>
<tr>
<td>Institutional Development</td>
<td></td>
<td></td>
<td></td>
<td>100</td>
<td>1</td>
<td></td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>TOTAL</td>
<td>22</td>
<td>16</td>
<td>122</td>
<td>101</td>
<td>213</td>
<td>100</td>
<td>1</td>
<td>575</td>
</tr>
</tbody>
</table>

### Meteorology

<table>
<thead>
<tr>
<th></th>
<th>UN</th>
<th>AID</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>170</td>
<td></td>
<td>170</td>
</tr>
<tr>
<td>Institutional Development</td>
<td>38</td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>TOTAL</td>
<td>170</td>
<td>38</td>
<td>208</td>
</tr>
</tbody>
</table>
GEOPHYSICS

<table>
<thead>
<tr>
<th>Research</th>
<th>Mil.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

NATURAL RESOURCES

<table>
<thead>
<tr>
<th>Geological Education</th>
<th>UN</th>
<th>NSF</th>
<th>AID</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1,658</td>
<td></td>
<td>1,658</td>
</tr>
<tr>
<td>Surveys</td>
<td>715</td>
<td>74,964</td>
<td></td>
<td>75,679</td>
</tr>
<tr>
<td>Research</td>
<td>2</td>
<td>155</td>
<td></td>
<td>157</td>
</tr>
<tr>
<td>TOTAL</td>
<td>716</td>
<td>155</td>
<td></td>
<td>77,494</td>
</tr>
</tbody>
</table>

INDUSTRY AND MANPOWER

<table>
<thead>
<tr>
<th>Industrial Development</th>
<th>IDB</th>
<th>UN</th>
<th>AID</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2,650</td>
<td>27</td>
<td>244</td>
<td>2,921</td>
</tr>
<tr>
<td>Manpower Development</td>
<td></td>
<td>137</td>
<td></td>
<td>137</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,650</td>
<td>163</td>
<td>244</td>
<td>3,057</td>
</tr>
</tbody>
</table>
### POWER

<table>
<thead>
<tr>
<th></th>
<th>IDB</th>
<th>WB</th>
<th>UN</th>
<th>AID</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing Generating Capacity</td>
<td>41,900</td>
<td>79,500</td>
<td></td>
<td>31,575</td>
<td>152,975</td>
</tr>
<tr>
<td>Surveys of Power Resources &amp; Development</td>
<td></td>
<td></td>
<td>2,558</td>
<td></td>
<td>2,558</td>
</tr>
<tr>
<td>Unspecified</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>41,900</td>
<td>79,500</td>
<td>2,571</td>
<td>31,575</td>
<td>155,536</td>
</tr>
</tbody>
</table>

### TRANSPORTATION

<table>
<thead>
<tr>
<th></th>
<th>UN</th>
<th>AID</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation Studies</td>
<td>36</td>
<td>1,044</td>
<td>1,078</td>
</tr>
<tr>
<td>Highway Construction</td>
<td></td>
<td>11,000</td>
<td>11,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>34</td>
<td>12,044</td>
<td>12,078</td>
</tr>
</tbody>
</table>
### ECONOMICS AND PLANNING

<table>
<thead>
<tr>
<th></th>
<th>IDR</th>
<th>OAS</th>
<th>UN</th>
<th>AID</th>
<th>FORD</th>
<th>ROCK</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Surveys and Planning</td>
<td>340</td>
<td>213</td>
<td>314</td>
<td>552</td>
<td></td>
<td></td>
<td>1,419</td>
</tr>
<tr>
<td>Research on Development Problems</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td>600</td>
<td></td>
<td>622</td>
</tr>
<tr>
<td>Economic Education</td>
<td>3</td>
<td></td>
<td>636</td>
<td>572</td>
<td>14</td>
<td></td>
<td>1,225</td>
</tr>
<tr>
<td>TOTAL</td>
<td>340</td>
<td>237</td>
<td>314</td>
<td>1,188</td>
<td>1,172</td>
<td>14</td>
<td>3,264</td>
</tr>
</tbody>
</table>

### PUBLIC AND BUSINESS ADMINISTRATION

<table>
<thead>
<tr>
<th></th>
<th>UN</th>
<th>AID</th>
<th>FORD</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Development</td>
<td>5</td>
<td>5,852</td>
<td>500</td>
<td>6,357</td>
</tr>
<tr>
<td>Teaching and Research Materials</td>
<td></td>
<td></td>
<td>405</td>
<td>405</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5</td>
<td>5,852</td>
<td>905</td>
<td>6,762</td>
</tr>
</tbody>
</table>
### EDUCATION AND GENERAL SCIENCE DEVELOPMENT

<table>
<thead>
<tr>
<th></th>
<th>IDB</th>
<th>OAS</th>
<th>UN</th>
<th>AID</th>
<th>FORD</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Training</td>
<td></td>
<td></td>
<td>13</td>
<td>1,149</td>
<td></td>
<td>1,162</td>
</tr>
<tr>
<td>General Education Planning and Institutional Development</td>
<td>4</td>
<td>269</td>
<td>3,761</td>
<td>1,217</td>
<td></td>
<td>5,251</td>
</tr>
<tr>
<td>Development of Science Teaching and Research</td>
<td></td>
<td></td>
<td>1,234</td>
<td>2,196</td>
<td></td>
<td>3,430</td>
</tr>
<tr>
<td>Equipment and Library Materials</td>
<td>4,000</td>
<td></td>
<td></td>
<td>4,000</td>
<td></td>
<td>4,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,000</td>
<td>4</td>
<td>1,519</td>
<td>3,761</td>
<td>4,562</td>
<td>13,889</td>
</tr>
</tbody>
</table>

### SOCIOLOGY

<table>
<thead>
<tr>
<th></th>
<th>UN</th>
<th>OAS</th>
<th>AID</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Development</td>
<td>14</td>
<td>4</td>
<td>445</td>
<td>459</td>
</tr>
<tr>
<td>Demography</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17</td>
<td>4</td>
<td>445</td>
<td>456</td>
</tr>
</tbody>
</table>
State of São Paulo - Agrarian Reform Plan
To help finance an agricultural mechanization project forming part of the Agrarian Reform Plan. $4,500,000

Companhia Agrícola, Imobiliária e Colonizadora de São Paulo (62)
For agricultural mechanization. Bank's funds are financing 43% of the cost of purchasing 196 heavy-duty tractors for 40 mechanization stations.

Banco de Crédito Agrícola do Espírito Santo S.A. (63)
To help finance a project to shift 100,000 acres from coffee production to other crops. The loan supplements the resources of a Fund for Agricultural Credit, established in 1961 under the administration of the Bank. This fund is used to make short and medium term credits to farmers and cooperatives for the purchase of machinery & equipment, fertilizers, insecticides, seeds, and livestock & for the development of pastures, the construction of storage buildings and the improvement of marketing systems. The project will directly benefit about 10% of the farmers of the State of Espírito Santo & help to diversify the state's agricultural economy which at present depends almost exclusively on coffee.

Inter-American Committee for Agricultural Development (63)
Technical assistance to help finance a mission of the Committee which is participating in the preparation of an agricultural development program for the Brazilian Northeast. 50,000

Superintendencia do Desenvolvimento do Nordeste (64)
To help finance a supervised credit program for low-income farmers & agricultural cooperatives. The project, which will benefit an estimated 50,000 farmers, seeks to bring about increased production of vegetables, corn, beans, rice, potatoes, manioc, meat, milk, fruit, cotton and sisal. It is anticipated that 70% of the increased production will be consumed in the Northeast & the remainder in other areas of Brazil and abroad. $75,000 of the loan is for technical assistance.

Banco Regional de Desenvolvimento de Extremo Sul, São Paulo
Technical aid for the formulation of agricultural development policies & priorities. Bank's zone of operations overlaps into Paraná and Santa Catarina.

TOTAL $13,750,000

Organization of American States

Government of Brazil (62-64)
Assist in the compilation of basic data necessary for the development of a general plan of agricultural development in the NE. $185,488

Government of the State of Rio Grande do Norte (62/3; 3 mos)
Assist in the preparation of a preliminary project for agrarian reform in the state. One expert. $5,853

TOTAL $191,341
Food and Agriculture Organization

Land and Water Development (62, 63, 64, 65) $227,167
This project consists of two different aspects: 1) to assist the GOB on the possibilities of land utilization and settlement in the Northeast thru selection of suitable land thru soil surveys; and 2) to study the possibility of mechanizing some agricultural methods in the Northeast with special consideration to the physical and social conditions of the region.

Animal Production and Health (63, 64, 65) 62,934
To cooperate with the Ministry of Agriculture and SUDENE in elaborating concrete plans for the improvement of animal production in Brazil, with special reference to the Northeast. This project will develop as part of a large program for which Brazil is requesting the assistance of various international agencies (FAO, ICAD, AID).

Forestry Development (Amazon) (62, 63, 64, 65) 263,540
A continuing project on development of forest industries for training qualified workers thru the National Forestry School at Viçosa; also research being undertaken at Santarem Center. An inventory of forest resources in the Amazon region. FAO will provide free experts under both projects.

Plant Production and Protection (62, 63, 64, 65) 310,552
A continuing project, begun in 1961. The expert will carry out the program consisting of: assistance to SUDENE and the Ministry of Agriculture in forage production adapted to the Northeast; investigate the way of coordinating staff; collection of data for mapping a) grassland and b) livestock production in the Northeast.

Rural Institute and Services (62, 63, 64, 65) 121,202
The Bank of the Northeast wants to increase the activities of its Rural Credit Department. A program of research and training, already initiated under the assistance of an FAO expert will be completed. Another expert will continue assisting the team of Brazilian officials to prepare recommendations for the reorganization of the Federal Agricultural Research services. A third expert will provide assistance to the National Working Group in charge of planning and programming the agricultural and livestock development with the cooperation of the team of experts requested from the Inter-American Committee for Agricultural Development (ICAD) by the GOB. Special attention will be given to the Northeast region.
Food and Agriculture Organization

Land and Water Development (62,63,64,65) $227,167
This project consists of two different aspects: (1) to assist the GOB on the possibilities of land utilization & settlement in the Northeast thru selection of suitable land thru soil surveys, and (2) to study the possibility of mechanizing some agricultural methods in the Northeast with special consideration to the physical and social conditions of the region.

Animal Production and Health (63,64,65) 62,934
To cooperate with the Ministry of Agriculture & SUDENE in elaborating concrete plans for improvement of animal production, with special reference to the NE. This project will develop as part of a large program for which Brazil is requesting the assistance of various international agencies (FAO, ICAD, AID).

Forestry Development (Amazon) (62,63,64,65) 263,540
A continuing project on development of forest industries for training qualified workers thru the National Forestry School at Viposa; also research being undertaken at Santarem Center. An inventory of forest resources in the Amazon region. FAO will provide free experts under both projects.

Plant Production and Protection (62,63,64,65) 310,552
A continuing project, begun in 1961. The expert will carry out the program consisting of: assistance to SUDENE & the Ministry of Agriculture in forage production adapted to the NE; investigate the way of coordinating staff; collection of data for mapping grassland & livestock production in the Northeast.

Rural Institute and Services (62,63,64,65) 121,202
The Bank of the Northeast wants to increase the activities of its Rural Credit Department. A program of research & training, initiated under the assistance of an FAO expert will be completed. Another expert will continue assisting the Brazilian officials to prepare recommendations for the reorganization of the Federal Agricultural Research services. A third expert provides assistance to the National Working Group in charge of planning & programming the agricultural & livestock development with the cooperation of the team of experts requested from the Inter-American Committee for Agricultural Development (ICAD) by the GOB. Special attention given to the Northeast region.

Nutrition (64,65) 54,246
Programs directed toward increasing production and consumption of certain protective foods, coupled with nutrition education in the communities, have been in operation in the State of Rio Grande do Norte since 1960 and preliminary work has been done for extension of similar programs to the State of Paraiba. Estimated duration: 60-67.
## International Atomic Energy Agency

<table>
<thead>
<tr>
<th>University</th>
<th>Department</th>
<th>Program/Project Description</th>
<th>Duration</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Brasilia</td>
<td>Department of Genetics</td>
<td>Plant genetics and breeding. (2 yrs.)</td>
<td></td>
<td>$12,700</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Animal genetics. (2 yrs.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of São Paulo</td>
<td>Department of Agriculture</td>
<td>Soil water research. (6 mos.)</td>
<td></td>
<td>10,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radiogenetics. (6 mos.)</td>
<td></td>
<td>7,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agricultural application of radioisotopes. (62, 6 mos, 64)</td>
<td></td>
<td>11,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>29,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td>$41,700</td>
</tr>
</tbody>
</table>

## U. N. Special Fund

<table>
<thead>
<tr>
<th>Institution</th>
<th>Program/Project Description</th>
<th>Duration</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Forestry School</td>
<td>FAO. (5/61; 5-1/2 yrs) Government counterpart contribution: $976,000.</td>
<td></td>
<td>$1,265,100</td>
</tr>
<tr>
<td></td>
<td>Tropical Center of Food Research &amp; Technology, Campinas, FAO. (6/63; 5 yrs) Government counterpart contribution: $1,632,000.</td>
<td></td>
<td>$772,200</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>$2,037,300</td>
</tr>
</tbody>
</table>

## Agency for International Development

<table>
<thead>
<tr>
<th>Institution</th>
<th>Program/Project Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Education (57-70)</td>
<td>Spent thru 6/64: $9,210,000.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To assist Brazil in developing institutions capable of providing advanced agricultural training for double the presently enrolled number of students in this field, and to increase the role of these institutions in planning and bringing about agricultural development, including research, and the practical application of specialized agricultural knowledge. Estimated total cost: $22,618,000.</td>
<td></td>
</tr>
<tr>
<td>Purdue-Rural Univ. of Minas Gerais (7/58-6/65)</td>
<td>$5,500,000. Curriculum established in agricultural economics &amp; engineering, integrating teaching, research &amp; extension; first home-economics college in Latin America created. Private contributions expected to surpass $350,000.</td>
<td></td>
</tr>
<tr>
<td>University of Arizona-U. of Ceará (10/63-4/66)</td>
<td>$800,000. To develop land-grant type institutions; revise curriculae; introduce new teaching methods. Arizona has sent specialists in water resources, field crops, horticulture, agricultural engineering, agricultural economics, extension, education, animal nutrition, and an experiment station director.</td>
<td></td>
</tr>
</tbody>
</table>
Agency for International Development (continued)

Establish unit in home economics, develop program of graduate education in agricultural and rural development, assist in training of staff in research & education throughout the state, assist in economic growth and development of agriculture throughout the state; teaching and extension.

U. of Wisconsin-U. of Rio Grande do Sul (12/63-12/65) $903,000. To integrate teaching, research & extension; develop graduate programs in agricultural and rural development; strengthen existing programs; increase student enrollment; provide training for Brazilians in U.S; assist in the development of agronomy & extension; economic research.

Agricultural Marketing (63-70) Spent thru 6/64: $494,000
To assist Brazil in meeting the growing needs of farmers for improved marketing, storage and credit facilities, and the improved production of feed, seed and fertilizers. PL 480 funds will be loaned to help create a permanent agricultural credit corporation, and for the construction of storage and processing facilities. To date improved seed testing, multiplication and certification procedures have been installed, and a seed cleaning and processing plant has been organized. A recently signed contract with AGRI Research, Inc. will assist the development of fertilizer production. A feasibility study on the requirements for storage of grain and tuberous crops has been completed and its recommendations are being carried out. Estimated total cost: $7,500,000.

AGRI Research, Inc. ( -8/64) $137,437.

Seed improvement program. Assist State and Federal seed grading. Objective to see that seeds are distributed and used.

Livestock Production (63-70) Spent thru 6/64: 1,910,000
To increase the production of livestock by approximately 90%, which, with the savings in marketing losses, will increase the supply to consumers & for export by 100% by 1970-72. In 65 the GOB budgeted US$12 million for livestock development work. In order to introduce improved livestock feeding and management practices there have been established more than 300 local extension offices and 350 4-S clubs. A contract has
been signed recently with IBEC Research Institute for the purpose of improving through applied research, the production of food and forage crops, and for the development of systems of feeding & management of beef and dairy cattle and other livestock. Estimated total cost: $11,322,053.

IBEC Research Inst. ( - 11/65) $2,033,000.

**Agricultural Research**

**Frontier Development (63-70)**

Spent thru 6/64: $194,059

To assist settlement of the frontier areas of Brazil to a total of 2,000,000 farm families during the next decade. Comprehensive investigations will be required to determine the characteristics of farm migrants, and the location of large tracts of land suitable for settlement, land tenure & transfer studies will also be required, with emphasis on legal & equitable methods of obtaining for the program the necessary unused or under-used land. These investigations will be funded in part with PL-480 grants. Land tenure studies are presently in progress. USAID technicians are working with SUDAM & other federal, state & private settlement agencies in the development of plans for settlement. Estimated total cost: $1,023,000.

**TOTAL**

$11,608,303

**USDA - Foreign Agricultural Research Agreements (PL-480)**

"Luiz de Queiroz" School of Agriculture, U. of Sao Paulo

Evaluation of corn & beans native to Central & South America as sources of germ plasm for use in breeding programs in the U.S. (11/61; 5 yrs.) $67,195

The relation of the concentration of macro-nutrients (N, P, K, Ca, Mg, S) in the substrate & in the foliage to cell wall thickness & cellulose concentration in the xylem of slash pine (*Pinus elliottii*). (3/62; 5 yrs.) 24,557

Investigations in mechanization of sugarcane production. (3/62; 5 yrs.) 22,660

Relationship between respiration & chemical changes taking place in the composition of tobacco leaves during curing and fermentation. (62; 3 yrs.) 69,330

**TOTAL** $164,542

IBEC Research Institute, Sao Paulo

Structural & physiological characteristics associated with adaptability of cattle in tropical & subtropical areas. (11/61; 5 yrs.) $69,067

Collection & evaluation of tropical & subtropical legumes of indigenous & world origin. (65; 1 yr.) 18,922

**TOTAL** $86,989
Instituto Agronomico, Campinas, São Paulo
Studies on interference between strains of the tristeza virus on citrus. (10/61; 5 yrs) $47,132

Instituto Biologico, São Paulo
Studies on foot-and-mouth disease virus. (10/61; 5 yrs) $42,347
Study of plants in São Paulo poisonous to domestic animals. (10/61; 5 yrs) 30,123
Basic research on the biochemistry of crown gall formation affecting rosaceous plants. (11/61; 5 yrs) 16,488
Substrate moisture levels for germination testing of agricultural seeds. (11/61; 5 yrs) 17,751

Instituto Nacional de Tecnologia, Rio de Janeiro
The relation of biological activity of proteins to their structure as determined by investigations of proteolytic enzymes to obtain fundamental information for use as a basis for developing improved rich foods such as dairy and meat products. Lab. for Protein Chemistry. (9/61; 5 yrs) $63,070
Preparation of cationic cereal starch derivatives for use in paper & textiles by the introduction of quaternary phosphonium & tertiary sulfonium groups into cross linked & non-crosslinked starches. (3/62; 5 yrs) 46,178

Instituto de Zootecnia, Pirassununga, São Paulo
Structural & physiological characteristics associated with adaptability of cattle in tropical & subtropical areas. (10/61; 5 yrs) $27,385

Ministry of Agriculture, Entomology Laboratory, Rio de Janeiro
Catalog of insects living on plants in Brazil & of the parasites & predators of the insects. (10/61; 3 yrs) $29,504

Secretariat of Agriculture, Porto Alegre, Rio Grande do Sul
Ecological & cytological studies & genetic improvement of native species of grasses & legumes of forage interest in the State of Rio Grande do Sul. (1/62; 5 yrs) $60,500

State Forest Service, São Paulo
Disease & insect susceptibility & species of some North American pine species planted in São Paulo. (10/61; 5 yrs) $60,667

TOTAL $725,535
**Fulbright Scholars**

Aurelian Barsali  
Forest Biologist  
Structural-characteristics in cell tissues of wood of tropical dicotyledon plants  
State U.  62-63  
College of Forestry, Syracuse

Prof. Hans Brune  
Plant biochemistry  
U. Minas Gerais  
U.C.L.A.  63-66

Manuel H. da Silva  
Agronomy; medical mycology  
C. Moniz Foundation  
Communicable 53-65

National Science Foundation

University of Cincinnati

M. Fulford: Leafy Hepaticae of tropical America (6/59; 4 yrs)  $15,020  
S. Glassman: Taxonomic revision of the palm genus Syracus mart and its allies. (5/65; 2 yrs)  14,400

New York Botanical Garden

B. Maguire: Plant survey of the Guiana region (6/59; 7 yrs)  145,400

T. Koyama: Phylogenetic studies in the Cyperaceae (6/65; 2 yrs) 29,030

H. Irwin: Plant survey of the Planalto do Brasil (6; 2 yrs)  56,400

Rutgers University

M. Johnson: Precipitin reaction as an indicator of relationships in the family Gramineae. (8/60; 3 yrs)  22,000

Structure of the shoot apex in tropical angiosperms (62; 3 yrs) 15,000

Mytocherological investigation with species of selected families. (7/63; 2 yrs)  30,000

University of Illinois, S. Glassman

Taxonomic revision of the palm genus Syracus mart (5/65; 2 yrs)  14,400

Smithsonian Institution, L. B. Smith

Botanical exploration in southern Brazil. (1/61; 1 yr)  7,400

Morphological characteristics, geo., distrib., relationships & uses.

Harvard University, Gray Herbarium, R. Tryon

Revision of American Cyatheaceae. (9/55; 3 yrs)  39,000

**TOTAL**  $411,133
## Ford Foundation

**American International Association for Economic and Social Development.**

- **Animal nutrition center of the State of São Paulo (5/61-5/63)**: $350,000
- **(9/62-1/66)**: $350,000\(^*\)
- **(9/62-1/66)**: $700,000

**Rural University of the State of Minas Gerais**

- **Graduate teaching and research in the Institute of Agricultural Economics: (4/62-4/67)**: $120,000
- **Partial support of new research facilities & research funds for senior professors at the Institute of Rural Economics. (5/63-6/66)**: $75,000
- **(5/63-6/66)**: $195,000

**Agricultural Secretariat, Government of the State of Minas Gerais**

- **Training and consulting assistance for agricultural economics and statistics department. (4/63-9/68)**: $510,000

**Total**

- **$1,405,000**

## Rockefeller Foundation

**Faculty of Philosophy, Sciences and Letters of Rio Claro**

- **Research in zoology and genetics. (64)**: $320

**Rural University of the State of Minas Gerais**

- **School of Veterinary Medicine. (64)**: $240

**University of Paraná**

- **Preparation of a catalog of neotropical bees, Department of Zoology. (63; 3 yrs)**: $25,000
- **Department of Zoology. (64)**: $406
- **(64)**: $25,406

**University of Rio Grande do Sul, Porto Alegre**

- **Support of the Laboratory of Animal Genetics, Institute of Natural Sciences. (64)**: $3,268

\(^*\)$195 transferred to International Research Institute as grantee, 6/64 for one and one-half years.
Rockefeller Foundation (continued)

University of São Paulo

Laboratory of Animal Genetics: Salary supplements for temporary personnel, equipment & operating & field expenses. (63,64) $21,907
School of Agriculture, Piracicaba. (64) $16,332

São Paulo State Secretariat of Agriculture

Institute of Agronomy, Campinas: Research equipment and materials, greenhouses, & publications for the library. (62-64) $140,000
Animal Nutrition Center, Department of Animal Production, Nova Odessa: Field & lab equipment & materials. (62-64) 97,000
Expenses of Ninth International Grasslands Congress. (64-66) 25,000
Department of Zoology: Research equipment. (63,64) 4,875

Ministry of Agriculture, Rio de Janeiro

Lincoln Monteiro Rodrigues, agricultural engineer, to undertake advanced training at the U. of Wisconsin. (62) $2,850
Division of Agriculture & Food Technology. (64) 352
Institute of Agricultural Chemistry: To plan a joint research program with Stanford University and to participate in the Gordon Research Conference on the chemistry of natural products. (7/63-6/64) 1,150

TOTAL $337,000

Fellowships:

Agricultural University, Viçosa


U. of Minas Gerais

Warton Monteiro Genetics & Breeding USA 62
Hugo P. Godinho, DVM Veterinary Science USA 64

U. of São Paulo

Almiro Blumenschein Genetics & Breeding USA 62
Otto Crocomo Soils USA 64
Francisco F. de Toledo Seed Technology USA 64
Elza Flures Ruegg Plant Science USA 62

Secretariat of Agriculture, São Paulo

Claus F. T. de Freitas Agricultural Economics USA 62
Fuad Naufel Animal Husbandry USA 63
Carlos A. S. Rosa, DVM Veterinary Science USA 63
Mario I. Montagnini Plant Science USA 64
Eduardo Zink, Agr. Eng. Seed Technology USA 64
AGRICULTURE AND PLANT SCIENCES

TOTAL GRANTS TO AGRICULTURE $10,227,315
TOTAL LOANS TO AGRICULTURE 13,750,000
TOTAL FOR AGRICULTURE $31,977,315

* * * * * * * * * * * *

MARINE BIOLOGY AND OCEANOGRAPHY

Food and Agriculture Organization

Fisheries Development (63, 64, 65) $151,874
Development of the fishing industry through advisory and consultant service and training of personnel. Experts supplied under this project: marine fisheries biologist, shrimp biologist, master fisherman, fisheries economist.

UNESCO

Oceanography (63, 64)
Assistance to the Oceanography Institute, University of Sao Paulo, in the reorganization of the curriculum in biological oceanography and on a research program. $16,557

U.N. Special Fund

Fishery Development Project. FAO. (6/65; 2 yrs) Government counterpart contribution: $275,000. $391,203

Agency for International Development

Fisheries (63-67) Spent thru 6/63: $99,000

To modernize and expand the extremely primitive fishing industry in northeast Brazil as a means for providing protein for prevalent dietary deficiencies. This project will supplement current Brazilian efforts, especially in the areas of research and training by providing qualified U.S. fisheries personnel to assist in the fishing industry's modernization. Estimated total cost: $685,013.
Office of Naval Research

Dr. Marca Vannucci, Director, Oceanographic Institute, U. Sao Paulo
To bring Dr. Vannucci and one of her staff members to Washington to separate and study the medusae collected from the Indian Ocean as to their vertical migration, geographic distribution, ecological variations, sexual maturity under different conditions, and differential distribution of young and adults.

$4,671

Ford Foundation

University of Sao Paulo, Oceanographic Institute
Expanded program of marine & fisheries research and training.
(7/63-7/68)

$547,503

Rockefeller Foundation

University of Sao Paulo, Faculty of Philosophy, Sciences & Letters
Dr. Jorge Petersen, Dept. of General & Animal Physiology, to observe research & the organization of marine biological laboratories while in Europe. (62)

$2,440

TOTAL GRANTS FOR MARINE BIOLOGY & OCEANOGRAPHY $1,204,731

* * * * * * * * * *
Pan American Health Organization and World Health Organization
(Figures are actual 1962, 63, 64 and estimated 1965 expenditures)

University of Ceará (63, 64, 65)
To reorganize the curricula and modernize teaching at the Institute of Preventive Medicine of the Medical School. Estimated duration of program: 63-66.

$28,119

University of Recife
Nursing Education. To develop in the School of Nursing a center for postgraduate nursing education for the use of the North and Northeast regions of Brazil. Orientation given to faculty committees, especially those dealing with recruitment and teaching materials. (63, 64, 65) Estimated duration of program: 63-67.

73,471

Pediatric Education. To improve pediatric teaching in the Medical School both at the undergraduate level, and also for medical and auxiliary personnel who will be working in the health services of Northeast Brazil thru coordination of the pediatric services at present rendered in different sections of the hospital, establishing facilities for training in pediatrics of different categories of health workers, and promoting research on problems related to the subject. (63, 64, 65) Estimated duration of program: 63-68.

16,719

Institute of Nutrition. To assist the Institute in organizing and developing its public health nutrition section, which collaborates with State Health Services in planning and evaluation of nutrition problems; strengthening its research effort for study of local food and nutrition problems; and reorganizing its training programs for different categories of health personnel. (64) Estimated duration of program:

2,500

Institute of Physiology and Nutrition. To carry out experiments on local vegetable foods rich in protein and study nutritional conditions in children. Biological trials were carried out in animals to test local sources of vegetable protein -- including macassar bean, cashew nut & cotton seed. (62, 63) Duration: 62-64.

9,408

$102,098

University of São Paulo
Rehabilitation. To reorganize the Department of Occupational Therapy of the Institute of Rehabilitation; and to organize training courses and rehabilitation centers throughout the country. (63,64,65) Project duration: 58-61, 63-65. $20,309

School of Public Health.
To strengthen the School with emphasis on its use as an international center for the training of health workers. (62,63,64,65) Estimated project duration: 58-68) 79,391
To prepare, in cooperation with the School, nutrition personnel for the development of integrated health services. (64)

Grant for contractual services, teaching equipment and supplies, cooperation in the development of courses in the Malaria Eradication Center in the School. (65) $7,345

National Virus Laboratory Services (62, 63, 64, 65) $39,524
To improve the diagnostic, research, and vaccine production facilities. Estimated duration: 55-57.

National School of Public Health, Rio de Janeiro (65) $12,200
To develop modern training methods and improve practice areas; to cooperate in the organization of laboratory and library services; and to obtain full-time teaching staff for the School. Estimated duration: 57-67.

National Food and Drug Service (65) $1,700
To assist the Ministry of Health to establish food and drug laboratories and a regulatory field program for the control of food and drugs. Estimated duration: 55-65.

Nutrition Courses (63, 64, 65) $40,540
The main aim of the project is to develop interest of physicians in general problems of nutrition and to prepare them adequately to carry out nutrition activities integrated into general medical and health practices. The immediate objective is to establish necessary facilities for conducting short intensive courses in nutrition at the Universities of Pará, Recife, Rio Grande do Sul, São Paulo, and Minas Gerais. Estimated duration: 62-67.

Health Services in the Northeast (62, 63, 64, 65) $273,136
To establish a general program embracing all the states in the Northeast which will integrate the programs of health and basic sanitation and training of personnel and development of biomedical research while permitting the operation of specific programs in individual states and institutions. UNICEF and AID will cooperate in this project. Estimated duration: 58-60.
Pan American and World Health Organizations (continued)

Health Services, Mato Grosso (62,63,64,65)  
To improve the public health services of the State by  
strengthening the central organization, regionalizing the  
services, providing adequate technical supervision, and  
training personnel. Estimated duration: 59-69.  

Health Services, São Paulo (64)  
To study the functioning of the São Paulo State Department  
of public Health, with a view to establishing the most  
practical organizational structure. Estimated duration: 64-66.

Planning (65)  
The purpose of this project is to assist in developing health  
planning at the Federal and State levels. A special two­
month course in planning for senior health officials of nine  
states in the Northeast was held in July-August 1965.

Research Training (65)  
In cooperation with the Rockefeller Foundation, a program is  
being developed to take advantage of the training resources  
of the Institute of Microbiology of the University of Brazil  
as a regional training center for faculty and research  
workers in the field of microbiology.

Medical Education (65)  
Cooperation with the various schools and the Pan American  
Federation of Associations of Medical Schools in the  
strengthening of medical education.

Nursing (64)  
To develop the basic aspects of research, planning of  
activities, organization of services, & education of profes­
essional and auxiliary nursing and mid-wifery personnel.  
Estimated duration: 53-?

Training of Nursing Auxiliaries (64,65)  
Assistance to schools for nursing auxiliaries to improve the  
training and increase the number of nursing auxiliaries; and  
to prepare a smaller number of graduate nurses as teachers for  
training programs & supervisors of nursing services in the  
states where integrated health service projects are being  
developed. During 1963 and 1964 assistance was concentrated  
in the North and Northeast and in 1965 and 1966, assistance  
will be extended to seven other schools in the States of  
Bahia, Goias, Minas Gerais and Mato Grosso. Estimated  
duration: 63-67.
Pan American and World Health Organizations (continued)

Health Statistics (64) $27,416
To improve the vital and health statistics services, especially those related to the notification of communicable diseases; and to train personnel in vital and health statistics and in the registry of medical records and statistics. Estimated duration: 63-66.

Tuberculosis Control (65) $1,700
To develop a pilot area for study and assessment of practical tuberculosis control methods and for training technical personnel; to collect epidemiological information to plan a regional tuberculosis control project. Duration: 61-65.

Schistosomiasis (65) $2,700
The Organization has cooperated with the Government in the control of this disease and in 1963, sponsored, jointly with the Ministry of Health, the establishment of an international snail identification center for the study of the snail vector of schistosomiasis.

Rabies Control (62,64,65) $14,317
To develop the national and state health services needed for producing vaccine and carrying out rabies control programs. Collaboration with the Oswaldo Cruz Institute and the Butantan Institute in carrying out demonstrations and training of personnel, as well as in the preparation of a new rabies vaccine. Estimated duration: 59-66.

Leprosy Control (65) $4,413
To intensify and expand the leprosy control program by applying modern methods & techniques; to gradually incorporate leprosy control activities into the general health services; and to train the professional and auxiliary personnel needed for the program. Estimated duration: 62-67.

Fellowships for Health Services (62,63,64,65) $107,764
Provision is made for fellowships in order to collaborate with the Government in training staff for the improvement and expansion of its health services.

TOTAL $1,105,022

International Atomic Energy Agency

Institute of Atomic Energy
Medical application of radioisotopes. (63) $7,655

National Cancer Institute
Radiobiology. (64; 1 yr) $30,762

TOTAL $38,417
Fulbright Scholars

Butantan Institute
Alphonse Hoge, Head Ophiological Section
Ophiology Duke 63-64

Paulist School of Medicine
Eline Sant'Anna Prado Asst. Prof., Biochem
Pharmacologically active enzymes & peptides NIH 62-63

José Leal Prado, Prof. Ditto NIH 62-64
Biochemistry

University of Minas Gerais
Maria das de Moraes Gynecology Johns Hopkins 62-64

University of São Paulo
Ivan da M.e Albuquerque Immunology Johns Hopkins 62-64
Argonne Natl Lab

Miss Tomoko Higuchi Bacteriology Yeshiva U., A. 64-65
Einstein College of Medicine

Ricardo F. Ribeiro Orthopedics Northwestern 64-65

University of Brazil
Antonio Cavalcanti Medical genetics U. Michigan 63-64
Head, Gen. Res. Center

University of Ceará
Antonio V. A. Pente Psychiatry Columbia

School of Medicine & Surgery, Rio
Arthur de Avial Kos Med. Sciences Harvard 64-65

National Institute for Amazonian Research, Manaus
Mario Pinto-Moraes Tropical diseases Tulane

National Institutes of Health

Catholic University, Guanabara
Dr. Domingos de Paola: Pathology of Group C arborviruses (9/64-8/65) Estimated total cost: $52,400; duration: $17,450 64-67.
<table>
<thead>
<tr>
<th>Institution</th>
<th>Project Description</th>
<th>Grant Duration</th>
<th>Total Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal University of São Paulo</td>
<td>Eugenio Zerlotti, Fac. of Pharmacy &amp; Odontology of Araçatuba: Histochromic studies on pulp healing.</td>
<td>6/64-5/65</td>
<td>$5,150</td>
</tr>
<tr>
<td>Paulista School of Medicine</td>
<td>Antonio C. M. Paiva: Myotropic activity of Angiotensin.</td>
<td>1/64-12/65</td>
<td>$5,000</td>
</tr>
<tr>
<td></td>
<td>J.L. Prado: Proteolytic specificity of kallikreins.</td>
<td>6/63-5/65</td>
<td>50,000</td>
</tr>
<tr>
<td>University of Bahia</td>
<td>Zilton Andrade, Faculty of Medicine: Pathology of Manson's Schistosomiasis.</td>
<td>10/64-9/65</td>
<td>$15,000</td>
</tr>
<tr>
<td></td>
<td>Roberto Pigueira Santos, Hospital das Clínicas: Determination of vasopressin in the blood of cirrhotics.</td>
<td>2/63-1/66</td>
<td>19,400</td>
</tr>
<tr>
<td>University of Brazil</td>
<td>Antonio Paes de Carvalho &amp; Walmor de Mello: Study of the excitatory process in cardiac muscle.</td>
<td>6/64-5/66</td>
<td>$39,400</td>
</tr>
<tr>
<td>Biophysics Institute</td>
<td>Luiz Calvão Lobo: Studies on endemic cretinism in Brazil.</td>
<td>9/64-5/65</td>
<td>37,355</td>
</tr>
<tr>
<td></td>
<td>Carlos Chegas: Studies on the mechanism of curarization.</td>
<td>10/62-9/65</td>
<td>36,600</td>
</tr>
<tr>
<td></td>
<td>A.A.P. Liao: Electric &amp; chemical aspects of spreading depression.</td>
<td>9/62-8/65</td>
<td>21,000</td>
</tr>
<tr>
<td></td>
<td>Maury Miranda: Studies on carnitine metabolism &amp; function.</td>
<td>11/62-12/65</td>
<td>33,000</td>
</tr>
<tr>
<td>Faculty of Medicine</td>
<td>Carlos Rocha-Miranda: A comparative analysis of striatal function.</td>
<td>6/63-5/66</td>
<td>32,235</td>
</tr>
<tr>
<td>University of Minas Gerais</td>
<td>Dr. Fernando Alzamora, Faculty of Medicine: Substances affecting the kidney's concentrating ability.</td>
<td>1/63-8/65</td>
<td>$5,000</td>
</tr>
<tr>
<td></td>
<td>Dr. Marcos dos Mares-Guia, Fac. of Medicine: Studies on the hydrophobic binding site of active center of trypsin.</td>
<td>2/65-1/66</td>
<td>4,900</td>
</tr>
<tr>
<td></td>
<td>José Pellegrino, Institute of Biology: Experimental chemotherapy of Schistosomiasis.</td>
<td>6/64-5/66</td>
<td>19,960</td>
</tr>
</tbody>
</table>
National Institutes of Health (continued)

University of Recife, Faculty of Medicine
Dr. F. S. Barbosa, Institute of Hygiene
The role of animals in maintenance of the life-cycle of Schistosoma mansoni. (9/62-2/66) (Previous funding: $17,480)
Susceptibility of the intermediate hosts of Schistosomiasis. (9/64-8/65) Total commitment: $21,900; duration: 64-67.

University of Rio Grande do Sul
Casemiro Tondo, Institute of Natural Sciences: Biophysics study of human abnormal hemoglobins. (4/63-3/66)

University of São Paulo
Faculty of Medicine, São Paulo
F. Eichbaum, Dept. of Pharmacology: Neural mechanism of circulatory failure in diphtheria. (8/62-8/65)

Faculty of Medicine, Ribeirão Preto
S. F. Cardoso, Dept. of Pharmacology: The mechanism of action of steroids on cells. (5/62-6/65)
J. E. Dutra de Oliveira: Vegetable protein for infant feeding. (9/64-8/65) Total commitment: $296,797; duration: 64-66
M. P. Barretto, Dept. of Parasitology: Studies on wild reservoirs and vectors of Trypanosoma cruzi. (2/63-1/65)
D. de S. Amorim, Cardiac Catheterization Lab: Cardiac output control in Chagas disease. (6/63-5/66)

Faculty of Philosophy, Sciences & Letters, São Paulo
National Institutes of Health (continued)

University of Parana, Institute of Biochemistry

Metry Bacila
- Respiratory chain of bacteria & Candida yeasts. (9/64-8/65)
  Total commitment: $20,850; duration: 64-67. $19,050
- Biochemistry of the snail Australorbis glabratus (6/64-5/66)
  Total commitment: $28,913; duration: 64-67. 27,113

M. Bacila & D. Amaral: Hydrolytic enzymes for carbohydrates in
"Wood Destroying Molds." (5/63-4/66)
L. Silva Velga: Carbohydrate metabolism in bacteria & molds
(6/64-5/66) Total commitment: $50,200; duration: 64-67. 39,400

C A P E S
Walter Oswaldo Cruz, Head, Instituto Oswaldo Cruz: Studies on
the mechanism of hemostasis. (6/63-5/65) $50,000

Hospital N. S. das Vitorias, Department of Cardiology
A. de Carvalho Azevedo (Catholic U. of Rio): The tricuspid
valve. Early signs of abnormal function. (1/63-12/65)
Total commitment: $42,260; duration: 63-66. $34,840

T O T A L $1,110,824

U. S. Public Health Service Postdoctoral Research Fellows

Instituto Oswaldo Cruz, Division of Pathology
Leopoldo de Meis Biochemistry NIH 5/63-6/64
Carl Von Dietrich Biochemistry U. Wisconsin 11/64-11/65

Paulista School of Medicine
Antonia Paiva Biochemistry Cornell 7/62-6/63

University of Brazil, Biophysics Institute
Roberto S. DeMoura Pharmacology Cleve. Clinic 6/64-6/65

University of Brasília
Luiz Ribeiro Biochemistry NIH 8/63-8/65

University of Minas Gerais
Marcos Mares-Guía Enzymology, biochemistry Tulane 9/62-1/64

University of Paraná
Annibal Campello Biochemical pharmacology NIH 7/63-1/65

University of São Paulo, Faculty of Medicine
Antonio Sesso Histology, zoology U. Cal, Berkeley 11/62-6/64
<table>
<thead>
<tr>
<th>Location</th>
<th>Organization</th>
<th>Field</th>
<th>Institution</th>
<th>Dates</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porto Alegre</td>
<td>University of São Paulo, Ribeirão Preto Faculty of Medicine</td>
<td>Neuropharmacology</td>
<td>Yale</td>
<td>9/63-3/65</td>
<td>$19,775</td>
</tr>
<tr>
<td>Porto Alegre</td>
<td>University of São Paulo, Ribeirão Preto Faculty of Medicine</td>
<td>Biochemistry</td>
<td>N.Y.U.</td>
<td>11/63-11/64</td>
<td>$13,000</td>
</tr>
<tr>
<td>Porto Alegre</td>
<td>University of São Paulo, Ribeirão Preto Faculty of Medicine</td>
<td>Cytogenetics</td>
<td>U. Wisconsin</td>
<td>9/63-3/65</td>
<td>$10,000</td>
</tr>
<tr>
<td>Porto Alegre</td>
<td>University of São Paulo, Ribeirão Preto Faculty of Medicine</td>
<td>Histophysiology</td>
<td>Western Reserve</td>
<td>8/64-8/65</td>
<td>$23,000</td>
</tr>
<tr>
<td>Porto Alegre</td>
<td>University of São Paulo, Ribeirão Preto Faculty of Medicine</td>
<td>Microbiology</td>
<td>U. Pittsburgh</td>
<td>10/63-10/64</td>
<td>$2,500</td>
</tr>
</tbody>
</table>

**National Science Foundation**

IBECC, São Paulo, Myriam Krasilchik

Summer Institute for Biology Teachers (65; 6 mos) $18,500

**Participants in NSF Summer Institutes**

<table>
<thead>
<tr>
<th>Location</th>
<th>Organization</th>
<th>Field</th>
<th>Institution</th>
<th>Dates</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porto Alegre</td>
<td>Ita K. Abramoff</td>
<td>BSCS Biology</td>
<td>Colorado State</td>
<td>1962</td>
<td>$2,500</td>
</tr>
<tr>
<td>Porto Alegre</td>
<td>Angelo M. Susin</td>
<td>Biology</td>
<td>Earlham College</td>
<td>1962</td>
<td>$2,500</td>
</tr>
</tbody>
</table>

**U. S. Army Research Grants**

University of Brazil, Biophysics Institute

Carlos Chagas: Publication of proceedings of two symposia:
Symposium on Mammalian Tissue Culture and Cystology and
Specific Topics in Radiobiology. (6/63) $2,500

University of Minas Gerais, Institute of Biology

Dr. J. Pellegrino: Basic biologic & tropistic behavior of
Schistosoma mansoni cercariae relating to carcarial agents and repellents. (6/64-6/66) $13,000

University of Minas Gerais, Institute of Biology

Dr. J. Pellegrino: Basic biologic & tropistic behavior of
Schistosoma mansoni cercariae relating to carcarial agents and repellents. (6/65-6/66) $10,000

University of Minas Gerais, Institute of Biology

A. M. Rothschild, Ribeirão Preto: Investigations on the mechanism of the release of pharmacologically active biogenic amines. (9/63-11/65) $19,775

### U.S. Army Research Grants (continued)

<table>
<thead>
<tr>
<th>Institution</th>
<th>Project Description</th>
<th>Grant Period</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.J.S. Lara, Biochemistry Lab, Fac. of Philosophy, Sciences &amp; Letters</td>
<td>The control of ribonucleic acid synthesis in giant chromosomes</td>
<td>5/66-5/65</td>
<td>$16,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8/65-9/66</td>
<td>$13,000</td>
</tr>
<tr>
<td>Thales de Brito</td>
<td>Pathology of leptospirosis</td>
<td>10/64-10/65</td>
<td>$4,760</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$55,985</td>
</tr>
<tr>
<td>Hospital Edgar Santos, Salvador, Bahia</td>
<td>A.G. Baptista, Dept. of Internal Medicine: Cerebral localization of languages &amp; related functions</td>
<td>4/65-3/66</td>
<td>$6,300</td>
</tr>
<tr>
<td>National Institute of Technology</td>
<td>J.C. Perrone: The effect of ionizing radiation on the primary structure of enzymes</td>
<td>6/64-5/65</td>
<td>$15,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6/65-5/66</td>
<td>$11,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$24,000</td>
</tr>
</tbody>
</table>

**Total**

$122,835

### Atomic Energy Commission

<table>
<thead>
<tr>
<th>Institution</th>
<th>Project Description</th>
<th>Grant Period</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Sao Paulo</td>
<td>General effects of radiation</td>
<td>$56,500</td>
<td></td>
</tr>
<tr>
<td>Pavan: A comparative study between natural lethals &amp; lethals induced by radiation in populations of <em>Drosophila willistoni</em></td>
<td>(62-3/66)</td>
<td>$12,500</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$25,000</td>
</tr>
</tbody>
</table>

**Total**

$56,500

### Latin American Office of Aerospace Research

<table>
<thead>
<tr>
<th>Institution</th>
<th>Project Description</th>
<th>Grant Period</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Brazil, Biophysics Institute</td>
<td>Research on the electrophysiology of excitable tissues</td>
<td>(1/62, 1 yr; 7/62, 1 yr)</td>
<td>$12,500</td>
</tr>
<tr>
<td>Carlos Chagac</td>
<td>Function of electric organs in fish</td>
<td>(7/63; 1 yr)</td>
<td>$25,500</td>
</tr>
</tbody>
</table>

**Total**

$38,000

<table>
<thead>
<tr>
<th>Institution</th>
<th>Project Description</th>
<th>Grant Period</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Sao Paulo, Ribeirao Preto Medical Faculty</td>
<td>Roles of various brain structures on physiological function</td>
<td>5/64; 2 yrs; 1/62, 1 yr</td>
<td>$39,739</td>
</tr>
<tr>
<td>L. Lisson: NDA &amp; protein metabolism in the central nervous system</td>
<td>(6/66; 2 yrs)</td>
<td>$54,739</td>
<td></td>
</tr>
</tbody>
</table>

**Total**

$85,239
Kellogg Foundation

General Hospital, Holy House of Mercy, Rio de Janeiro
To improve medical education thru projects of demonstration and counsel, and by supplementing salaries to permit full-time instruction. (62, 63, 64) $7,200

University of Bahia
To provide equipment & teaching aids to augment the teaching and research programs. (62, 63, 64) $33,039
To improve medical education thru projects of demonstration & counsel, & by supplementing salaries to permit full-time instruction. (62, 63, 64) 59,217
To provide opportunities for selected faculty members to obtain specialized preparation in U.S. as part of cooperative programs to improve medical education. (62, 63, 64) 23,047
To assist in the development of the School of Nursing Library. (62) 146
$115,449

University of Brazil
To provide opportunities for selected faculty members to obtain specialized preparation in the U.S. in medical education. (63, 64) 8,391
nursing education. (63, 64) 6,151
$14,542

University of Ceará
Specialized preparation in U.S. for medical faculty members. (63, 64) $6,597

University of Minas Gerais
Specialized preparation in U.S. for med. fac. members. (63, 64) $8,134

University of Paraná
Specialized preparation in U.S. for med. fac. members. (62, 63, 64) $11,149
Equipment & teaching aids to augment the teaching & research programs. (63, 64) 24,310
$35,459

University of Recife
Equipment & teaching aids to augment the teaching & research programs. (62, 63, 64) $39,833
Projects of demonstration & counsel, & supplementation of salaries to permit full-time instruction. (62, 63, 64) 59,154
Specialized preparation in U.S. for medical faculty members. (62, 63, 64) 23,413
$122,400
Kellogg Foundation (continued)

University of Rio Grande do Sul
Projects of demonstration & counsel, supplementation of salaries to permit full-time instruction. (63,64) $32,315
Equipment & teaching aids to augment the teaching & research programs. (63,64) 18,245
Specialized preparation in U.S. for medical faculty members. (62,63,64)
for nursing faculty members. (62,63) 7,211

University of São Paulo
To improve the quality of hospital administration thru the development of educational programs. (62,63) $ 8,000
Columbia University; to aid the improvement of a program in hospital administration by providing consultative services & educational exchanges between U.S.P. & Columbia. (62,63,64) 6,737
Equipment & teaching aids to augment the teaching & research programs. (62) 7,297
Specialized preparation in U.S. for nursing faculty members. (62,63,64) 15,244
To assist the development of a postgraduate education in nursing service administration. (62,63,64) 11,203
To improve nursing education & service by establishing courses in public health nursing & obstetrical nursing. (64) 28,310
To strengthen the teaching program by providing additional staff & equipment for the Dept. of Nutrition. (62,63) 25,049

Fellowships:

University of Bahia
José Duarte Araújo, M.D. 62,63
Alvaro Rabelo Alves Jr., M.D. 62
Roberto Figueira Santos, M.D. 62

University of Brazil
Vilma de Carvalho, R.N. 62
Maria da Conceição, R.N. 64
Gilberto José Nagle, M.D. 63,64

University of Ceará
Célio Brasil Girão, M.D. 63,64

University of Minas Gerais
José de Oliveira Campos, M.D. 63,64

University of Paraná
Adyr Soares Mulinari, M.D. 62,63
Valdir de Paula Furtado, M.D. 64
MEDICAL AND BIOLOGICAL SCIENCES

Kellogg Foundation (continued)

University of Recife
Cyro de Andrade Lima, M.D. 62
Ageu de Godoy Magalhaes Filho, M.D. 62
Rostand Carneiro Leao Paraíso, M.D. 62
Jaime Scharb, M.D. 62
Amaury Domingues Coutinho, M.D. 64
Igeval de Cerqueira Paes, M.D. 64

University of Rio Grande do Sul
Theresinha da Costa Avila, R.N. 62
Maria Luiza Baptisti, R.N. 62, 63
João Carlos Prolla, M.D. 62, 63, 64
Flavio Artur Sassen, M.D. 62, 63
Loreno Brentano, M.D. 64
César Amaury Ribeiro da Costa, M.D. 64
Luiz Arisoli Fagundes, M.D. 64

University of São Paulo
Jorge Alberto Fonseca Caldeira, M.D. 62
Antonietta Chiarello, R.N. 62
Aracy Luiza Vizzolli Santos, R.N. 62, 63
Anayde Correa de Carvalho, R.N. 64
Zuleika Mendonça Kannebley, R.N. 64

TOTAL $508,549

Rockefeller Foundation

Paulista School of Medicine
Development of a curriculum emphasizing laboratory experience in the basic sciences, clerkships during the clinical years, and obligatory internships. (62) $63,283
Dr. Walter Pereira Laser, Professor of preventive medicine and Director, Institute of Preventive Medicine: to observe the teaching of preventive medicine at medical institutions in the U.S. (62) 2,250
General development. (64) 20,710

Faculty of Medical & Biological Sciences of Botucatu, S.P., S.P.
Support of the Medical Genetics Research Center. (64) $3,822

University of Bahia, Faculty of Medicine
Laboratory of Human Genetics: salaries, field operating expenses & equipment. (63, 64) $7,800
### Rockefeller Foundation (continued)

<table>
<thead>
<tr>
<th>Institution</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Brazil, Faculty of Medicine</td>
<td>Research equipment for Dr. D. Sobral.</td>
<td>$7,500</td>
</tr>
<tr>
<td>University of Minas Gerais</td>
<td>Development of a premedical curriculum, the library and the Departments of Physiological Sciences &amp; Pathology, Faculty of Medicine.</td>
<td>$97,000</td>
</tr>
<tr>
<td></td>
<td>Expenses of research &amp; field operations &amp; the purchase of equipment for the Institute of General Biology, Faculty of Philosophy.</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td>Development of the Faculty of Medicine.</td>
<td>138,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$250,000</td>
</tr>
<tr>
<td>University of Paraná</td>
<td>Study of variables in human genetic inheritance. (2/65-3/66)</td>
<td>$2,500</td>
</tr>
<tr>
<td></td>
<td>Laboratory of Human Genetics, Faculty of Philosophy: salaries &amp; salary supplements, field operating expenses &amp; library materials. (63,64)</td>
<td>21,664</td>
</tr>
<tr>
<td></td>
<td>Laboratory of Genetics. (64)</td>
<td>366</td>
</tr>
<tr>
<td></td>
<td>Dr. Metry Bacila, Institute of Biochemistry: to visit labs in the U.S.</td>
<td>2,800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$27,330</td>
</tr>
<tr>
<td>University of Rio Grande do Sul</td>
<td>Dr. Rubens Garcia Maciel, Prof. of propaedeutic medicine, Faculty of Medicine: to study teaching methods at centers of internal medicine in U.S. (62)</td>
<td>$2,775</td>
</tr>
<tr>
<td></td>
<td>Faculty of Medicine: purchase &amp; shipment of films for School of Nursing. (63,64)</td>
<td>2,311</td>
</tr>
<tr>
<td></td>
<td>Department of General Biology, Curitiba. (64)</td>
<td>3,439</td>
</tr>
<tr>
<td></td>
<td>Equipment for Department of Pathology. (64)</td>
<td>13,000</td>
</tr>
<tr>
<td></td>
<td>Dr. Casemiro Tondo, Head, Biophysics Section, Institute of Natural Sciences, Faculty of Philosophy: to observe current teaching &amp; research at biophysics labs in U.S. (62)</td>
<td>2,575</td>
</tr>
<tr>
<td></td>
<td>Laboratory of Molecular Genetics, Faculty of Philosophy: salary supplements, operating expenses, &amp; equipment. (63,64)</td>
<td>10,616</td>
</tr>
<tr>
<td></td>
<td>Laboratory of Human Genetics, Faculty of Philosophy: equipment and supplies. (63,64)</td>
<td>9,787</td>
</tr>
<tr>
<td></td>
<td>Laboratory of Human Genetics: study of variables in human inheritance. (64-66)</td>
<td>2,250</td>
</tr>
<tr>
<td></td>
<td>Department of Genetics, Faculty of Philosophy: salary supplements, operating expenses &amp; supplies. (63)</td>
<td>1,758</td>
</tr>
<tr>
<td></td>
<td>Research &amp; teaching in the Faculty of Medicine and research in genetics in the Institute of Natural Sciences. (64)</td>
<td>11,903</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$60,414</td>
</tr>
</tbody>
</table>
Rockefeller Foundation (continued)

University of São Paulo
Dr. K. Klotzal, Asst. Prof. Dept. of Tropical & Infectious Disease, Ribeirão Preto: to study research techniques in neurophysiology in cooperation with Prof. Alexander Geiger, College of Medicine, U. Illinois. (62) $2,675

Dr. E. Moacyr Krieger, Asst Prof of physiology, Ribeirão Preto: to study instrumentation in cardiovascular research at medical institutions in U.S. (62) 2,975

Faculty of Medicine, Ribeirão Preto. (64) 11,070

Support of Laboratory of Medical Genetics, Medical Faculty. (63,64) 12,860

Dept. of Physiological Chemistry, Medical Faculty: to invite Dr. Maynard Pullman, Public Health Research Institute, N.Y.C. to serve as visiting professor. (63) 8,000

Dept. of Physiology, Medical Faculty: equipment & supplies (63,64) 2,550

Laboratory of Human Genetics, Faculty of Philosophy, Sciences & Letters: salary supplements, equipment & operating expenses. (63; 18 mos) 5,850

Research on the biochemistry of chromosomes in the Dept. of Biology, Faculty of Philosophy, Sciences & Letters. (62,63,64) 50,000

To enable Dr. A. Brito da Cunha to visit genetics laboratories in Europe & U.S., & to enable Dr. L. de Magalhães to visit the genetics laboratory of Dr. Ove Frydenberg in Copenhagen, Denmark. (63) 3,600

Travel in Europe by Prof. C. Pavan, Dept. of General Biology, & purchase of a photomicroscope. (64) 2,800

To enable Dr. Walter S. Plaut, Dept. of Zoology, U. of Wisconsin, to visit the Department of General Biology. (64) 800

Department of Biology. (64) 11,897

Laboratory for Cell Physiology. (64) 1,244

Laboratory of Electron Microscopy. (64) 797

$117,118

Adolfo Lutz Institute, São Paulo

Equipment for arbovirus research in the Laboratory of Public Health. (62) $8,000

Belem Virus Laboratory

Cooperative program. (64) $33,251

Amelia de Andrade & Amazonia Toda: to visit the Trinidad Regional Virus Laboratory. (64) 900

$34,151

Pan American Federation of Medical Schools, Rio de Janeiro

To further development of medical education and health-care throughout the Western Hemisphere. (7/63-6/68) $75,000
Rockefeller Foundation (continued)

Brazilian Society of Genetics

Promotion of interlaboratory cooperation in Brazil. (63) $3,000
To enable members of the Society's Commissions on Vegetable, Animal & Human Genetics to meet in São Paulo to discuss current research & teaching programs. (63) 1,000
Expenses of 1964 meeting. 1,800
Genetics research. (64) 1,740

TOTAL $7,540

Fellowships:

Paulista School of Medicine
Horacio Ajzen Internal Medicine USA 1962
Rhomes Amin Aur Pediatrics USA 1962
Mayer Suitcovovsky Psychiatry Colombia 1963

University of Bahia
Flor es C. Farias Nursing Education USA 1964

University of Brazil
Rudolph Hausmann Physiology & Biochem. of Deoxyribonucleic Acid USA 1964

University of Minas Gerais
Armando de A. Neves Biochemistry USA 1962
Paulo P. de Araujo Preventive Medicine USA 1962
Isaltina de Azevedo Pub. Health Nursing USA 1962
Jose Dangelo Anatomy USA 1962
Alberto Raick Electron Microscopy USA 1962
Lineu Freire Maia Physiology USA 1963

University of Recife
Edson de Albuquerque Neuropharmacology USA 1962
Maria de Andrade Public Health Nursing Chile 1964

University of Rio Grande do Sul
Hannelore Wortmann Nursing Education USA 1962
Mario Tannhauser Pharmacology USA 1963
Nilo-Pereira Luz Obstetrical Physiology Uruguay 1964
Olga Vizzotto Nursing Education USA 1964

University of São Paulo
Antonio Abilio Pharmacology USA 1962
Marcello Machado Basic Med. Sciences USA 1962
Claudio de Carvalho Anatomy Germany 1963
Jose Antunes-Rodrigues Neurophysiology USA 1964
Ivan F. de Carvalho Immunopathology USA 1964

TOTAL GRANTS FOR MEDICAL AND BIOLOGICAL SCIENCES $3,761,847
Pan American and World Health Organizations

Dental Health Education, University of São Paulo (65)
To provide for dentists who attend the regular public health courses at the School of Hygiene and Public Health of the University, training in specific fields of dentistry; and to assist the School to build up a faculty with training in teaching and research in public health dentistry. Estimated duration of program: 58-66. $4,300

Teaching of Preventive Dentistry (64,65)
To develop the teaching program of preventive and social dentistry in the dental schools of Brazil. Estimated duration of program: 63-66. $6,598

TOTAL $10,898

Kellogg Foundation

Brazilian Dental Education Association
To help strengthen dental education in Brazil by providing assistance for postgraduate courses to be given by Brazilian and American professors for faculty members of the Brazilian dental schools. (62,63,64) $18,072

University of Brazil
Teaching equipment for the Department of Pedontics. (64) $4,069
Recent books & journals on dentistry for the library. (64) 1,222
$5,291

University of Minas Gerais
Specialized preparation in US for members of dental faculty. (64) $805

University of Recife
Equipment for use in instruction of dental students. (63) $3,755

University of Rio Grande do Sul
Specialized preparation in the U.S. for members of dental faculty. (62) $37
Equipment for Department of Dental Materials. (62) 10,098
Teaching equipment, textbooks and journals for the Department of Prosthodontics. (62,63,64) 10,467
Audio-visual materials & equipment for teaching departments of the Dental School. (63,64) 5,336
$25,938
Kellogg Foundation (continued)

University of São Paulo
Specialized preparation in U.S. for members of dental faculty. (62,63,64) $15,086
Assistance toward the development of a program for the training of dentists in public health & preventive dentistry. (62,63,64) 14,663
Strengthening teaching program by providing equipment for the Department of Dental Materials. (62,63) 27,364
Recent books and current journals for the library. (63,64) 7,284
High-speed units for demonstration to students. (63,64) 6,977
Printing fourth volume of the Manual of Public Health Dentistry and for a special project in field training. (64) 3,000

TOTAL $74,374

Fellowships:

Brazilian Association of Dental Education
Paulino Guirarães, DDS 63

University of São Paulo
José Nicolau, DDS 62,63,64
Joaquim Policiano Leite, DDS 62

TOTAL $128,235

TOTAL GRANTS FOR DENTAL SCIENCES $139,133

**************************************************
Fulbright Scholar

Elon Lages Lima  Algebraic topology; Morse theory  Inst. for Advanced Study, Princeton, Columbia  62-64

National Science Foundation

University of Rochester (University of Brazil)
Leopoldo Nachbin: Applied functional analysis. (8/63; 1 yr)  $91,000

Participants in NSF Summer Institutes

São Paulo
Lafayette de Moraes  Mathematics  Fordham  1963
Rachel Gevertz  Math, Biology, Physics  Harvard AYI  1963
Mrs. Rosa Feldman  Mathematics  U. California  1964

Latin American Office of Aerospace Research

Institute of Pure and Applied Mathematics, Rio de Janeiro
Dr. M.M. Peixoto: A study of structural stability and differential topology. (8/62-3/64)  $20,150
($19,810 went to this project between 5/60 and 4/62)

Rockefeller Foundation

Fellowship:

University of Brasilia
Hans C. Scheuenstuhl  Mathematical Statistics  USA  1964

TOTAL GRANTS FOR MATHEMATICS  $111,150

******************************************************************************
CHEMISTRY

**Fulbright Scholars**

University of São Paulo
- Oswaldo Froto Pessoa, Head Lab. of Human Genetics
- Giuseppe Cilento
- José Moura Conçalves

University of Recife
- Ricardo de C. Ferreira
- Marcionila de Barros Lins, Director, Institute of Chemistry

- Biochemistry
- Biochemistry
- Quantum mechanical studies of atoms and molecules

Biochemistry

U. Wisconsin 64-65
La. State U. 64-65
Oak Ridge 64-65
Indiana U. 63-65
VI Int'l. Conf. 64-65

National Science Foundation

**Participants in NSF Summer Institutes**

- Alacar Ferreira, S.P.
- Ronald Becker, Parana'
- Hilbert Henriques, Recife

CBA Chemistry
CBA Chemistry
Chemistry

Brown U.
Brown U.
San Jose State

1962
1963
1964

Office of Naval Research

University of São Paulo, São Mascarenhas

Dielectrics: Research on (a) alkali halides (conductivity & color centers), (b) magnetic salts, utilizing X-ray diffraction, & (c) change separation in dielectrics during change of phase. (1/62-9/65)

$48,000

Ford Foundation

University of São Paulo

Chemistry laboratory equipment. (12/61-12/65)

$490,000
Rockefeller Foundation

Institute of Atomic Energy
Equipment essential to its operation & its research program in radio chemistry. (63) $24,000

International Atomic Energy Agency

Institute of Biophysics, Rio de Janeiro
Radiochemistry of labelled compounds. (63) $4,248

TOTAL GRANTS FOR CHEMISTRY $566,248
Pan American and World Health Organizations

Sanitary Engineering (64) \( \text{\$30,969} \)
To improve the organization of the environmental sanitation services of the Ministry of Health; and to cooperate with universities and other pertinent institutions in preparing and training professional and auxiliary engineering personnel. The Superintendency of Urbanization and Sanitation of Guanabara State continued to work on the project to establish an Institute of Sanitary Engineering for which the United Nations Special Fund participation was approved. Collaboration with SUDENE on the organization of a short course on the design of water supplies for urban and rural areas held at the University of Recife. Work on the installation of a laboratory for the control of air pollution in São Paulo and activities related to the city's water supply. Duration of program: 5 -

Institute of Sanitary Engineering (64,65) \( \text{\$206,610} \)
To combine the sanitary engineering laboratory facilities of the Institute of Sanitary Engineering of SURSAN with those of the College of Engineering of the University of Guanabara; and to develop the combined laboratory facilities as a center for education, research and service for all educational institutions in the Rio de Janeiro area. The project provides for increasing the full-time staff of the Institute from 106 to 150. Estimated duration of program: 64-69.

**TOTAL** \( \text{\$237,579} \)

U. N. Special Fund

Institute of Sanitary Engineering. WHO. (6/64; 4 yrs) \( \text{\$483,300} \)
To cover the cost of consultants, fellowships and laboratory equipment. Government counterpart contribution: \$1,158,000.

Agency for International Development

Engineering (60-70) \( \text{Spent thru 6/64: \$1,760,000} \)
To assist Brazil in training engineers in specialized engineering fields to provide the technical and human resources required for continuing industrial development. Current enrollment of engineering students is only a little over 13,000. More than 38,000 additional engineers will be required by 1970 in order to meet the requirements of Brazilian industry. This gap can most readily be
bridged by bringing a selected number of able civil engineering students to the U.S. for additional advanced training, and by sending to Brazil U.S. professors to aid in the establishment of competent professorial staffs, engineering laboratories and curriculae. Estimated total cost: $5,446,000.

Norman Giller & Associates (-1/66) $262,619

Engineering

University of Houston-Institute of Chemistry, U. of Brazil (6/64-5/66) $137,000
Training of Brazilian engineering professors and assistance to undergraduate education to keep abreast of modern developments thru the influence of strong graduate programs.

Leo Daly Co. (-12/65) $159,000
Architectural/Engineering

Michigan U.-Aeronautical Institute of Technology (12/62-12/66) Education-Science/Engineering $1,266,523
Provided 11 professors to develop curriculae and permit continued expansion of present capacity of 250 undergraduates and 40 postgraduates in mechanical, thermal and aeronautical engineering. (12/62-12/64)

Michigan-U. of Sao Paulo Technology School (5/58-8/64) $248,414
Engineering & Architecture. Average of two professors annually working with student body which has increased from 38 to 80; selected participants trained in U.S. to become professors.

TOTAL $1,760,000

Fulbright Scholar
Antonio Laranjeiras   Engineering  U. of Texas  64-65

National Science Foundation
Participant in NSF Summer Institute
Remi Silva, Sao Paulo  Engineering Stevens Institute of Technology  1964

Ford Foundation
Aeronautical Institute of Technology
Computer & science laboratory equipment to strengthen the technological program. (12/61-12/63) $160,000

TOTAL GRANTS TO ENGINEERING $2,645,879
International Atomic Energy Agency

Atomic Energy Institute

Neutron physics. (64; 1 yr) ........................... $12,000
Scientific documentation, equipment only. ....... $9,500

Fellowships:

Awarded in the following fields (average duration: 11 mos):

Reactor Physics (3); Reactor Instrumentation (3); Reactor Technology and Operation (1); Solid State Physics (4); Power Reactors (1); Electronics & Instrumentation (2); Neutron Physics (1); Nuclear Physics (6); Application of radioisotopes in Industry (2); Total fellowships 23.

Agency for International Development

Peaceful Uses of Atomic Energy. (62) .............. $16,250

Atomic Energy Commission

Aeronautical Institute of Technology

Three polonium beryllium sources. (62) ........... $1,125

Pontific Catholic University of Rio de Janeiro

A study of artificial and natural radioactive contamination in Brazil. (11/62-10/65) (Previous funding: $7,850) ................ $75,130

University of Brazil

Co 60 Irradiator. (62) E. Perua Franca .......... $5,900

Biophysics Institute: Radiochemical & radioecological studies on Brazilian areas of high natural background. 

*8/64-7/65) ........................................................................ $40,040

Fulbright Scholars

Center for Physical Research

Fernando de Souza Barros Nuclear and solid state physics Carnegie Inst. 62-65

University of Sao Paulo

Laercio Condina de Freitas Solid state physics Purdue 63-65
Guilherme F. L. Ferreira Solid state physics U. Rochester 63-64
Giorgio Hoscatic High energy physics U. Illinois 63-64
Roberto L.L. e Silva Jr. Physics Purdue 64-65
Sergio C. Costa Ribeiro Physics Columbia 64-65

National Science Foundation

University of Illinois (at University of Céara):

R. Maurer: Electrical properties of atomic crystals. (62; 2 yrs) $11,500

University of Wisconsin (cooperative project with U. Sao Paulo)

R. Herb: Experimental nuclear physics. (62; 3 yrs) .................. $90,000

Total ............................................................................ $101,500
National Science Foundation (continued)

Participants in NSF Summer Institutes:

- Helio Pinto Guedes, Rio Physics PSSC U. N. Carolina 1962
- Germano Braga Rego, Goiania Physics U. Colorado 1964
- A. Teixeira Jr, São Paulo Physics St. Louis U. 1964
- Rodolfo Caniato, S. Paulo Physics Reed College 1965
- Nicolao Jannuzi, Rio Claro Physics Michigan State 1965

U. S. Army Research Grants

University of Rio Grande do Sul, Physics Institute

- D. Dillenburg: Application of gamma gamma angular correlation to solid state physics. (1/63-1/64) $11,450
- F. Zawislak: Application of gamma gamma angular correlation between nuclei and the environments in which they are embedded. (1/64-12/66) 16,400
  (5/66-4/66) .15,000
  $42,850

MacKenzie University

- P. Kaufmann: Solar microwave radio emission. (2/65-2/70) $38,840
  Propagation of very long waves in the ionosphere-solar-terrestrial relation resulting from very low frequency.
  (2/65-2/70) 15,321
  $54,161

TOTAL $97,011

Latin American Office of Aerospace Research

University of São Paulo

- O. Sala: Deutron & proton reactions at 3.5 Mev. (6/62-3/67) $116,000

Ford Foundation

- Brazilian Center of Research in Physics. Science Library. (11/59-11/64) $100,000

Rockefeller Foundation

- University of Rio Grande do Sul Institute of Physics. (64) $572

TOTAL GRANTS FOR PHYSICS $574,598
METEOROLOGY

U. N. World Meteorological Organization

Telecommunications Project
To form a link between the southern hemisphere exchange center of Brasilia and the northern hemisphere exchange center in New York for the transmission of meteorological data. (65,66) $170,000

Fellowships:

Aeronautical meteorology 63-64
Radiosonde and radar 61

Agency for International Development

Meteorological Training Centers. (62) $38,250

TOTAL GRANTS FOR METEOROLOGY $208,250

GEOPHYSICS

Latin American Office of Aerospace Research

Observatorio Nacional
L. Gama: Equatorial magnetic fields. (5/63, 8 mos; 5/64, 2 yrs) $8,000

Comissão Nacional de Atividades Espaciais
F. Mendonça: Measurements of the earth's total magnetic field & its variations at a site close to the Brazilian anomaly, (5/64; 2 yrs) $7,000
Second International Symposium on Equatorial Aeronomy, (5/65; 1 yr) 5,000 $12,000

TOTAL GRANTS FOR GEOPHYSICS $20,000
NATURAL RESOURCES  
(Geology, Hydrology, Soils, etc.)

UNESCO

Arid Zone Research (SUDENE) (62, 63, 64, 65)  $119,819
Geological, hydrological, hydrogeological studies, surveys, and courses.

Applied Engineering Geology (62)  1,488

TOTAL  $121,307

U. N. Special Fund

Survey of Rock-Salt Deposits (62; 2-1/2 yrs). Government counterpart contribution: $350,000.  $595,100

Agency for International Development

Geological Education (57-65)  Spent thru 6/64:  $1,658,000
To assist Brazil in increasing the number & quality of geology graduates and, in so doing, increase the geologic knowledge in Brazil. Emphasis is now placed on the training of junior faculty members of geology institutions. No new funds from U.S. sources are presently programmed for this activity after FY65 due to higher priorities in other educational fields. Under this project, the U.S. has assisted the National Geological School, and the Geological Schools of the Universities of Recife, Rio Grande do Sul and São Paulo. Assistance has been primarily of two types: technical and commodity. The technical assistance has been provided through the U.S. Geological Survey, which has provided professors in specialities in which the Brazilian faculties had not yet developed. Equipment and materials are being provided for laboratories as training aids to assist in teaching, and to furnish libraries with scientific literature presently unavailable in Brazil. Laboratory research in sedimentation, petrography, and mineralogy has been conducted on special problems; four quadrangles in Rio Grande do Sul have been mapped; iron, manganese, bauxite, and zinc deposits in central Brazil have been studied; and textbooks have been written and translated into Portuguese. Estimated total cost: $1,050,000.
NATURAL RESOURCES

Agency for International Development (continued)

Natural Resources Survey (63-68)

Spent thru 6/64: $1,614,000

To assist Brazil to identify natural resources, particularly in the Northeast, and thereby to obtain information for the successful continuation of cooperative programs undertaken in industrial and agricultural development. A secondary purpose is the training of Brazilian technicians in geological research, with the consequent upgrading of the capabilities of the National Department of Mineral Production. Assistance is provided to strengthen Brazilian institutions in: (1) broad surveys of land and water resources of the Northeast river basins; (2) obtaining hydrology data on stream flow, precipitation, and evaporation; (3) investigation of groundwater reserves in the largely arid Northeast area; (4) nationwide aerial mapping for resource identification; and (5) nationwide identification of mineral deposits. In FY 1963, work was begun to photograph and map 1,800,000 square kilometers in the Northeast. Engineers have been supplied from the USGS, Inter-American Geodetic Survey, the U.S. Bureau of Reclamation, and the USDA. Total budgeted expenditures in 1965 by Brazilian agencies in support of the above activities are in excess of $10 million. Estimated total cost of AID program: $5,592,000.

Natural Resource Development (LOAN - 1965)

$11,000,000

Toward a series of project studies and natural resource surveys to be administered by the Fundo de Financiamento de Estudos de Projetos e Programas (FINEP). $6 million will finance the dollar and cruzeiro cost of a three-year natural resources survey program. U.S. federal agencies and private consulting firms will perform the work. The surveys are aimed at creating "pre-conditions" for productive investment in Brazil's vast water resources, mineral deposits, hydroelectric power potential and forest reserves. Their exploitation depends on systematic mapping, surveying and classification. The $5 million balance forms part of the FINEP Fund to finance sub-loans to borrowers who will carry out selected project and program studies.

Northeast Regional Development (LOAN - 1962)

$62,350,000

To assist the long-term economic & social development of the poverty-ridden region of Northeast Brazil with an extensive program of carefully selected loan and grant projects. The program will stress irrigation improvement, electric power development, better methods of agricultural production and marketing, and studies of the resource potentials of the region as well as continuation of the projects under the short-term (two-year) impact program.

TOTAL GRANTS $3,272,000
TOTAL LOANS $73,350,000
TOTAL $76,622,000
Fulbright Scholar
Josue Camargo Mendes Geology Cornell 64-65
Prof. of Paleontology
U. of São Paulo

National Science Foundation
Principia College, Illinois
F. Robertson: Petrographical & chemical investigation of Brazillian lateritic products. (62; 3 yrs) $9,950

U. S. Geological Survey
G. Leo: Petrology of metapilinitic rocks, Brazil. (63; 1 yr) $5,700

University of California (in cooperation with U. of São Paulo)
J. Reynolds: Geochronology of South America. (64; 2 yrs) $104,435
(10/66; 1 yr) 1,000
$105,435

Louisiana State University (in coop. with U. of Rio Grande do Sul)
P. Delaney: Geomorphology & quaternary coastal geology of Uruguay. (12/63; 2 yrs) $34,000

TOTAL $155,085

TOTAL GRANTS TO NATURAL RESOURCES DEVELOPMENT $4,143,492
TOTAL LOANS TO NATURAL RESOURCES DEVELOPMENT 73,350,000
TOTAL $77,493,492
Inter-American Development Bank

Ferro e Aço de Vitória S.A. (64) $1,300,000
For technical assistance for the preparation of a final feasibility study on a project to increase the company's steel production. The loan will finance the completion of studies related to an expansion of its rolling mill at Caraiáoca, from 130,000 to 380,000 metric tons a year, and to the installation at Tubarão of a plant with a proposed production of 420,000 metric tons of steel ingots per year. The loan will finance the services of a consulting firm which will draw up the final data on financing, location, markets, and production methods and requirements.

Banco Nacional de Desenvolvimento Econômico (64) $1,350,000
From a $27 million loan to the Bank for the development of small- and medium-scale industry: to finance technical assistance related to project implementation and the preparation of preinvestment studies.

TOTAL $2,650,000

International Atomic Energy Agency

Fellowships:


International Labor Organization

Manpower Organization, including Vocational Training (62,63,64,65) $82,660
From 1957 thru 1960 a study was carried out in the Northeast to determine the labor supply-demand relationship, occupational distribution of the labor force and analysis of the occupational requirements of industry and agriculture, as well as vocational training needs. Experts, instructors, fellowships and some equipment provided to the National Service for Industrial Apprenticeship (SENAI). Advice has been concentrated on the training of administrators, school directors, and instructors, the recasting of training curriculæ and the preparation of teaching material for various trades.
International Labor Organization (continued)

Productivity and Management Development. (62,63,65) $54,002
In 1962 and 1963, work on the improvement of productivity and management development in the textile industry. Promotion of industrial productivity in São Paulo. Expert assistance to the operation of Confederação Nacional da Indústria has been requested.

TOTAL $136,662

U. N. Technical Assistance Program

Industrial Development and Productivity (62,63) $26,643
Assistance in improving manufacturing methods and in establishing technical standards adapted to local conditions and production.

Agency for International Development

Industry and Commerce (64-70) $244,000
To provide technical & capital assistance for the purpose of stimulating private industry. The states are helped in their efforts to identify industrial investment opportunities and technical assistance is provided for the establishment of small, locally owned industries in rural areas. Estimated total cost of program: $3,789,000.

Los Angeles State College Foundation-University of Paraíba (6/64-5/66) $303,000. Industrial design.

Colorado State-University of Bahia (6/64-5/66) $303,000. Industrial design.

Polytechnic Institute of Brooklyn-University of Recife. (6/65-6/67) $300,000. Industrial development.

Utah State University-University of Rio Grande do Norte (6/65-6/67) $300,000. Industrial development.

Frederick Burk Foundation for Education. (6/64-5/66) $303,000
Industrial Design.

TOTAL $3,057,305

*******************************************************************************
Inter-American Development Bank

Centrais Elétricas de Minas S.A. (CEMIG) (61) $5,000,000
To finance 14% of a project to expand CEMIG's generating capacity from 260,000 to 760,000 kilowatts, also calls for an additional 1,200 miles of main & auxiliary lines for the construction of 43 substations. Project scheduled for completion in 1965.

Companhia Hidro-Elétrica do São Francisco (62) $15,000,000
To finance 36% of a 3-year project to increase the company's generating capacity from 480,000 to more than 800,000 kws. The company serves an area within a radius of 280 miles from its central power plant at Paulo Afonso in the Northeast. The project includes the construction of 2 new transmission lines from the plant to the cities of Salvador & Recife, the extension of secondary lines, & the installation of several substations & auxiliary equipment to handle a volume sufficient to meet the area's power demands until 1970.

Centrais Elétricas de Urupupunga S.A. (63) $13,250,000
To help finance the construction of a hydroelectric plant, which will be the largest in Brazil & one of the largest in the world. The plant, known as the Jupiá plant, is located near the Urupupunga waterfalls on the Paraná River. The loan is financing part of the cost of imported machinery needed for the electrical & mechanical installations of the plant & part of the construction costs. The project includes the installation of 12 generators of 100,000 kws each and auxiliary works, as well as the construction of a transmission system that will consist of a double-circuit line of 355 miles between the plant & Mimoso in Mato Grosso, & two substations, one in Baurú & one in São Paulo. The project is expected to cost some $200 million.

Companhia de Eletricidade do Estado da Bahia (COELBA) (63) $3,200,000
To finance 45% of a program to increase COELBA's generating capacity by 10,700 kws. Includes construction of 14 substations & the installation of 427 miles of transmission & distribution lines. The number of communities served should rise from 29 to 50 as a result of the new facilities.

Central Elétrica Capivari-Cachoeira S.A. (63) $5,450,000
To help finance a 120,000kW hydroelectric project in Paraná which will nearly double the installed capacity in Brazil's principal coffee-growing state. The plant will be located at the falls of the Cachoeira River, north of the port of Paranagua. Total cost of project: $29.4 million.

Total $41,900,000
Loans for projects that will add nearly a million kilowatts to the generating capacity in the south-central region, the industrial heart of Brazil. Industry uses over 75% of the power supplied in the region.

Central-Elétrica de Furnas S.A. (FURNAS) (65) $57,000,000
For the construction of the 800,000 kw Estreito hydroelectric plant on the Rio Grande. The project is scheduled for completion in 1971 at a total cost estimated at the equivalent of $90 million. The remaining costs will be financed by FURNAS and ELETROBRAS.

Usinas Elétricas do Paranapanema (USELPA) (65) $22,500,000
For the completion of the 400,000 kw Xavantes hydroelectric power plant already under construction on the Paranapanema River. The total cost of the project is estimated at the equivalent of $69.5 million. The State of São Paulo will provide whatever funds are required for completion of the project. Completion scheduled for 1969.

TOTAL $79,500,000

U. N. Technical Assistance Program

Natural Resources Development and Power. (62) $2,524

United Nations Special Fund

Survey of Hydro-Electric Resources in Minas Gerais. IBRD. (1/62; 3 yrs) Government counterpart contribution: $560,000. $735,000
Survey of Power Development for South Central Brazil. IBRD. (1/63; 3 yrs) Gov. counterpart contribution: $1,804,400. $1,823,300

TOTAL $2,558,300

Agency for International Development

Power (Grant) (62-68) Spent thru 6/64: $250,000
To assist Brazil in overcoming its serious power deficit by means of technical & capital assistance. Technical assistance is provided for the integration of existing power facilities & for rural preparation of loan data & supervision of
Agency for International Development (continued)

installations. Construction is proceeding in the electrification of 72 Northeast rural communities, the first of 432 such communities in this area scheduled to receive such benefits thru the Alliance for Progress. Plans are being completed for the electrification of the other communities. Total Brazilian local currency devoted to power development over the period from 1963 to 1965 is estimated to be the equivalent of $165 million. Estimated total cost of AID program: $922,000.

Santa Cruz Thermal Plant (CHEVAP) (LOAN - 1963) $15,500,000
This loan will provide the foreign exchange necessary for the construction of a 150,000 kw thermal electric power plant, with associated facilities, at Santa Cruz, State of Guanabara. This plant will supply electricity to the power-short area of Rio de Janeiro. Rio's estimated power deficit by 1966 would be 300,000 kw without this plant. Feasibility studies, soil investigations & other technical work were performed by CHEVAP's own technical staff assisted by U.S. and Brazilian consulting engineering firms. Total cost of the project is $32.3 million.

CEMIG Power Expansion Program (LOAN - 1963) $5,300,000
To assist in financing selected portions of the CEMIG power expansion program for 1963-66. Loan funds will provide foreign exchange for equipment, materials, and services to increase the transmission, generation, and distribution capabilities of the existing CEMIG system, whose load is 80% industrial. Total cost of project: $19.6 million.

Fortaleza Emergency Power (LOAN - 1963) $2,400,000
To finance the foreign exchange costs of the equipment and services required to provide diesel units to generate 18,000 kw emergency electric power for Northeast Brazil. This capacity will be initially installed in Fortaleza. After additional power reaches Fortaleza in 1965, these moveable units may be used by SUDENE for other emergency needs in the Northeast.

Rural Electrification (LOAN - 1962) $8,025,000
To provide electric power to small communities in the interior.

| TOTAL LOANS | $31,225,000 |
| TOTAL GRANTS | 350,000 |
| TOTAL | $31,575,000 |

TOTAL LOANS FOR POWER DEVELOPMENT $152,625,000
TOTAL GRANTS FOR POWER DEVELOPMENT 2,910,824
TOTAL $155,535,824

*******************************
TRANSPORTATION

U. N. Technical Assistance Program

Transport and Communications (62,63) $33,880
Assistance in the preparation and implementation of transport development policy for the Northeast of Brazil within the general development plan of SUDENE.

Agency for International Development

Transportation (63-70) Spent thru 6/64: $1,044,000
To assist in the development of a transportation means within Brazil. The program includes a comprehensive survey of Brazil's transportation requirements including rail, air and highway systems. Loans for Northeast highway construction and maintenance equipment, based on prior engineering studies totalled $24 million through February 1964. Estimated total cost of AID program: $5,389,000.

SUDENE, Combined Highway Project (LOAN - 1963) $11,000,000
To provide all costs of constructing, surfacing and/or paving of six state highways, totalling 188 miles, in five states of Northeast Brazil. Improvement of States' highways systems has been assigned high priority by U. S. and Brazilian authorities engaged in Northeast development. States involved: Maranhão, Paraíba, Rio Grande do Norte, Alagoas, and Ceará.

TOTAL LOANS FOR TRANSPORTATION DEVELOPMENT $11,000,000
TOTAL GRANTS FOR TRANSPORTATION DEVELOPMENT 1,077,880
TOTAL $12,077,880

*******************************************************************************
(Note: Projects in agricultural economics are listed under the Section on Agriculture.)

**Inter-American Development Bank**

Fundação Comissão de Planejamento Econômico da Bahia (62)
Technical assistance loan of $265,000 from the Fund for Special Operations plus grant assistance amounting to $75,000 is helping the Foundation in the preparation of studies on industrial projects, infrastructure & social development, called for in the State's development plan.

| Loan:  | $265,000 |
| Grant: | $75,000  |
| Total: | $340,000 |

**Organization of American States**

Brazilian Coffee Institute (61-64; 25 mos) $22,193
Promote and assist in technical investigation and training of personnel specialized in coffee economy. Four experts.

SUDEHE (64; 2 mos) $1,056
Revise the administrative structure of SUDEHE. One expert.

Government of Brazil (62/63; 3 mos) $3,000
Give a course in rural economy in the University of Rio Grande do Sul. One expert.

Government of Brazil (65;  ) $209,673
Strengthen SUDEHE and increase its effectiveness as the coordinating organization for development planning in the Northeast. Carry out an integrated program of assistance utilizing all available technical assistance and cooperation resources of the OAS. The mission is composed of 7 experts.

**U. N. Technical Assistance Program**

Economic Surveys (62, 63, 64, 65) $34,529
This project is related to the Government of Brazil's efforts to develop the Northeast region of the country.

Economic Programming and Projections (62, 63, 64, 65) $279,316

**TOTAL** $313,845

**Agency for International Development**

Economics Education (60-66) Spent thru 6/64: $635,000
To improve the quality of economics training and research in Brazil, and to increase the number of higher level Brazilian economists required for Brazil's development. Working with the Rockefeller and Ford Foundations, the principal activities of the USAID in this project are directed towards improving the training offered by the Getulio Vargas Foundation's Institute of...
Economics aid the University of Ceara so as to qualify graduates for advanced training in the U.S. and to provide such training for selected students. Estimated total cost of AID program: $1,720,030.

Economic Development Planning (62-70) Spent thru 6/64: $552,000
To assist Brazilian national, regional, and state planning organizations to achieve administrative reform as well as a more rational allocation of public and private resources necessary for development. Technical assistance will be provided in development research and planning, collection and interpretation of national and regional economic data, and tax administration. Contract consultants will be brought to Brazil, and Brazilian officials will be trained in the U.S. Estimated total cost: $1,370,600.

University of California Regents-Minister of Planning and Economic Coordination. (6/65-5/70) $552,757.

Economic Development.
TOTAL $1,163,337

Ford Foundation
Brazilian Academy of Sciences
Research symposia & expanded publication program on national development problems. (7/63-7/63) $120,000

Getulio Vargas Foundation
Program of applied economic research related to development problems. (9/63-7/65) $503,000

University of Rio Grande do Sul
Improvement of undergraduate economics program. (5/61-5/65) $137,600

University of Sao Paulo
Development of graduate economics program. (10/64-10/69) $433,200
Seminar on law & its relation to economics in December 1962. $9,999
TOTAL $1,172,300

Rockefeller Foundation
Getulio Vargas Foundation
Advanced training for Brazilian economists. (64) $9,692

University of Rio Grande do Sul
Faculty of Economics Sciences. (64) $4,091

Fellowship: Angelo de Souza Economics USA 1962
G. Vargas Fdn.
TOTAL $13,696
TOTAL LOANS TO ECONOMICS AND PLANNING $ 501,720
TOTAL GRANTS TO ECONOMICS AND PLANNING  2,762,341
TOTAL  $3,264,061

PUBLIC AND BUSINESS ADMINISTRATION

U. N. Technical Assistance Program
Public Administration. (64,65)  $4,900

Agency for International Development
Business Administration Education (59-64) Spent thru 6/63:  $5,114,000
To improve and strengthen training programs in existing university-level public & business administration institutions in support of the human resources development goal. The project is concerned with the development of undergraduate, graduate and special curricula to improve the practical and teaching skills in these two fields. The six institutions which are taking part in this program include the Getulio Vargas Schools of Business and Public Administration, the Polytechnical School of the University of Rio Grande do Sul, the School of Administration of the University of Bahia and the School of Public Service of the Administrative Department of Public Service. The courses and programs will improve the available educational facilities by developing and improving instruction and research techniques, creating adequate library facilities, improving the translation and distribution of textbooks and related audio-visual aids, and expanding the scope of research and the dissemination of its findings.


Michigan State-Universities of Bahia and Rio Grande do Sul, Getulio Vargas Foundation. (11/54-9/64) $1,714,000. Business administration.
Agency for International Development (continued)

Michigan State-Getulio Vargas School of Business Administration (6/53-8/64) $1,522,000.
Expansion of the above program.

Management and Development (60-70) Spent thru 6/64: $738,000
To assist in the improvement of managerial skills and attitudes as a means of furthering Brazil's industrial development. To improve managerial practices and to introduce managerial concepts, 16 state productivity centers have been established with USAID assistance. The GOB has budgeted an amount equivalent to $215,000 for the support of these centers in 1965. The Centers provide management training, placing emphasis on modern industrial practices, labor and community relations, and the establishment of new product lines. The Centers are beginning to work with newly established development banks in promoting and analyzing loan applications for small and medium sized industry. A complementary part of this program is the training provided for selected Brazilian managers and technicians in the U.S. By 1963, a total of 3,000 managers had received training in Brazil, and 43 top-level industrialists & industrial planners had received instruction in Mexico, Puerto Rico and the U.S. Estimated total cost of program: $1,012,000.

TOTAL $5,852,000

Fulbright Scholars

School of Business Administration
Ruy Pontual de Petrolina Business Admin. Stanford 62-63

Jornal do Brasil
Luiz Alberto F. Bahia Economics and Harvard 64-65
Chief Editorialist Business Admin.

Ford Foundation

Getulio Vargas Foundation
Preparation of textbooks & teaching materials in business administration. (3/62-3/65) $105,000
Preparation of teaching & research material in the field of public administration. (3/64-3/69) 168,000
Expanded program of the School of Business Administration. (10/64-10/69) 500,000
$773,000
Ford Foundation (continued)

University of Bahia
Research & teaching materials on the administrative problems of state and local government for the School of Administration. (10/63-10/67) $132,909

TOTAL $995,050

TOTAL GRANTS FOR PUBLIC AND BUSINESS ADMINISTRATION $6,761,930

SOCIOLOGY

Organization of American States

Government of Brazil (62/63; 3 mos) Give a course in rural sociology in the Rural U. of Rio de Janeiro. One expert. $3,600

UNESCO

Latin American Social Sciences Research Center (65) $14,400

U. N. Technical Assistance Program

Population (54) $2,500

Agency for International Development

California-Cetulio Vargas Foundation (2/62-1/65) Creation of postgraduate Institute of Rural Studies; four-man staff working with School of Sociology & Political Science designing curricula & developing course materials; demonstrating teaching methods, planning & conducting seminars in rural development. $445,000

Fulbright Scholars

Francisco Escobar D. Rural Sociology: Michigan State 63-64
Rural U. of Brazil land tenure

Maria Pessoa Houra Applied anthropol. Baldwin-Wallace, 63-64
Brazilian School of public admin. U. of Redlands,
Public Administration U. of S. Cal.

TOTAL GRANTS TO SOCIOLOGY $415,500

* * * * * * * * *
Most of the assistance to education has been in specific fields of science, coordinated with research, and is listed under the corresponding heading (Engineering, Economics, etc.). The projects listed here are education in the general sciences and elementary and secondary education.

Inter-American Development Bank

Banco Nacional do Desenvolvimento Econômico (64) $4,000,000
To help equip several national centers which provide training in the basic sciences & technology for university professors. The loan funds will finance the purchase of equipment and library materials for laboratories at several colleges, universities, & institutes throughout Brazil. The project, part of a broadly-conceived Brazilian program to increase both the number and the quality of university professors of mathematics, physics, chemistry, biology, agronomy, medicine, veterinary medicine, & technology, will enable the centers to carry on training & advanced research. The program, under the direction of CAPES, will cost an estimated $7,600,000. The Trust Fund loan will finance 52% of this sum; the Brazilian Government will provide 33%, and the Ford Foundation 15%. The latter two contributions will be used mainly to finance fellowships to enable professors to pursue advanced course work at the various centers. See page 68 for distribution of loan.

Organization of American States

Government of Brazil (61/2; 3 mos)
Advise the Faculty of Philosophy, Sciences, and Letters of the University of Sao Paulo. One expert. $4,376

UNESCO

National Center for Education Research (62, 63, 64, 65) $265,264
Experts to assist in the establishment of an Educational Planning Center and in the formulation of educational development plans, including the training of staff.

Literacy Planning (65) $1,000

Teacher Training (Joint UNESCO/UNICEF Project) (65) $12,000

Science Teaching (64) $21,273

Education for the Blind (64) $3,995

University of Brasilia (64) $7,432

Teaching of technology

TOTAL $310,769
U. N. Special Fund

University of Brasilia
Teaching of technology. UNESCO. (1/64; 4 yrs)
Government counterpart contribution: $9,653,000. $1,205,600

Agency for International Development

Elementary Education (56-70)  
Spent thru 6/64: $3,676,000
To assist the Brazilian federal and state government in their plans for providing educational facilities for all children of 7 thru 14 by 1970. Included are programs for classroom construction, training for educators and the development of improved instruction materials, assistance in developing centers for education instruction, and architectural and engineering supervisory services. This program now concentrates primarily on the Brazilian Northeast where less than 50% of the school-age children attend school to lack of facilities. Estimated total cost: $7,919,000.

Indiana-National Elementary Center (Belo Horizonte)  
(9/60-1/64) $161,000.
Pilot demonstration center has trained 776 principals, supervisors, demonstration school teachers & kindergarten directors in short courses & 443 normal school supervisors in semester length courses; 130 participants have been trained in Indiana & now occupy key posts in elementary education.

Michigan State U.-Nat'l.-Institute of Pedagogical Studies  
(8/60-7/64) $505,000.
To develop teacher-trainers in mass & group communications for schools of 16 Brazilian states; audio-visual center has been developed; six staff members trained at Michigan State and 400 teachers, supervisors, industrial trainees, etc., in Brazil.

Basic Education (63-67)  
Spent thru 6/63: $85,000
To provide basic education to 70% of the illiterates in the age group of 14-30 years in the Northeast. Brazil in March 1961 established the Movimento de Educação Base (MEB) to promote fundamental education thru radio broadcasting. The MEB works in concert with other Brazilian agencies, The U.S. program in FY63 provided support to the MEB, principally in the form of equipment, including radios, classroom equipment, supplies for training centers & monitors to operate new teaching units. In FY64, it was planned to continue material support for the MEB and to begin participant training for radio and TV school staffs, and to contract 3 U.S. technicians for one year. Estimated total cost of program: $480,000.

TOTAL $3,761,000
Ford Foundation

National Technical School
Development of a national center for vocational technical education. (7/65-7/69) 
$800,000

Pontifical Catholic University of Rio de Janeiro
Strengthening teaching & research in the basic sciences. (5/61-5/65) 
$190,000

Rural University of the State of Minas Gerais
University expansion, development of research & extension training. (10/64-10/69) 
$995,000

University of Brazil
University reform: Committee for Graduate Studies (8/61-8/62) $15,000
Development of postgraduate teaching & research in the basic sciences. (6/62-6/65) $650,000 
$665,000

University of Recife
Science teaching center of the Northeast. (9/64-9/68) $150,000

University of São Paulo
Institutional grant related to fellowships. (64) $2,000
Establishment of a closed-circuit television system at the university. (9/64-9/69) $177,000 
$179,000

CAPES
Support of research. (64) $22,576
Fellowships & specialized training programs for graduate students & science professors. (9/63-9/67) $1,130,000 
$1,152,576

Foundation for the Support of Research, State of São Paulo
Dr. Warwick Kerr, Science Director: to observe administrative procedures at scientific research foundations in the U.S., Canada and Europe. (62) $2,400

IBECC
Improvement of secondary science teaching. (9/62-9/63) $45,000
(1/61-1/64) $125,000
Science development program. (64) $4,263 
$174,263

Institute of International Education, Inc.
Visiting teachers from Rio to study U.S. "gray areas." (1/63; 2 weeks) $15,000
Ford Foundation (continued)

State of Guanabara
Pilot project to improve primary education in the underprivileged districts of Rio de Janeiro. (4/62-4/66) $225,000

Foundation Administered Project
Provide services of Dr. Ernani Braga & 5 other scientists to review graduate science teaching projects in Brazil. (12/62; 3 mos) $14,000

TOTAL $4,562,239

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL LOANS TO EDUCATION AND GENERAL SCIENCE DEVELOPMENT</td>
<td>$4,000,000</td>
</tr>
<tr>
<td>TOTAL GRANTS TO EDUCATION AND GENERAL SCIENCE DEVELOPMENT</td>
<td>$9,843,986</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$13,843,986</td>
</tr>
</tbody>
</table>
INSTITUCIONES DE ENSEÑANZA SUPERIOR DEL BRASIL BENEFICIADAS POR EL FRESTANO CAZES

(32 Instituciones que comprenden 73 centros científicos)

A) UNIVERSIDADES (13), Centros (52)

I. PONTIFICIA UNIVERSIDADE CATOLICA DO RIO DE JANEIRO:
   1. Instituto de Física
   2. Centro de Processamento de Dados
   3. Instituto de Tecnologia.

II. UNIVERSIDADE DA BAHIA:
   1. Escola de Geologia
   2. Instituto de Matemática e Física

III. UNIVERSIDADE DO BRASIL:
   1. Instituto de Biofísica.
   2. Escola Nacional de Química, Cátedra de Física-Química e Departamento de Bioquímica.
   3. Instituto de Química (Divisão de Química Orgânica e Divisão de Engenharia Química).
   4. Instituto de Microbiologia.
   5. Escola Nacional de Geologia.
   6. Departamento de Zoologia, Faculdade de Filosofia, Ciências e Letras.
   7. Instituto de Física.
   8. Instituto de Matemática.

IV. UNIVERSIDADE DE BRASILIA:
   1. Instituto de Física.
   2. Instituto de Química.
   3. Instituto de Biologia.
   4. Instituto de Matemática.

V. UNIVERSIDADE DO CEARÁ:
   1. Instituto de Química e Tecnologia.
   2. Estação de Biologia Marinha.
   3. Instituto de Matemática.

VI. UNIVERSIDADE DE MINAS GERAIS:
   1. Departamento de Física da Faculdade de Filosofia, Ciências e Letras.
   2. Instituto de Química Básica.
   3. Departamento de Bioquímica da Faculdade de Medicina.
   4. Faculdade de Veterinária.
VII. UNIVERSIDADE DO PARÁ:
1. Departamento de Zoologia da Faculdade de Filosofia, Ciências e Letras.
2. Instituto de Bioquímica.
3. Instituto de Mecânica.
4. Centro de Pesquisas Hidráulicas e Hidrológicas.
5. Escola de Agronomia e Veterinária.

VIII. UNIVERSIDADE DO Recife:
1. Instituto de Química
2. Instituto de Antibióticos
3. Instituto Oceanográfico
4. Instituto de Matemática
5. Escola de Geologia.

IX. UNIVERSIDADE DO RIO GRANDE DO SUL
1. Instituto de Física
2. Escola de Agronomia e Veterinária
3. Escola de Geologia.
4. Instituto de Tecnologia Alimentar.

X. UNIVERSIDADE DE SÃO PAULO:
1. Departamento de Física da Faculdade de Filosofia, Ciências e Letras, (Cadeira de Física Nuclear e Biblioteca Departamental).
2. Departamento de Física da Escola de Engenharia de São Carlos.
3. Departamento de Química da Faculdade de Filosofia, Ciências e Letras.
4. Departamento de Botânica da Faculdade de Filosofia, Ciências e Letras.
5. Instituto Oceanográfico.
6. Instituto de Bioquímica da Faculdade de Medicina de Ribeirão Preto.
7. Departamento de Histologia e Embriologia da Faculdade de Medicina.
8. Escola Superior de Agronomia "Luiz de Queiroz" (Centro de Estudos de Solos e Instituto de Genética).
9. Instituto de Matemática.
10. Departamento de Mineralogia e Petrologia e de Geologia e Paleontologia da Faculdade de Filosofia, Ciências e Letras.
11. Instituto de Pesquisas Tecnológicas.

XI. UNIVERSIDADE RURAL DO ESTADO DE MINAS GERAIS:
1. Escola Superior de Agricultura de Viçosa.
XII. UNIVERSIDADE RURAL DO RIO DE JANEIRO:

1. Escola de Veterinária (Patologia Animal).

XIII. UNIVERSIDADE RURAL DO SUL:

1. Escola de Agronomia "Eliseu Maciel".

B) ESCUELAS (5)

1. ESCOLA DE ENGENHARIA INDUSTRIAL DO RIO GRANDE

2. ESCOLA NACIONAL DE MINAS E METALURGIA DE OURO PRETO

3. ESCOLA PAULISTA DE MEDICINA:
   a) Departamento de Bioquímica e Farmacologia e de Microbiologia

4. ESCOLA QUÍMICA DO SERGIPE

5. ESCOLA NACIONAL DE FLORESTAS (Paraná).

C) INSTITUTOS (10)

1. Instituto Electrotécnico de Itajubá, Minas Gerais

2. Instituto Agronômico de Campinas, Secretaria de Agricultura do Estado de São Paulo

3. Instituto de Botânica, Secretaria de Agricultura do Estado de São Paulo

4. Instituto Tecnológico de Aeronáutica São José dos Campos (S. Paulo)

5. Instituto Biológico, Secretaria de Agricultura do Estado de S. Paulo

6. Instituto de Tecnologia do Estado do Rio Grande do Sul

7. Instituto Nacional de Tecnologia (Rio de Janeiro)

8. Instituto Biológico da Bahia, Secretaria de Agricultura da Bahia

9. Instituto de Pesquisas Agronômicas do Estado de Pernambuco

10. Instituto de Tecnologia e Pesquisas (Sergipe)

D) OTRAS ORGANIZACIONES (4), Centros (6)

I. CENTRO BRAILEIRO DE PESQUISAS FÍSICAS (Rio de Janeiro)

1. Centro Brasileiro de Pesquisas Físicas (en general)

2. Departamento de Química Nuclear

II. DIVISÃO BOTÂNICA, JARDIM BOTÂNICO DO RIO DE JANEIRO (Ministerio de Agricultura)

III. CONSEJO NACIONAL DE PESQUISAS (Rio de Janeiro)

1. Instituto de Matemática Pura e Aplicada

2. Registro Bibliográfico Central, Instituto Brasileiro de Bibliografia e Documentação
IV. CENTRO TROPICAL DE PESQUISAS E TECNOLOGIA DE ALIMENTOS (Campinas, Secretaria de Agricultura do Estado de São Paulo)

From the Inter-American Development Bank
## BRAZIL

**AGENCIES CONTRIBUTING TO PROGRAMS AND ACTIVITIES RELATING TO HIGHER EDUCATION**

1963 - 1964

<table>
<thead>
<tr>
<th>AGENCIES</th>
<th>NATURAL SCIENCES</th>
<th>SOCIAL SCIENCES</th>
<th>AGRICULTURAL SCIENCES</th>
<th>MEDICAL SCIENCES and PUBLIC HEALTH</th>
<th>INSTITUTIONAL DEVELOPMENT</th>
<th>EDUCATION &amp; Teacher Training</th>
<th>HUMANITIES and ARTS</th>
<th>AGGREGATE INVESTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORD FOUNDATION</td>
<td>1,420,000</td>
<td>1,563,400</td>
<td>585,000</td>
<td>1,836,792</td>
<td></td>
<td></td>
<td></td>
<td>6,167,332</td>
</tr>
<tr>
<td>AGENCY FOR INTERNATIONAL DEVELPMENT</td>
<td>771,000</td>
<td>3,142,000</td>
<td></td>
<td>16,250</td>
<td></td>
<td></td>
<td></td>
<td>7,853,260</td>
</tr>
<tr>
<td>INTER-AMERICAN DEVELOPMENT BANK</td>
<td>2,733,500</td>
<td>955,500</td>
<td></td>
<td>129,000</td>
<td></td>
<td></td>
<td></td>
<td>4,000,000</td>
</tr>
<tr>
<td>ROCKEFELLER FOUNDATION</td>
<td>381,903</td>
<td>151,950</td>
<td></td>
<td>430,056</td>
<td></td>
<td></td>
<td></td>
<td>961,029</td>
</tr>
<tr>
<td>ORGANIZATION OF AMERICAN STATES</td>
<td>92,000</td>
<td>106,000</td>
<td></td>
<td>8,000</td>
<td>122,600</td>
<td>50,000</td>
<td></td>
<td>574,100</td>
</tr>
<tr>
<td>STATE DEPARTMENT</td>
<td>145,600</td>
<td>245,512</td>
<td>25,450</td>
<td>41,448</td>
<td>6,488</td>
<td>265,039</td>
<td>112,472</td>
<td>898,976</td>
</tr>
<tr>
<td>NATIONAL INSTITUTES OF HEALTH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>738,369</td>
</tr>
<tr>
<td>PAN-AMERICAN HEALTH ORGANIZATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>282,319</td>
</tr>
<tr>
<td>KELLOGS FOUNDATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>445,908</td>
</tr>
<tr>
<td>UNITED STATES ATOMIC ENERGY COMMISSION</td>
<td>134,910</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>134,910</td>
</tr>
<tr>
<td>THE NATIONAL SCIENCE FOUNDATION</td>
<td>104,435</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>104,435</td>
</tr>
<tr>
<td>UNITED STATES AIR FORCE</td>
<td>69,050</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>98,050</td>
</tr>
<tr>
<td>UNITED STATES DEPARTMENT OF THE ARMY</td>
<td>16,400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>77,935</td>
</tr>
<tr>
<td>GUGGENHEIM FOUNDATION</td>
<td>59,500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>59,500</td>
</tr>
</tbody>
</table>

**AGGREGATE INVESTMENT**

| TOTALS BY DISCIPLINE:          | 5,097,298        | 2,212,567       | 1,605,540               | 2,038,615                        | 1,980,280                | 177,042         | US$ 22,376,113     |
| GRAND TOTAL BY DISCIPLINES AND AGENCIES: |                |                 |                       |                                   |                          |                             |                     | 22,376,113         |

Prepared by the Inter-American Development Bank
LOAN TO HELP BRAZIL STUDY RESOURCES, INVESTMENT

A nationwide program of Alliance for Progress studies and surveys of Brazil's natural resources and of proposed capital investments will be carried out with assistance from the Agency for International Development.

To accelerate economic growth, AID will lend Brazil $11 million toward a series of project studies and natural resource surveys to be administered by the Fundo de Financiamento de Estudos de Projetos e Programas (FINEP), an autonomous agency of the Brazilian Government.

Six million dollars of AID loan funds will finance the dollar and cruzelro cost of a three-year natural resources survey program. U.S. federal agencies and qualified private consulting firms will perform the work.

The surveys are aimed at creating "pre-conditions" for productive investment in Brazil's vast water resources, mineral deposits, hydroelectric power potential and forest reserves. Their exploitation depends upon systematic mapping, surveying, and classification.

The $5 million balance of the AID loan forms part of the FINEP Fund to finance sub-loans to borrowers who will carry out selected project and program studies. Project studies include feasibility studies to determine the soundness of proposed capital investments. Program studies include general surveys and pre-investment analyses bearing on economic development.

The Inter-American Development Bank has authorized an additional $5 million loan to the Fund. Brazil's contribution will be the equivalent of an estimated $7.2 million. In addition, AID has authorized a grant of $540,000 in local currency, derived from the sale in Brazil of Food for Peace commodities.

(over)
FINEP will sub-lend its funds both to public and private borrowers. Local contributions will be provided for each sub-loan. It is expected that participating Brazilian agencies and firms will assume an increasing share of the costs over the next two years.

Brazil will repay the AID loan in dollars within 40 years, including a ten-year grace period. Interest during the grace period will be at the annual rate of one percent and two and one half percent thereafter.

# # #
AID LENDS BRAZIL
$150 MILLION

A loan of $150 million to further Brazil's development under the Alliance for Progress was announced today by the Agency for International Development.

The loan agreement was signed today in a ceremony in Brasilia, presided over by Brazilian President Humberto Castello Branco. U.S. Ambassador Lincoln Gordon signed for the United States.

Today's loan is expected to be augmented by approximately $300 million in additional U.S. assistance throughout 1966. This will include project loans from AID and the Export-Import Bank; sales and donations of agricultural commodities under U.S. Food for Peace legislation; AID housing and investment guarantees; technical assistance, and U.S. contributions to the Inter-American Development Bank.

Proceeds of the current AID loan will be used by the Brazilian government to help private importers and public agencies finance essential imports from the U.S. Of the $150 million, about $30 million will be available on medium-term credit to investors buying capital goods from the U.S.

These additional resources for 1966 will bring to nearly one billion dollars the total U.S. assistance authorized for Brazil since the administration of President Castello Branco assumed power in 1964.

In June, 1964, AID extended Brazil a $50 million credit to finance U.S. imports at a critical time for Brazilian commerce. This was followed in December, 1964, by a $150 million credit to finance 1965 development imports and generate local currency for economic growth projects. The dollars obligated under both loans were spent in the United States among a large number of U.S. firms.

In 1965 Brazil expanded her economy by about six percent, following two years of virtual stagnation, and made progress toward bringing inflation under control. From virtual international bankruptcy the nation has restored her credit standing, liquidated a backlog of commercial arrears, resumed the flow of financial remittances and rebuilt foreign exchange reserves.
The Brazilian government has also offered foreign and domestic private investors new incentives. AID's recent investment guaranty agreement with Brazil has attracted applications for guaranties from private U.S. investors which represent a potential of more than $200 million.

For 1966 and beyond, Brazil's development plan calls for policies and actions to accelerate economic growth, further dampen inflation and press a program of further reforms. Further budgetary deficit reductions are planned to help achieve economic stability and increase public and private investment. The plan also calls for strengthening agriculture and expanding educational opportunities.

Local currency generated by AID-financed imports will be used to finance industrial and agricultural credit, housing, health and other social programs. The nation is also carrying out major Alliance for Progress reforms in land tenure, banking, agricultural credit and public administration. A National Housing Bank has taken new measures to attract private savings for an expanded home loan program.

The U.S. assistance will help support major goals of Brazil's self-help program as outlined by the Brazilian government to the Inter-American Committee of the Alliance for Progress (CIAP), a planning and advisory body. In Brasilia today, Ambassador Gordon congratulated CIAP on its successful reviews of country programs, progress and needs and said that the signing ceremony reflected the new and challenging process being conducted in the Western Hemisphere by CIAP.

The AID loan is repayable in dollars within 40 years, including a 10-year grace period. Annual interest during the grace period is one percent. Thereafter it is two and one-half percent.

#   #   #
BIBLIOGRAPHY

1. Angelescu, V. Marine Resources Research in the S.W. Atlantic, Argentina, Brazil and Uruguay; FAO Advisory Committee on Marine Resources Research. 1964


30. Pontificia Universidade Católica do Rio de Janeiro. Pontificia
Universidade Católica do Rio de Janeiro.


32. Science Information Exchange. Grants to Latin American Countries:
Fiscal Years 1964 and 1965. Smithsonian Institution, August
1965.

33. SUDENE. The Brazilian Northeast and Its Institutions for Economic
Development. 1961.

34. UNESCO, Scientific Institutions and Scientists in Latin America:
Brazil (Instituciones) Fascículos I and II. Centro de
Cooperación Científica para América Latina in collaboration
with the OAS. Montevideo, 1963.

35. United Nations Expanded Programme of Technical Assistance. EPTA


37. The Programme for 1963-64: A Descriptive
Summary of the Category I Short-Term Projects Contained in
Document E/TAC/1, 231. 1964.

38. U.S. Department of Agriculture. Foreign Agricultural Research
Agreements Executed under Public Law 480 Section 104(a)

Brazil, Uruguay and Argentina. 1959.

40. University of Arizona Agriculture Education Survey Team. Report

41. University of Brazil. University of Brazil: Graduate Engineering
Programs. 1965/66 Catalog. 1965

42. Universidade de Brasilia. Plano Orientador da Universidade de
Brasilia. 1962.

43. University of Houston. Focus on the University of Houston in

44. University of Purdue. 1964 Annual Report: Purdue-Brazil Technical
Assistance Project at the Universidade Rural do Estado de
Minas Gerais, Viçosa, Minas Gerais, Brazil. January 1965.


51. SPTF. Plus news releases, airgrams, miscellaneous reports from AID, State Department, National Science Foundation, National Academy of Sciences, etc.; letters and personal communications.
Brazil managed to make good progress in curbing inflation, while recording an appreciable rise in its gross national product, in 1965.

Initial estimates of the rise in GNP center around 6.8%, compared with 3.3% in 1964 and 2.5% in 1963, according to APEC, an authoritative Rio de Janeiro economic newsletter. Meanwhile, the government succeeded in curtailing the rise in the cost of living to 4.5%, compared with about 85% in 1964. Thus, APEC notes, "the extremely dangerous spiral has been broken..."

The figures in the APEC report confirm an earlier analysis by the Inter-American Committee on the Alliance for Progress - CLAP - which reported that the Brazilian economy experienced a significant recovery in 1965 after two years of near stagnation (Vol. IV, No. 4).

A considerable portion of the GNP rise was the result of a 90% jump in the coffee crop, which contributed heavily to an estimated 17.6% rise in total agricultural output.

The strong showing of the agricultural sector helped compensate for a less satisfactory showing in industry, which slumped in the first half of the year. A stronger second half enabled the industrial sector to show an estimated rise of 1.6% in output for the year as a whole.

A strongly improved exchange position was one of the outstanding accomplishments of the government's fiscal policies in 1965. Foreign currency reserves of $450 million have been built up, APEC reported.

Contributing to this rise was a favorable balance of trade of $475 million, up from a surplus of $166 million in 1964. This gain was recorded in the face of declining earnings from coffee exports. Despite a bumper crop, exports fell from 15 million bags ($755 million) in 1964 to 13.5 million bags ($722 million) in 1965.

Another sign of the nation's improving fiscal position was the fact that the Treasury deficit was well within the budget, and was, "for the first time, financed by non-inflationary funds," APEC reported. "This was mainly because of profound changes in the financial structure of the nation and because of the organizing of a Central Bank."

Reflecting the growing confidence in the government's fiscal policies, the inflow of private foreign capital rose to an estimated $256.7 million in 1965, APEC reported. Despite more liberal regulations concerning the transfer of profits, the outflow of capital from the private sector totaled no more than $47 million, leaving a net inflow of about $209 million.

(All figures are in billions of cruzeiros)

<table>
<thead>
<tr>
<th>Ministry</th>
<th>1964</th>
<th>1965</th>
<th>1966</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presidential, Legislative &amp; Judiciary</td>
<td>214.7</td>
<td>195.1</td>
<td>216.3</td>
</tr>
<tr>
<td>Finance</td>
<td>806.2</td>
<td>721.6</td>
<td>957.3</td>
</tr>
<tr>
<td>Army</td>
<td>145.8</td>
<td>410.0</td>
<td>500.2</td>
</tr>
<tr>
<td>Navy</td>
<td>86.5</td>
<td>219.8</td>
<td>234.7</td>
</tr>
<tr>
<td>Air</td>
<td>124.6</td>
<td>239.5</td>
<td>269.7</td>
</tr>
<tr>
<td>Labor and Social Security</td>
<td>79.8</td>
<td>86.5</td>
<td>63.0</td>
</tr>
<tr>
<td>Justice and Interior</td>
<td>23.3</td>
<td>127.8</td>
<td>102.0</td>
</tr>
<tr>
<td>Education and Culture</td>
<td>160.8</td>
<td>418.0</td>
<td>422.0</td>
</tr>
<tr>
<td>Health</td>
<td>65.7</td>
<td>113.1</td>
<td>147.0</td>
</tr>
<tr>
<td>Agriculture</td>
<td>78.8</td>
<td>147.9</td>
<td>175.6</td>
</tr>
<tr>
<td>Foreign Affairs</td>
<td>8.5</td>
<td>18.1</td>
<td>94.2</td>
</tr>
<tr>
<td>Industry and Commerce</td>
<td>0.8</td>
<td>8.5</td>
<td>10.1</td>
</tr>
<tr>
<td>Mines and Energy</td>
<td>37.8</td>
<td>112.7</td>
<td>312.0</td>
</tr>
<tr>
<td>Communications and Public Works</td>
<td>659.3</td>
<td>880.0</td>
<td>867.8</td>
</tr>
<tr>
<td>Unclassified</td>
<td>124.5</td>
<td>76.4</td>
<td>306.4</td>
</tr>
<tr>
<td>Sub-Total</td>
<td>2,617.1</td>
<td>3,775.0</td>
<td>4,678.0</td>
</tr>
<tr>
<td>Adjustment</td>
<td></td>
<td>249.0</td>
<td>636.0</td>
</tr>
<tr>
<td>TOTAL CASH</td>
<td>2,617.1</td>
<td>4,024.0</td>
<td>5,314.9</td>
</tr>
</tbody>
</table>

1 Figures from Central Bank. Include cuts but not extra authorizations.


3 Figures from Ministry of Planning, adjustments from Ministry of Finance.

**NOTE:** Actual expenditures by the Ministries may vary by as much as 40% from the cited figures due to extra budgetary authorizations, cuts, and so on. These figures include only central government expenditures.
### BRAZIL: EXPORTS OF PRINCIPAL COMMODITIES, 1963-64

<table>
<thead>
<tr>
<th>Commodity</th>
<th>1963</th>
<th>1964</th>
<th>% of Total</th>
<th>1963</th>
<th>1964</th>
</tr>
</thead>
<tbody>
<tr>
<td>Met. Tons</td>
<td>US$1,000</td>
<td>Met. Tons</td>
<td>US$1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td>1,170,784</td>
<td>748,284</td>
<td>896,774</td>
<td>759,703</td>
<td>53.2</td>
</tr>
<tr>
<td>Cotton, raw</td>
<td>221,804</td>
<td>114,241</td>
<td>217,028</td>
<td>108,259</td>
<td>8.1</td>
</tr>
<tr>
<td>Hematite</td>
<td>8,207,094</td>
<td>70,417</td>
<td>9,729,630</td>
<td>80,638</td>
<td>5.0</td>
</tr>
<tr>
<td>Pine lumber, sawed, planed &amp; simply worked</td>
<td>461,919</td>
<td>34,769</td>
<td>614,115</td>
<td>46,363</td>
<td>2.5</td>
</tr>
<tr>
<td>Cocoa beans</td>
<td>68,685</td>
<td>35,030</td>
<td>74,710</td>
<td>34,816</td>
<td>2.5</td>
</tr>
<tr>
<td>Sisal or Century Plant</td>
<td>115,064</td>
<td>33,592</td>
<td>117,064</td>
<td>33,897</td>
<td>2.4</td>
</tr>
<tr>
<td>Cane Sugar</td>
<td>524,097</td>
<td>72,428</td>
<td>253,004</td>
<td>33,138</td>
<td>5.2</td>
</tr>
<tr>
<td>Tobacco</td>
<td>43,914</td>
<td>24,118</td>
<td>59,794</td>
<td>28,291</td>
<td>1.7</td>
</tr>
<tr>
<td>Castor oil and beans</td>
<td>77,351</td>
<td>17,787</td>
<td>111,014</td>
<td>24,435</td>
<td>1.3</td>
</tr>
<tr>
<td>Wool</td>
<td>3,304</td>
<td>2,885</td>
<td>18,492</td>
<td>23,513</td>
<td>0.2</td>
</tr>
<tr>
<td>Manganese</td>
<td>840,709</td>
<td>24,625</td>
<td>832,918</td>
<td>20,615</td>
<td>1.8</td>
</tr>
<tr>
<td>Beef, frozen</td>
<td>9,950</td>
<td>4,297</td>
<td>18,103</td>
<td>10,992</td>
<td>0.3</td>
</tr>
<tr>
<td>Cocoa butter</td>
<td>14,041</td>
<td>15,721</td>
<td>10,330</td>
<td>10,846</td>
<td>1.1</td>
</tr>
<tr>
<td>Brazil nuts</td>
<td>25,194</td>
<td>8,882</td>
<td>24,185</td>
<td>10,421</td>
<td>0.6</td>
</tr>
<tr>
<td>Carnauba wax</td>
<td>11,273</td>
<td>10,158</td>
<td>11,088</td>
<td>10,243</td>
<td>0.7</td>
</tr>
<tr>
<td>Mate or mate herbs</td>
<td>48,428</td>
<td>7,664</td>
<td>48,415</td>
<td>7,776</td>
<td>0.5</td>
</tr>
<tr>
<td>Bananas</td>
<td>205,901</td>
<td>2,924</td>
<td>225,541</td>
<td>5,818</td>
<td>0.2</td>
</tr>
<tr>
<td>Menthol</td>
<td>1,353</td>
<td>7,905</td>
<td>1,012</td>
<td>5,670</td>
<td>0.6</td>
</tr>
<tr>
<td>Beef, canned &amp; preserved</td>
<td>5,791</td>
<td>3,970</td>
<td>7,400</td>
<td>5,388</td>
<td>0.3</td>
</tr>
<tr>
<td>Pig iron</td>
<td>46,994</td>
<td>1,973</td>
<td>148,953</td>
<td>5,185</td>
<td>0.1</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>26,618</td>
<td>3,036</td>
<td>44,311</td>
<td>5,015</td>
<td>0.2</td>
</tr>
<tr>
<td>Oiticica oil</td>
<td>6,317</td>
<td>2,846</td>
<td>12,488</td>
<td>4,269</td>
<td>0.2</td>
</tr>
<tr>
<td>Commodity</td>
<td>1963 Met. Tons</td>
<td>1963 US$1,000</td>
<td>1964 Met. Tons</td>
<td>1964 US$1,000</td>
<td>'63 % of Total$</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------</td>
<td>---------------</td>
<td>---------------</td>
<td>---------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Oranges</td>
<td>143,623</td>
<td>6,169</td>
<td>96,964</td>
<td>3,714</td>
<td>0.4</td>
</tr>
<tr>
<td>Sisal burlap</td>
<td>14,934</td>
<td>2,851</td>
<td>18,068</td>
<td>3,583</td>
<td>0.2</td>
</tr>
<tr>
<td>Pepper</td>
<td>2,437</td>
<td>1,801</td>
<td>-4,046</td>
<td>3,039</td>
<td>0.1</td>
</tr>
<tr>
<td>Other commodities</td>
<td>1,841,854</td>
<td>148,107</td>
<td>990,951</td>
<td>144,163</td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>14,139,433</td>
<td>1,406,480</td>
<td>14,586,835</td>
<td>1,429,790</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commodity Group &amp; Commodities</th>
<th>1963</th>
<th></th>
<th>1964</th>
<th></th>
<th>% of Total</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fuel, Lubricants, Mineral Oils and Similar Products</strong></td>
<td>12,633,217</td>
<td>262,362</td>
<td>13,395,848</td>
<td>258,110</td>
<td>17.6</td>
<td>20.4</td>
</tr>
<tr>
<td>Petroleum, Crude</td>
<td>10,374,470</td>
<td>176,362</td>
<td>10,803,348</td>
<td>170,366</td>
<td>11.9</td>
<td>13.5</td>
</tr>
<tr>
<td>Coal, Anthracite &amp; Bituminous</td>
<td>865,487</td>
<td>13,606</td>
<td>1,348,429</td>
<td>24,376</td>
<td>0.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Lubricating Oils</td>
<td>228,134</td>
<td>18,599</td>
<td>272,286</td>
<td>21,708</td>
<td>1.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Liquified Petroleum Gases</td>
<td>261,980</td>
<td>16,070</td>
<td>233,035</td>
<td>13,593</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Gasoline</td>
<td>522,616</td>
<td>21,256</td>
<td>292,966</td>
<td>10,994</td>
<td>1.4</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Machinery, Parts and Accessories</strong></td>
<td>123,404</td>
<td>316,767</td>
<td>88,456</td>
<td>241,283</td>
<td>21.3</td>
<td>19.1</td>
</tr>
<tr>
<td>Machine tools &amp; Other Metal-working machines, excluding Pneumatic</td>
<td>21,255</td>
<td>38,721</td>
<td>16,453</td>
<td>32,384</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Ball and Roller Bearings</td>
<td>5,655</td>
<td>18,259</td>
<td>4,861</td>
<td>15,826</td>
<td>1.2</td>
<td>1.3</td>
</tr>
<tr>
<td>Wheat</td>
<td>2,175,627</td>
<td>164,004</td>
<td>2,609,016</td>
<td>209,560</td>
<td>11.0</td>
<td>16.6</td>
</tr>
<tr>
<td><strong>Chemical &amp; Pharmaceutical &amp; Similar Products</strong></td>
<td>953,712</td>
<td>179,465</td>
<td>707,494</td>
<td>148,127</td>
<td>12.1</td>
<td>11.7</td>
</tr>
<tr>
<td>Fertilizers, Manufactured</td>
<td>462,086</td>
<td>23,865</td>
<td>361,755</td>
<td>19,189</td>
<td>1.6</td>
<td>1.5</td>
</tr>
<tr>
<td>Caustic Soda</td>
<td>158,644</td>
<td>13,145</td>
<td>116,602</td>
<td>12,566</td>
<td>0.9</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Metals and Their Manufactures</strong></td>
<td>635,585</td>
<td>196,185</td>
<td>390,307</td>
<td>130,794</td>
<td>13.2</td>
<td>10.4</td>
</tr>
<tr>
<td>Iron &amp; Steel Sheets &amp; Plates, including Tinplate</td>
<td>263,258</td>
<td>52,088</td>
<td>120,797</td>
<td>27,069</td>
<td>3.5</td>
<td>2.1</td>
</tr>
<tr>
<td>Copper, Refined, Unmanufactured</td>
<td>48,117</td>
<td>32,954</td>
<td>27,810</td>
<td>20,756</td>
<td>2.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Barbed Wire</td>
<td>71,862</td>
<td>13,783</td>
<td>67,839</td>
<td>13,454</td>
<td>0.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Zinc, Unmanufactured</td>
<td>38,902</td>
<td>9,875</td>
<td>30,707</td>
<td>10,366</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Aluminum, Unmanufactured</td>
<td>25,8</td>
<td>12,706</td>
<td>18,549</td>
<td>9,274</td>
<td>0.9</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Vehicles, Parts, &amp; Accessories</strong></td>
<td>36,563</td>
<td>119,694</td>
<td>26,844</td>
<td>57,448</td>
<td>8.1</td>
<td>5.3</td>
</tr>
<tr>
<td>Tractors, except Steam</td>
<td>11,377</td>
<td>18,626</td>
<td>10,899</td>
<td>17,838</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Locomotives</td>
<td>6,007</td>
<td>14,088</td>
<td>5,408</td>
<td>13,717</td>
<td>1.0</td>
<td>1.1</td>
</tr>
<tr>
<td>Newsprint</td>
<td>118,681</td>
<td>23,898</td>
<td>73,797</td>
<td>14,574</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Codfish</td>
<td>29,798</td>
<td>16,732</td>
<td>20,646</td>
<td>13,520</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Apples, Pears, and Grapes</td>
<td>75,581</td>
<td>15,274</td>
<td>49,035</td>
<td>11,466</td>
<td>1.0</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Other Commodities</strong></td>
<td>884,022</td>
<td>193,467</td>
<td>812,838</td>
<td>168,569</td>
<td>13.0</td>
<td>13.3</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>17,666,190</td>
<td></td>
<td>18,174,281</td>
<td></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>