

# THE BRAZILIAN ACADEMY OF SCIENCES

AND THE PATHS OF  
SCIENTIFIC RESEARCH IN BRAZIL



**AN INTERTWINED HISTORY**



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# LETTER FROM THE PRESIDENT

**JACOB PALIS**

President of ABC 2007-2016

The Brazilian Academy of Sciences, initially called the Brazilian Society of Sciences, had an auspicious beginning. Under the guidance

of Henrique Morize, a group of talented researchers who were capable of visualizing a strong nation based on its scientific creativity, was responsible for the creation of the Academy, on May 3, 1916.

The first one hundred years of the Academy proved how wise its creators were, and elevated the institution to become the greatest symbol of Brazilian Science. From the very start, it promoted international exchanges in various fields of knowledge, such as that with the University of Paris – Sorbonne, in 1917. It welcomed and accepted as a corresponding member, in May 1925, the great physicist Albert Einstein, who on the following year published an article in the first issue of the Academy's journal about the theory of light. In addition, in 1926, the outstanding scientist Marie Curie, winner of two Nobel prizes, was also incorporated to ABC as a corresponding member. She first came to Brazil attracted by the radioactive waters of Lindoia.

The Academy was created during World War I. It participated in the extraordinary period of the creation of CNPq – National Research Council, (proposed by ABC's president Álvaro Alberto da Motta e Silva) of several research institutes, of the National Commission on Nuclear Energy, and played a key role in the creation of CAPES (National Campaign for the Improvement of Higher Educational Personnel) and several Brazilian universities. Since then, ABC has gradually become more modernized. With its Board of Directors and its activities spread throughout the country, today it is acknowledged for its importance by the Brazilian society, by the federal and state governments and by the national and international scientific community.

After three terms, I would like to thank, not only on my behalf but also in the name of the Directors, all the previous leaders, who worked towards building the name of the Academy. The future guidance, in this year of the centenary, I am handing over to my cherished successor, Luiz Davidovich, to whom I wish good luck and trust in this House which he will be representing.

And last but not least, to the employees at the House, who have always believed in our initiatives, often improving them and showing their support and enthusiasm, I would like to say that I am eternally grateful.



# AN INSTITUTION TO PROMOTE BRAZILIAN SCIENCE

THE CREATION AND THE FIRST YEARS OF THE BRAZILIAN SOCIETY OF SCIENCES

POLYTECHNIC SCHOOL OF RIO DE JANEIRO



Augusto Malta - MIS collection RJ

The desire of a group of researchers from the Polytechnic School of Rio de Janeiro, one of the most prominent Brazilian scientific institutions at that time, was to bring together the leading scientists of Brazil to discuss and disseminate important researches from the different fields of knowledge, fostering the development of pure science in the country. This group began to devise an association capable of pursuing these objectives in an organized way. The Polytechnic School played a crucial role in achieving this: in its halls, scholars such as Everardo Adolpho Backheuser, Antônio Ennes de Sousa and Alberto Betim Paes Leme, (the first creators), and Henrique Morize, (the main articulator of the idea) – founded on May 3, 1916, the Brazilian Society of Sciences.

The new institution counted with the support of many renowned scientists who formally participated in its creation, including, in addition to those already mentioned, other prominent names, such as Alípio de Miranda Ribeiro, Alberto Childe, Edgard Roquette-Pinto, Joaquim Cândido Costa Sena and Manuel Amoroso Costa, among others. Shortly after its creation, other researchers were invited to join the group, and thus the newly created Society counted with the participation of Adalberto Menezes de Oliveira, Adolpho Lutz, Alberto Löefgren, Álvaro Ozório de Almeida, Antônio Pacheco Leão, Arthur Alexander Moses,

LIST OF  
PRESIDENTS



HENRIQUE MORIZE

1916 to 1926

Morize was born in 1860, in Beaune, France. He moved to Brazil in 1875 and enrolled in the Polytechnic School to study industrial engineering in 1890. He worked as an astronomer at the Imperial Observatory of Rio de Janeiro for 46 years, of which twenty were in the capacity of director. He taught physics at the Polytechnic School and was one of the creators of the teaching of electricity in Brazil. He passed away in 1930.

# “IN A RICH AND PROSPEROUS CAPITAL SUCH AS THE CITY OF RIO DE JANEIRO, IT WAS ESSENTIAL THAT A GUILD BE FOUNDED, WHERE THOSE WHO STUDIED THE ISSUES OF PURE SCIENCE COULD FIND BROTHERLY WARMTH.”

**HENRIQUE MORIZE** during a speech on the occasion of the first anniversary of the Brazilian Society of Sciences in 1917.

Bruno Álvares da Silva Lobo, Cândido Firmino de Mello Leitão, Carlos Chagas, Henrique Beaurepaire Rohan Aragão, Juliano Moreira, Oswaldo Gonçalves Cruz, Roberto Marinho de Azevedo and other prestigious scientists.

It was at the hands of these researchers that the statutes of the entity began to take shape, under the leadership of a provisional board elected in 1916 and headed by Morize. The statutes established, as an example, that the Society would be composed of 100 effective members, divided into three sections – Mathematical Sciences, Physical and Chemical Sciences, and Biological Sciences, in addition to an undefined number of distinguished members (Brazilian scientists with noted contributions to the Society) and honorary members (international researchers of renowned merit). Furthermore, the first sessions also outlined the main courses of action of the Brazilian Society of Sciences, notably the encouragement of science without any links to commercial or industrial objectives; the organization of courses and conferences for training and popularization of sci-

entific issues; and the dissemination of results of original researches in a specialized magazine. Another desired objective was to be able to serve as a sort of compass of Brazilian science, by recommending important issues of study to the researchers.

On the following year, the first elected board of the Society was inducted, composed by Henrique Morize (president), Joaquim Cândido da Costa Sena and Juliano Moreira (vice presidents) Alberto Löefgren (secretary), Edgard Roquette-Pinto (2nd secretary) and Betim Paes Leme (treasurer). This management was marked by intense activities, putting into practice the objectives stipulated for the institution, such as the creation of the Brazilian Society of Sciences Journal in 1917, which aimed at presenting science as a factor of national prosperity in addition to disseminating the results of researches conducted by members of the Society and by external researchers, and publishing all the transcriptions of conferences, speeches, and the minutes of the meetings held by the association.

On the same year, the Society held its first scientific dissemina-

tion conference, headed by one of its partners, Professor Mário Ramos. The theme of the meeting was “The ultrapotent radiotelegraphy and the development of electrical science”. It completely filled the auditorium of the National Library, greatly catching the attention of the press at the time, which was then quick to announce future lectures on biology, physics and astronomy. Also during this initial stage in 1917, the Society welcomed its first distinguished guests, among which was the French doctor and psychologist George Dumas from the University Paris-Sorbonne. It is worth noting that during the first decade of activities held by the Society, one of the priority actions of the new association was to hold lectures presented by foreign scientists to the Brazilian public.

With the increase of activities and the institution’s desire to further uplift its goals, in 1921 the Society undertook the name of Brazilian Academy of Sciences (ABC), which is its name up until today. The new name was suggested by one of the Academy’s members, Afrânio Peixoto, and was approved by over two thirds of all members.



## JULIANO MOREIRA

1926 to 1929

Moreira was born in 1872, in Salvador, Bahia. He was a doctor, and taught at the Faculty of Medicine where he had studied and graduated from. He was one of the first black scientists of the country. His scientific production was renowned internationally. He worked prominently in the humanization of psychiatric hospitals in Brazil, having directed the National Hospice in Rio de Janeiro. He died in 1933.



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# EXPANSION AND CONSOLIDATION

A PERIOD OF  
INTENSE ACTION  
OF ABC AND ITS  
ASSOCIATES

**R**epresentation and the intense action of its founders was what ensured the vitality and the consolidation of ABC in the years that followed. Determined to develop a scientific culture in the country, they engaged in several initiatives such as the foundation of the Brazilian Society of Chemistry in 1922. Under the guidance of Roquette-Pinto, were among the pioneers of the creation of the radio in Brazil, with the inauguration of the Radio Society, in 1923. This radio broadcasted numerous courses and conferences of scientific dissemination, in addition to classical music and news. Morize was the first president of the Radio Society and Roquette-Pinto was the secretary. On that same year, in its first more ambitious political manifestation, the Academy's stance was decisive in the regularization of wireless telephony (TSF), which addressed the rules for the use of the radio. In 1924, several members of ABC, under the guidance of Backheuser, participated in the foundation of the Brazilian Association of Education (ABE), with the objective of modernizing higher education in the country and promoting the institutionalization of scientific research in universities.



**MIGUEL OZÓRIO DE ALMEIDA**

1929 to 1931

Almeida was born in Rio de Janeiro in 1890. He studied at the Faculty of Medicine in Rio de Janeiro and was an assistant at the Institute of Manguinhos. He participated in the foundation of the Brazilian Society of Education and was a member of the Brazilian Academy of Letters (ABL). He wrote one of the first books in the country dedicated to scientific dissemination. He passed away in 1953.

## EINSTEIN'S VISIT

to the National Observatory with ABC's president and at the time director of the National Observatory, Henrique Morize, and the Academicians José Frazão Milanez, Lelio Itapuambyra Gama, Domingos Fernandes da Costa, Alix Corrêa Lemos, Alfredo Lisboa and Ignacio Manoel Azevedo do Amaral (picture on the left).

Academicians also participated actively in the celebrations of the centenary of Brazil's Independence with activities of scientific dissemination such as exhibitions and lectures, among which we can highlight the participation of the French Mathematician Émilie Borel. During the following years, ABC welcomed several illustrious visitors such as Albert Einstein – who chose the Academy to make an important scientific communication about photon, and the visit of the scientist Marie Curie. Besides the obvious impact of these events in the scientific community, the activities of ABC also reached a broader audience as a result of publications in local press. This greatly contributed to the formation of a new scenario for science. Distinguished people like Alberto Santos-Dumont and Marshal Cândido Rondon, became effective members of the Academy during this period.

The increasing visibility of the Academy's activities paid off. As a result, the governments of Brazil and Czechoslovakia donated to ABC, the pavilion which had been built to hold Czechoslovakia's exhibit at the Universal Exposition of 1922, located on Avenida das Nações (currently Avenida Presidente Wilson) in Castelo. This became ABC's first headquarters, inaugurated in 1924, which also encompassed the Radio Society. It would soon after, in 1928, be repossessed by the mayor Antônio da Silva Prado Junior, who claimed the building had been ceded on "a temporary basis".

For the first time, in June of 1926, ABC participated officially in an international forum. Henrique Morize represented Brazil at the International Council of Researches, at a meeting held in Brussels in Belgium.

## CZECHOSLOVAKIA'S PAVILION

during the centenary of Independence, donated to ABC in 1924. In the background you can see the Morro do Castelo.



Augusto Malta - MIS RJ collection

The *Journal of Sciences*, which was published following the *Brazilian Society of Sciences Journal* (1917 to 1919), was ended after its publications in 1920 and 1921. The *Brazilian Society of Sciences Journal* which then followed, was published in 1926 and 1928.

In the year of 1928, there was a tragic accident with the hydroplane Santos Dumont, which was flying to honor the inventor upon his return by ship to Brazil. The accident resulted in 14 dead in the Guanabara Bay, including the Academicians Manuel Amoroso Costa, Ferdinando Labouriau and Tobias Moscoso, and caused absolute dismay at the Academy and within the scientific and cultural circles of the country.

The direction of the Academy, under the management of Miguel Ozório de Almeida in 1929, focused its efforts on consolidating the institution, seeking financial viability, renewing its leaderships, controlling the growth in the number of its members and attempting to acquire its own headquarters. The creation of the *Annals of the Brazilian Academy of Sciences* was both a result of these efforts as well as a determining factor for the continuation of the activities of the Academy. Edited uninterruptedly up until today, the publication is one of the most respected scientific journals in Brazil.



## EUZÉBIO PAULO DE OLIVEIRA

1931 to 1933

Oliveira was born in Abaeté, Minas Gerais, in 1883. He graduated as a mines and civil engineer from the Ouro Preto School of Mines. Heading the Geological and Mineralogical Service of Brazil, he encouraged the use of science in mineral research and enabled the discovery of oil in the country in 1936. He died in 1939.

# THE INTERACTION BETWEEN SCIENCE AND EDUCATION

ABC WORKS WITH  
GOVERNMENT  
AGENCIES AND  
COLLABORATES  
IN THE CREATION  
OF SCIENCE  
FACULTIES

In the following decades, the Academy found new strength, especially after being acknowledged by the head of the provisional government of Getúlio Vargas, by means of decree number 24,785 of July 14th, 1934, as being a public institution dedicated to culture and the development of science. One of the most crucial people during this period was Arthur Moses, whose presidency of ABC was marked by a more discreet public stance and a greater concern in creating cohesion among the members of the entity. His performance enabled the Academy to be continued in addition to enabling it to adapt to a new national context – the Vargas Era (1930-1945) – and a new international context – the outbreak of World War II (1939-1945).

Among the external actions of ABC during this period, we can highlight the participation of Academicians in the founding of the University of São Paulo, in 1934, of the Federal District in 1935, and of the National Faculty of Philosophy, Sciences and Letters of the University of Brazil (current Federal University of Rio de Janeiro – UFRJ), in 1937. The National Institute of Educational Cinema (INCE) was created and directed by Roquette-Pinto, as of 1936, and counted with the participation of some Academicians in the production of educational films and scientific dissemination.

The most prominent scientific event held at that time, was the International Symposium on Cosmic Rays, which was sponsored by ABC and counted with the participation of Brazilian and American scientists, among which was the Nobel laureate Arthur Compton. The symposium, held in 1941, included the presentation of researches and the performance of experiments on high energy particles from space that reach the Earth's atmosphere.



## ARTHUR ALEXANDRE MOSES

1933 to 1935 1941 to 1943  
1947 to 1949 1951 to 1965

Moses was born in 1886 in Rio de Janeiro, where he graduated as a doctor. He performed research on histology, microbiology and veterinary medicine. He worked at the General Hospital – Santa Casa de Misericórdia, at the Manguinhos Institute, at the Ministry of Agriculture and directed the Veterinary Experimental Institute. He died in 1967.

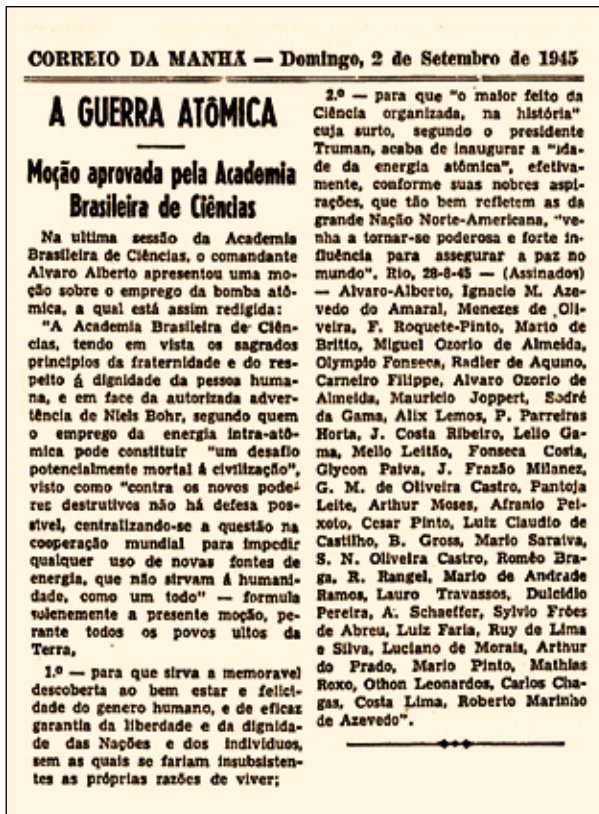




**A NOITE,**  
3/10/1939

## “OUR ECONOMIC PROGRESS IS STRICTLY DEPENDENT ON THE VALUE OF OUR MEN OF SCIENCE”

**EUZÉBIO DE OLIVEIRA,**  
farewell speech from the  
Presidency of ABC, on 05/16/1933.



**CORREIO DA MANHÃ,**  
9/2/1945

The relationship between science and public policies became more intense during this period. A concrete example of this relationship was the creation of the Commission on Metrology in 1938, responsible for legislating over the system of weights and measures used in the country. The group was composed of scientists, military officials and representatives of industries, in addition to ABC, represented by its president, Adalberto Menezes de Oliveira.

This close relationship became quite evident yet again, during the discussion fostered by ABC, on nuclear weapons at the end of World War II. The Academy organized public lectures on the issue and recommended that the federal government develop nuclear research in the country. A motion headed by Álvaro Alberto and proposed by ABC in September of 1945, inspired by similar international events, registered the interest of Academicians in the peaceful use of nuclear energy and in an international cooperation in this field.



### ÁLVARO ALBERTO DA MOTTA E SILVA

1935 to 1937  
1949 to 1951

Motta e Silva was born in 1889 in Rio de Janeiro. He studied at the Naval School and reached the rank of Vice Admiral of the Brazilian Navy. He graduated as an engineer from the Polytechnic School. He studied explosives and after World War II, he became interested in nuclear energy. He participated in the creation and was the first president of the National Research Council (CNPq). He chaired the Atomic Energy Commission of the United Nations (UN). He died in 1976.

ABC HAD A CRUCIAL PARTICIPATION IN THE CREATION OF DIFFERENT RESEARCH INSTITUTIONS AND FUNDING AGENCIES

# THE INSTITUTIONALIZATION OF NATIONAL SCIENCE



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**FIRST MEETING**

of the National Research Council (CNPq), in 1951.



**ADALBERTO MENEZES DE OLIVEIRA**

1937 to 1939

Oliveira was born in 1883, in Minas Gerais. In 1908, he completed his electric engineering course at the University of Liège, in Belgium then took specialization courses in England and France. He was a professor at the Naval School and at the Polytechnic School of Rio de Janeiro. Founding member of ABC, he died in 1973.

It was within the context of the post-war, when discussions on science and the performance of the State were bustling, that the involvement of the government in supporting national scientific research became institutionalized. It became clear to the scientific community that, in Brazil, only the states would be granted resources to support broader scientific programs. Based on this, the proposal to create a national development agency that would be responsible for financing research projects emerged. This suggestion, from the Academician Álvaro Alberto da Motta e Silva, endorsed by ABC, was presented to the federal government in 1946 and finally came through in 1951 with the creation of the National Research Council (CNPq).

During these decades, an increase in the institutionalization process of Brazilian science was observed. In addition to CNPq, the National Campaign for Improvement of Higher Education Personnel (Capes) was created, reinforcing the role of the state, in supporting higher education and research. In 1948, the Brazilian Society for the Advancement of Science (SBPC) was founded, with the participation of several Academicians. It worked

**“THE TRUTH IS, THAT IF SCIENTIFIC RESEARCH WAS ONCE AN OCCUPATION OF SCIENTISTS BEFORE THE FIRST WORLD CONFLAGRATION, AND THEN BECAME A STATE OBLIGATION IN THE PERIOD THAT FOLLOWED, IT IS TODAY – AFTER 1945 – THE ANGUISHED CONCERN OF CURRENT SOCIETIES”**

**CARLOS CHAGAS FILHO,**

in his inaugural speech as president of ABC.

closely with ABC in the decades that followed, on several occasions and actions focused on promoting scientific development in the country.

During this period several research institutes were founded: the Brazilian Center for Physics Research (CBPF), in 1949; the National Institute of Amazonian Research (INPA), the Institute of Pure and Applied Mathematics (IMPA) and the Institute of Radioactive Research (IPR), in 1952; and the National Institute for Space Research (INPE) in 1961. Members of ABC played an important role in the creation and

development of these institutes in addition to also participating in the National Commission on Nuclear Energy (CNEN), in 1956.

At around the same period, in 1960, an important internal event was the acquisition and the inauguration of the current headquarters of ABC located at Anfilóbio de Carvalho street in the center of Rio, with the support of the government of Juscelino Kubitschek. The Academy also underwent reformulations of its statutes, mainly regarding the composition of its current members and the admission of new members. In 1952, the configurations

within ABC were changed into five sections: Mathematical Sciences, Physical Sciences, Chemical Sciences, Geological Sciences and Biological Sciences. All these changes reflected the institution's concern in keeping up with the increase of the national scientific community, now focusing as well on geographical locations, seeing that São Paulo was emerging as an important center of research. At this time, due to the decrease in the number of meetings held between members of ABC, the publication of the *Annals of the Brazilian Academy of Sciences* became even more crucial for the dissemination of the results of scientific research.



**IGNACIO MANOEL AZEVEDO DO AMARAL**

1939 to 1941

Amaral was born in 1883 in Rio de Janeiro. He graduated from the Naval School and chaired the Naval Technical Institute. He directed the Polytechnic School of Rio de Janeiro, the Normal School in the Federal District, and was the dean at the University of Brazil. As a founder of the Brazilian Society of Education, he focused on improving higher education in Brazil. He died in 1950.

# SCIENCE FOR DEVELOPMENT

## ABC REFORMULATES ITS STATUTES AND WORKS IN THE COORDINATION OF SCIENTIFIC PROJECTS

The election of Carlos Chagas Filho to the presidency of ABC in 1965 confirmed the increase in the number of researchers of the biological area, which had been occurring since the 1930s in comparison to the founding group which was mainly composed of engineers, mathematicians and physicists. His management, as well as those that followed, was characterized by a greater political concern, associated to the increasing economic importance that was being given by the governments, to scientific research.

This political concern resulted in concrete actions, such as the creation of post-graduate courses and the increase of resources destined to science and technology during the military regime. It greatly advocated towards national development. In 1966, President Castelo Branco authorized the donation of a significant amount of Re-adjustable National Treasury Bonds (ORTN) to ABC – the equivalent at the time to 1 million dollars, an investment that greatly strengthened the institution. On the same year, President Castelo Branco also participated in ABC's 50th anniversary ceremony. The entity was given special emphasis on the Basic Plan I and II for Scientific and Technological Development (1973/74 and 1975/79).

In contrast, during the military regime many Brazilian scientists, including some Academicians, were persecuted and exiled. ABC expressed its concern in August of 1965, when following the invasion of UNB, two hundred teachers resigned – some of which were members of ABC. On the same year, intellectuals and artists, also among which were some Academicians, condemned the practices of the military regime by means of manifestations. On the other hand, a manifesto in favor of government action was published on the first anniversary of the civil-military coup, counting with the support of many Academicians. In view of the current situation at the time, ABC adopted a discreet and cautious attitude towards political events throughout the period of the military regime.

In 1966, ABC underwent a major reformulation of its statutes. In addition to changing the categories of members, the new version meticulously detailed the rigorous selection process for new Academicians. Furthermore, during this period the Academy also strengthened its schedule of conferences, meetings and symposia, enhancing exchanges with national and international institutions. A noteworthy example of



### CÂNDIDO FIRMINO DE MELLO LEITÃO JUNIOR

1943 to 1945

Leitão Júnior was born in 1886 in Campina Grande, Paraíba. He graduated from the Faculty of Medicine of Rio de Janeiro and worked in several hospitals. He also directed the Casa dos Expostos. He interned in French institutions and taught at the Faculty of Medicine in Belo Horizonte and at the National museum. He is acknowledged world widely for his studies on arachnids. He passed away in 1948.

**“WE NOTICED A CERTAIN DIFFICULTY WITH REGARDS TO SCIENTIFIC DEVELOPMENT IN BRAZIL – THIS IS NOT JUST A NATIONAL ACTIVITY IT DEPENDS ON THE EXCHANGE AMONG COUNTRIES AND ON THE IMPORT OF INFORMATION, MATERIALS AND EQUIPMENT. THE ECONOMIC WORLD CRISIS HAS ALSO AFFECTED THE DEVELOPMENT OF SCIENCE, AND HERE, WE ARE FACED WITH THE PROBLEM OF NOT BEING ABLE TO SIT AND WAIT.”**

**ARISTIDES PACHECO LEÃO,**

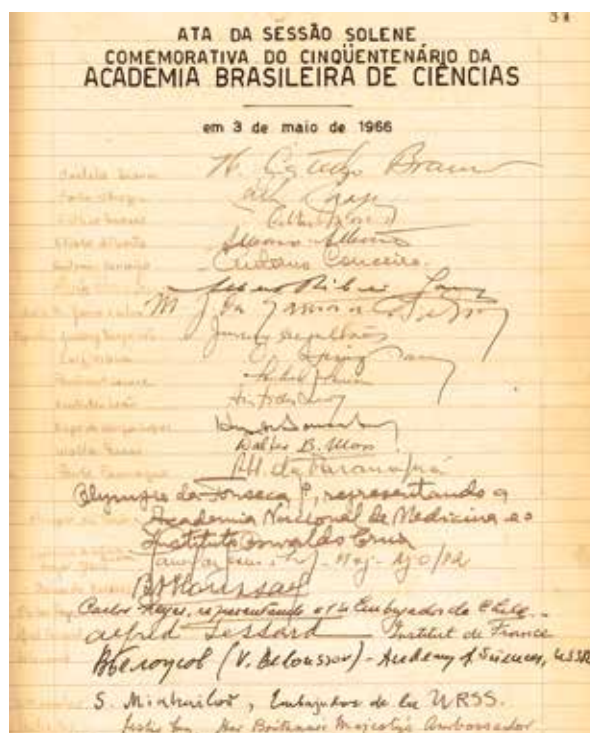
at an interview with journalist (1977).

this, was the series of conferences held in partnership with IBM who brought renowned foreign researchers to Brazil, many of whom were Nobel prize winners, to talk about economics, chemistry and mathematics.

From an institutional point of view, ABC sought to establish or strengthen existing partnerships with some of their foreign counterparts, among which were the Japanese Society for the Promotion of Science and the National Institutes of Health of the United States. The institution strengthened its scientific activities by getting involved in the coordination of multidisciplinary research programs on a variety of topics, among which were the systematic and chemical study of Amazonian flora, of the biodiversity of the Northeast and of the savannah in the state of Minas Gerais. The Academy also participated by means of its members, in the creation of the first post-graduate courses offered at some universities.

#### FIRST PAGE

of the minutes of the commemorative session of the 50 years of ABC, in which the first signature is that of President Castelo Branco.



ABC collection



**MÁRIO PAULO DE BRITO**

1945 to 1947

Born in 1894 in Rio, having a degree as a geographer and civil engineer and a Ph.D. in physical and natural sciences, he was a professor at the Polytechnic School, where he had graduated, and at the Education Institute of the Federal District which he also directed. One of the founders of the Brazilian Society of Education. He died in 1974.

JORNAL DO BRASIL

quarta-feira, 23/5/92 Ecologia & Cidade 3

# Comissão vai fiscalizar países poluentes

As unidades de gases poluentes, como o dióxido de carbono, serão fiscalizadas por uma comissão internacional criada, que operará em países que mais contribuem para aquecer o planeta.



A criação desta comissão foi decidida ontem pelo ministro da Educação e secretária-geral de Meio Ambiente, José Goldemberg, como aspecto importante da estratégia para a atuação climática, que será iniciada durante a Rio 92.

Criada há dois anos, a GEF tem suas reservas ampliadas em pelo menos cinco vezes, e que chegará a US\$ 3 bilhões por ano para poder fazer frente aos gastos ambientais em diversos países.



## EUA ignoram efeito da poluição

A sociedade norte-americana não dá a mesma importância para a análise de CDF (gas carbônico) na atmosfera, responsável maior pelo efeito estufa, que o Brasil e o superaquecimento da Terra, o eventual degelo dos polos e, em consequência, o possível aumento do volume de água do planeta. Por isso, dificilmente o governo americano vai aceitar, na reunião de cúpula da Rio 92, a criação dos repensamentos pelo lançamento de gás, produzindo principalmente pela queima de combustíveis e por outros efeitos.

## Parlamento da Terra dá voz a todos

Comunidades e grupos étnicos debatem alternativa de utilização secular da natureza

Práticas alternativas seculares de utilização da natureza vão entrar em debate no Parlamento da Terra, que se realizará de 17 a 19 de junho. O evento pretende fazer jus às ideias e dar voz a todos os participantes — representantes não apenas de organizações não-governamentais, mas de comunidades e grupos étnicos, como agricultores, artesãos, quilombolas, indígenas, negros e índios. O encontro pretende aproximar povos indígenas e tradicionais dos países e ambientalistas e cientistas do mundo inteiro.

Jornal do Brasil collection - CPDoc JB

# FROM BRAZIL TO THE WORLD

ABC EXPANDS ITS INTERNATIONAL ACTIVITIES, PARTICIPATING IN GLOBAL DISCUSSIONS



**CARLOS CHAGAS FILHO** 1965 to 1967

He was born in 1910 in Rio de Janeiro. He graduated from the National Faculty of Medicine, and specialized in biophysics, pharmacology and cell differentiation. He founded and directed the Biophysics Institute, bringing research into universities. Chagas held positions at the Oswaldo Cruz Foundation, was a member of the Brazilian Academy of Letters and the president of the Vatican Academy of Sciences. He died in 2000.

**ABC, SBPC AND UFRJ** organized the RioCiência92. Among the issues discussed, were the ecological disasters caused by hydroelectric in Amazonia.

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**1992**

On the left, the Academician and minister of Science and Technology (1992 to 1999) José Israel Vargas and President Itamar Franco.

On the right, opening of RioCiência92. Academician José Goldemberg, minister of Education (1991 to 1992) is the second one from the left to the right.

**D**uring this period, the country was re-democratized. In 1985, the Ministry of Science and Technology was created. In 1988, a new Constitution was promulgated, with a specific chapter devoted to science and technology. Some Academicians later came to occupy the position of minister in the 1990s and 2000s, which greatly helped strengthen the relations of the Academy with the government. As of the 1990s, support provided by the government enabled the institution to invest in new fields such as the production of television programs dedicated to environmental issues and the expansion of international scientific cooperation.

In 1986, the Brazilian Commission of the International Geosphere-Biosphere Program was installed at ABC. This program consisted of a global network of scientists focused on the study of global climate change and the Earth system, with the objective of understanding the environmental changes taking place in the planet. The program is part of the activities conducted by the In-

ternational Council for Science (ICSU), one of the oldest non-governmental organizations in the world dedicated to the interdisciplinary debate on relevant scientific issues. In 1992, ICSU designated the Academy as their Brazilian representative, and the Academician Hernan Chaimovich would later become their vice president between the years of 2005 and 2008.

On that same year, during the United Nations Conference on Environment and Development (Eco-92), in Rio de Janeiro, the Academy promoted, together with SBPC and the Federal University of Rio de Janeiro, a series of discussions on the relationship between ecology, science and politics. The event was held under the name: RioCiência-92.

With regards to scientific initiatives, it is worth mentioning the creation of the *Brazilian Antarctic Research* journal in 1989, with the support of CNPq. The magazine was first published as a supplement of the Annals of ABC, but lasts until today publishing the results of research carried out under the Brazilian Antarctic Program.



## ARISTIDES AZEVEDO PACHECO LEÃO

1967 to 1981

Pacheco Leão was born in 1914, in Rio de Janeiro. He entered the Faculty of Medicine of São Paulo in 1932. In 1940, he travelled to the United States where he earned his Master's and Doctorate degrees from the University of Harvard. His researches were crucial for the understanding of diseases such as epilepsy and migraine. He also taught at the University of Brazil. He passed away in 1993.

# SPOKESPERSON OF BRAZILIAN SCIENCE

COMPOSED BY AN EXCEPTIONAL GROUP OF SCIENTISTS, ABC EXPANDS ITS ACTIVITIES AND ATTAINS A POLITICAL STAND IN THE PROMOTION OF SCIENCE

The presence of Academicians in ministries, especially in the ministry of S&T, and the Academy's partnership with SBPC, strengthened the Academy's stance with the governments and the National Congress in dealing with the formulation of scientific and educational policies. The institution gained active participation in the major national councils and committees dealing with scientific and technological policies, actively attempting to get more resources for S&T. It also participated in the National Conference on Science and Technology during the years of 2001, 2005 and 2010, and in the creation of perennial sector funds for scientific research.

During the same period, the Academy underwent structural changes which expanded its scientific scope. The institution gradually increased its areas of specialization to its current configuration which consists of ten sections: Mathematical Sciences, Physical Sciences, Chemical Sciences, Earth Sciences, Biological Sciences, Biomedical Sciences, Health Sciences, Agricultural Sciences, Engineering Sciences and Social Sciences.

Geographically, it also spread throughout the country. In 2007, Regional Vice Presidencies were created for São Paulo, Rio de Janeiro, Minas Gerais and Midwest, South, Northeast and North, placing ABC's Board in the entire country. At least two activities started being promoted annually by ABC in each region. One of these activities consists of the election by local members, of young (up to the age of 40) outstanding scientists, called Affiliate Members, who can remain in this category for a period of five years. Over 150 brilliant scientists participated in this category, and by 2016 three had already been incorporated to ABC as Full Members. The category of Institutional Member was also

## OPENING

of the World Science Forum.



Cristina Lacerda - ABC collection



## MAURÍCIO MATOS PEIXOTO

1981 to 1991

Peixoto was born in 1921, in Fortaleza, Ceará. He earned his civil engineer degree from the University of Brazil, where he later also taught. His studies, notably the Peixoto Theorem, revitalized the field of dynamical systems and were instrumental for the development of a math school in Brazil. He directed the National Institute of Pure and Applied Mathematics (IMPA), of which he was one of the founders.



created, encompassing both public and private entities, bringing great visibility to the Academy through activities of common interest to both, in addition to resulting in greater financial contributions. In 2009, general approval of these innovations was obtained, and thus, was incorporated into the statute.

Internationally, ABC increased its work with the Third World Academy of Sciences (TWAS, now called World Academy of Sciences). This partnership further increased after the 6th TWAS conference in Rio, in 1997. Subsequently, Jacob Palis, the president of ABC was elected president of TWAS for two terms from 2007 to 2012.

Another important event organized by ABC, with the Academy of Sciences of Hungary, with the support of UNESCO, the Ministry of Science, Technology and Innovation (MCTI) and several national and international organizations, was the World Science Forum, held in Rio, in 2013. The theme being "Science for Sustainable Development", brought together about a thousand researchers to discuss the role and responsibilities of science in the 21st century.

The Academy actively participated in the negotiations in the 1990s, which led to the founding of the InterAcademy Panel (IAP, currently Global Network of Academies of Sciences), in 2000. IAP brings together academies from over 100 countries to discuss and disseminate the scientific aspects of different global issues such as the dynamics of the population, climate change and reproductive cloning, among others. ABC held a prominent position within this

agency, with Academician Eduardo Moacyr Krieger as vice president from 2000 to 2003, and due to the fact that the Academy was a member of the Executive Committee until 2009. ABC was also elected for a smaller group, the InterAcademy Council (IAC), which consisted of 13 countries working together to carry-out international research projects. Eduardo Krieger was also a member of the Executive Committee of this agency, representing ABC from 2000 to 2010.

In 2013, IAP met in Rio, at an event organized by ABC, with scientists from 51 countries, to discuss poverty eradication and sustainable development.

Going back to 2004, the Inter-American Network of Academies of Sciences (IANAS), who's President was the Academician Hernan Chaimovich, was founded with the support of ABC. The goal for creating a regional network of science academies was to support cooperation between the Americas, strengthening science and technology for the advancement of research, prosperity and equality in the region.

Meanwhile in Brazil, ABC performed a series of strategic studies on highly relevant topics, such as water resources, reform of higher education, sustainable use of Amazonian resources, neglected diseases, early childhood education and teaching of science in elementary school. These projects were addressed by select groups of experts who published their research with the view to contribute towards the formulation of public policies.



### ABC'S LOGO

for the event of the regional Vice Presidencies indicating talents originating from all regions making the country shine.

In 2015, ABC's Magna Meeting addressed "The Value of Science" discussing the intrinsic value of scientific activities. It further highlighted the crucial worth of such activities, for the socio-economic development of Brazil and for overcoming the crisis

ABC also invested in promoting scientific vocations by creating, in 1994, the Aristides Pacheco Leão Program, which provided opportunities for university students to intern during holidays, at laboratories directed by Academicians. The project, which had the support of CNPq, was interrupted in 2005 but resumed in 2014 focusing on the training of young adults from the Amazonian region, giving them the opportunity of interning in different states of Brazil, with the support of Capes.

In partnership with UNESCO and with the support of L'Oréal, ABC also participates in the Campaign "For Women in Science", which provides resources for young female researchers to develop projects in various fields of knowledge. This is yet another initiative aimed at qualifying new talents for science.



### OSCAR SALA

1991 to 1993

Sala was born in Italy in 1922. With a degree in physics from USP, he built portable transmitters for the Army and founded nuclear physics laboratories. He chaired SBPC and FAPESP. He was elected president of ABC but stepped down due to health issues and was substituted by Vargas.



### JOSÉ ISRAEL VARGAS

1991 to 1993

Vargas was born in Minas Gerais in 1928. He is a chemist from the Federal University of Minas Gerais, a physicist from the Technological Institute of Aeronautics (ITA) and a doctor in nuclear sciences from the University of Cambridge, UK. He was the president of the Executive Council of UNESCO and minister of Science and Technology.

# AN ADDITIONAL ONE



**LUIZ DAVIDOVICH**

President elected for the period of 2016-2018.



**EDUARDO MOACYR KRIEGER**

1993 a 2007

Krieger was born in 1928 in Cerro Largo, in Rio Grande do Sul. He earned his degree from the Faculty of Medicine of Porto Alegre, studied physiology in Buenos Aires, interned in the United States and earned his doctorate at the University of São Paulo. He works at the Heart Institute (InCor) of the Hospital das Clínicas of the University of São Paulo, where he leads a team doing research on hypertension.

# HUNDRED YEARS

From 1916 to 2016, the Brazilian Academy of Sciences was both a witness and an active participant of the great progress of science in Brazil. Despite a period marked by a world war that launched the era of nuclear weapons, despite the political instability that affected the country's democracy, and the economic crisis that undermined national development, Brazilian science still advanced, doubled its areas of operation, became acknowledged internationally and spread out to various regions of the country. In these past one hundred years, ABC has stood out as a defender of science, of education and of innovation as the basis of the structure for national development.

For the future, new challenges arise. The level of standard attained by science and technology in the country leads us to view a more ample horizon, to see opportunities and aim for a new leap in quality. It is necessary to increase the international impact of Brazilian science, which thus demands adequate public funding, the improvement of elementary education, the renewal of higher education, and the encouragement of innovation. Meeting these challenges is crucial for Brazil to achieve a sustainable economic and social development.

ABC will undoubtedly play an important role in meeting these goals, being the center of the thinking process capable of mobilizing the best scientists around the issues that are relevant to the country. I hope that in the next one hundred years, it succeeds in being the active interlocutor of the Brazilian society, the promoter of scientific knowledge, the protagonist within the international scenario, and the defender of academic excellence and of the centrality of science and technology in the process of national development.



**JACOB PALIS JUNIOR**

2007 a 2016

Palis was born in Uberaba, Minas Gerais, in 1940. He holds an engineering degree from the University of Brazil and a Ph.D. in math from Berkeley University, California. At IMPA he worked with dynamic systems, and mentored 42 doctorate students. He was the director of IMPA (1993-2003), president of the International Math Union (1998-2002) and of TWAS (2007-2012). Palis greatly projected Brazilian math and science, internationally.

The background is a solid teal color. It features two large, dark teal circular arcs that overlap in the center. Additionally, there are several vertical stripes of a slightly darker shade of teal running through the background.

**HISTORY UNDER**

**FROM ITS FOUNDATION TO ITS 100TH  
ANNIVERSARY WE SELECTED A FEW OF THE  
MOST IMPORTANT FACTS OF THE TRAJECTORY  
OF THE BRAZILIAN ACADEMY OF SCIENCES**

# CONSTRUCTION

We invite you to read over the next few pages, how ABC has been working together with the Brazilian society to promote science as a tool to change the world. Even though the selection shown below is summarized, it will enable the reader to have a general idea of the Academy's activities, in addition to providing an understanding of how the institution reinvented itself at each historical moment, following the desires and demands of the scientific community at the time.

## AN INSTITUTION TO PROMOTE BRAZILIAN SCIENCE



ABC collection

Induction of the first board, chaired by Henrique Morize.



ABC collection

Creation of the *Brazilian Society of Sciences Journal*.

1917

# 1916

FOUNDING OF THE BRAZILIAN SOCIETY OF SCIENCES AT THE POLYTECHNIC SCHOOL OF RIO DE JANEIRO

1921



FBN collection

The Brazilian Society of Sciences changes its name to Brazilian Academy of Sciences (ABC).

## EXPANSION AND CONSOLIDATION OF ABC

1923

Roquette-Pinto/ABL collection



Roquette-Pinto heads the creation of the Radio Society, which operates at ABC.

ABC takes a stand towards the freedom of access to wireless telephony, a process that encourages radio communication.

Augusto Malta - MIS RJ collection



ABC gets a new headquarter: the Czechoslovak Pavilion, built for the Universal Exhibition of the Centenary of Independence, in Rio de Janeiro in 1922.

Members of ABC participate in the foundation of the Brazilian Society of Education, currently called Brazilian Association of Education (ABE).

1924

Careta, 5/16/1925 – FBN collection



Albert Einstein, author of the theory of relativity, holds a conference at ABC. He becomes a corresponding member of the Academy.

1925

Augusto Malta – MIS RJ collection



Return of ABC to the Polytechnic School.

1928

Image reproduction



Careta, 11/16/1926 – FBN collection



Emilia Snethlage, a German zoologist who lived in Brazil since 1905, also becomes a corresponding member of ABC.

ABC's first international action, representing Brazil at a meeting of the International Research Council in Belgium.

1926

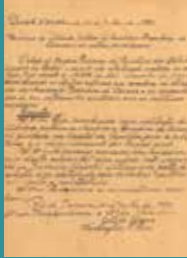
1929

Publication of the first issue of the *Annals of the Brazilian Academy of Sciences*.

# THE INTERACTION BETWEEN SCIENCE AND EDUCATION

## 1934

ABC collection



By decree, on July 14, ABC is acknowledged by the head of the provisional government of Getúlio Vargas, as an institute of public utility.

USP memory collection



The Academician Teodoro Ramos plays an important role in the founding of the University of São Paulo (USP).

Roquette Pinto file – ABL collection



Roquette-Pinto creates and directs the National Institute of Educational Cinema (Ince).

## 1941

FBN collection



ABC sponsors the International Symposium on Cosmic Rays, with the participation of the Physics Nobel Prize winner Arthur Compton.

## 1936

ABC collection



Members of ABC participate in the creation of the University of the Federal District (UDF). In the picture: Joaquim Costa Ribeiro and Lauro Travassos.

## 1935

FBN collection



ABC participates in the Metrology Commission, at a nationwide scope.

## 1938



# THE INSTITUTIONALIZATION OF NATIONAL SCIENCE

SBPC collection



Several Academicians participate in the creation of the Brazilian Society for the Advancement of Science (SBPC).

1948

Personal file

Personal file



ABC welcomes its first Brazilian female members, the mathematicians Maria Laura Mouzinho and Marília Chaves Peixoto.

Based on a proposal of the Academician Álvaro Alberto da Motta e Silva, Vice-Admiral of the Brazilian Navy, the National Research Council is created (CNPq).

The National Campaign for the Improvement of Higher Education Personnel (CAPES) is also created, with the participation of members of ABC.

ABC collection



Following the atomic bombs on Hiroshima and Nagasaki, in Japan, ABC organizes public debates and disseminates manifesto on the use of atomic energy.

1945

CBPF collection



The Brazilian Center for Physics Research (CBPF) is founded by several Academicians. In the picture: back, César Lattes, Hideki Yukawa and Walter Schutzer. In front, Hervásio de Carvalho, José Leite Lopes and Jayme Tiomno. Lattes, Tiomno, Leite and Hervásio are founders of CBPF.

1949

1961

Creative Commons



The Nobel Prize winner Peter Medawar, who was born in Brazil but lived in England, visits ABC.



Several Academicians contribute towards the creation of the National Institute for Space Research (INPE).

FBN collection



President Arthur Moses, together with other Academicians and Brazilian scientists, sign manifesto condemning nuclear explosions.

1956



The National Nuclear Energy Commission (CNEN) is established, with the participation, among others, of members of the Academy.



The National Institute of Amazonian Research (INPA), Institute of Radioactive Research (IPR) and the Institute for Pure and Applied Mathematics (IMPA) are founded with the participation of members of ABC.

1960

ABC collection



ABC gets its new headquarters at Anfilópio de Carvalho Street, in the center of Rio de Janeiro, with funds obtained from the government of the Presidency of Juscelino Kubitschek.

1952

# SCIENCE AND DEVELOPMENT

During the celebration of 50 years of ABC, President Castelo Branco donates Reajustable National Treasury Bonds, equivalent to US\$ 1 million.

As part of the celebrations of the 50 years of ABC, Vice President Paschoal Senise heads the first regular session of the Academy held in the city, at the University of São Paulo.

ABC collection



The first Brazilian Paleontology Symposium is held at the headquarters of ABC, bringing together researchers from Latin America.

1978

Jornal do Brasil collection - CPDoc/IB



The first IBM Technology Conference is held at ABC, a series which promotes the interaction between the Academy and industries, with the participation of foreign scientists.

1966

1970

1965

1968

Central archive - UnB



The president of ABC, Carlos Chagas Filho, voices his concern regarding the invasion of the University of Brasília (UNB) by the military, in a telegram to President Castelo Branco.



The Institutional Act N. 5 (IA-5) punishes several Academicians. Throughout the military regime, about 50 members of ABC were struck by dictatorial actions.

ABC collection



ABC takes over the Brazilian Journal of Biology, a magazine focused on Neotropical fauna and flora, which was created in 1940 by the Brazilian Society of Biology.

1971

## FROM BRAZIL TO THE WORLD

## SPOKESPERSON OF BRAZILIAN SCIENCE

**GLOBAL  
IGBP** International  
Geosphere-Biosphere  
Programme  
**CHANGE**

The National Commission of the International Geosphere-Biosphere Program, designed to study the environmental changes in the planet, is established at ABC.

1986

**ICSU**  
International Council for Science

ABC is designated by CNPq as the national representative of the International Council for Science (ICSU).

ABC, together with SBPC and the Federal University of Rio de Janeiro (UFRJ), organize the RioCiência 92, an event parallel to the Eco 92 United Nation Conference.

1992

**iap**  
the global network of science academies

ABC participates in the foundation of the InterAcademy Panel on International Issues, now called Global Network of Academies of Science (IAP).

Launching of the Academician Bulletin, ABC's electronic newsletter, currently called News from ABC.

ABC collection



Creation of the Brazilian Antarctic Research Journal, published by ABC to disseminate the results of the Brazilian Antarctic Program (Proantar).

1989

1994

ABC collection



Creation of the Aristides Leão Program for Encouraging Scientific Vocations. It consists of internships for students in laboratories of Academicians. It is reactivated in 2014, aimed at the young people of the Amazonian region.

Personal file



ABC promotes the 6th General Conference of TWAS, an international organization now called the Academy of Sciences for the Developing World.

1997



Creation of the ABC Program in Science Education, in partnership with the Academy of Sciences of France.

2001

1999

ABC adopts its current configuration: Mathematical Sciences, Physical Sciences, Chemical Sciences, Earth Sciences, Biological Sciences, Biomedical Sciences, Health Sciences, Agricultural Sciences, Engineering Sciences and Social Sciences.



Founding of the Inter-American Network of Academies of Science (IANAS) to support cooperation, the advancement of research, prosperity and equality in the region.

2004

2006

ABC collection



ABC, L'Oréal and UNESCO create the Brazilian version of the program "For Women in Science", aimed at acknowledging young female researchers.

2007

ABC collection



ABC promotes the first conference on "Progress and Prospects of Science in Brazil, Latin America and the Caribbean."

Art: Pedro Armando



Creation of six regional vice presidencies and of the category of young affiliate member, which are elected annually by region, in equal numbers.

2008



"Geosciences Conference in Portuguese-speaking countries: a common past towards an integrated future", sponsored by ABC. This was part of the activities of the International Year of Planet Earth.

2009

Art: Pedro Armando



ABC hosts the "VII Conference and General Assembly of the Global Network of Science Academies (IAP)," which discusses the contribution of science to poverty eradication and sustainable development.

WSF



ABC hosts over 500 scientists from 100 countries for the "6th Science World Forum", organized with the Hungarian Academy of Sciences.

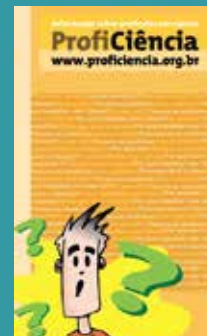
Image reproduction



ABC gets its new headquarters: three floors in a historical building, donated by the government of the state of Rio de Janeiro to the Research Support Foundation Carlos Chagas Filho of the state of Rio de Janeiro (FAPERJ). Following renovations, it will become the headquarters of the Palace of Science.

2010

Art: Sandra Frias



Launching of the ProfiCiência site, developed by ABC with the support of Faperj to inform teenagers about professional possibilities within several areas of research.

2013

ABC collection



ABC holds the symposium "Water Resources in the Southeast: Water Security, Risks, Impacts and Solutions". In the picture, the Academician and coordinator José Tundisi and participants of the event.

2014

ABC  
CELEBRATES  
100 YEARS!

2015

2016

O Valor da Ciência  
Reunião Magna 2015

4, 5 e 6 DE MAIO - ACADEMIA BRASILEIRA DE CIÊNCIAS

ABC's Magna Meeting addressed "The Value of Science", discussing the intrinsic value of scientific activities. It further highlighted the crucial worth of such activities for the socio-economic development of Brazil and for overcoming the crisis.

## PUBLICATIONS

# SCIENCE FOR NATIONAL STRATEGIC STUDI

**2004****CONTRIBUTIONS FOR THE  
REFORM OF HIGHER EDUCATION**

Aims at contributing towards the implementation of a system committed to the quality of teaching and research and which can serve as a pillar for the development of the country.

**2008****THE TEACHING OF SCIENCE AND ELEMENTARY  
EDUCATION: PROPOSALS TO OVERCOME THE CRISIS**

Presents a detailed proposal of action aimed at building a state policy to correct the current state of elementary education.

**AMAZONIA: BRAZILIAN CHALLENGE OF THE XXI CENTURY**

Lays out the foundations for a new paradigm of development for Amazonia: a sustainable model in environment terms, which generates jobs, income and social inclusion.



# DEVELOPMENT ES

2010



## NEGLECTED DISEASES

Presents proposals to implement the participation of Brazilian science in the study of neglected diseases, aiming towards the development of the country.



## WATERS OF BRAZIL: STRATEGIC ANALYSES

Analyzes the functioning and management of water systems in the country, aiming towards contributing to the formulation of public policies for the sector.

2011



## EARLY CHILDHOOD EDUCATION: AN APPROACH TO NEUROSCIENCE, ECONOMICS AND COGNITIVE PSYCHOLOGY

This publication calls for a greater investment in education during the first four years of a child's life.



## THE FOREST CODE AND SCIENCE, CONTRIBUTIONS TO THE DIALOGUE

Created in partnership with SBPC, this publication is based on new concepts and technological tools for land planning.

2014



## WATER RESOURCES IN BRAZIL

This is a strategic vision for the best utilization of resources based on a multidisciplinary perspective.



## TRANSLATIONAL MEDICINE: CONCEPTS AND STRATEGIES

It highlights this field which aims to reduce the gap between the knowledge generated by basic research and the translation of this knowledge into actions that benefit the patient.

## ABC'S CENTENARY COMMISSION

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