C. B. P. E.

Presidência da República
GABINETE CIVIL

Brasília, 25 de janeiro de 1961

Prezado Dr. Darcy Ribeiro,

De acôrdo com sugestão do Ministro Cyro dos Anjos, tenho o prazer de transmitir-lhe as informações prestadas pelo M.J.N.I., a respeito da criação de um Departamento de Química da Universidade de Brasília.

Cordiais cumprimentos

Sálvio Medeiros Costa
Assistente da 2ª subchefia

/FML

C. B. P. E.

Ministério das Relações Exteriores,

Rio de Janeiro.

DC1/ 42 /506.45

Universidade de
Brasília.

1/1

O Ministério das Relações Exteriores cumprimenta a 2ª Subchefia do Gabinete Civil da Presidência da República e tem a honra de remeter-lhe, em anexo, informações do professor W.J. Moore a respeito da criação de um Departamento de Química na Universidade de Brasília.

Rio de Janeiro, em 7 de dezembro de 1960.

C. B. P. E.

INDIANA UNIVERSITY
Box C
Bloomington, Indiana

Department of Chemistry

September 21, 1960

Mr. Vasco Mariz
Cultural Affairs Officer
The Brazilian Embassy
Washington 8, D. C.

Dear Mr. Mariz:

This is in reply to your letter of August 26th, in order to provide certain more detailed information concerning the possibility of establishing at the University of Brasilia an outstanding Department of Chemistry.

You understand that we do not have at present detailed information on the current plans for the University of Brasilia. Therefore, the following outline has been prepared on an assumption that we should be starting from the beginning.

Our plan would be to establish at the University of Brasilia a Department of Chemistry which after a period of five to ten years would be expected to take its place among the outstanding departments in the world in teaching and research in chemistry. We believe that in the large population of Brazil there will be found each year a group of students who will be found each year a group of students who will be of the highest intellectual capabilities, and it will be our aim to produce from this group of students future world leaders in the science of chemistry.

The man at Indiana University who are interested in this project are all professors or associate professors of chemistry, with the exception of one assistant professor of organic chemistry. Brief biographical notes are given on attached pages. They all have had considerable experience in securing support from industry, government and foundations for various research projects. Thus, although the total cost of the present program may appear to be large, it is our belief that a considerable amount of the cost can be secured from various foundations and government agencies in this country. We hope especially that this will be the case if the present plans for enhanced cooperation among the American republics should be brought to fruition over the next several years.

It is difficult at present to say exactly how much time any particular person would eventually spend in Brazil. Some of the group would stay there on a permanent or semipermanent basis, others would come as visitors for several years, and others would come as visitors for several years, and others would plan to spend half of each year in Brazil and half in this country. These details could only be worked out after the total project has been explored to a much greater extent.

The attached estimate of the cost of construction and equipment and annual operating budget for the Department is met based on a detailed study of the situation at Brasilia, about which, as mentioned before, we are still uninformed. The costs are given on the basis of current costs in the United States. Some things in Brazil may be less expensive and others may be more expensive, but no effort has been made to take this into account. The figures given, however, are a rough estimate of what it would cost to establish a first class department in an American university. The initial cost would approximate $7,000,000 and the annual operating budget, $1,000,000.

Some comments on special items should be made. We have provided for the establishment of a Computing Center, to be based on an I. B. M. 709 computer or an instrument of similar capabilities. We are convinced that the use of high speed computational methods will provide one of the major avenues of future progress in theoretical and physical chemistry. It is believed, however, that the facilities of the Center would be sufficient to handle also the computational needs in other departments of the University of Brasilia. The establishment of this center is one of the important basis building blocks on which the future of the proposed department would depend. We believe that this project will in itself attract considerable support from the industries providing equipment computation, since the center will be devoted to teaching and research and therefore serve to train many students who will be available for future work in the computational field in Brazil.

You will note that in the provision of faculty we have mentioned the establishment of two visiting professorships. Ultimately, we would hope to increase this number. The idea is that each year there would be in residence in the department, two outstanding foreign professors. In this way we could maintain close contact with rapid developing fields in the rest of the world, Over a period of years, these visiting professors who became familiar with the work at the University of Brasilia, would be a valuable source of support in terms of research students and exchange appointments.

We shall be able to have a meeting to consider further planning some time in October. By that time I hope that we shall have received some further information about the current status of the University of Brasilia and the present plans for scientific work there.

You will understand, I am sure, that this project represents a large and important undetaking, which will require the support and cooperation of many different people and agencies. At present, it can only be characterized as an interesting idea, but we hope over the next few months to be able to explore it with you in sufficient detail to find out the extent to which such an idea could be converted into actuality.

Yours truly,

W.J. Moore
Professor of Chemistry

WJM:mh
cc: Mr. Ribeiro

C. B. P. E.

DEPARTMENT OF CHEMISTRY

UNIVERSITY OF BRASILIA

1. LABORATORY BUILDING AND EQUIPMENT

A. Building - Gross Area 150,000 square feet - Estimated cost $4,000,000

1 Lecture Room	1000	Offices
2 Lecture Rooms	250	Teaching Laboratories
3 Class Rooms	100	Research Laboratories
2 Class Rooms	50	Machine Shop
1 Common Room		Glassblowing Shop
2 Seminar Rooms		Stock Rooms
1 Library		Storage space

B. Equipment for Teaching and Research - Estimated cost $1,500,000

Typical special items:

Mass Spectrometer	X-Ray Diffraction
Electron Microscope	Ultracentifuge
NMR and EPR Spectrometers	Radiochemical equipment
IR and UV Spectrometers	Liquid Nitrogen Plant
Liquid Helium Cryostat	Special distillation and extraction equipment

C. Library 10,000 volumes - Initial cost, $90,000; Annual budget, $8,000

D. Computing Center (Jointly with other departments)

I.B.M. 7090 Computer
Estimated cost of equipment - $1,250,000
Annual operating budget - $ 150,000

2. FACULTY - Annual Salary Budget - $370,000

6 Professors: Theoretical Chemistry
Physical Chemistry
Inorganic Chemistry
Biochemistry
Organic Chemistry
Physical Organic Chemistry
2 Visiting Professors
3 Associate Professors
3 Assistant Professors
8 Instructors
1 Director of the Laboratory
1 Librarian
12 Research associates (postdoctoral)

3. NON-ACADEMIC STAFF - Salary Budget - $150,000

1 Machinist and Instrument maker
2 Machinists
2 Glassblowers

(NON-ACADEMIC STAFF- CONTINUED)

2 Analysts
1 Electronics Technician
2 Instrument Technicians
10 Laboratory Technicians
12 Secretaries
1 Assistant Librarian
6 Stock room clerks
6 Custodians (janitors)

4. GRADUATE STUDENTS

Ultimately 60 graduate students studying toward M. S. and Ph. D. degrees. Followships, research and teaching assistantships will need to be provided for support of graduate students. Average cost $2,500/year; or $150,000.

5. UNDERGRADUATE STUDENTS

Scholarships for 100 students at $500/year; $50,000.

6. OPERATING BUDGET

Supplies	$ 200,000
Power, communications, fuel	80,000
	$ 280,000

7. REPAIRS AND DEPRECIATION

5% of $6,000,000	$ 300,000

HENRY R. MAHLER, Professor (1921). A.B. (Honors), 1943, Swarthmore College; Ph.D., 1948, University of California, Berkeley. Biochemistry. Enzymology; mechanisms of enzyme-catalyzed reactions; metal-enzymes and enzyme models; biochemical bases of differentiation and development; bacteriophage reproduction in cell-free systems; interrelations between proteins and nucneic acids.

Senior Chemist (Texas Research Foundation, 1948-49); Research Associate (University of Wisconsin, 1949-51); Assistant Professor (Enzyme Institute of Wisconsin, 1951-55); Traveling Fellow, National Science Foundation (1955); Special Fellow, Rockfeller Foundation (1957); Visiting Professor (University of Sao Paulo, 1957); Visiting Investigator (Marine Biological Laboratory, Woods Hole, 1960).

WALTER L. MEYER, Assistant Professor (1931). B.S. 1953, M.S., 1955, Ph.D., 1957, University of Michigan. Organic Chemistry. Synthesis of steroids, alkaloids, terpenes, and related compounds; sterochemestry; stereoselectivity of organic reactions.

Research Associate (University of Michigan, 1957); Instructor of Chemistry (University of Michigan, 1957); National Science Founda - tion Postdoctoral Fellow (University of Wisconsin, 1957-58); Instructor of Chemistry (Indiana University, 1958-60); Assistant Professor of Chemistry (Indiana University, 1960).

WALTER J. MOORE, Professor (1918). B.Sc., 1937, New York University; Ph.D., 1940, Princeton University. Physical Chemistry. Diffusion in inorganic crystals; interaction of ionic beams with solid surfaces; reactions of gaseous ions.

National Research Fellow (California Institute of Technology, 1940-41); Guggenheim and Fulbright Fellow (University of Bristol, 1950-51); National Science Research Fellow (University of Paris, 1958-59); Visiting Professor (Harvard University, 1960).

RILEY SCHAEFFER, Associate Professor (1927). B.S., 1946, Ph.D., 1949, University of Chicago. Inorganic Chemistry. Chemistry of nonmetals; Hydrides of boron and silicon; structural inorganic chemistry; mechanisms of reactions; stable isotopes, chemistry at high pressures.

Research chemist (University of Chicago, 1949-52); Assistant Professor (Iowa State College, 1952-56); Associate Professor (Iowa State College, 1956-58); Associate Professor (Indiana University, 1958).

VERNON J. SHINER, JR., Professor (1925). B.S., 1947, Texas Western College; Ph.D., 1950, Cornell University. Organic Chemistry. Organic reaction mechanisms; deuterium isotope rate effects; hyperconjuga - tion; elimination reactions; periodate oxidation reactions; mechanism of biological hydrogen transfer reactions.

Fulbright Fellow (University College, London, 1950-51); DuPont Postdoctoral Fellow (Harvard University, 1951-52); Alfred P. Sloan Research Fellow (1957-61); National Science Foundation Senior Post-doctoral Fellow (Montpellier, France and University College, London, 1958-59).

HARRISON SHULL, Professor (1923). A.B., 1943, Princeton University; Ph.D., 1948, University of California, Berkeley. Physical Chemistry. Quantum mechanics; theoretical chemistry; application of molecular electronic computers to problems of chemical interest; molecular potential functions and intermolecular interactions.

NRC Postdoctoral Research Fellow (University of Chicago, 1948-9); Assistant Professor (Iowa State College, 1949-54); Guggenheim Fellow (Uppsala, Sweden, 1954-5); Sloan Research Fellow (1956-58); Associate Director of Research (Uppsala Quantum Chemistry Group, Uppsala, Sweden, 1958-9); Director, Research Computing Center (Indiana University, 1959 -).

C. B. P. E.

SECRETARIA DE ESTADO
DAS RELAÇÕES EXTERIORES
Rio de Janeiro

Rio, em 13 de setembro de 1960

Ilustríssimo Senhor
Professor Darcy Ribeiro
Centro Brasileiro de
Pesquisas Educacionais
Rua Voluntários da Pátria, 107
Botafogo - N E S T A

Tenho a satisfação de encaminhar a Vossa Senhoria, em anexo, cópia da carta endereçada à Embaixada do Brasil em Washington pelo Senhor Walter J. Moore, professor de química da Universidade de Indiana, na qual oferece os serviços de seis a oito químicos norte-americanos para fundar um Departamento de Química na Universidade de Brasília.

Muito agradeceria a Vossa Senhoria submeter o assunto às autoridades competentes e salientar a alta significação dêsse oferecimento que vem de uma das universidades mais prestigiosas daquêle país.

Aproveito a oportunidade para renovar os protestos da estima e consideração, com que me subscrevo,

1/1 de Vossa Senhoria

(Wladimir do Amaral Murtinho)
Chefe da Divisão Cultural

LAM/LP

C. B. P. E.

INDIANA UNIVERSITY

Bloomington, Indiana

August 19, 1960

Mr. O. Rainho Neves
The Brazilian Embassy
Washington, D.C.

Dear Mr. Neves.

Professor W.W. Roztow of M.I.T. suggested that I write to you to obtain your comments on an idea which some of us in Chemistry Department here have been discussing.

We are much interested in practical ways of greatly increasing the cooperation between North and South America. At the same time, we have been impresses by the imagination and daring of the Brazilian people in construting a new city and capital at Brazilia. Thus we have sometimes discussed among ourselves the question of what plans are being made for the establishment in Brazilia of an outstanding university.

The group here in the Chemistry Department has had a considerable experience at all levels in teaching and advanced research in chemistry. Our experience has given us rather definitive ideas on how to establish a university chemistry department that would be recognized as one of the creative departments in the world, both from the point of view of teaching and of research. As you can understand, it way sometimes be difficult fro a group of younger men to change the direction of development of a scientific department in one of the older American universities. Thus we came upon the idea of whather or not it might be possible to offer to the University of Brazilia a first class Chemistry Department, which would essentially be ready for operation as soon as the necessary physical facilities could provided. The nucleus of this department would be a group of physical chemists, organic chemists and biochemiste, comprising six to eight men in all, who would be prepared to establish at the University of Brasilia a working department with a total faculty of about fifteen members. The other half of the department would be recruited from Brazilian scientists.

There are obviously formidable obstacles to be overcome before such an idea could be translated into a reality. At the present time we should simply like to inquire whether, in your opinion, the idea appears to deserve serious consideration. If you consider it worthwhile to explore this idea further, we should be pleased to receive any information you might be able to send us on the plans for the University of Brazilia and the sort of development that is now envisioned for that University in the scientific field.

Yours truly,

Walter J. Moore
Professor of Physical Chemistry

cc: Professor Shull
Professor Schaeffer
Professor Shiner and Professor Mahler

C. B. - P. E.

INDIANA UNIVERSITY

DEPARTMENT OF CHEMISTRY

A PROPOSAL

TO IMPROVE CHEMICAL EDUCATION AND CHEMICAL RESEARCH IN BRAZIL

Proposed Discussions with Representatives of Brazilian Science, Education and Government during Month of June, 1961

25 March 1961

A. The Special Need for Development of Advanced Chemical Education and Research in Brazil

Several different groups have recently visited scientific institutions in South America. It seems clear that the countries now most advanced and most prepared for further rapid advancement are Brazil and Argentina. Close attention has been given to both countries by Dr. C. V. Kidd, Associate Director of the National Institute of Health, and to Brazil by a committee of the National Academy of Sciences at the request of the International Cooperation Administration. This committee was headed by Dr. Oliver C. Carmichael. Consideration of the results of such surveys leads us to believe that a project of the type proposed here would be best suited for Brazil and indeed may confidently be expected to make a valuable contribution to the scientific life of that country.

The scientific life of a country should be examined as an organic whole. To attract young students to fields of science a sound secondary education by well informed teachers is essential. In turn good teachers can be trained only in universities with good facilities and outstanding faculties. In science, outstanding university faculty members must be dedicated to basic research if they are to keep in touch with the rapid pace of development of science in the modern world. The essence of science is in the living knowledge which is being gained every day in its research laboratories. Thus in the universities advanced graduate training and well developed programs of basic research are of prime importance.

The difficulty now appears that the development of institutions capable of offering such training presupposes, in general, a well developed supply of well trained teachers of high quality must be assured if consistent progress is to be made. Such teachers will be available in general only where outstanding graduate education is offered.

3. Brazil is fortunate in having a number of outstanding mathematicians of world wide reputation who, with encouragement

and assistance, are capable of fostering substantial advancements in this discipline. Effective undergraduate instruction in physics may be found at several centers and in general the quality of research in physics in the country as a whole has advanced markedly in recent years.

When one turns to the area of chemistry one finds that effective research is at a much less advanced level. (We must state that a definite exception to this is the research in biochemistry, frequently found at an excellent level, especially in connection with some of the medical schools.)

4. The committee of the National Academy of Sciences has pointed out that Brazil with its extensive natural resources requires an equally extensive chemical industry. At present it is unlikely that such industry can develop rapidly in the absence of effective opportunities for graduate work and research in chemistry. Although chemistry would provide the most direct bridge between the relatively well developed areas of biochemistry on the one hand, and mathematics and physics on the other, at present the work in progress is not as effective as it should be in this respect.

5. Thus, at present, Brazilian chemistry is caught in a situation in which inadequately developed graduate training results in undergraduate training which is less than satisfactory, and this in turn leads to the sustenance of only limited facilities for the graduate research and training. The situation might be changed rapidly by the kind of cooperative effort we are suggesting. Our proposal contains a rather new approach for solving the problem.

C. The Development of the Indiana University Project

During the summer of 1960 members of the Department of Chemistry at Indiana University met together several times to discuss the world political situation and the need for individual

action by citizens of the United States to help achieve peaceful cooperation in world affairs. Out of these discussions came the realization that by working as a group we might be able to contribute in a quite important way to help the development of chemical science in other countries of the world. The situation in South America seemed particularly hopeful, and the nation which appeared to be most important in this area was Brazil. Thus arose the concept that working together as a Department of Chemistry we might contribute to the development of chemistry in Brazil and thus indirectly to its future development in all of South America. Further investigation revealed that graduate work in chemistry in Brazil was at a formative stage of development, so that any effort there might prove to be especially important and significant for the future. Undergraduate studies in science at about 18 Brazilian universities are at a relatively advanced stage, but facilities do not yet exist for graduate study and research in chemistry of the kind we have at Indiana, California, or M.I.T.

We should like to help establish in a Brazilian university a first class Department of Chemistry, designed to train students for the Ph.D. degree or its equivalent, and to inculcate an understanding of the spirit and techniques of modern chemical research. Such a department would provide skilled teachers for advanced work in other colleges and universities in South America, scientists able to initiate research and development projects in chemical industry in Brazil, and chemists skilled in research work for hospitals, agricultural experiment stations, and government laboratories devoted to national defense, testing and standards, atomic energy and other fields.

Our concept is to establish in Brazil a complete Department of Chemistry, beginning at the graduate (Ph.D. studies) level. For a period of about ten years this Department would be integrated closely with the Department of Chemistry at Indiana University. The idea, in brief, is to have <u>one department in two places</u>. Gradually, as Brazilian chemists are attracted to the new department

and as the training of the young Brazilian chemists proceeds, more and more positions in the department would be assumed by Brazilian chemists. These Brazilian colleagues would also spend some time at Indiana helping with the research and teaching there. At the end of the approximately ten year period (or whatever term should prove to be necessary) we contemplate that the Brazilian branch of the Department would be mostly staffed by Brazilians and the close integration of the two departments could be replaced by some kind of informal continued friendship and collaboration.

The construction of the new capital city of Brasilia and the indication that plans were being made for the establishment of a new university there suggested to us that Brasilia might be a most appropriate site for the foundation of a Department of Chemistry.

In the Fall of 1960 we called this project to the attention of the Brazilian Embassy through Mr. Vasco Mariz, whose interest was suggested by Professor Rostow of M.I.T. We also described the project in a letter to President-elect Kennedy. (It will be recalled that at that time there was a possibility that he would be consulting with President-elect Quadros before their inaugurations.)

Shortly after the inauguration of President Kennedy, we received a telephone call from Dr. Eugene Skolnikoff, a member of the President's scientific advisory staff. He expressed an interest in our project and arranged a meeting with Dr. George Harrar and Dr. Harry Miller at the Rockefeller Foundation in New York. This meeting took place on February 21. At that time we obtained our first objective evaluation of the merits of the proposals. The conclusion was that it would be premature to decide the exact location of such a Chemistry Department in Brazil, but that the concept of a department in two places, one at Indiana and one in Brazil, was a feasible one, and might provide a method for the rapid and effective development of graduate studies and research in chemical science in Brazil.

At this stage, we arranged a discussion on March 9 with the administrative officials at Indiana University. This meeting

was attended by President Herman B. Wells; Talph Collins, Vice-President and Dean of Faculties; Frank Gucker, Dean of the College of Arts and Sciences; Lynne Merritt Associate Dean of the College; and Peter Fraenkel, Assistant to the President. The administration view was that a project of this kind was exactly the sort of con - tribution to the national interest and to peaceful world development that Indiana University could and should undertake. President Wells primised to give the project his personal interest and to support it in every way possible. The development of our concept will necessitate the addition of as many as six or seven new faculty members to the Department at Indiana University in order to make it possible to provide a continual supply of staff during the development of the Brazilian branch of the Department. These faculty members will be chosen as permanent members of the Indiana University faculty and it is our intent that in every case they will be of a quality equal to or better than that of the present departmental faculty.

Following the procedure suggested by Dr. Harrar, we arranged through Dr. Skolnikoff for a group from Indiana to visit Washington, in order to secure information on the interest that government agencies responsible for international cooperation and scientific development might have in such a project. Professors Moore, Schaeffer and Shull spent three days in Washington, March 13 to 15, in such discussions. The following men were consulted:

1. National Science Foundation: Dr. Roe, Dr. Kirner
2. National Institutes of Health: Dr. Kidd, Dr. Cummings, Dr.Grant
3. Department of State: Dr. Whitman, Dr. Sohm, Dr. Kovach (Office of Science Adviser)
4. Department of State: Mr. Wilson (Brazil desk)
5. Department of State: Mr. Vasquez (Bureau of Cultural Affairs)
6. Department of State: Mr. Berman (International Cooperation Administration)
7. Office of American States: Dr. Perkinson, Dr. Davenport, Commander Pontes

8. National Academy of Sciences: Mr. Rude
(Committee on Interamerican Scientific Cooperation)

9. National Academy of Sciences: Dr. Trytten

In every case encouragement was received and the virtually unanimous consensus seemed to be that a project of this kind, although undoubtedly rather expensive, might offer a chance for an unusual kind of cooperation between scientists of Brazil and those of the United States of America. A favorable factor was the fact that Indiana University would provide a coherent group of experienced chemists with diversified specialities, who had the experience of working closely together toward a common aim. There was a general realization that the accomplishment of our plan would have an influence far beyond the single Brazilian Chemistry Department, and could perhaps result in the establishment of a center for chemical research and graduate study available to all the South American countries. It would serve as a dmonstration project for a new kind of intensive cooperation, which could then be extended to other fields. Programs for such projects are under development in Washington at present. In his recent speech President Kennedy emphasized this when he said: "Seventh, all the people of the hemisphere must be allowed to share in the expanding wonders of modern science - .... I invite Latin American scientists to work with us in new projects in fields such as medicine and agriculture, physics and astronomy - to help plan for regional research laboratories in these and other fields - and to strengthen cooperation between American universities and laboratories."

We are confident that the financial means will be forthcoming to implement our proposal if the Brazilian scientists invite us to proceed with it.

D. Proposed Visit to Brazil

A group of five Indiana University chemists is prepared to go to Brazil in June, 1961 for a visit of three to four weeks. During this time we shall discuss our plan with Brazilian scientists, educators, and government officials. From this visit we should hope

to return with the necessary information for a precise and detailed study of the feasibility of our project and a time table for its achievement.

The members of the Chemistry Department who would probably participate in the exploratory visit to Brazil are:

Henry R. Mahler, Professor of Biochemistry

Walter J. Moore, Professor of Physical Chemistry

Riley Schaeffer, Associate Professor of Inorganic Chemistry

V. J. Shiner, Professor of Organic Chemistry

Harrison Shull, Professor of Theoretical Chemistry and Director of Indiana University Research Computing Center

Our plans for a Department of Chemistry in Brazil include a research computing center, with facilities available for university workers in theoretical chemistry, physics, astronomy, social sciences and other disciplines. During our visit to Brazil, Professor Shull will devote special attention to a survey and analysis of presently available scientific computation facilities, and the extent to which they are meeting present and anticipated needs for research work in this field.

This visit will be planned carefully so as to see as many as possible of the responsible members of the Brazilian scientific and educational community. Such personal investigation and detailed discussion will be essential, in order to explore the feasibility of the establishment of the Chemistry Department at the new University of Brasilia. We shall, however, maintain an open mind on the question of other possible sites for the Department. This visit is not considered to be merely a preliminary investigation. We hope that from it there can come a definite plan for the immediate inauguration of the project.

E. Proposed Budget for Visit to Brazil

Airline Fare (Chicago to Rio de Janeiro, 45 Day Excursion)	$ 735.00*
Transportation within United States and Brazil	200.00*
Living Expenses (21 Days at $15.00 per diem)	315.00
TOTAL ESTIMATED EXPENSE PER PERSON ..	$1,250.00
TOTAL ESTIMATED COST FOR FIVE PERSONS	$6,250.00

This proposal is being submitted simultaneously to the Rockefeller Foundation, the National Academy of Sciences, and the National Science Foundation, with the suggestion that the expenses be devided by mutual agreement.

Funds made available for this project should be provided through the National Academy of Sciences (Office of Mr. Rude) which will undertake any administrative and financial details.

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* Transportation costs are estimated. Exact receipts will be presented at end of travel.

C. B. P. E.

Presidência da República
GABINETE CIVIL

Brasília, 25 de janeiro de 1961

Prezado Dr. Darcy Ribeiro,

De acôrdo com sugestão do Ministro Cyro dos Anjos, tenho o prazer de transmitir-lhe as informações prestadas pelo M.J.N.I., a respeito da criação de um Departamento de Química da Universidade de Brasília.

Cordiais cumprimentos

Sálvio Medeiros Costa
Assistente da 2ª subchefia

/FML

Ministério das Relações Exteriores,

Rio de Janeiro.

DC1/ 42 /506.45

Universidade de
Brasília.

O Ministério das Relações Exteriores cumprimenta a 2ª Subchefia do Gabinete Civil da Presidência da República e tem a honra de remeter-lhe, em anexo, informações do professor W.J. Moore a respeito da criação de um Departamento de Química na Universidade de Brasília.

1/1

Rio de Janeiro, em 7 de dezembro de 1960.

C. B. P. E.

INDIANA UNIVERSITY
Box C
Bloomington, Indiana

Department of Chemistry

September 21, 1960

Mr. Vasco Mariz
Cultural Affairs Officer
The Brazilian Embassy
Washington 8, D. C.

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Our plan would be to establish at the University of Brasilia a Department of Chemistry which after a period of five to ten years would be expected to take its place among the outstanding departments in the world in teaching and research in chemistry. We believe that in the large population of Brazil there will be found each year a group of students who will be found each year a group of students who will be of the highest intellectual capabilities, and it will be our aim to produce from this group of students future world leaders in the science of chemistry.

The man at Indiana University who are interested in this project are all professors or associate professors of chemistry, with the exception of one assistant professor of organic chemistry. Brief biographical notes are given on attached pages. They all have had considerable experience in securing support from industry, government and foundations for various research projects. Thus, although the total cost of the present program may appear to be large, it is our belief that a considerable amount of the cost can be secured from various foundations and government agencies in this country. We hope especially that this will be the case if the present plans for enhanced cooperation among the American republics should be brought to fruition over the next several years.

It is difficult at present to say exactly how much time any particular person would eventually spend in Brazil. Some of the group would stay there on a permanent or semipermanent basis, others would come as visitors for several years, and others would come as visitors for several years, and others would plan to spend half of each year in Brazil and half in this country. These details could only be worked out after the total project has been explored to a much greater extent.

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You will note that in the provision of faculty we have mentioned the establishment of two visiting professorships. Ultimately, we would hope to increase this number. The idea is that each year there would be in residence in the department, two outstanding foreign professors. In this way we could maintain close contact with rapid developing fields in the rest of the world. Over a period of years, these visiting professors who became familiar with the work at the University of Brasilia, would be a valuable source of support in terms of research students and exchange appointments.

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You will understand, I am sure, that this project represents a large and important undetaking, which will require the support and cooperation of many different people and agencies. At present, it can only be characterized as an interesting idea, but we hope over the next few months to be able to explore it with you in sufficient detail to find out the extent to which such an idea could be converted into actuality.

Yours truly,

W.J. Moore
Professor of Chemistry

WJM:mh
cc: Mr. Ribeiro

C. B. P. E.

DEPARTMENT OF CHEMISTRY

UNIVERSITY OF BRASILIA

1. LABORATORY BUILDING AND EQUIPMENT

A. Building - Gross Area 150,000 square feet - Estimated cost $4,000,000

1 Lecture Room	1000	Offices
2 Lecture Rooms	250	Teaching Laboratories
3 Class Rooms	100	Research Laboratories
2 Class Rooms	50	Machine Shop
1 Common Room		Glassblowing Shop
2 Seminar Rooms		Stock Rooms
1 Library		Storage space

B. Equipment for Teaching and Research - Estimated cost $1,500,000

Typical special items:

Mass Spectrometer	X-Ray Diffraction
Electron Microscope	Ultracentifuge
NMR and EPR Spectrometers	Radiochemical equipment
IR and UV Spectrometers	Liquid Nitrogen Plant
Liquid Helium Cryostat	Special distillation and extraction equipment

C. Library 10,000 volumes - Initial cost, $90,000; Annual budget, $8,000

D. Computing Center (Jointly with other departments)

I.B.M. 7090 Computer
Estimated cost of equipment - $1,250,000
Annual operating budget - $ 150,000

2. FACULTY - Annual Salary Budget - $370,000

6 Professors: Theoretical Chemistry
Physical Chemistry
Inorganic Chemistry
Biochemistry
Organic Chemistry
Physical Organic Chemistry
2 Visiting Professors
3 Associate Professors
3 Assistant Professors
8 Instructors
1 Director of the Laboratory
1 Librarian
12 Research associates (postdoctoral)

3. NON-ACADEMIC STAFF - Salary Budget - $150,000

1 Machinist and Instrument maker
2 Machinists
2 Glassblowers

(NON-ACADEMIC STAFF- CONTINUED)

2 Analysts
1 Electronics Technician
2 Instrument Technicians
10 Laboratory Technicians
12 Secretaries
1 Assistant Librarian
6 Stock room clerks
6 Custodians (janitors)

4. GRADUATE STUDENTS

Ultimately 60 graduate students studying toward M. S. and Ph. D. degrees. Followships, research and teaching assistantships will need to be provided for support of graduate students. Average cost $2,500/year; or $150,000.

5. UNDERGRADUATE STUDENTS

Scholarships for 100 students at $500/year; $50,000.

6. OPERATING BUDGET

Supplies	$ 200,000
Power, communications, fuel	80,000
	$ 280,000

7. REPAIRS AND DEPRECIATION

5% of $6,000,000	$ 300,000

HENRY R. MAHLER, Professor (1921). A.B. (Honors), 1943, Swarthmore College; Ph.D., 1948, University of California, Berkeley. Biochemistry. Enzymology; mechanisms of enzyme-catalyzed reactions; metal-enzymes and enzyme models; biochemical bases of differentiation and development; bacteriophage reproduction in cell-free systems; interrelations between proteins and nucneic acids.

Senior Chemist (Texas Research Foundation, 1948-49); Research Associate (University of Wisconsin, 1949-51); Assistant Professor (Enzyme Institute of Wisconsin, 1951-55); Traveling Fellow, National Science Foundation (1955); Special Fellow, Rockfeller Foundation (1957); Visiting Professor (University of Sao Paulo, 1957); Visiting Investigator (Marine Biological Laboratory, Woods Hole, 1960).

WALTER L. MEYER, Assistant Professor (1931). B.S. 1953, M.S., 1955, Ph.D., 1957, University of Michigan. Organic Chemistry. Synthesis of steroids, alkaloids, terpenes, and related compounds; sterochemestry; stereoselectivity of organic reactions.

Research Associate (University of Michigan, 1957); Instructor of Chemistry (University of Michigan, 1957); National Science Founda - tion Postdoctoral Fellow (University of Wisconsin, 1957-58); Instructor of Chemistry (Indiana University, 1958-60); Assistant Professor of Chemistry (Indiana University, 1960).

WALTER J. MOORE, Professor (1918). B.Sc., 1937, New York University; Ph.D., 1940, Princeton University. Physical Chemistry. Diffusion in inorganic crystals; interaction of ionic beams with solid surfaces; reactions of gaseous ions.

National Research Fellow (California Institute of Technology, 1940-41); Guggenheim and Fulbright Fellow (University of Bristol, 1950-51); National Science Research Fellow (University of Paris, 1958-59); Visiting Professor (Harvard University, 1960).

RILEY SCHAEFFER, Associate Professor (1927). B.S., 1946, Ph.D., 1949, University of Chicago. Inorganic Chemistry. Chemistry of nonmetals; Hydrides of boron and silicon; structural inorganic chemistry; mechanisms of reactions; stable isotopes, chemistry at high pressures.

Research chemist (University of Chicago, 1949-52); Assistant Professor (Iowa State College, 1952-56); Associate Professor (Iowa State College, 1956-58); Associate Professor (Indiana University, 1958).

VERNON J. SHINER, JR., Professor (1925). B.S., 1947, Texas Western College; Ph.D., 1950, Cornell University. Organic Chemistry. Organic reaction mechanisms; deuterium isotope rate effects; hyperconjuga - tion; elimination reactions; periodate oxidation reactions; mechanism of biological hydrogen transfer reactions.

Fulbright Fellow (University College, London, 1950-51); DuPont Postdoctoral Fellow (Harvard University, 1951-52); Alfred P. Sloan Research Fellow (1957-61); National Science Foundation Senior Post- doctoral Fellow (Montpellier, France and University College, London, 1958-59).

HARRISON SHULL, Professor (1923). A.B., 1943, Princeton University; Ph.D., 1948, University of California, Berkeley. Physical Chemistry. Quantum mechanics; theoretical chemistry; application of molecular electronic computers to problems of chemical interest; molecular potential functions and intermolecular interactions.

NRC Postdoctoral Research Fellow (University of Chicago, 1948-9); Assistant Professor (Iowa State College, 1949-54); Guggenheim Fellow (Uppsala, Sweden, 1954-5); Sloan Research Fellow (1956-58); Associate Director of Research (Uppsala Quantum Chemistry Group, Uppsala, Sweden, 1958-9); Director, Research Computing Center (Indiana University, 1959 -).

BRASILIA PROJECT

The basic idea of this project is to help establish at the new University of Brasilia a first-class Department of Chemistry. A group of chemists from Indiana University would go to Brasilia to work there in the new Department. At the same time, they would retain their association with the Department at Indiana. Thus a sort of integration of the two departments is proposed, which will be advantageous to both. It is anticipated that ten years of joint efforts may be required to establish the Department at Brasilia as one of the recognized world centers of chemical teaching and research. We believe that in the large population of Brazil there will be found each year a group of students who will be of the highest intellectual capabilities, and it will be our aim to produce from this group of students future world leaders in the science of chemistry.

We suggest that the first efforts in Brasilia be devoted to the establishment of graduate work in Chemistry. After research and advanced courses are in progress, attention would be turned to the development of the undergraduate program.

The idea of such a project has been received with enthusiasm by a committee of Brazilian scientists who are planning the new University of Brasilia. The project also has received the enthusiastic backing of the administration of Indiana University. President Herman B. Wells has promised to help us in every way possible to bring the idea to a successful realization.

Some of the Indiana University group plan to visit Brazil in June, 1961, in order to consult with the Brazilian scientists and educators, and to gain at first hand information needed to draw up definite proposals for the project.

MEMBERS OF INDIANA UNIVERSITY GROUP

RUSSELL A. BONHAM, Assistant Professor (1931). B. A., 1954, Whittier College; Ph.D., 1958, Iowa State University. Physical Chemistry. Accurate determination of the structure of molecules by electron diffraction investigated by inelastic scattering of electrons from atoms and molecules; quantum mechanical calculations of electron scattering from atoms and molecules.

Instructor of Chemistry, (Indiana University, 1958-60); National Academy of Science, National Research Council, Postdoctoral Fellow (U.S. Naval Research Laboratory, 1960); Assistant Professor (Indiana University, 1960).

HENRY R. MAHLER, Professor (1921). A.B. (Honors), 1943, Swarthmore College; Ph.D., 1948, University of California, Berkeley. Biochemistry. Enzymology; mechanisms of enzyme-catalyzed reactions; metal-enzymes and enzyme models; biochemical bases of differentiation and development; bacteriophage reproduction in cell-free systems; interrelations between proteins and nucleic acids.

Senior Chemist (Texas Research Foundation, 1948-49); Research Associate (University of Wisconsin, 1949-51); Assistant Professor (Enzyme Institute of Wisconsin, 1951-55); Traveling Fellow, National Science Foundation (1955); Special Fellow, Rockfeller Foundation (1957); Visiting Professor (University of Sao Paulo, 1957); Visiting Investigator (Marine Biological Laboratory, Woods Hole, 1960).

WALTER L. MEYER, Assistant Professor (1931). B.S., 1953, M.S., 1955, Ph.D., 1957, University of Michigan. Organic Chemistry. Synthesis of steroids, alkaloids, terpenes, and related compounds; stereochemistry; stereoselectivity of organic reactions.

Research Associate (University of Michigan, 1957); Instructor of Chemistry (University of Michigan, 1957); National Science Foundation Postdoctoral Fellow (University of Wisconsin, 1957-58); Instructor of Chemistry (Indiana University, 1958-60); Assistant Professor of Chemistry (Indiana University, 1960).

WALTER J. MOORE, Professor (1918). B.Sc., 1937, New York University; Ph.D., 1940, Princeton University. Physical Chemistry. Diffusion in inorganic crystals; interaction of ionic beams with solid surfaces; reactions of gaseous ions.

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C. B. P. E.

DEPARTMENT OF CHEMISTRY, UNIVERSITY OF BRASILIA

PRELIMINARY ESTIMATE OF BUDGET

1. LABORATORY BUILDING AND EQUIPMENT

   A. Building - Gross Area 150,000 square feet

1 Lecture Room	1000	Offices
1 Lecture Room	250	Teaching Laboratories
3 Class Rooms	100	Research Laboratories
2 Class Rooms	50	Machine Shop
1 Common Room		Glassblowing Shop
2 Seminar Rooms		Stock Rooms
1 Library		Storage Space

   B. Special Equipment for Teaching and Research - Estimated cost $1,500,000

Major Items:	X-Ray Diffraction
Mass Spectrometer	Ultracentifuge
Electron Microscope	Radiochemical Equipment
NMR Spectrometer	Liquid Nitrogen Plant
EPR Spectrometer	Office equipment: duplicating
IR and UV Spectrometers	
Liquid Helium Cryostat	

   C. Library 10,000 volumes - Initial cost, $100,000; Annual budget, $10,000
   (Actually a central scientific library should be provided, probably in a separate building.)

   D. Computing Center (Jointly with other departments)

   I.B.M. 7090 Computer
   Estimated cost of equipment - $1,000,000

2. FACULTY - Annual Salary Budget, $370,000

6 Professors:	Theoretical Chemistry
	Physical Chemistry
	Inorganic Chemistry
	Biochemistry
	Organic Chemistry
	Physical Organic Chemistry
2 Visiting Professors	
3 Associate Professors	
3 Assistant Professors	
8 Instructors	
1 Director of the Laboratory	
1 Librarian	
12 Research associates (postdoctoral)	

3. NON-ACADEMIC STAFF - Salary budget $180,000

1 Machinist and Instrument maker
2 Machinists
1 Glassblower
2 Analysts
1 Electronics Technician
2 Instrument Technicians
10 Laboratory Technicians
12 Secretaries
1 Assistant Librarian
6 Stock room clerks
6 Custodians (janitors)

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5. UNDERGRADUATE STUDENTS

Scholarships for 100 students at $1000 per year; or $100,000.

6. OPERATING BUDGET

Repairs and depreciation 3%	$ 120,000
Supplies	500,000
Power, fuel, communications, travel	100,000
Administrative overhead	100,000
	$ 520,000

NOTES:

1. All costs are based on current prices in the United States, with no adjustments made for special conditions in Brasilia.

2. No estimate of building cost is given. United States cost would be about $3,500,000 with standard laboratory facilities.

Instituto de Química

INDIANA UNIVERSITY
BLOOMINGTON
INDIANA
U.S.A.

Office of the President

Cable Address: INDVERS

Bd-9/10/61-Exh D
September 25, 1961

Dr. Darcy Ribeiro, Director
Centro Brasiliero de Pesquisas Educacionais
Rua Voluntarios de Patria 107
Rio de Janeiro, Brazil

Dear Dr. Ribeiro:

The Board of Trustees of Indiana University has been informed that you have presented to the Lilly Library the Arte dos indios Kaapor, by Darcy and Berta G. Ribeiro, 1957. Your gracious gesture is warmly appreciated by the members of the Board, who have directed that I express their thanks for the fine addition to the rare book collections of the University and their gratitude for your thoughtfulness.

Sincerely yours,

Herman B Wells
President, Indiana University

Attest:

Secretary, Board of Trustees

chw

cc: Mr. Franklin

Dr. W. G. Moore
Box C - Indiana University
Bloomington, Indiana
U. S. A.

Rio de Janeiro, GB.
January 13, 1961.

Dear Dr. Moore,

Your letter addressed to Mr. Darcy Ribeiro and dated October 3rd, 1960, which included a copy of another letter addressed to Mr. Vasco Mariz, has recently been handed to me.

For this reason only now am I answering your letter on request by Mr. Ribeiro, who indicated me to make the necessary scientific contacts for the University of Brasilia.

About a month ago an informal meeting of the Brazilian Society of the Progress of Science was held for the discussion of the problems regarding the U. of Brasilia. Some 60 professors and researchers attended. Your letter was read and your offer of the possibility of bringing the Chemistry Department of the Indiana University to the U. of Brasilia wasmet with enthusiasm by all.

However, the fate of the U. of Brasilia is still unknown. With the change of government due to the elections last October, the project of the U. of Brasilia has not yet been voted by Congress. We expect that this will happen sometime next February or March. After that we shall see what will be the attitude of the Executive toward the project.

As soon as we have some concrete details about the U. of Brasilia we will be very happy to contact you and try to establish a fruitful collaboration.

In the name of the Brazilian scientists and in my own I thank you very much for your offer and sincerly hope that it may materialize soon.

Yours faithfully,

Prof. J. Danon, Head
Dept. of Nuclear Chemistry

C. B. P. E.

SECRETARIA DE ESTADO
DAS RELAÇÕES EXTERIORES
Rio de Janeiro

Rio, em 13 de setembro de 1960

Ilustríssimo Senhor
Professor Darcy Ribeiro
Centro Brasileiro de
Pesquisas Educacionais
Rua Voluntários da Pátria, 107
Botafogo - N E S T A

Tenho a satisfação de encaminhar a Vossa Senhoria, em anexo, cópia da carta endereçada à Embaixada do Brasil em Washington pelo Senhor Walter J. Moore, professor de química da Universidade de Indiana, na qual oferece os serviços de seis a oito químicos norte-americanos para fundar um Departamento de Química na Universidade de Brasília.

Muito agradeceria a Vossa Senhoria submeter o assunto às autoridades competentes e salientar a alta significação dêsse oferecimento que vem de uma das universidades mais prestigiosas daquêle país.

Aproveito a oportunidade para renovar os protestos da estima e consideração, com que me subscrevo,

1/1 de Vossa Senhoria

(Wladimir do Amaral Murtinho)
Chefe da Divisão Cultural

LAM/LP

C. B. P. E.

INDIANA UNIVERSITY

Bloomington, Indiana

August 19, 1960

Mr. O. Rainho Neves
The Brazilian Embassy
Washington, D.C.

Dear Mr. Neves.

Professor W.W. Roztow of M.I.T. suggested that I write to you to obtain your comments on an idea which some of us in Chemistry Department here have been discussing.

We are much interested in practical ways of greatly increasing the cooperation between North and South America. At the same time, we have been impresses by the imagination and daring of the Brazilian people in construting a new city and capital at Brazilia. Thus we have sometimes discussed among ourselves the question of what plans are being made for the establishment in Brazilia of an outstanding university.

The group here in the Chemistry Department has had a considerable experience at all levels in teaching and advanced research in chemistry. Our experience has given us rather definitive ideas on how to establish a university chemistry department that would be recognized as one of the creative departments in the world, both from the point of view of teaching and of research. As you can understand, it way sometimes be difficult fro a group of younger men to change the direction of development of a scientific department in one of the older American universities. Thus we came upon the idea of whether or not it might be possible to offer to the University of Brazilia a first class Chemistry Department, which would essentially be ready for operation as soon as the necessary physical facilities could provided. The nucleus of this department would be a group of physical chemists, organic chemists and biochemiste, comprising six to eight men in all, who would be prepared to establish at the University of Brasilia a working department with a total faculty of about fifteen members. The other half of the department would be recruited from Brazilian scientists.

There are obviously formidable obstacles to be overcome before such an idea could be translated into a reality. At the present time we should simply like to inquire whether, in your opinion, the idea appears to deserve serious consideration. If you consider it worthwhile to explore this idea further, we should be pleased to receive any information you might be able to send us on the plans for the University of Brazilia and the sort of development that is now envisioned for that University in the scientific field.

Yours truly,

Walter J. Moore
Professor of Physical Chemistry

cc: Professor Shull
Professor Schaeffer
Professor Shiner and Professor Mahler

DEPARTMENT OF CHEMISTRY

INDIANA UNIVERSITY

BLOOMINGTON, INDIANA

BRASILIA PROJECT

March 10, 1961

C. B. P. E.

INDIANA UNIVERSITY
Box C
Bloomington, Indiana

Department of Chemistry

April 19, 1961

Professor Jacques Danon
Department of Nuclear Chemistry
Centro Brasileiro de Pesquisas Físicas
Av. Wenceslau Braz 71
Rio de Janeiro, Brazil

Dear Professor Danon:

Our discussions with various groups in Washington and New York have now reached the point at which definite plans for a visit to Brazil should be made if we are to proceed further with our project for cooperation with Brazilian chemists in the development of graduate work in Brazil. As you will have seen from the copy of the proposal dated 25 March, 1961, which I sent you, we have considerably broadened our original concept. We cannot at the present time be certain that the proposed program would be best suited to the new university at Brasilia. It might, in fact, be more desirable to initiate the program at some other university, if such a plan seemed more helpful to our Brazilian colleagues.

In any case, if we are to proceed further with our planning, we shall need now your assistance and advice on this and other questions. We should like to visit Brazil in June, 1961, since this is the only time in the immediate future that the members of our group could conveniently leave the country together. Since time is growing quite short to arrange for the visit we should specifically like to have as soon as possible your advice on the following points.

(1) Do you believe that at present the Brazilian scientists would be sufficiently interested in the sort of proposal that we have outlined to devote some time to serious discussions of the project if we were to visit Brazil?

(2) Could you send to me the names and addresses of the various men shom we should visit and talk with in Brazil concerning the development of plans for the new University of Brasilia ?

(3) Would you let me know whether these men would be available for discussions with our group during the month of June?

(4) In order to secure the necessary support from agencies in this country to cover the costs of travel, we should like very much to have formal invitations from you or from whoever now has responsibility for planning the future development of work in chemistry at the University of Brasilia.

C. B. P. E.

(5) We should like to obtain information on the same four points cited above from interested persons at the National School of Chemistry of the University of Brazil in Rio de Janeiro. Professor Ralph Cleland of Indiana University has recommended that we contact his good friend Professor Chagas in the Instituto de Biofisica. We shall write to Professor Chagas but perhaps you could also see him and discuss the plan with him. In other words we need your help in two capacities, in regard to the University of Brasilia but alwo in regard to visiting the proper people at the University of Brazil.

Members of our group would be glad to give a few lectures during our visit on current research problems being carried on in our laboratories at Indiana University. We believe, however, that such lectures should be kept to a small number, since they would necessarily be in English at this time. Naturally, however, we shall be glad to discuss informally our research programs with interested groups of professors and students. I was much interested to read the lecture that you have concerning the history of element 84 as published in the journal "Quimica." This is an excellent journal to be published by a university school of chemistry and all concerned are to be contratulated on it.

We shall look forward to having your advice on the questions proposed here, as well as on any other topics in connection with our suggested visit which you think would be of value.

Yours very truly,

Walter J. Moore
Professor of Physical Chemistry

WJM:mh

C. B. P. E.

INDIANA UNIVERSITY
College of Arts and Sciences
Bloomington, Indiana

Department of Chemistry

August 22, 1961

Dr. Darcy Ribeiro
Centro Brasileiro de Pesquisas Educacionais
Rua Voluntarios da Patria, 107
Rio de Janeiro, Brasil

Dear Dr. Ribeiro:

We have been so busy with research and duties since our return that important letters to our Brazilian friends have been unduty postponed.

Ernest Wenkert and Harrison Shull wish to join me in expressing to you and to Mrs Ribeiro our most heartfelt thanks for all your kindness and hospitality our visit to Brasil. We all believe that evening spent at your home may have marked the beninning of a long collaboration that will help the new generation of Brazilian students to play an important part in the world wide development of chemical sciences.

We were impressed everywere we went in Brazil by the enthusuasm of the students and their willingness to work hard in order to learn new ideas and techniques. We could not help feeling, however, that traditional methods of instruction were often failing to show the students the importance of originality and independence in their work. The article by you and Dr. Teixeira on the University of Brasilia made somewhat similar points and in fact has struck a most responsive chord with our own beliefs concerning the aims and methods of higher education.

We have discussed at great length the question of the best location for the kind of institute of chemistry we have in mind We were much impressed by the University of Sao Paulo, which has come to be considered the Havard of Brazil. We were convinced that the wise plans outlined by Professor Chagas will eventually create a flourishing scientific center in Rio. We were overwhelmed by the warmth of our reception in Belo Horizonte and by the excellent progress that is being made there under the exceptionally capable leadership of Dr. Carvalho. Each of these trree centers could, under suitable circumstances become a good location for the cooperative effort with the Brazilian chemists that we had im mind. It was therefore with some reluctance that we finally decided that our orgunal idea that we should with the new University of Brasilia seemed after all to be the most appropriate You have doubtless seen the excellent letter fron Dr. Almir de Castro which summarized the arguments in favor of Brasilia. The logic of his arguments seems irrefutable. We believe that Brasilia will become in a true sense a national university, even an international university. If we can establish the institute of chemistry in Brasilia we should be able to obtain the support of many other universities and to help them all strengthen their own programs.

Therefore, we have decided that the plan of procedure outlind by Dr. Almir de Castro offers the best chance for success in this undertaking. We are now drawing up a proposal for submission to private and government foundation in this country which we hope wil obtain for us the financial support necessary for the first two years of the development of the project. During these two years we plan a program of exchange of students, faculty, and research personnel between Indiana and several of the active Brasilian centers of chemical research. The other major activity of this initial period (1962-1963) will be the collection of the chemical library for the University of Brasilia and, of course, the cooperative planning of the chemical laboratory there.

We should be able to send you a preliminary copy of this proposal for study and comment within the next two weeks. It is difficult for us to say whether we shall achieve complete success in our effort to secure the necessary financial support here. Although trere is great enthusuasm in Washington and New York for the "Alliance for Progress," it sometimes seems difficult to translate these enthusiantic speeches into concrete actions. We hope that Dr. Danon and Dr. Almir de Castro will be able to visit Indiana soon, so that we can plan together the necessary steps to present our proposals in the most favorable way, in order to secure the necessary support from the scientific community in Brazil and in the U.S.A.

It would be helpful for us to have a copy of the law establishing the University of Brasilia, which we understand is now under study by the Senate. It is still difficult to convince some officials here that the University of Brasilia is developing to schedule and all the concrete evidence that we can adduce on this point will be most helpful to our case.

We have outlined a program for the next two years which is directed toward the establishment of the Institute of Chemistry in Brasilia but which in itself can be a worthwhile contribution to the development of chemistry in all of Brazil. We are sending a copy of this letter to Dr. Almir de Castro, in lieu of a separate letter to him, since in a sense it is directed to both of you. Thus, we shall look forward to having comments and suggestions from all those who are dedicated to the development of the University of Brasilia.

With every good wish,

Yours sincerely,

Walter J. Moore

WJM:mh

CC: Dr. Almir de Castro

C. B. P. E.

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DAS RELAÇÕES EXTERIORES
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1/1 de Vossa Senhoria

(Wladimir do Amaral Murtinho)
Chefe da Divisão Cultural

LAM/LP.

C. B. P. E.

INDIANA UNIVERSITY

Bloomington, Indiana

August 19, 1960

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Yours truly,

Walter J. Moore
Professor of Physical Chemistry

cc: Professor Shull
Professor Schaeffer
Professor Shiner and Professor Mahler

C. B. P. E.

Presidência da República
GABINETE CIVIL

Brasília, 25 de janeiro de 1961

Prezado Dr. Darcy Ribeiro,

De acôrdo com sugestão do Ministro Cyro dos Anjos, tenho o prazer de transmitir-lhe as informações prestadas pelo M.J.N.I., a respeito da criação de um Departamento de Química da Universidade de Brasília.

Cordiais cumprimentos

Sálvio Medeiros Costa
Assistente da 2ª subchefia

/FML

C. B. P. E.

Ministério das Relações Exteriores,

Rio de Janeiro.

DC1/ 42 /506.45

Universidade de
Brasília.

O Ministério das Relações Exteriores cumprimenta a 2ª Subchefia do Gabinete Civil da Presidência da República
1/1 e tem a honra de remeter-lhe, em anexo, informações do professor W.J. Moore a respeito da criação de um Departamento de Química na Universidade de Brasília.

Rio de Janeiro, em 7 de dezembro de 1960.

C. B. P. E.

INDIANA UNIVERSITY
Box C
Bloomington, Indiana

Department of Chemistry

September 21, 1960

Mr. Vasco Mariz
Cultural Affairs Officer
The Brazilian Embassy
Washington 8, D. C.

Dear Mr. Mariz:

This is in reply to your letter of August 26th, in order to provide certain more detailed information concerning the possibility of establishing at the University of Brasilia an outstanding Department of Chemistry.

You understand that we do not have at present detailed information on the current plans for the University of Brasilia. Therefore, the following outline has been prepared on an assumption that we should be starting from the beginning.

Our plan would be to establish at the University of Brasilia a Department of Chemistry which after a period of five to ten years would be expected to take its place among the outstanding departments in the world in teaching and research in chemistry. We believe that in the large population of Brazil there will be found each year a group of students who will be found each year a group of students who will be of the highest intellectual capabilities, and it will be our aim to produce from this group of students future world leaders in the science of chemistry.

The man at Indiana University who are interested in this project are all professors or associate professors of chemistry, with the exception of one assistant professor of organic chemistry. Brief biographical notes are given on attached pages. They all have had considerable experience in securing support from industry, government and foundations for various research projects. Thus, although the total cost of the present program may appear to be large, it is our belief that a considerable amount of the cost can be secured from various foundations and government agencies in this country. We hope especially that this will be the case if the present plans for enhanced cooperation among the American republics should be brought to fruition over the next several years.

It is difficult at present to say exactly how much time any particular person would eventually spend in Brazil. Some of the group would stay there on a permanent or semipermanent basis, others would come as visitors for several years, and others would come as visitors for several years, and others would plan to spend half of each year in Brazil and half in this country. These details could only be worked out after the total project has been explored to a much greater extent.

The attached estimate of the cost of construction and equipment and annual operating budget for the Department is met based on a detailed study of the situation at Brasilia, about which, as mentioned before, we are still uninformed. The costs are given on the basis of current costs in the United States. Some things in Brazil may be less expensive and others may be more expensive, but no effort has been made to take this into account. The figures given, however, are a rough estimate of what it would cost to establish a first class department in an American university. The initial cost would approximate $7,000,000 and the annual operating budget, $1,000,000.

Some comments on special items should be made. We have provided for the establishment of a Computing Center, to be based on an I. B. M. 709 computer or an instrument of similar capabilities. We are convinced that the use of high speed computational methods will provide one of the major avenues of future progress in theoretical and physical chemistry. It is believed, however, that the facilities of the Center would be sufficient to handle also the computational needs in other departments of the University of Brasilia. The establishment of this center is one of the important basis building blocks on which the future of the proposed department would depend. We believe that this project will in itself attract considerable support from the industries providing equipment computation, since the center will be devoted to teaching and research and therefore serve to train many students who will be available for future work in the computational field in Brazil.

You will note that in the provision of faculty we have mentioned the establishment of two visiting professorships. Ultimately, we would hope to increase this number. The idea is that each year there would be in residence in the department, two outstanding foreign professors. In this way we could maintain close contact with rapid developing fields in the rest of the world, Over a period of years, these visiting professors who became familiar with the work at the University of Brasilia, would be a valuable source of support in terms of research students and exchange appointments.

We shall be able to have a meeting to consider further planning some time in October. By that time I hope that we shall have received some further information about the current status of the University of Brasilia and the present plans for scientific work there.

You will understand, I am sure, that this project represents a large and important undetaking, which will require the support and cooperation of many different people and agencies. At present, it can only be characterized as an interesting idea, but we hope over the next few months to be able to explore it with you in sufficient detail to find out the extent to which such an idea could be converted into actuality.

Yours truly,

W.J. Moore
Professor of Chemistry

WJM:mh
cc: Mr. Ribeiro

C. B. P. E.

DEPARTMENT OF CHEMISTRY

UNIVERSITY OF BRASILIA

1. LABORATORY BUILDING AND EQUIPMENT

A. Building - Gross Area 150,000 square feet - Estimated cost $4,000,000

1 Lecture Room	1000	Offices
2 Lecture Rooms	250	Teaching Laboratories
3 Class Rooms	100	Research Laboratories
2 Class Rooms	50	Machine Shop
1 Common Room		Glassblowing Shop
2 Seminar Rooms		Stock Rooms
1 Library		Storage space

B. Equipment for Teaching and Research - Estimated cost $1,500,000

Typical special items:

Mass Spectrometer	X-Ray Diffraction
Electron Microscope	Ultracentifuge
HMR and EPR Spectrometers	Radiochemical equipment
IR and UV Spectrometers	Liquid Nitrogen Plant
Liquid Helium Cryostat	Special distillation and extraction equipment

C. Library 10,000 volumes - Initial cost, $90,000; Annual budget, $8,000

D. Computing Center (Jointly with other departments)

I.B.M. 7090 Computer
Estimated cost of equipment - $1,250,000
Annual operating budget - $ 150,000

2. FACULTY - Annual Salary Budget - $370,000

6 Professors: Theoretical Chemistry
Physical Chemistry
Inorganic Chemistry
Biochemistry
Organic Chemistry
Physical Organic Chemistry
2 Visiting Professors
3 Associate Professors
3 Assistant Professors
8 Instructors
1 Director of the Laboratory
1 Librarian
12 Research associates (postdoctoral)

3. NON-ACADEMIC STAFF - Salary Budget - $150,000

1 Machinista and Instrument maker
2 Machinists
2 Glassblowers

(NON-ACADEMIC STAFF- CONTINUED)

2 Analysts
1 Electronics Technician
2 Instrument Technicians
10 Laboratory Technicians
12 Secretaries
1 Assistant Librarian
6 Stock room clerks
6 Custodians (janitors)

4. GRADUATE STUDENTS

Ultimately 60 graduate students studying toward M. S. and Ph. D. degrees. Followships, research and teaching assistantships will need to be provided for support of graduate students. Average cost $2,500/year; or $150,000.

5. UNDERGRADUATE STUDENTS

Scholarships for 100 students at $500/year; $50,000.

6. OPERATING BUDGET

Supplies	$ 200,000
Power, communications, fuel	80,000
	$ 280,000

7. REPAIRS AND DEPRECIATION

5% of $6,000,000	$ 300,000

HENRY R. MAHLER, Professor (1921). A.B. (Honors), 1943, Swarthmore College; Ph.D., 1948, University of California, Berkeley. Biochemistry. Enzymology; mechanisms of enzyme-catalyzed reactions; metal-enzymes and enzyme models; biochemical bases of differentiation and development; bacteriophage reproduction in cell-free systems; interrelations between proteins and nucneic acids.

Senior Chemist (Texas Research Foundation, 1948-49); Research Associate (University of Wisconsin, 1949-51); Assistant Professor (Enzyme Institute of Wisconsin, 1951-55); Traveling Fellow, National Science Foundation (1955); Special Fellow, Rockfeller Foundation (1957); Visiting Professor (University of Sao Paulo, 1957); Visiting Investigator (Marine Biological Laboratory, Woods Hole, 1960).

WALTER L. MEYER, Assistant Professor (1931). B.S. 1953, M.S., 1955, Ph.D., 1957, University of Michigan. Organic Chemistry. Synthesis of steroids, alkaloids, terpenes, and related compounds; sterochemestry; stereoselectivity of organic reactions.

Research Associate (University of Michigan, 1957); Instructor of Chemistry (University of Michigan, 1957); National Science Founda - tion Postdoctoral Fellow (University of Wisconsin, 1957-58); Instructor of Chemistry (Indiana University, 1958-60); Assistant Professor of Chemistry (Indiana University, 1960).

WALTER J. MOORE, Professor (1918). B.Sc., 1937, New York University; Ph.D., 1940, Princeton University. Physical Chemistry. Diffusion in inorganic crystals; interaction of ionic beams with solid surfaces; reactions of gaseous ions.

National Research Fellow (California Institute of Technology, 1940-41); Guggenheim and Fulbright Fellow (University of Bristol, 1950-51); National Science Research Fellow (University of Paris, 1958-59); Visiting Professor (Harvard University, 1960).

RILEY SCHAEFFER, Associate Professor (1927). B.S., 1946, Ph.D., 1949, University of Chicago. Inorganic Chemistry. Chemistry of nonmetals; Hydrides of boron and silicon; structural inorganic chemistry; mechanisms of reactions; stable isotopes, chemistry at high pressures.

Research chemist (University of Chicago, 1949-52); Assistant Professor (Iowa State College, 1952-56); Associate Professor (Iowa State College, 1956-58); Associate Professor (Indiana University, 1958).

VERNON J. SHINER, JR., Professor (1925). B.S., 1947, Texas Western College; Ph.D., 1950, Cornell University. Organic Chemistry. Organic reaction mechanisms; deuterium isotope rate effects; hyperconjuga - tion; elimination reactions; periodate oxidation reactions; mechanism of biological hydrogen transfer reactions.

Fulbright Fellow (University College, London, 1950-51); DuPont Postdoctoral Fellow (Harvard University, 1951-52); Alfred P. Sloan Research Fellow (1957-61); National Science Foundation Senior Post-doctoral Fellow (Montpellier, France and University College, London, 1958-59).

HARRISON SHULL, Professor (1923). A.B., 1943, Princeton University; Ph.D., 1948, University of California, Berkeley. Physical Chemistry. Quantum mechanics; theoretical chemistry; application of molecular electronic computers to problems of chemical interest; molecular potential functions and intermolecular interactions.

NRC Postdoctoral Research Fellow (University of Chicago, 1948-9); Assistant Professor (Iowa State College, 1949-54); Guggenheim Fellow (Uppsala, Sweden, 1954-5); Sloan Research Fellow (1956-58); Associate Director of Research (Uppsala Quantum Chemistry Group, Uppsala, Sweden, 1958-9); Director, Research Computing Center (Indiana University, 1959 -).

C. B. P. E.

DEPARTMENT OF CHEMISTRY

INDIANA UNIVERSITY

BLOOMINGTON, INDIANA

BRASILIA PROJECT

March 10, 1961

C. B. P. E.

BRASILIA PROJECT

The basic idea of this project is to help establish at the new University of Brasilia a first-class Department of Chemistry. A group of chemists from Indiana University would go to Brasilia to work there in the new Department. At the same time, they would retain their association with the Department at Indiana. Thus a sort of integration of the two departments is proposed, which will be advantageous to both. It is anticipated that ten years of joint efforts may be required to establish the Department at Brasilia as one of the recognized world centers of chemical teaching and research. We believe that in the large population of Brazil there will be found each year a group of students who will be of the highest intellectual capabilities, and it will be our aim to produce from this group of students future world leaders in the science of chemistry.

We suggest that the first efforts in Brasilia be devoted to the establishment of graduate work in Chemistry. After research and advanced courses are in progress, attention would be turned to the development of the undergraduate program.

The idea of such a project has been received with enthusiasm by a committee of Brazilian scientists who are planning the new University of Brasilia. The project also has received the enthusiastic backing of the administration of Indiana University. President Herman B. Wells has promised to help us in every way possible to bring the idea to a successful realization.

Some of the Indiana University group plan to visit Brazil in June, 1961, in order to consult with the Brazilian scientists and educators, and to gain at first hand information needed to draw up definite proposals for the project.

MEMBERS OF INDIANA UNIVERSITY GROUP

RUSSELL A. BONHAM, Assistant Professor (1931). B. A., 1954, Whittier College; Ph.D., 1958, Iowa State University. Physical Chemistry. Accurate determination of the structure of molecules by electron diffraction investigated by inelastic scattering of electrons from atoms and molecules; quantum mechanical calculations of electron scattering from atoms and molecules.

Instructor of Chemistry, (Indiana University, 1958-60); National Academy of Science, National Research Council, Postdoctoral Fellow (U.S. Naval Research Laboratory, 1960); Assistant Professor (Indiana University, 1960).

HENRY R. MAHLER, Professor (1921). A.B. (Honors), 1943, Swarthmore College; Ph.D., 1948, University of California, Berkeley. Biochemistry. Enzymology; mechanisms of enzyme-catalyzed reactions; metal-enzymes and enzyme models; biochemical bases of differentiation and development; bacteriophage reproduction in cell-free systems; interrelations between proteins and nucleic acids.

Senior Chemist (Texas Research Foundation, 1948-49); Research Associate (University of Wisconsin, 1949-51); Assistant Professor (Enzyme Institute of Wisconsin, 1951-55); Traveling Fellow, National Science Foundation (1955); Special Fellow, Rockfeller Foundation (1957); Visiting Professor (University of Sao Paulo, 1957); Visiting Investigator (Marine Biological Laboratory, Woods Hole, 1960).

WALTER L. MEYER, Assistant Professor (1931). B.S., 1953, M.S., 1955, Ph.D., 1957, University of Michigan. Organic Chemistry. Synthesis of steroids, alkaloids, terpenes, and related compounds; stereochemistry; stereoselectivity of organic reactions.

Research Associate (University of Michigan, 1957); Instructor of Chemistry (University of Michigan, 1957); National Science Foundation Postdoctoral Fellow (University of Wisconsin, 1957-58); Instructor of Chemistry (Indiana University, 1958-60); Assistant Professor of Chemistry (Indiana University, 1960).

WALTER J. MOORE, Professor (1918). B.Sc., 1937, New York University; Ph.D., 1940, Princeton University. Physical Chemistry. Diffusion in inorganic crystals; interaction of ionic beams with solid surfaces; reactions of gaseous ions.

National Research Fellow (California Institute of Technology,1940-41); Guggenheim and Fulbright Fellow (University of Bristol, 1950-51); National Science Research Fellow (University of Paris, 1958-59); Visiting Professor (Harvard University, 1960).

RILEY SCHAEFFER, Associate Professor (1927). B.S., 1946, Ph.D.,1949, University of Chicago. Inorganic Chemistry. Chemistry of nonmetals; hydrides of boron and silicon; structural inorganic chemistry; mechanisms of reactions; stable isotopes, chemistry at high pressures.

Research chemist (University of Chicago, 1949-52); Assistant Professor (Iowa State College, 1952-56); Associate Professor (Iowa State College, 1956-58); Associate Professor (Indiana University, 1958).

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Fulbright Fellow (University College, London, 1950-51); DuPont Postdoctoral Fellow (Harvard University, 1951-52); Alfred P. Sloan Research Fellow (1957-61); National Science Foundation Senior Postdoctoral Fellow (Montpellier, France and University College, London, 1958-59).

HARRISON SHULL, Professor (1923). A.B., 1943, Princeton University; Ph.D., 1948, University of California, Berkeley. Physical Chemistry. Quantum mechanics; theoretical chemistry; application of molecular electronic computers to problems of chemical interest; molecular potential functions and intermolecular interactions.

NRC Postdoctoral Research Fellow (University of Chicago, 1948-9); Assistant Professor (Iowa State College, 1949-54); Guggenheim Fellow (Uppsala, Sweden, 1954-5); Sloan Research Fellow (1956-58); Associate Director of Research (Uppsala Quantum Chemistry Group, Uppsala, Sweden, 1958-9); Director, Research Computing Center (Indiana University, 1959 -).

C. B. P. E.

DEPARTMENT OF CHEMISTRY, UNIVERSITY OF BRASILIA

PRELIMINARY ESTIMATE OF BUDGET

1. LABORATORY BUILDING AND EQUIPMENT

   A. Building - Gross Area 150,000 square feet

1 Lecture Room	1000	Offices
1 Lecture Room	250	Teaching Laboratories
3 Class Rooms	100	Research Laboratories
2 Class Rooms	50	Machine Shop
1 Common Room		Glassblowing Shop
2 Seminar Rooms		Stock Rooms
1 Library		Storage Space

   B. Special Equipment for Teaching and Research - Estimated cost $1,500,000

Major Items:	X-Ray Diffraction
Mass Spectrometer	Ultracentifuge
Electron Microscope	Radiochemical Equipment
NMR Spectrometer	Liquid Nitrogen Plant
EPR Spectrometer	Office equipment: duplicating
IR and UV Spectrometers	
Liquid Helium Cryostat	

   C. Library 10,000 volumes - Initial cost, $100,000; Annual budget, $10,000
   (Actually a central scientific library should be provided, probably in a separate building.)

   D. Computing Center (Jointly with other departments)

   I.B.M. 7090 Computer
   Estimated cost of equipment - $1,000,000

2. FACULTY - Annual Salary Budget, $370,000

   6 Professors: Theoretical Chemistry
   Physical Chemistry
   Inorganic Chemistry
   Biochemistry
   Organic Chemistry
   Physical Organic Chemistry

   2 Visiting Professors
   3 Associate Professors
   3 Assistant Professors
   8 Instructors
   1 Director of the Laboratory
   1 Librarian
   12 Research associates (postdoctoral)

3. NON-ACADEMIC STAFF - Salary budget $180,000

1 Machinist and Instrument maker
2 Machinists
1 Glassblower
2 Analysts
1 Electronics Technician
2 Instrument Technicians
10 Laboratory Technicians
12 Secretaries
1 Assistant Librarian
6 Stock room clerks
6 Custodians (janitors)

4. GRADUATE STUDENTS

Ultimately 60 graduate students stydying toward M.S. and Ph.D. degrees. Fellowships, research and teaching assistantships will need to be provided for support of graduate students. Average cost $2,500 per year; or $50,000.

5. UNDERGRADUATE STUDENTS

Scholarships for 100 students at $1000 per year; or $100,000.

6. OPERATING BUDGET

Repairs and depreciation 3%	$ 120,000
Supplies	500,000
Power, fuel, communications, travel	100,000
Administrative overhead	100,000
	$ 520,000

NOTES:

1. All costs are based on current prices in the United States, with no adjustments made for special conditions in Brasilia.

2. No estimate of building cost is given. United States cost would be about $3,500,000 with standard laboratory facilities.

C. B. P. E.

INDIANA UNIVERSITY

DEPARTMENT OF CHEMISTRY

A PROPOSAL

TO IMPROVE CHEMICAL EDUCATION AND CHEMICAL RESEARCH IN BRAZIL

Proposed Discussions with Representatives of Brazilian Science, Education and Government during Month of June, 1961

25 March 1961

A. The Special Need for Development of Advanced Chemical Education and Research in Brazil

Several different groups have recently visited scientific institutions in South America. It seems clear that the countries now most advanced and most prepared for further rapid advancement are Brazil and Argentina. Close attention has been given to both countries by Dr. C. V. Kidd, Associate Director of the National Institute of Health, and to Brazil by a committee of the National Academy of Sciences at the request of the International Cooperation Administration. This committee was headed by Dr. Oliver C. Carmichael. Consideration of the results of such surveys leads us to believe that a project of the type proposed here would be best suited for Brazil and indeed may confidently be expected to make a valuable contribution to the scientific life of that country.

The scientific life of a country should be examined as an organic whole. To attract young students to fields of science a sound secondary education by well informed teachers is essential. In turn good teachers can be trained only in universities with good facilities and outstanding faculties. In science, outstanding university faculty members must be dedicated to basic research if they are to keep in touch with the rapid pace of development of science in the modern world. The essence of science is in the living knowledge which is being gained every day in its research laboratories. Thus in the universities advanced graduate training and well developed programs of basic research are of prime importance.

The difficulty now appears that the development of institutions capable of offering such training presupposes, in general, a well developed supply of well trained teachers of high quality must be assured if consistent progress is to be made. Such teachers will be available in general only where outstanding graduate education is offered.

3. Brazil is fortunate in having a number of outstanding mathematicians of world wide reputation who, with encouragement

and assistance, are capable of fostering substantial advancements in this discipline. Effective undergraduate instruction in physics may be found at several centers and in general the quality of research in physics in the country as a whole has advanced markedly in recent years.

When one turns to the area of chemistry one finds that effective research is at a much less advanced level. (We must state that a definite exception to this is the research in biochemistry, frequently found at an excellent level, especially in connection with some of the medical schools.)

4. The committee of the National Academy of Sciences has pointed out that Brazil with its extensive natural resources requires an equally extensive chemical industry. At present it is unlikely that such industry can develop rapidly in the absence of effective opportunities for graduate work and research in chemistry. Although chemistry would provide the most direct bridge between the relatively well developed areas of biochemistry on the one hand, and mathematics and physics on the other, at present the work in progress is not as effective as it should be in this respect.

5. Thus, at present, Brazilian chemistry is caught in a situation in which inadequately developed graduate training results in undergraduate training which is less than satisfactory, and this in turn leads to the sustenance of only limited facilities for the graduate research and training. The situation might be changed rapidly by the kind of cooperative effort we are suggesting. Our proposal contains a rather new approach for solving the problem.

C. The Development of the Indiana University Project

During the summer of 1960 members of the Department of Chemistry at Indiana University met together several times to discuss the world political situation and the need for individual

action by citizens of the United States to help achieve peaceful cooperation in world affairs. Out of these discussions came the realization that by working as a group we might be able to contribute in a quite important way to help the development of chemical science in other countries of the world. The situation in South America seemed particularly hopeful, and the nation which appeared to be most important in this area was Brazil. Thus arose the concept that working together as a Department of Chemistry we might contribute to the development of chemistry in Brazil and thus indirectly to its future development in all of South America. Further investigation revealed that graduate work in chemistry in Brazil was at a formative stage of development, so that any effort there might prove to be especially important and significant for the future. Undergraduate studies in science at about 18 Bra - zilian universities are at a relatively advanced stage, but facilities do not yet exist for graduate study and research in chemistry of the kind we have at Indiana, California, or M.I.T.

We should like to help establish in a Brazilian university a first class Department of Chemistry, designed to train students for the Ph.D. degree or its equivalent, and to inculcate an understanding of the spirit and techniques of modern chemical research. Such a department would provide skilled teachers for advanced work in other colleges and universities in South America, scientists able to initiate research and development projects in chemical industry in Brazil, and chemists skilled in research work for hospitals, agricultural experiment stations, and government laboratories devoted to national defense, testing and standards, atomic energy and other fields.

Our concept is to establish in Brazil a complete Department of Chemistry, beginning at the graduate (Ph.D. studies) level. For a period of about ten years this Department would be integrated closely with the Department of Chemistry at Indiana University. The idea, in brief, is to have <u>one department in two places</u>. Gradually, as Brazilian chemists are attracted to the new department

and as the training of the young Brazilian chemists proceeds, more and more positions in the department would be assumed by Brazilian chemists. These Brazilian colleagues would also spend some time at Indiana helping with the research and teaching there. At the end of the approximately ten year period (or whatever term should prove to be necessary) we contemplate that the Brazilian branch of the Department would be mostly staffed by Brazilians and the close integration of the two departments could be replaced by some kind of informal continued friendship and collaboration.

The construction of the new capital city of Brasilia and the indication that plans were being made for the establishment of a new university there suggested to us that Brasilia might be a most appropriate site for the foundation of a Department of Chemistry.

In the Fall of 1960 we called this project to the attention of the Brazilian Embassy through Mr. Vasco Mariz, whose interest was suggested by Professor Rostow of M.I.T. We also described the project in a letter to President-elect Kennedy. (It will be recalled that at that time there was a possibility that he would be consulting with President-elect Quadros before their inaugurations.)

Shortly after the inauguration of President Kennedy, we received a telephone call from Dr. Eugene Skolnikoff, a member of the President's scientific advisory staff. He expressed an interest in our project and arranged a meeting with Dr. George Harrar and Dr. Harry Miller at the Rockefeller Foundation in New York. This meeting took place on February 21. At that time we obtained our first objective evaluation of the merits of the proposals. The conclusion was that it would be premature to decide the exact location of such a Chemistry Department in Brazil, but that the concept of a department in two places, one at Indiana and one in Brazil, was a feasible one, and might provide a method for the rapid and effective development of graduate studies and research in chemical science in Brazil.

At this stage, we arranged a discussion on March 9 with the administrative officials at Indiana University. This meeting

was attended by President Herman B. Wells; Talph Collins, Vice-President and Dean of Faculties; Frank Gucker, Dean of the College of Arts and Sciences; Lynne Merritt Associate Dean of the College; and Peter Fraenkel, Assistant to the President. The administration view was that a project of this kind was exactly the sort of con - tribution to the national interest and to peaceful world development that Indiana University could and should undertake. President Wells primised to give the project his personal interest and to support it in every way possible. The development of our concept will necessitate the addition of as many as six or seven new faculty members to the Department at Indiana University in order to make it possible to provide a continual supply of staff during the development of the Brazilian branch of the Department. These faculty members will be chosen as permanent members of the Indiana University faculty and it is our intent that in every case they will be of a quality equal to or better than that of the present departmental faculty.

Following the procedure suggested by Dr. Harrar, we arranged through Dr. Skolnikoff for a group from Indiana to visit Washington, in order to secure information on the interest that government agencies responsible for international cooperation and scientific development might have in such a project. Professors Moore, Schaeffer and Shull spent three days in Washington, March 13 to 15, in such discussions. The following men were consulted:

1. National Science Foundation: Dr. Roe, Dr. Kirner
2. National Institutes of Health: Dr. Kidd, Dr. Cummings, Dr. Grant
3. Department of State: Dr. Whitman, Dr. Sohm, Dr. Kovach (Office of Science Adviser)
4. Department of State: Mr. Wilson (Brazil desk)
5. Department of State: Mr. Vasquez (Bureau of Cultural Affairs)
6. Department of State: Mr. Berman (International Cooperation Administration)
7. Office of American States: Dr. Perkinson, Dr. Davenport, Commander Pontes

8. National Academy of Sciences: Mr. Rude
(Committee on Interamerican Scientific Cooperation)

9. National Academy of Sciences: Dr. Trytten

In every case encouragement was received and the virtually unanimous consensus seemed to be that a project of this kind, although undoubtedly rather expensive, might offer a chance for an unusual kind of cooperation between scientists of Brazil and those of the United States of America. A favorable factor was the fact that Indiana University would provide a coherent group of experienced chemists with diversified specialities, who had the experience of working closely together toward a common aim. There was a general realization that the accomplishment of our plan would have an influence far beyond the single Brazilian Chemistry Department, and could perhaps result in the establishment of a center for chemical research and graduate study available to all the South American countries. It would serve as a dmonstration project for a new kind of intensive cooperation, which could then be extended to other fields. Programs for such projects are under development in Washington at present. In his recent speech President Kennedy emphasized this when he said: "Seventh, all the people of the hemisphere must be allowed to share in the expanding wonders of modern science - .... I invite Latin American scientists to work with us in new projects in fields such as medicine and agriculture, physics and astronomy - to help plan for regional research laboratories in these and other fields - and to strengthen cooperation between American universities and laboratories."

We are confident that the financial means will be forthcoming to implement our proposal if the Brazilian scientists invite us to proceed with it.

D. Proposed Visit to Brazil

A group of five Indiana University chemists is prepared to go to Brazil in June, 1961 for a visit of three to four weeks. During this time we shall discuss our plan with Brazilian scientists, educators, and government officials. From this visit we should hope

to return with the necessary information for a precise and detailed study of the feasibility of our project and a time table for its achievement.

The members of the Chemistry Department who would probably participate in the exploratory visit to Brazil are:

Henry R. Mahler, Professor of Biochemistry

Walter J. Moore, Professor of Physical Chemistry

Riley Schaeffer, Associate Professor of Inorganic Chemistry

V. J. Shiner, Professor of Organic Chemistry

Harrison Shull, Professor of Theoretical Chemistry and Director of Indiana University Research Computing Center

Our plans for a Department of Chemistry in Brazil include a research computing center, with facilities available for university workers in theoretical chemistry, physics, astronomy, social sciences and other disciplines. During our visit to Brazil, Professor Shull will devote special attention to a survey and analysis of presently available scientific computation facilities, and the extent to which they are meeting present and anticipated needs for research work in this field.

This visit will be planned carefully so as to see as many as possible of the responsible members of the Brazilian scientific and educational community. Such personal investigation and detailed discussion will be essential, in order to explore the feasibility of the establishment of the Chemistry Department at the new University of Brasilia. We shall, however, maintain an open mind on the question of other possible sites for the Department. This visit is not considered to be merely a preliminary investigation. We hope that from it there can come a definite plan for the immediate inauguration of the project.

E. Proposed Budget for Visit to Brazil

Airline Fare (Chicago to Rio de Janeiro, 45 Day Excursion)	$ 735.00*
Transportation within United States and Brazil	200.00*
Living Expenses (21 Days at $15.00 per diem)	315.00
TOTAL ESTIMATED EXPENSE PER PERSON ..	$1,250.00
TOTAL ESTIMATED COST FOR FIVE PERSONS	$6,250.00

This proposal is being submitted simultaneously to the Rockefeller Foundation, the National Academy of Sciences, and the National Science Foundation, with the suggestion that the expenses be devided by mutual agreement.

Funds made available for this project should be provided through the National Academy of Sciences (Office of Mr. Rude) which will undertake any administrative and financial details.

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* Transportation costs are estimated. Exact receipts will be presented at end of travel.

C. B. P. E.

INDIANA UNIVERSITY
Box C
Bloomington, Indiana

Department of Chemistry

April 19, 1961

Professor Jacques Danon
Department of Nuclear Chemistry
Centro Brasileiro de Pesquisas Físicas
Av. Wenceslau Braz 71
Rio de Janeiro, Brazil

Dear Professor Danon:

Our discussions with various groups in Washington and New York have now reached the point at which definite plans for a visit to Brazil should be made if we are to proceed further with our project for cooperation with Brazilian chemists in the development of graduate work in Brazil. As you will have seen from the copy of the proposal dated 25 March, 1961, which I sent you, we have considerably broadened our original concept. We cannot at the present time be certain that the proposed program would be best suited to the new university at Brasilia. It might, in fact, be more desirable to initiate the program at some other university, if such a plan seemed more helpful to our Brazilian colleagues.

In any case, if we are to proceed further with our planning, we shall need now your assistance and advice on this and other questions. We should like to visit Brazil in June, 1961, since this is the only time in the immediate future that the members of our group could conveniently leave the country together. Since time is growing quite short to arrange for the visit we should specifically like to have as soon as possible your advice on the following points.

(1) Do you believe that at present the Brazilian scientists would be sufficiently interested in the sort of proposal that we have outlined to devote some time to serious discussions of the project if we were to visit Brazil?

(2) Could you send to me the names and addresses of the various men shom we should visit and talk with in Brazil concerning the development of plans for the new University of Brasilia ?

(3) Would you let me know whether these men would be available for discussions with our group during the month of June?

(4) In order to secure the necessary support from agencies in this country to cover the costs of travel, we should like very much to have formal invitations from you or from whoever now has responsibility for planning the future development of work in chemistry at the University of Brasilia.

C. B. P. E.

(5) We should like to obtain information on the same four points cited above from interested persons at the National School of Chemistry of the University of Brazil in Rio de Janeiro. Professor Ralph Cleland of Indiana University has recommended that we contact his good friend Professor Chagas in the Instituto de Biofisica. We shall write to Professor Chagas but perhaps you could also see him and discuss the plan with him. In other words we need your help in two capacities, in regard to the University of Brasilia but alwo in regard to visiting the proper people at the University of Brazil.

Members of our group would be glad to give a few lectures during our visit on current research problems being carried on in our laboratories at Indiana University. We believe, however, that such lectures should be kept to a small number, since they would necessarily be in English at this time. Naturally, however, we shall be glad to discuss informally our research programs with interested groups of professors and students. I was much interested to read the lecture that you have concerning the history of element 84 as published in the journal "Quimica." This is an excellent journal to be published by a university school of chemistry and all concerned are to be contratulated on it.

We shall look forward to having your advice on the questions proposed here, as well as on any other topics in connection with our suggested visit which you think would be of value.

Yours very truly,

Walter J. Moore
Professor of Physical Chemistry

WJM:mh

INDIANA UNIVERSITY
College of Arts and Sciences
BLOOMINGTON, INDIANA

DEPARTMENT OF CHEMISTRY

August 22, 1961

Dr. Darcy Ribeiro
Centro Brasileiro de Pesquisas Educacionais
Rua Voluntarios da Patria, 107
Rio de Janeiro, Brasil

Dear Dr. Ribeiro:

We have been so busy with research and other duties since our return that important letters to our Brazilian friends have been unduly postponed.

Ernest Wenkert and Harrison Shull wish to join me in expressing to you and to Mrs. Ribeiro our most heartfelt thanks for all your kindness and hospitality during our visit to Brazil. We all believe that evening spent at your home may have marked the beginning of a long collaboration that will help the new generation of Brazilian students to play an important part in the world wide development of chemical sciences.

We were impressed everywhere we went in Brazil by the enthusiasm of the students and their willingness to work hard in order to learn new ideas and techniques. We could not help feeling, however, that traditional methods of instruction were often failing to show the students the importance of originality and independence in their work. The article by you and Dr. Teixeira on the University of Brasilia made somewhat similar points and in fact has struck a most responsive chord with our own beliefs concerning the aims and methods of higher education.

We have discussed at great length the question of the best location for the kind of institute of chemistry we have in mind. We were much impressed by the University of São Paulo, which has come to be considered the Harvard of Brazil. We were convinced that the wise plans outlined by Professor Chagas will eventually create a flourishing scientific center in Rio. We were overwhelmed by the warmth of our reception in Belo Horizonte and by the excellent progress that is being made there under the exceptionally capable leadership of Dr. Carvalho. Each of these three centers could, under suitable circumstances, become a good location for the cooperative effort with the Brazilian chemists that we had in mind. It was therefore with some reluctance that we finally decided that our original idea that we should work with the new University of Brasilia seemed after all to be the most appropriate. You have doubtless seen the excellent letter from Dr. Almir de Castro which summarized the arguments in favor of Brasilia. The logic of his arguments seems irrefutable. We believe that Brasilia will become in a true sense a national university, even an international university. If we can establish the institute of chemistry in Brasilia we should be able to obtain the support of many other universities and to help them all strengthen their own programs.

Therefore, we have decided that the plan of procedure outlined by Dr. Almir de Castro offers the best chance for success in this undertaking. We are now drawing up a proposal for submission to private and government foundations in this country which we hope will obtain for us the financial support necessary for the first two years of the development of the project. During these two years we plan a program of exchange of students, faculty, and research personnel between Indiana and several of the active Brazilian centers of chemical research. The other major activity of this initial period (1962-1963) will be the collection of the chemical library for the University of Brasilia and, of course, the cooperative planning of the chemical laboratory there.

We should be able to send you a preliminary copy of this proposal for study and comment within the next two weeks. It is difficult for us to say whether we shall achieve complete success in our effort to secure the necessary financial support here. Although there is great enthusiasm in Washington and New York for the "Alliance for Progress," it sometimes seems difficult to translate these enthusiastic speeches into concrete actions. We hope that Dr. Danon and Dr. Almir de Castro will be able to visit Indiana soon, so that we can plan together the necessary steps to present our proposals in the most favorable way, in order to secure the necessary support from the scientific community in Brazil and in the U. S. A.

It would be helpful for us to have a copy of the law establishing the University of Brasilia, which we understand is now under study by the Senate. It is still difficult to convince some officials here that the University of Brasilia is developing according to schedule and all the concrete evidence that we can adduce on this point will be most helpful to our case.

We have outlined a program for the next two years which is directed toward the establishment of the Institute of Chemistry in Brasilia but which in itself can be a worthwhile contribution to the development of chemistry in all of Brazil. We are sending a copy of this letter to Dr. Almir de Castro, in lieu of a separate letter to him, since in a sense it is directed to both of you. Thus, we shall look forward to having comments and suggestions from all those who are dedicated to the development of the University of Brasilia.

With every good wish,

Yours sincerely,

Walter J. Moore

Walter J. Moore

WJM:mh

CC: Dr. Almir de Castro