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LATIN-AMERICAN AGRICULTURAL INSTITUTIONS

Preliminary Report of Trip May 8 to July 14, 1947

E. C. Stakman

300 D
Agriculture

COUNTRIES VISITED AND LENGTH OF TIME IN EACH

by J.G.H. and E.C.S.

- I Mexico, May 9, 9:10 AM to May 20, 6:25 AM
- II Guatemala, May 20, 10:45 AM to May 22, 7 AM
- III Honduras, May 22, 9:15 AM to May 23, 9:30 AM
- IV Costa Rica, May 23, 12:20 PM to May 26, 12:20 PM
- V Colombia, May 27, 9:15 AM to June 3, 10:45 AM
- VI Ecuador, June 3, 1 PM to June 5, 1:30 PM
- VII Peru, June 5, 8 PM to June 11, 11 PM
- VIII Chile, June 12, 9 AM to June 16, 4:30 PM
- IX Argentina, June 16, 9 PM to June 24, 9 AM
- X Uruguay, June 24, 11:30 AM to June 28, 9:45 AM
- XI Brazil, June 28, 4:15 PM to July 9, 9:30 pm
- XII Trinidad, July 10, 10:30 AM to July 11, 1:45 PM
- XIII Porto Rico, July 11, 4:45 PM to July 14, 9 AM

SUMMARY BY COUNTRIES

I. MEXICO

A. Institutions visited

- 1--Conferencia, Rockefeller Foundation personnel and Mexican collaborators;
- 2--A. Gonzales Gallardo and Lucas, re sugar cane project supported by Bank of Mexico;
- 3--National School of Agriculture and R. F. Experiment Station, Chapingo; 4--Fields, Actopan to Tula; 5--Secretary of Agriculture and Subsecretary of Agriculture;
- 6--R. F. and commissioned personnel.

B. Comments and conclusions

The obvious evidence of progress in the production of better varieties of crop plants is gratifying. The activities also of the Mexican personnel who have returned from fellowships in the United States indicate that their training has been worthwhile. There is a general improvement in tone of virtually all Mexican agricultural agencies that are associated with the Rockefeller project. A notable and discouraging exception is the difficulty of getting one of the units of the Mexican Department to do anything. This is because of the unfortunate attempt to transform a good scientist into an administrator, although he has no administrative ability.

The establishment of the corn commission more or less unilaterally is of course disappointing, particularly in view of the character of some of the members. Whether they will attempt to profit unduly from their position and whether they will try to dominate virtually all agricultural work in order to benefit personally remains to be seen. It is clear, however, that in dealing with Latin-American countries it is always wisest to establish policies before personalities become involved.

Another development which is not entirely unexpected but which causes some apprehension is the tendency of some of the young Mexicans to expect too much in the way of emoluments and special privileges. In a previous report it was pointed out that the greatest difficulty in Mexico probably was not intellectual development but rather in moral development. The tendency of some of the young Mexicans to mix unduly their professional and personal undertakings and their unreasonable expectations with respect to financial help must tax the patience and diplomatic skill of even the most altruistically minded individual.

In balancing accomplishments against discouragements in Mexico, the balance is strongly in favor of accomplishments. The program is still progressing, better in many respects than could have been expected.

II. GUATEMALA

A. Institutions visited

1--Escuela Nacional de Agricultura; 2--Instituto Agropecuario Nacional (Cooperation with U. S. Office of Foreign Agricultural Relations); 3--Field demonstration plots of Extension Service of Guatemalan Department of Agriculture; 4-- Fields of "Corn Bank" project of Iowa State College; 5--Farms near Guatemala City; 6--Secretary of Agriculture, Francisco Valdes Calderon, and Subsecretary of Agriculture, Conrado Tercero.

B. Comments and conclusions

There are some gratifying features in Guatemala.

The attitude of the Secretary and Subsecretary of Agriculture, both of whom have good concepts and considerable vision and realize the need for improvement, is refreshing.

The National School of Agriculture, a vocational school which attains to the junior college level, apparently is functioning well. There are about 180 students, 120 of whom are subsidized by the Government; there are good opportunities for experimental work in the field but some of the laboratories are poorly equipped; and there is some evidence of attempts on the part of some of the faculty to get rid of the Director, Albert Muller, an American, who is paid by the United Fruit Company. Whether this is any more serious than the internal politics in some American schools could not be ascertained in a short visit. Unfortunately only 10 to 15 percent of the graduates of the school go back to farms. A few go into Government service and a few to the United Fruit Company; many of the remainder go into non-agricultural occupations.

The Instituto Agropecuario Nacional is an experiment station organized and maintained cooperatively by the U. S. Office of Foreign Agricultural Relations and the Guatemalan government. The key personnel, comprising 7 individuals at the time of our visit, is American. They were assisted by about 40 Guatemalans, paid by the Guatemalan government. The Guatemalan Congress has legally established the experiment

station. There are some good laboratories in the station and abundant opportunity for field work. Dr. William C. Davis, Director until recently, has resigned and has been replaced by R. C. Lorenz, who has had considerable experience in Latin America and should be able to help the experiment station function properly.

Further evidence of an attempt to improve the agriculture was seen on a visit to an extension project for the renovation of coffee plantations. The Director of Extension, J. Antonio Toruño, formerly worked for the Division of Sugar Plant Investigations of the U. S. Department of Agriculture and seems to have a good concept of the value of demonstrations in extension work. According to Toruño, there are approximately 20 men in the extension service, some of whom are graduates in the National School of Agriculture.

III. HONDURAS

A. Institutions visited

1--Escuela Panamericana de Agricultura, Samarano

B. Comments and conclusions

Only one day was spent in Honduras, for the express purpose of visiting the Escuela Panamericana de Agricultura at Samarano near Tegucigalpa. This is a model vocational school of agriculture, and is exactly the type that is badly needed in a number of Latin American countries, particularly as a first step in agricultural improvement. Dr. Wilson Popenoe, the director, has exceptional talent in many respects, including the management of such a school. There are approximately 160 students between the ages of 17 and 20, supported by the United Fruit Company and coming from 13 countries, mostly from Mexico, Central American and northern South American countries. The very sensible and effective combination of classroom and laboratory work, with practical work in experimental fields, with animals, and with all phases of farm management and operation, is unique--not so much in concept as in its success. The school is supported by the United Fruit Company.

IV. COSTA RICAA. Institutions visited

1--Instituto Interamericano de Ciencias Agriculturas near Turrialba; 2--Rubber Experiment Station, U. S. Department of Agriculture; 3--Embassy of United States (Commercial and Agricultural Attaché)

B. Comments and conclusions

The Inter-American Institute of Agricultural Sciences near Turrialba appears to be beginning to function as was originally intended. The new director, Ralph Allee, has good ideas, appears to be a good administrator, and realizes that the Institute was over-built. The original building was constructed on a rather magnificent scale and seemed designed to create an impression rather than to provide facilities for work. It is now being modified to make it more useful.

The animal husbandry work, with extensive tests of forage plants, control of certain animal insects, the beginnings of animal breeding, and plans for the construction of a model creamery, is progressing well. I

A large amount of interesting and valuable plant material had been collected and given at least preliminary evaluation of suitability for crop-improvement programs.

The Institute is supposed to be supported by contributions from various American countries. Because of disappointment in the receipts, it has been necessary to invite grants from commercial organizations; so there is some danger that the Institute may become merely a collection of industrial fellowships. On the other hand, several good men, such as Elgueta, from Chile, and Wellman, from the U. S. Department of Agriculture, have gone there recently; and there are at least some prospects that the Institute can function effectively in the investigation of agricultural problems and the training of scientists.

The Institute is well located for a study of tropical and subtropical crops but not for those of the temperate zone. It is likely to be most useful, therefore, for those areas that produce tropical crops.

*begin here*V. COLOMBIAA. Institutions visited

1--College of Agriculture, Medellín; 2--School of Mines, Medellín; 3--Agricultural Experiment Station, Medellín; 4--Rio Negro Valley agricultural region, about 30 miles from Medellín; 5--Granja del Departamento de Antioquia; 6--National Director of Agriculture, Eduardo Mejia Velez, Bogota; 7--Instituto de Ciencias Naturales, University City, Bogota; 8--Agricultural Experiment Station, LaPicota, near Bogota; 9--National University of Colombia, University City, Bogota (Gerardo Molina, Rector); 10--Faculty of Veterinary Medicine and Zootecnia, National University; 11--Medical School, National University; 12--Dr. Edward C. Johnson, chairman, U. S. agricultural mission to Colombia; 13--College of Agriculture, Cali; 14--Agricultural Experiment Station, Palmira; 15--Agricultural regions of Cauca Valley, near Cali.

B. Comments and conclusions

There are evidences of progress in Colombia and indications of still greater progress in future. There are, of course, both weak and strong spots. The construction of the University City in Bogota, with some promise of unity of effort, is encouraging. As an example, a chemistry building is being constructed with the idea that it will serve all departments of the University. This is some recognition of the fact that a university should be a federation of schools and colleges rather than a loose confederation of semi-independent faculties.

Although education is said to be fairly ^{free} from politics, the present rector of the University stated that no rector has ever retained office for the full four terms for which he is elected.

It is questionable whether the location of the two faculties of agriculture away from the University, at Medellín and at Cali is entirely wise. Likewise, the establishment of the School of Mines at Medellín is of doubtful wisdom. There would be advantages and economies in giving the work in basic sciences at the University, and then giving the advanced and specialized work at a place like Cali, in close cooperation with the Experiment Station.

The Veterinary School of the University appears to be excellent; moreover, it is gratifying that attempts are being made to have it serve a large region of Central and South America, regardless of political boundaries.

The colleges of agriculture at Medellín and Cali have some virtues and many defects. Better laboratories and more field experimentation are needed--likewise a somewhat more stable faculty.

In the field of biology the taxonomic ideal still dominates too strongly. There is not enough coordination between the experiment stations and the colleges, although steps are being taken to improve the situation.

The United States agricultural committee in Colombia, headed by Dean Edward C. Johnson, of Washington State College, has prepared a very comprehensive plan for the organization of the Colombian Department of Agriculture and is attempting to assist in improving the teaching in the colleges. The final result is problematic and will be awaited with interest.

According to a number of people, including Ciro Molina at Cali, the greatest need in Colombia is a good vocational school of agriculture. The criticism is made that graduates of the colleges of agriculture are not competent to help improve the agriculture of the country. Although this criticism is not entirely justified, it is conspicuously true that a good combination has not yet been made between theory and practice in agriculture. There is the usual complaint that agronomos and veterinarians tend to congregate in the cities rather than to go out into the country where their services are badly needed.

In some respects the greatest promise both for instruction and experimental work is near Cali. There is a good experiment station at Palmira, and the college of agriculture will be moved out to a site near the experiment station, where buildings are now in process of construction. There are possibilities both at Medellín and at Cali, even with present personnel, provided better facilities for laboratory and field work ^{are} made available and provided there is some guidance and stimulation from outside.

Of the three experiment stations visited, the one at Palmira seemed best. The work being done at La Picota near Bogota can be improved. The station near Medellín is newly established and not yet functioning well. At Palmira, considerable good work is in progress, and the new director is intelligent and energetic.

Comments will be made on the Medical School later.

As many of the problems in Colombia are similar to those in Mexico, informal cooperation could be begun with real profit.

Colombia is one of the brighter spots in Latin America.

VI. ECUADOR

A. Institutions visited

1--Department of Agriculture, Ministerio de Economia (Antonio Garcia, Director; Ernesto Molestina, Subdirector); 2--Agricultural Experiment Station, U. S. Office of Foreign Agricultural Relations in cooperation with Ecuador (Lee Hines, Director, and E. Molestina, nominal director); 3--National University (Julio Enrique Paredes, Rector); 4--Experimental plots of Experiment Station near Quito; 5--Experimental plots of Experiment Station near Tambillo; 6--Normal School for rural teachers, near Tambillo; 7--American Embassy.

B. Comments and conclusions

Ecuador is pathetic.

Antonio Garcia, director of the Department of Agriculture, in the Ministry of Economy, studied at Michigan and is intelligent but can do little. Ernesto Molestina, the subdirector, has been in the Department for a number of years and is intelligent and sincere but not forceful.

Salaries for teaching and research are deplorably low. There is no faculty of agriculture in the University, and what work is offered in agriculture and agricultural sciences in the Faculty of Natural Sciences is rather elementary. The old building now being occupied by the University is very poorly equipped and badly overcrowded. Laboratory facilities are extremely meager. There is a plan for a University city, and there is a prospect that better physical facilities may be provided if the

Government ever becomes stable. The vocational school of agriculture at Ambato is said by Americans who have been in Ecuador for some time to be good. Lee Hines, director of the experiment station, maintained cooperatively by the U. S. Office of Foreign Agricultural Relations and the Ecuadorian government, states that he would rather employ graduates of the vocational school than of the University.

The normal school for training rural teachers near Tambillo exemplifies very well what a good director can do for a school. The new director, Alfonso Aulesia, who studied in Germany, was at least trying to clean the school up physically. This school may contribute much to agricultural improvement provided it is possible to get teachers to give the kind of work that rural teachers need. Most of the students are Indians. The spectacle of an Indian girl trying to explain a problem in algebra when it was evident that she had memorized without being capable of comprehending was a conspicuous example of misdirected effort. Concentration on principles of sanitation, home management, and agricultural improvement would seem to be more valuable at this stage of development than some of the subjects now being taught.

There is some possibility that the attitude toward experimental work may be changed by Mr. Hines and his American staff in the experiment station. Experimental plots have been established in the tropical areas of the country, and ^{at} least two places in the Sierra, both near Quito, and one near the normal school alluded to above.

At present, Ecuador needs everything, including a stable government, modernization of the educational system, experimental fields, living wages for teachers and investigators, and a change in many viewpoints.

VII PERUA. Institutions visited

1--College of Agriculture, La Molina; 2--Agricultural Experiment Station, La Molina; 3--Servicio Cooperativo Interamericano de Produccion de Alimentos (John R. Neale, Director); 4--U. S. Embassy (Clarence Boonstra, Agricultural Attaché); 5--Dr. Harland, plant breeding plots, near Lima

B. Comments and conclusions

It is difficult to appraise the situation in Peru except to say that there are good possibilities and some signs of progress. The director of the College of Agriculture at LaMolina, Alberto Leon, has considerable competence, as have several other members of the staff. The annual appropriation of 1,200,000 soles should enable the school to function well. Some new laboratories are being constructed and are as modern as many of those in the United States. There are about 500 students in agriculture and veterinary medicine, about 20 percent of them supported by the Government. Certain members of the faculty who have studied in the United States are at least beginning to give the students some work in the field. The School definitely seems to have improved since the writer last visited it in 1940. Salaries are not entirely adequate, although not as poor as in Ecuador and Chile.

Some of the experimental work is good and some has suffered because of partly hidden conflict between Boza-Barducci, now director of research in the Ministry of Agriculture, and Dr. Harland, the cotton breeder. The Experiment Station at LaMolina has an annual appropriation of 1,000,000 soles derived from an alcohol tax. The director, Cesar Augusto Gailardi, is dissatisfied. There has been considerable political manipulation, and there are some undercurrents of antagonism. Some unjustified claims of accomplishment are being made. Nevertheless, some good work is going on, and there are prospects that it may be still further improved. Salaries have been increased recently but still range from 800 to 1300 soles a month, with 1 sole being equivalent to about 10 cents. It is virtually impossible to live on these salaries, despite the fact that they represent a 30 percent increase over the old salaries. One difficulty seems

to be that some of the best scientists guessed wrong politically and now find their usefulness decreased because of previous political activity and because their scientific honesty is suspected.

John R. Neal, the American director of the Servicio Cooperativo Interamericano de Produccion de Alimentos, has been instrumental in establishing an extension service which he thinks may be permanent. Appropriation for this work, however, ends July 1, 1948. Mr. Neal confirmed the opinion previously formed by the writer that one of the great difficulties in Peru, as in many other Latin-American countries, is the tendency of some of the scientists to gamble for favor with political elements and to make unjustified claims of accomplishment to obtain position. Mr. Neal also questioned specifically the scientific honesty of at least one of the best scientists in agriculture. An indication of the fact that there can be considerable tenure of position for those who devote themselves to science instead of politics is the fact that a number of individuals, such as J. Goudron in Botany, J. Wille in Entomology, and G. Garcia-Rada in Plant Pathology, have held their positions for many years.

Peru is handicapped agriculturally by being split lengthwise by an almost insurmountable mountain barrier. The population is principally in the coastal strip, and some of the potentially richest agricultural lands are in the tropics east of the Andes. A good example of misdirected effort and wasted money is probably the experiment station at Tingo Maria in the tropical area, where the Peruvian and United States governments spent large sums of money with very little prospects of important results.

Despite all of the discouraging features, prospects in Peru are relatively favorable.

It should be possible to establish informal cooperation with the Foundation's program in Mexico to mutual advantage.

VIII CHILEA. Institutions visited

1--Ministry of Agriculture, Santiago (Pedro Castelblanco, Minister, and Humberto Escobar, Director of Agriculture); 2--Facultad de Agronomia, University of Chile; 3--Laboratories of Ministry of Agriculture, Santiago; 4--Agricultural Experiment Station, Paine; 5--Agricultural Experiment Station, Los Andes; 6--Museum of Natural History

B. Comments and conclusions

Recent developments in Chile are tragic. There are several very well-equipped and adequately-manned experiment stations; at least they were adequately manned until recently. Both from the standpoint of field experimentation and laboratory research there were a considerable number of young Chileans, many of them with experience in the United States, with the necessary intelligence and industry to improve agricultural conditions in Chile. The high cost of living and completely inadequate salaries, however, are causing a rapid disintegration of an exceptionally good research organization. The situation is particularly unfortunate because of a legal provision which, according to the Chileans, makes it virtually impossible to increase salaries. Money is available for providing facilities for work but not for paying the workers enough to live on. This situation can be remedied only by the Chilean government itself.

Potentially, Chile is capable of improving agricultural research and education; actually, however, there appears to be deplorable retrogression. The students in Agriculture are so dissatisfied that a committee asked for an interview with Dr. Harrar and me to ask whether we could not use our influence to help improve conditions. Although this need not always be taken too seriously, because many Latin-American students, even when supported by the Government, seem to think they should run the schools they are being paid to attend. This is shown clearly by more or less violent student strikes, which often are due to dissatisfaction about minor matters,

Some of the taxonomic work in the Museum of Natural History is of high grade, but it is symptomatic of a diseased condition that so good a taxonomist as Carlos Munoz must do three jobs, for one of which he is unsuited (an administrative job), in order to make a living.

IX ARGENTINA

A. Institutions visited

1--Faculty of Agriculture, University of Buenos Aires; 2--Faculty of Veterinary Medicine, University of Buenos Aires; 3--Agricultural Experiment Station, Pergamino; 4--Instituto de Santa Fe; 5--Fifth Technical Conference, five-year plan for corn improvement, at Rafaela; 6--Instituto Fitotecnica and Division de Immunologia Vegetal of the Ministry of Agriculture (laboratories and experimental plots at Castelar); 7--Soils Institute, Ministry of Agriculture, Buenos Aires; 8--Instituto Phytosanitario, Ministry of Agriculture, Buenos Aires; 9--Faculty of Agriculture, University of LaPlata; 10--Agricultural Experiment Station of University of LaPlata, at Santa Catalina; 11--Natural History Museum, LaPlata; 12--Spegazzini Institute, LaPlata; 13--Darwinion, Buenos Aires.

B. Comments and conclusions

Possibly because of the fact that so large a percentage of the population of Argentina is of relatively recent European origin, it differs in many respects from typical Latin-American countries. Many of the institutions seem quite modern. Agricultural research is on a modern conceptual basis.

The effect of the present political situation on the future of agricultural education and research is somewhat problematical. The following, however, seem to be facts. At least some of the scientists who let politics alone were also let alone by politics, at least to a very considerable extent. Some of the good agricultural scientists who were deposed knew what their fate would be if they openly opposed the present regime. Some of the others who were deposed were chronic trouble-makers or were

disliked by many of their colleagues. Some of the potentially good agricultural scientists are so disgusted with the present governmental regime that they prefer not to work under it. Still others are playing politics in the expectation that they will be rewarded if and when the opposition party comes into power. Still another group dislike the present regime but consider it only temporary and think that they can render the best service to their country by continuing their scientific work. Obviously it is this group in whom the hope for the present must lie. Notable examples are most of the members of the Instituto Fitotecnica y Division Immunologia Vegetal of the Ministry of Agriculture (J. Vallega, Director), with laboratories and experimental plots at Castelar, near Buenos Aires. Four of the people in this organization are former students of mine and close personal friends; none of them like the present regime, but they put the interests of the nation above their dislike of the present political regime. Their work is well organized, they are working enthusiastically and effectively, and apparently there is no political interference. The Institute of Soils likewise is functioning well, as is the Agricultural Experiment Station at Pergamino. Experimental work is well supported, new buildings are being constructed, and new experimental plots are being established. Salaries range from 300 to 1300 pesos a month. As is true in many other countries, the cost of living has been increasing greatly, and it is a question whether the salaries will be adequate, although the beginning salary of 300 pesos was said to meet the minimum subsistence requirements of an unmarried person.

Certain organizations have been wrecked, notably the Experiment Station at LaPlata University at Santa Catalina.

Two of the bright spots in biological research, other than those mentioned, are the Darwinion at Buenos Aires, and the Spegazzini Institute at LaPlata. Although the principal activity in both of these institutions is in taxonomy, the work is sound, valuable, and apparently stable.

The instruction in agriculture is not conspicuously better than in most other Latin-American countries, although there are some good young teachers at Buenos Aires and at LaPlata. The Veterinary School at B.A. seems good.

There still is no place in Argentina for advanced education in the general fields of agriculture or the agricultural sciences. It seems probably, however, that a fairly high percentage of the students would put forth consistent effort if given opportunity for additional education after finishing the schools of Argentina, particularly if they can avoid the disturbing effects of politics.

It is worth mentioning that J. Vallega (now head of Instituto Fitotecnica, etc.) has made a regional study of cereal rusts and has rendered important service to Chile, Peru, Uruguay, and Southern Brazil by determining the races of cereal rusts in those countries as a basis for the development of resistant varieties, and by training young scientists in methods of investigating the rusts. After a year of study in the United States, 1938-39, Vallega returned to Argentina with the idea of rendering international service. He has been conspicuously successful. It is suggested that the R.F. might try to promote other regional, international, investigations of this type, especially when problems such as epidemic diseases of plants and regional outbreaks of insects require coordinated effort between several countries.

X. URUGUAY

A. Institutions visited

1--Agricultural Experiment Station, Colonia; 2--Faculty of Agriculture, University, Montevideo; 3--Laboratory of Plant Pathology, Department of Agriculture; 4--Institute of Biology, Montevideo.

B. Comments and conclusions

The experiment station, La Estanzuela, near Colonia, is one of the best in South America. It is, however, a European station rather than a Latin-American one.

The director, Alberto Boerger, was originally German, and some of the best members of his staff have European rather than Latin-American scientific traditions. The Uruguan government, however, deserves much credit for having supported the institution so long and so well.

The faculty of agriculture of the University of Montevideo is of the usual type; there is a 5-year fixed curriculum, few full-time professors, and the laboratories are not all that might be desired. There is an attempt, however, to have the students spend the fifth year on a farm or on an experiment station. Moreover, tuition is free, not only to students from Uruguay but from other countries as well, with the result that a considerable number of students have come from other countries.

Visits to the Institute of Biology and the laboratories of the Ministry of Agriculture resulted in mixed impressions, which will be discussed in greater detail in the complete report.

The attempt to make the Faculty of Agriculture internationally useful is noteworthy. Possibly Uruguay, like Switzerland in Europe, could be helped to greater usefulness because of its position, the avowed desire to develop an internationally useful College of Agriculture, and the excellence of the experiment station.

XI. BRAZIL

A. Institutions visited

1--Instituto Biologico do Sao Paulo; 2--Experimental Station of Instituto Biologico at Campinas; 3--Instituto Agronomico, Secretaria da Agricultura, etc. at Campinas; 4--Veterinary School, Sao Paulo; 5--Forestry Station, near Sao Paulo; 6--Director of Departamento do Producao Vegetal, Sao Paulo; 7--Instituto Oswaldo Cruz, Rio de Janeiro; 8--Escola Nacional de Agronomia; 9--Universidad Rural - Km47, from Rio; 10--Botanical Garden, Rio.

B. Comments and conclusions

In every respect the Instituto Biológico de São Paulo is a fine research institution. The director, Dr. Rocha Lima, is of course quite exceptional. The Institute is thoroughly modern in most respects; there are many outstanding investigators, some imported from abroad, but many from Brazil. Good work is being done also at the Institute's experiment station at Campinas, and there is much good work going on in the Instituto Agronômico of the Secretaria of Agriculture, which is also located near Campinas. Unfortunately, there was not time to visit the agricultural college of the State of São Paulo, but it appears to be of the usual type.

The School of Veterinary Medicine in São Paulo has its good spots and its bad ones. There are a few very enthusiastic investigators with real potentialities. The equipment and facilities, however, are meager.

At Rio de Janeiro the most spectacular development is the building of the so-called rural university, about 47 kilometers from the city. The physical plant will be magnificent. The plan of having the experiment station near the college of agriculture is also sound. Both the director of research and the director of the school seem to have good vision and good sense, but both realize that the beautiful blueprint cannot be implemented without removal of some of the usual obstacles to effective and consistent effort, namely, fixed curricula, poor salaries, shifting personnel, part-time teachers, and detachment of the staff from the institution except during official working hours. Many criticisms could be made of the plan of the physical plant, but there is a possibility of future development.

The Instituto Oswaldo Cruz is of course doing good work. And the Botanical Garden under its present director is very good in most respects. Judging from the ability and character of many of the Brazilian students who have come to the

United States for study in the agricultural sciences, there should be real possibilities for relatively rapid development in Brazil.

As is true of Vallega of Argentina, K. Silberschmidt, an outstanding plant virologist transplanted from Germany, has rendered outstanding international service in South America by assisting other countries to solve their plant-virus problems, both by personal visits and by training young scientists from other countries. The outstanding work of Silberschmidt and others at the Biological Institute of Sao Paulo on the tristeza disease of oranges is an example of the opportunity of helping on an international problem.

XII. TRINIDAD

A. Institutions visited

1--The Imperial College of Tropical Agriculture.

B. Comments and conclusions

Unfortunately, the Imperial College of Tropical Agriculture, which has justly acquired a fine reputation, seems to be at a very low ebb at present.

XIII. PORTO RICO

A. Institutions visited

1--University of San Juan; 2--Experiment Station, San Juan.

B. Comments and conclusions

No present comment.

GENERAL SUMMARY
(Preliminary)

1. Agricultural Education in Latin America suffers under the following handicaps:
 - a. There is not sufficient recognition of the need for distinguishing between vocational and scientific education in agriculture.
 - b. There are not enough good vocational schools.
 - c. The curriculum in virtually all "colleges or faculties" of agriculture is fixed and does not provide opportunity for special interests or needs for specialization.
 - d. There is almost no post-graduate work, badly needed for education agricultural scientists or technologists.
 - e. There is too little combination between theory and practice in colleges of agriculture.
 - f. For the most part, laboratory and field work are poor, because of meager facilities or incompetence of teachers, or both.
 - g. There are too many poorly educated teachers.
 - h. There are too few full-time teachers.
 - i. Teachers are too poorly paid. Teaching in many cases is not a profession but only an extra-professional activity to gain prestige or extra income.
 - j. Politics interfere too much.
 - k. As corollary of some of the above statements, the stimulus of research attitudes and activities by faculty and advanced students is almost wholly lacking. This has an insidious tendency to develop static rather than dynamic concepts in agriculture.
 - l. Students often expect to receive too much and give nothing in return, possibly because of too extensive subsidization and insufficient guidance by teachers who consider that they have performed their full duty by

giving lectures for which they are paid on a piece-work basis. The attitude of "what can I get" instead of "what can I give" is deplorably prevalent among students who often are overpaid while teachers are disgracefully underpaid.

2. Agricultural Research

- a. Agricultural research often suffers from ignorance, indolence, politics, insecurity of tenure, lack of physical facilities, lack of adequate salaries, and an attitude that work in experimental plots is demeaning.
- b. Even where there is interest, ability, and opportunity for research, there is too prevalent a tendency for investigators to become laboratory or herbarium hermits.
- c. Too much of what research is done is done for self-satisfaction rather than for the solution of important problems.
- d. Improvement depends not only on raising the scientific competence of young men of ability, providing them with facilities for work, and paying them decent salaries, but also it depends on broader education and improved social attitudes.

3. The problems in agricultural education and research in Latin America differ less in kind than in degree from those in the U.S.A.
4. The R.F. project in Mexico could render important service to several Central and South American countries by expanding the informal cooperation that already exists with some institutions and individuals in the exchange of information and breeding materials. It is suggested that it would be mutually beneficial if reciprocal personal visits could be made, of long enough duration to avoid the time pressures of too short a visit. It might be desirable and feasible also to stimulate types of regional services such as those alluded to under the sections on Argentina and Brazil in this preliminary report. The possibility

and feasibility of a modest extension of the R.F. Mexican Project into other Latin American countries deserves careful consideration, both as concerns its value to other countries and its effects on the Mexican Program.

(copy to Dr. Bradford
Dr. Wangelsohn
JRH)