REPORT ON THE MEETINGS OF THE IICA-ADMINISTRATIVE COMMITTEE OF THE INTER-AMERICAN INSTITUTE OF AGRICULTURAL SCIENCES

HELD IN TURRIALBA, COSTA RICA
MARCH 8-12, 1951

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Gentlemen of the Board of Directors:

I have the honor to submit herewith the report of the Administrative Committee of the Inter-American Institute of Agricultural Sciences on the meetings held in Turrialba from March 8-12, 1951.

The Committee reviewed the program of work of the Institute, studied the projects and discussed them individually with the respective staff members concerned. With the added responsibilities brought about by the Technical Assistance program and other activities, the Institute is entering upon a more vigorous program of work, which will include greater activity in the three major physiographic zones of the American Continent.

The Committee trusts that the ideas embodied in this report will be of assistance to the Members of the Board in understanding not only the work of the Institute and its problems but the measures that should be taken in the near future to assure its most effective operation. As may be observed from the Committee's recommendation, it is believed that with the Institute's added responsibilities and enlarged program of work it would be advisable to bring the Administrative Committee to its full membership at an early date.

Respectfully submitted,

H. Harold Hume, Chairman
Administrative Committee

PRESENT MEMBERS OF THE ADMINISTRATIVE COMMITTEE (1951)

H. Harold Hume (Chairman of the Committee)
Provost, College of Agriculture (now retired)
University of Florida
Gainesville, Florida

Mariano Montealegre, Director
Instituto de Defensa del Café de Costa Rica
San José, Costa Rica

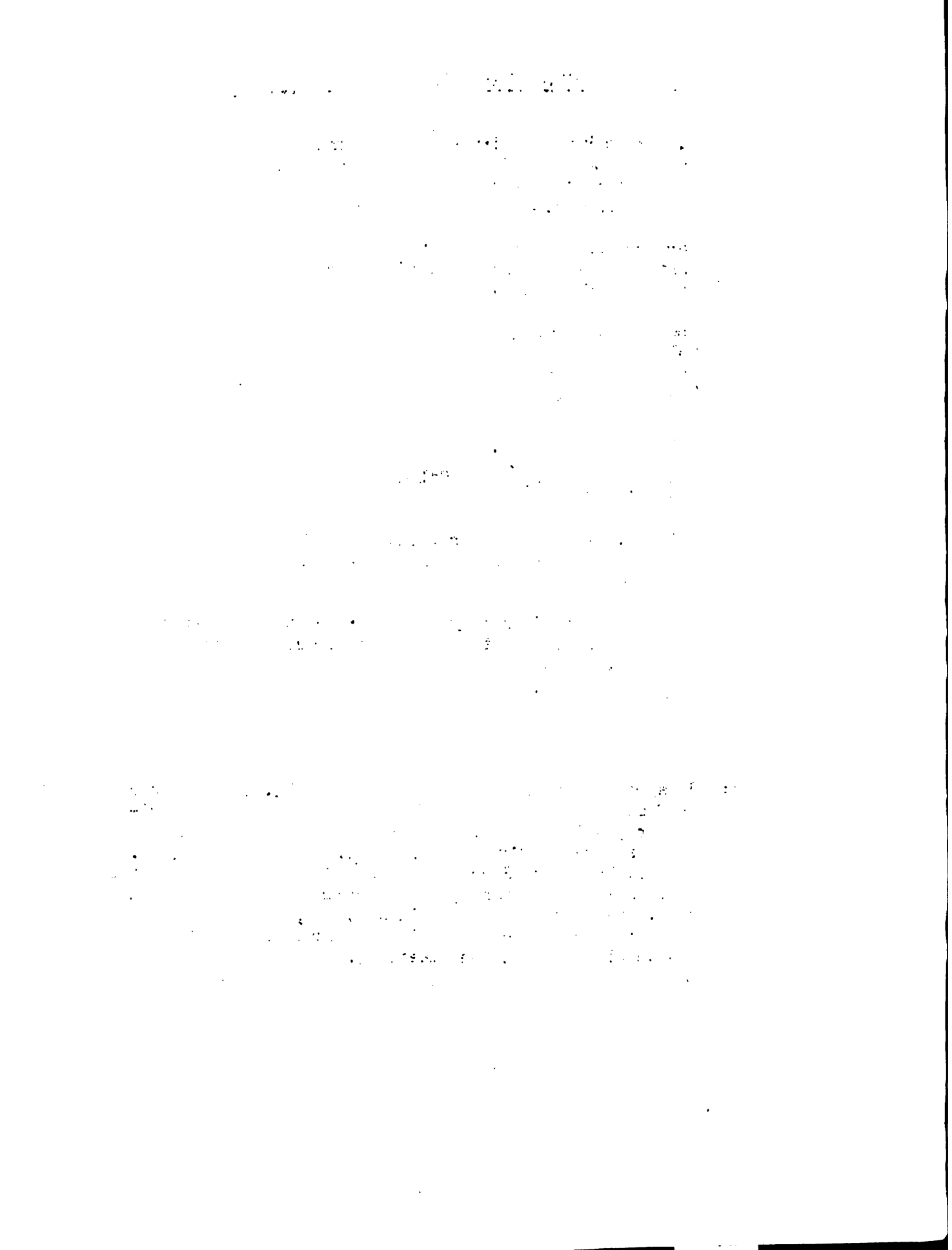
Knowles A. Ryerson, Dean
College of Agriculture
University of California
Davis, California

Carlos Madrid, Decano
Facultad de Agrónomía
Universidad Nacional de Colombia
Medellín, Colombia

Ralph H. Allee, Director (member ex-officio)
Inter-American Institute of Agricultural Sciences
Turrialba, Costa Rica

José L. Colom, Secretary (secretary of the committee)
Inter-American Institute of Agricultural Sciences
Pan American Union
Washington, D. C.

Note: By special invitation of the Director, Dr. H. B. Walker, Professor of Agricultural Engineering, College of Agriculture, University of California, Davis, California, was also present for the March 1951 meetings; Mr. C. M. Pierce, Executive Secretary of the Coordinating Committee on Technical Assistance, Pan American Union, Washington, D. C. was present for certain sessions, as well as regular staff members as indicated in the minutes. Mr. Colom was unable to attend the meetings.



SUMMARY OF DECISICIONS OF THE ADMINISTRATIVE COMMITTEE MARCH 1951 MEETINGS

1. Change in Extension Program

After correspondence with the Committee, it was decided to eliminate the position of Head of the Extension Education Service and place the work under the Head of the Department of Agricultural Economics and Rural Life. Since extension training will now be carried out by the Technical Cooperation Program, the remaining projects on extension methods research can be handled as well without an administration unit for this purpose. The saving to the budget amounts to about $10,000 per year.

2. Temporary Postponement of Engineering Research

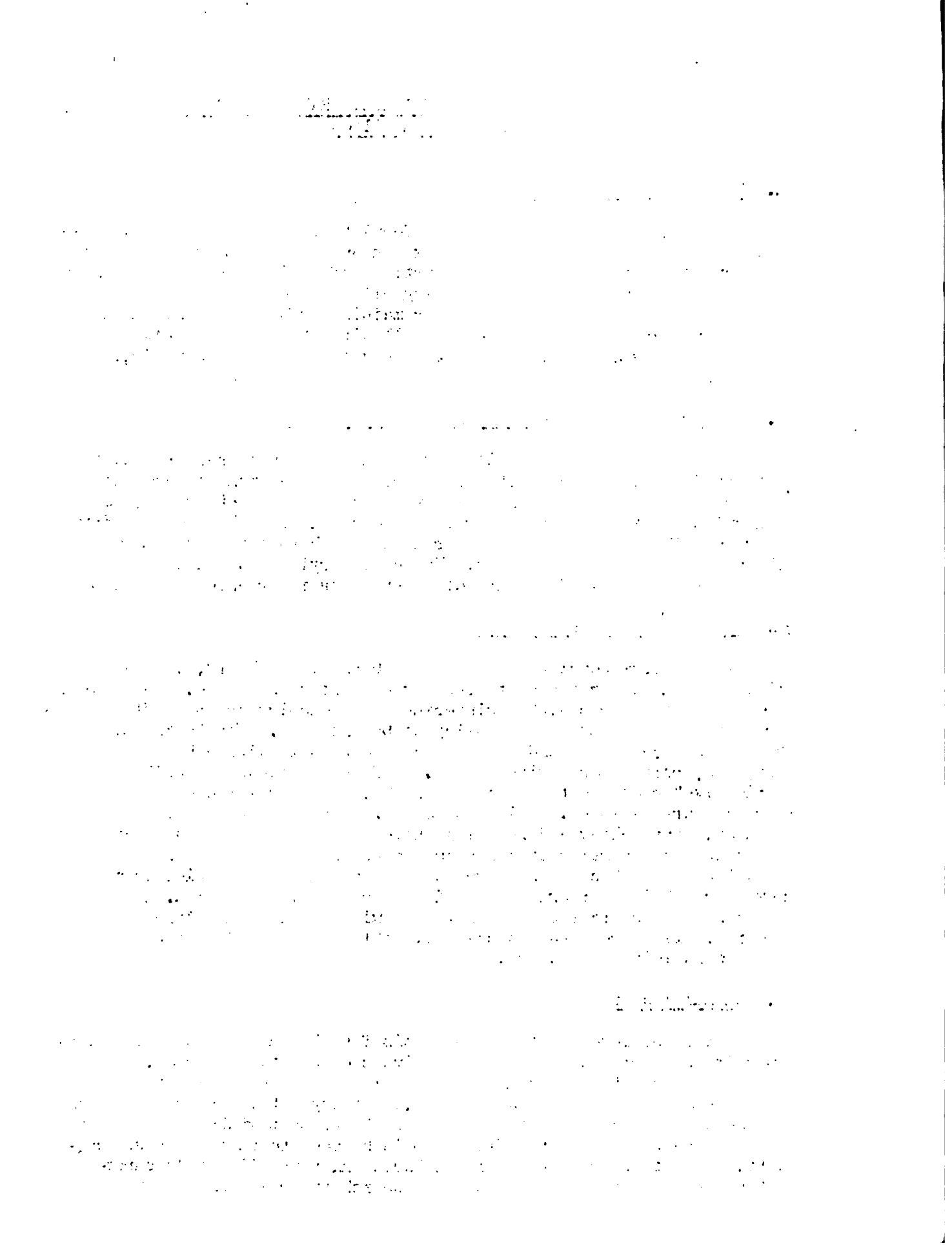
In order to save about $12,000, it has been necessary to put the main project of the Agricultural Engineering Department in abeyance. The Committee desires to emphasize that, as a permanent policy, no agricultural experimental program can be complete without engineering. There should be a related engineering approach to any project upon which the Institute is working. The grain drying and storage and the coffee processing projects are of outstanding importance in themselves.

3. The Plant Industry Program

Our review convinces us that this Department should, in spite of rising costs, be protected to the maximum extent possible. The continuation of efforts with engineering and economics on the coffee project is recommended as a policy to be extended. For instance, the cacao projects should be planned more closely with other similar projects, particularly with coffee. Coffee and cacao are both "primitive" crops in that neither has been greatly influenced by horticultural science. Selection and propagation methods will be similar. Physiology and pathology have much in common. Both have economic and general cultural problems conditioned by comparable situations. Both crops require more extension of activities into member countries through association with material programs. The efforts on both crops can be increased with present facilities if their problems are attacked jointly. This integration will be increased rapidly from now on.

4. Animal Industry

It is believed that main emphasis for the future should be placed on dairying, particularly on the native cow selection program. A necessary complement is the animal climatology study utilizing the new laboratory donated by the King Ranch. Although it is anticipated that the Department may have to operate for the present without replacing the Assistant Head, every effort should be made to advance these projects. All other projects will be placed under the livestock superintendent and receive only minimum research supervision.



5. General Administrative Organization

The organization of the Institute into four main research and teaching departments and the communications and management services has been reviewed. Among other possibilities, we have considered the advisability of placing all research under one head and thus emphasizing specific projects rather than departments. It is obvious that emphasis must always be placed on an optimum number of closely integrated projects thoroughly executed rather than on any attempt to cover all aspects of agriculture and rural life.

The staff of the Institute will continue to study means of achieving the greatest amount of research and training results within the relatively limited funds available. Further consideration will be given to this subject at the next meeting of the Administrative Committee.

6. The Technical Cooperation Project

The Institute has been given responsibility for the agricultural phases of the Technical Cooperation Program of the Organization of American States, with the temporary exception of the "Aftosa" program. This will involve the establishment of field programs throughout the Americas as indicated in the project submitted to the Committee. We make the following recommendations:

a. That this Committee approve the Technical Cooperation Project as presented.

b. That the field program as foreseen be developed as an extension of the established Institute program.

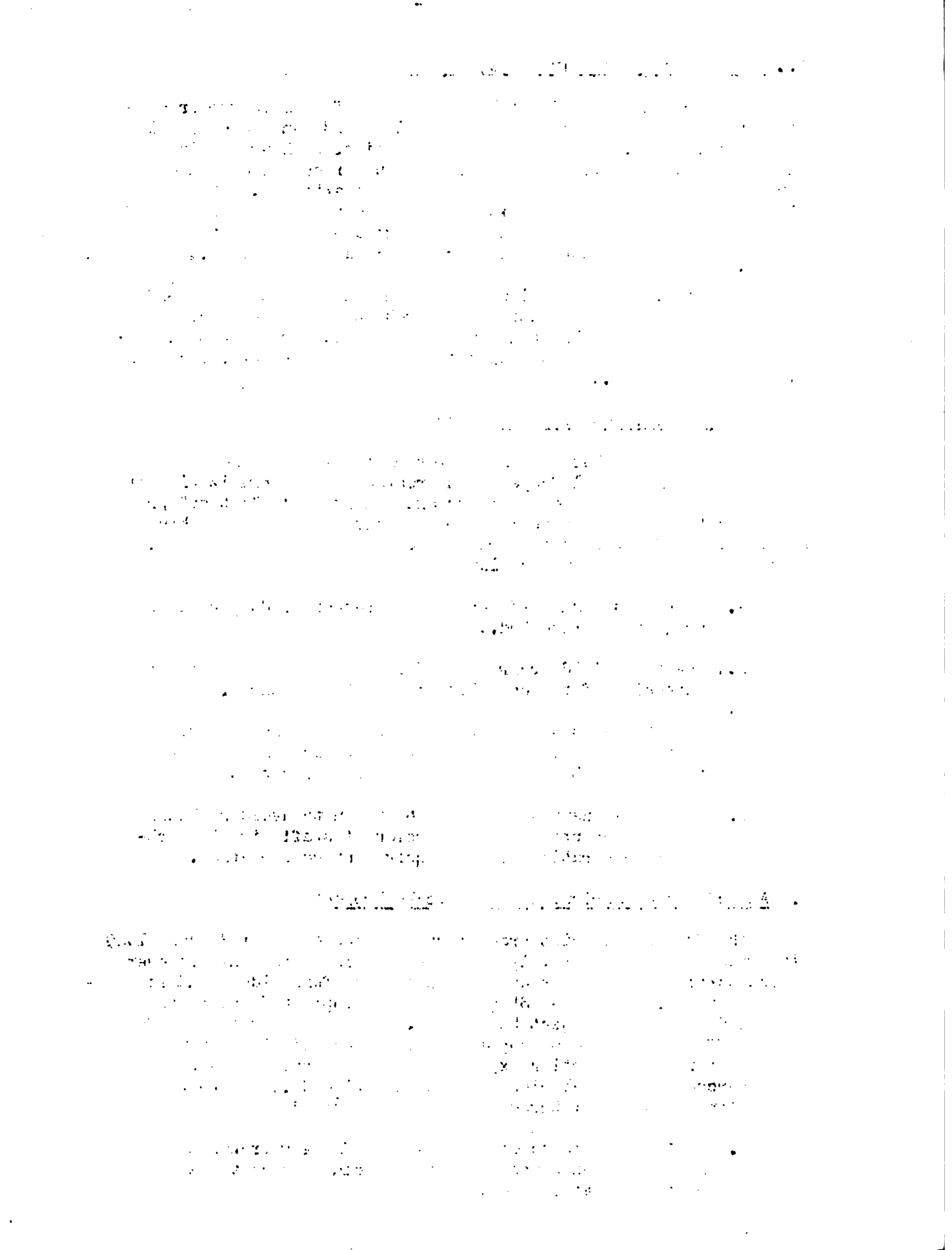
c. That there is an urgent need for strengthening certain phases of the Institute program parallel with the extension of the Technical Cooperation Project.

d. That all measures necessary be taken to avoid weakening the present program by diversion of staff time to Technical Cooperation without equivalent compensation.

7. An Additional Agricultural Chemicals Project

The Esso Fellowships Program was terminated as of 30 June 1949 after two years of relatively interesting work on testing of newer agricultural chemicals for use as herbicides, fungicides, and insecticides in the tropics. The Standard Oil Development Company has now suggested that this project be renewed. In the new project, a full-time staff member would be supplied, plus funds for two graduate assistantships. Supporting expenses would be carried by a payment of 35 percent on all salaries and student stipends. The program is to run for a minimum of three years. We recommend:

a. That the Standard Oil Development Company proposal be accepted when housing provisions can be made and a qualified man located.



b. That this project be integrated to the extent feasible with the existing agricultural chemicals project.

c. That in drawing up the contract, the criteria previously agreed upon by this Committee concerning publication rights, mutual agreement on projects, etc. be followed.

8. The Financial Situation

The Institute is facing rising costs with a relatively static income. Certain measures have been taken to meet this situation, and it is hoped that further reductions in the program will not be required.

Farm income will increase somewhat in future years due to the termination of the management contracts executed in the early days of the Institute. All Institute lands are now in our hands. Certain improvements will be necessary during the coming year, but after that the farm should add some $50,000 per year to the present income. It is also to be expected that the several countries now in the process of ratifying the convention will add to the quota support.

The Committee approves of the plan to give first preference to the accumulation of a reserve, including the elimination of the present deficit. To do this without arbitrary drainage on the program, it will be essential that the present plan of establishing full administrative accounting in Turrialba be completed.

9. Regional Projects in Agriculture and Rural Life

Although many of our relations with United Nations and bilateral programs will be determined by experience, we have a satisfactory preliminary working arrangement with FAO. We keep each other informed and operate jointly with that organization wherever possible. We also keep in close touch with the United States Government agencies and, in general, deal with their field programs through the local governments concerned as if they were national agencies of the countries in which they are located.

Only one point seems to merit special consideration at this time. Whenever a regional program setting up a common service for more than one country is to be developed, we should have the opportunity to determine whether the service can be supplied by an existing phase of the Technical Cooperation Program or by the Institute from its regular program.

10. Committee Membership

Several of the Committee members reach the end of their terms during 1951. Furthermore, the functions of the Committee are even more important than previously. We recommend:

a. That the Board of Directors be requested to consider raising membership to the full complement of seven members.

b. That the established procedure of attempting to include coverage of both geographical areas and subject matter fields be continued with the following suggestions as to new members.

(1) Dr. C. Boaglio, Argentine research administrator

(2) Ing. Claudio A. Volio, Minister of Agriculture in Costa Rica and animal husbandman

(3) Dr. H. B. Walker, University of California, agricultural engineer

(4) Dr. Ross E. Moore, Chief, Technical Collaboration Branch, Office of Foreign Agricultural Relations, United States Department of Agriculture

(5) Dr. Cliff Hardin, Director, Agricultural Experiment Station, Michigan State College, agricultural economist

(6) Dr. H. S. Wolfe, Head, Department of Horticulture, University of Florida, horticulturist

(7) Dr. Wilson Popenoe, Director, Escuela Agrícola Panamericana, Zamorano, Honduras, horticulturist

(8) Dr. Carlos Krug, Director, experiment station, Campinas, Brazil

(9) Dr. Alvaro Barcellos Fagundes, agricultural research administrator, Rio de Janeiro, Brazil

c. One or more additional individuals should be suggested since we cannot hope that all those we suggest will be available. We should also give the Board an opportunity to establish any proportion they may desire in the balance between North Americans and Latin Americans.

11. Next Committee Meeting

It was agreed that the next meeting should be in Washington in October, 1951.

MINUTES OF THE MARCH 1951 MEETINGS OF THE ADMINISTRATIVE COMMITTEE

Although Dr. H. Harold Hume, Chairman of the Committee, had been in Turrialba since 28 February discussing the work of the Institute with the Director and various Department and Service Heads individually, the opening plenary session was not held until 8 March 1951 with the following in attendance:

Dr. H. Harold Hume, (Chairman)
Dr. Carlos Madrid, Member from Colombia
Mr. C. M. Pierce, Executive Secretary, Coordinating Committee on Technical Assistance, Pan American Union, Washington, D.C.
Dr. Ralph H. Allee, Director of the Institute
Mr. Armando Samper, Head, Scientific Communications Service
Mr. Manuel Elgueta, Head, Plant Industry Department
Mr. George M. Slater, Business Manager
Dr. Frederick L. Wellman, Plant Pathologist
Mr. L. Paul Oechsli, American Cocoa Research Institute
Dr. Arthur W. Peterson, Agricultural Economist
Miss Angelina Martínez, Librarian
Mr. Norton C. Ives, Head, Agricultural Engineering Department

Dr. Hume opened the meeting at 8:30, advising that the emphasis of the meeting and of the subsequent report to the Board of Directors would be on project accomplishments since the beginning of the Institute's active existence, which covers a period of five years. Each Department and Service Head was asked to make a brief statement of accomplishments, justifying their existence. The value of our existence, he said, will be measured by what the Institute has accomplished.

PLANT INDUSTRY DEPARTMENT

Nine students were trained in the Department during 1950. The research work was concentrated on a few projects which could be developed most completely. Considerable work was done on plant introductions and the maintenance of plant material, including that left by Joseph L. Fennell. Such crops as sorghums, cowpeas, and peanuts have been evaluated in trials and shitable varieties ascertained for Turrialba conditions. In the herbarium 2,100 numbers were added to the plant collection, a good part of which is now mounted and in order. Work with potatoes has progressed very well. Yields from imported varieties have been three times those of the local potatoes, and they show great tolerance to Phytophthora. Work with tomatoes, peppers, carrots, and onions has also progressed. Considerable work

on vegetables has been done on a finca near Cartago, which was leased for three years and is at a higher altitude. The difficulty there is that irrigation water is needed. With corn, top crosses have produced a sixty percent increase in yields over the check and over mass selection. The Department is trying to develop simple methods of breeding and selection and data on the value of synthetic hybrids is expected with the next crop. Different varieties at different altitudes are being studied, and the aim is toward having a germ plasm pool of the best varieties for each altitude. Some studies have been made on pest control. Treating the soil with Aldrin has been effective against Chrysomelids.

The Department has a very comprehensive coffee program. There is a series of agronomic trials aimed at getting information on plot size, number of trees per plot, shade, pruning, etc. There are four trials under way, two of which are giving very good results. In breeding work, the results obtained in Turrialba exactly duplicate those in Chinchiná, Colombia and in Brazil--the variability of the individual trees is the same. The program of progeny selections aims at getting here at the Institute all the germ plasm that is scattered over coffee-growing areas. The Department is trying to develop some means of evaluating the uniformity of progenies. One student is making a very complete and successful study in vegetative propagation. The goal is to transfer the same material from small plots to the farmers. A small collection of species and varieties has been gathered. Dr. Sylvain, with the help of two students, is doing very interesting physiological studies, which will be correlated with pruning and other studies.

Dr. Hume commented that the Institute coffee program is one of the first widespread studies on coffee. Coffee, he said, is still largely a primitive crop, and the field is wide open for the improvement of production, quality, and financial returns.

Pathological Studies

Dr. Wellman reported briefly on the pathological studies of the Department. The "ojo de gallo" disease of coffee has been attacked, its life history worked out, and control methods developed, which constitute defoliation. In Costa Rica alone, three million dollars a year can be saved by using this method, and the disease exists in all coffee countries. Only one crop is lost, and the next crop makes up for it. When applied, this control can save the Americas millions of quintals of coffee. Also, spraying has been done in the nursery for the control of diseases. Work has been done on the life history of Colletotrichum, and Dr. Wellman hopes to be able to control it within the next few years. The organism is found in the root, fruit, cuttings, and buds.

Rice

Miss Lucy Hastings has progressed very well with her rice studies. Over sixty organisms are attacking rice in this area, and this compares favorably with the findings in the Orient. Helminthosporium has caused famines in India, China, and elsewhere in the Far East

and could do the same thing in Latin America if we don't find a remedy for it. Mis Hastings has been treating the seeds with Arasan and other chemicals. She is also working on Piricularia, the other important rice disease in this area, as well as on methods of testing and evaluating varieties. The treatments worked out have already been applied in several countries.

Entomology

Dr. Viale is doing some interesting work on pests attacking corn, beans, coffee, etc., including the coffee-corn borer and the mealy bugs.

Cacao

The 227-acre La Lola experimental farm has been converted to an area of study on management plus a series of tests. With 100 acres under piped spray and 50 acres under portable spray, we are assured that spray treatment under our conditions is feasible. Publication of recommendations on spray techniques will follow.

Sixteen fungicides are under screening tests, and four have have passed on into field trials. During the latter months of 1950 the emphasis was shifted from training to research, selection, propagation, rehabilitation, and general cultural practice tests are just getting under way.

A new physiologist has been added to the cacao staff, and a horticulturist is under consideration.

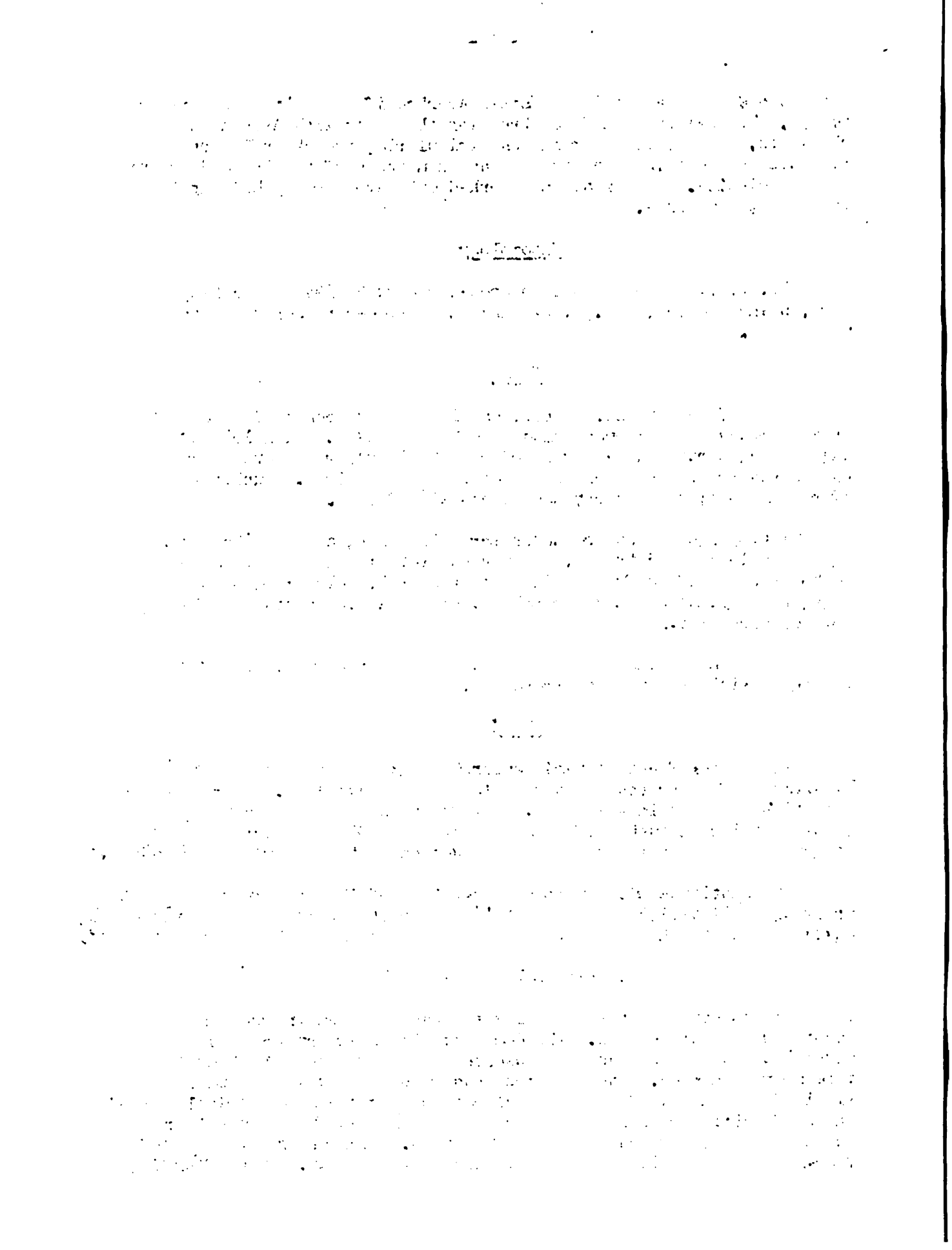
Abacá

The center for the abacá research program of the United States Department of Agriculture has been located at Turrialba. Four research scientists will be in residence. All expenses will be paid by the Bureau of Plant Industry, Soils, and Agricultural Engineering of that Department with funds supplied by the Reconstruction Finance Corporation.

The Institute will supply the services of its laboratories and library and will assist with international aspects of making this project of maximum value to the American countries interested in the growing of abacá.

ANIMAL INDUSTRY DEPARTMENT

We now have 580 acres of improved pastures and are running about 400 head of animals. The demonstration creamery is under commercial operation and has been observed by a large number of visitors from many countries. Pangola grass has proved of value and has been widely distributed. Cacao pod meal has been proven a good animal feed. The beef cattle crossbreeding program and pure Zebu beef project are beginning to produce bulls for distribution. Five are going out this year. By 1954 we will be producing about 35 per year. This project



particularly requires the development of more associated cooperators in member countries similar to those now participating in Costa Rica and Colombia.

The native dairy cow selection program has produced 12 of the 50-cow herd which will be selected from Central America. There are indications that a dairy type can be derived from these already adapted animals.

Tórealo control continues with fogging of pastures added to the spray program. Spraying is becoming increasingly established as a dairy practice even though the residue problem has negated some of the most promising materials. Plans for community control are being made.

AGRICULTURAL ENGINEERING DEPARTMENT

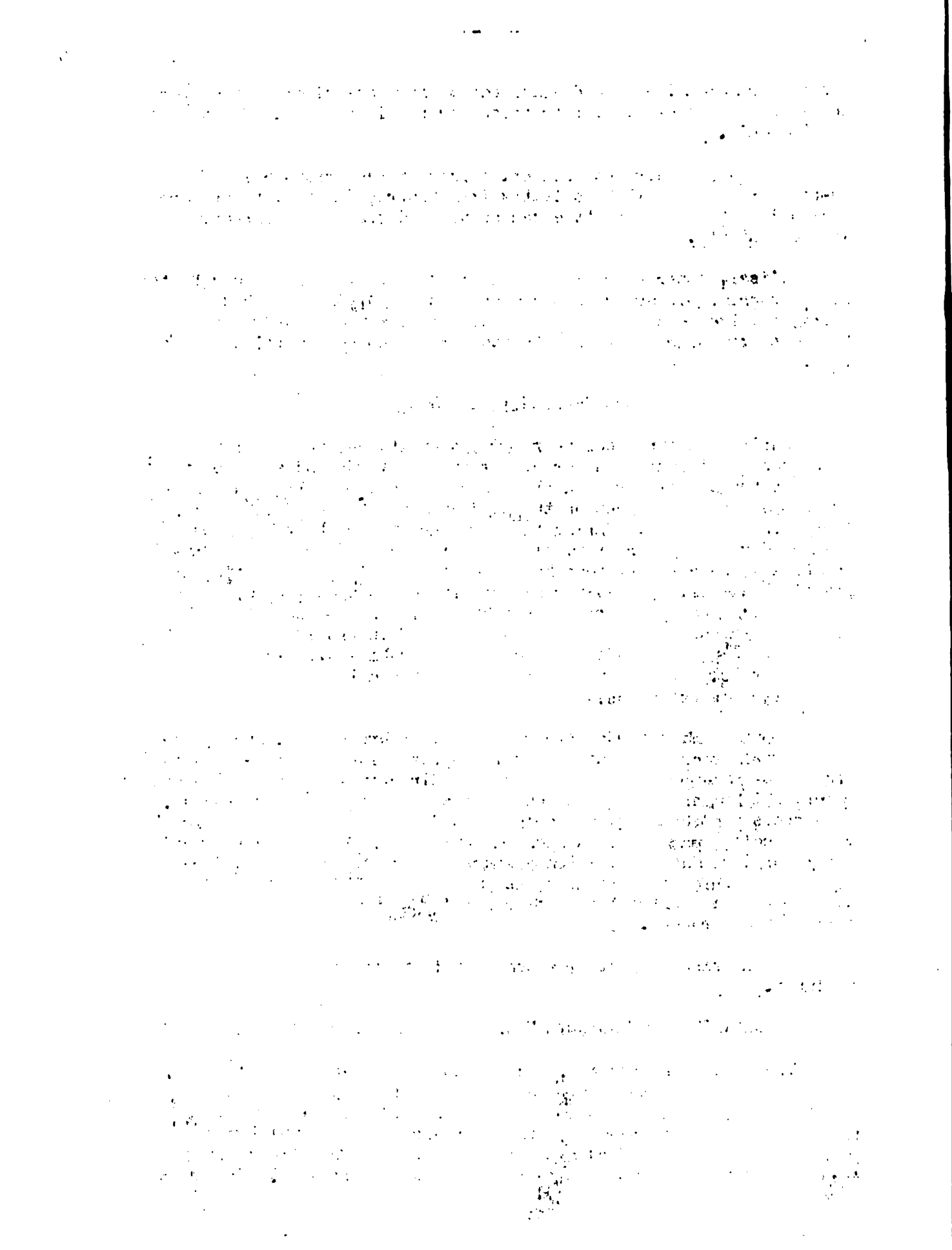
During the first two years of its existence, the Department spent most of its time in surveys of the Institute and services to the Institute. Soil erosion plots were set up, as well as a drainage project and a project on the physical properties of commercial lumber in Costa Rica. During the last three years, emphasis has been on developing for tropical conditions various systems of drying grains. Several systems have been found which, it is felt, are practical and will work under our conditions--sack drier, bin type drier, column batch drier, bin batch drier. The Department has also been measuring the relative humidity of interstitial air between the grains in studies as to their storability. The type of tester developed can be made for eight to ten dollars and is a field type of instrument.

From December, 1949 through January, February, and March, 1950 considerable work was done on a coffee-processing project--the dry-process method--or the drying of coffee directly without the use of water, which means by-passing the fermentation and washing process. No success was obtained when coffee was dried in cherry form; high quality coffee was obtained when the pulp was removed from the bean before drying, but careful temperature control is necessary. The by-product, pulp and pergamino, has been found highly palatable to dairy cattle in contrast to coffee pulp which has gone through the fermentation process.

Engineering projects are temporarily in abeyance due to lack of funds.

DEPARTMENT OF AGRICULTURAL ECONOMICS AND RURAL LIFE

The Department has been working about three-and-a-half years. It is trying to develop a program on the philosophy of attacking the problems of man in connection with the industry of agriculture. There are two major projects. The Turrialba Community Study concerns the conditions of rural families as they affect their health and other conditions which may affect their productivity. The other



project touches on farm management and is a cooperative coffee project carried out here and in Colombia.

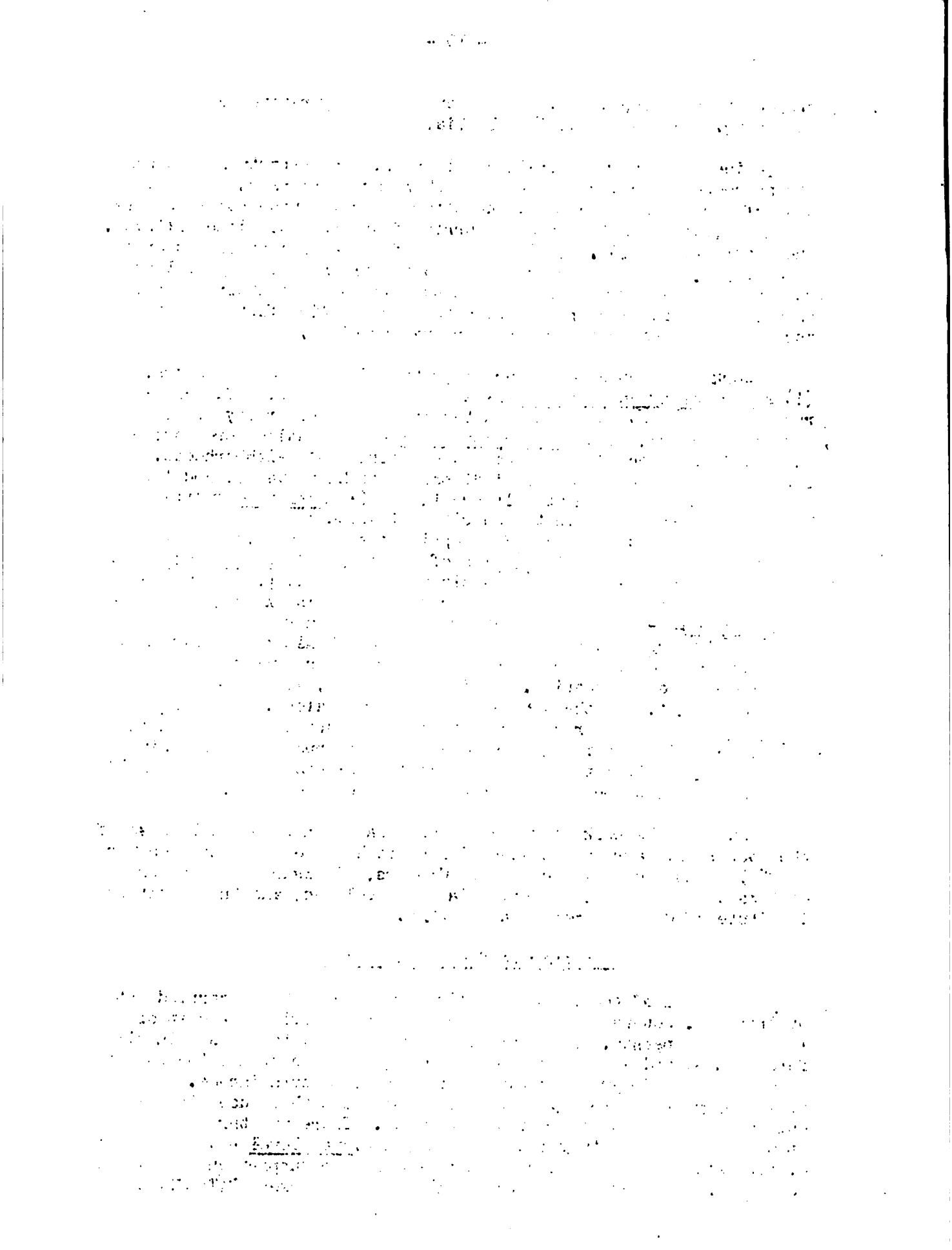
Nine students were trained this year. The Department has some strong cooperative agreements with other institutions which carry some of the financial burden. An effort is being made to bring more of the social sciences into the curricula of Latin American colleges. The translation of Dr. Hopkins' book on farm management is a step in this direction. It is expected that a manual on sociology will be gotten out in a few months in the manuscript stage to help extension agents and rural teachers in using the basic social factors that should guide them in extension and rural problems.

Work has been done on two projects under six main headings: (1) Anthropology and Sociology - A course on the social factors in rural teaching and extension was taught in the University of Costa Rica for six months. (2) Home Economics - Two studies were made on 140 families selected at random and stratified by neighborhoods. Lack of water, lack of means of disposing of human waste, and lack of facilities are the most felt problems. (3) Nutrition - Arrangements have been made with the Nutrition Institute of Central America and Panamá to conduct a survey in April to study the effects of dietary deficiencies on the health of the people. (4) Economic Land Use - It has been found that the old volcanic soils produce three times as much as the recent volcanic soils in this area. (5) Education of People - The Department trained 26 teachers for two months with the financial support of the Costa Rican Ministry of Education. They will go to selected neighborhoods to work on a program combining extension and education. In four areas they will work with the extension agent. In the others they will work alone. (6) Farm Management - The number of farms studied in Costa Rica has been increased from 5 to 15 in the last year, and the number in Colombia from 15 to 30. From the standpoint of cost of production, the yield per man appears to be more important than yield per acre.

Much of the work of the Department has been possible because of the cooperative agreements made with Costa Rican Government agencies, the Colombian Federation of Coffee Growers, Michigan State College, Montana State College, Pennsylvania State College, and the Nutrition Institute of Central America and Panamá.

Economic Land Classification

The goal of the land classification studies being carried out by Arthur W. Peterson is not to increase productivity per unit of land but per person. Land varies in its capacity to be used in different ways, and a land-use study should try to determine the capacity of land to stand various kinds of uses and to return income. The basic objective is to try to test some of the methods used in the United States as to how to study land use. There are three levels at which we should study land use. (1) Regional Level - What density of population does this land have a capacity to support on a regional basis? This is largely related to climate and marketing factors.



The next step is to study land within smaller regions which are largely related because of soil and topography and in relation to the people. (2) Land-Class Level - The coffee region of Costa Rica has a population of less than one per manzana. The newer volcanic soils have the capacity to support better coffee and more per person; in this capacity there is a difference in levels of living. There is a need to study practices within the poorer and better areas. Credit agencies should recognize the capacity of land to support loans. Road construction, electricity and school programs should be related to the capacity of land to support them. The capacity of land to support equipment is highly related to mechanization. (3) Farm Management Level or the experience of human beings with the resources - The higher the capacity of land the wider is the variation in the human beings. Study at this level helps to predict where research will be helpful and where demonstrational research should be directed.

Dr. Peterson said that in the study of the Turrialba area he now has the instruments with which a regional map of Costa Rica and a soil association map can be made, and these will make it possible to go on to economic land classification. He wants to map the differences in people as they relate back to land factors and to find ways and means of using the land better. He is now finding out how to do things and hopes to have students from other countries soon, so the work can be carried out to them.

EXTENSION AND VOCATIONAL EDUCATION

Experimental work has been under way for the past three years on methods of training for individuals with less than university education. Fifteen to twenty students per year and two staff members have been directly concerned, although all the staff has assisted.

In the near future, handbooks will be published on "Training in Extension Methods", "Vocational Training by Projects and Job Analysis", snd on "The Teaching of Natural Science and Mathematics". The results of the work will also be applied throughout the Americas in the Technical Cooperation Program now being initiated.

SCIENTIFIC COMMUNICATIONS SERVICE

During 1950 the main concentration was on the publication of the journal Turrialba. The Service has been assisted in this by the Publications Committee composed of Dr. Allee, Dr. de Alba, Dr. Morales, and Dr. Wellman. Three thousand copies of the first issue were printed, of which 500 were distributed on a complimentary basis to make the journal known. The second issue was also widely distributed on a complimentary basis. Only 2,500 copies were printed of the third issue, and the next issue should indicate how many copies should be printed in the future. There are already 200 paid subscribers and about 100 formal exchanges.

Abstracting Service

The number of abstracts and bibliographic notes in each issue of the journal has been limited to 64. In the first issue, 22 were written by staff members, and in the second 53. The rest come from abstract journals or are abstracted by the Service from other journals. The Service is stimulating the staff of the Institute to prepare more abstracts. The aim is to put before our readers material which is pointedly important to their work.

Photocopying Service

The photocopying service is now operating mainly through the Library of the United States Department of Agriculture. The orders are sent to Washington, and the photocopies are sent directly to the persons concerned. Arrangements for sending them by air mail have not worked out as yet. There is a limit of 50 pages of photocopies. per technician, but if he is seriously working on a specific project, sometimes a few more are sent. The greatest cooperation is obtained from institutions that have active librarians. We are now sending out about 500 per month and the rate is increasing. We feel that the photocopying equipment, for which funds have been offered by the Rockefeller Foundation, is now justified.

Abstract Journals

Since many Latin American institutions do not have access to reference materials, the Scientific Communications Service has placed 153 subscriptions to 21 abstract journals for 22 Latin American institutions. Subscriptions are sent to at least one institution in almost all the countries, the main concentration being on the colleges of agriculture. This project is also being financed by the Rockefeller Foundation.

Farm Management Text

The Farm Management text by Dr. John A. Hopkins is being published in Spanish through a grant made by the State Department of the United States through Science Service. The book is being printed in Mexico and will be distributed from there, except for 25 percent of the volumes, which will be sold from Turrialba. The Service will also help in making the book known. Dr. Morales and others have assisted Dr. Hopkins in adapting his book to conditions in the American countries.

Information Bulletin

Twelve issues of the Spanish edition were published last year on a monthly basis. The Spanish mailing list totaled 922 in December, 1950. Cards were sent out with the October issue, and except for certain institutions, in the future the Bulletin will be sent only to those who reply to the cards. Distribution is increasing at the rate of about 50 per month. The English edition, published at the Pan American Union, has been delayed considerably and will now be published from Turrialba on a quarterly basis until July, after which

it will be published monthly. An air letter contining the material included in the Information Bulletin is now being sent in advance to newspapers in member countries.

Cacao Bulletin

The Cacao Bulletin has been discontinued temporarily since December for lack of funds. Eighty-seven out of ninety replies to a questionnaire favor its continuance.

Other Publications

Three hundred reprints were distributed last year, mostly by the Washington office in the Pan American Union.

LIBRARY

Angelina Martínez reported that the work of the library has increased since the establishment of the Scientific Communications Service. The librarian of the Ministry of Agriculture in San José received some in-service training at the Institute library and then went back to organize the collection in the Ministry. The circulation of the Institute library has increased from 257 in 1946 to 7,414 in 1950. An increased number of questions was answered and a number of lists of references was prepared. The stack room is quite overcrowded, but this situation will soon be remedied when the stacks are moved to the other side of the attic as part of the Rockefeller Foundation financed project. Over 400 journals are received in the library, and about 200 institutions have answered requests for exchanges thus far. The number of journals is being increased and a special effort is being made to obtain pertinent back numbers of important journals.

TRANSFER OF THE EXTENSION EDUCATION SERVICE PROGRAM

Dr. Allee said we have tried to build all our work around plants, animals, engineering, and human relations. There are certain things that cut across these four fundamental units or Departments, and these are called Services. We felt that we should have an Extension Service, so one was developed. Fundamental research was done in the Economics and Rural Life Department, and the two worked very closely together. In December of last year, stimulated by economy and the conviction that the extension program could be handled by the Department of Economics and Rural Life, we decided to eliminate the Extension Service and incorporate its desirable features into the Economics and Rural Life Department, which meant the elimination of a major staff member, Dr. D. Spencer Hatch.

INSTITUTE SERVICES AND THE FINANCIAL SITUATION

Mr. Slater summarized briefly the financial report of the Business Office for the fiscal year 1949-50. If the unsold coffee had been credited to the accounts, our income would have been higher

than the expenditures and higher than expected. Profit on sugar is always over fifty percent. The sugar cane and coffee areas will be increased next year due to the fact that we have taken over the land formerly leased to contractors.

The work of the Business Office increases as the work of the other departments increases. Laborers' wages were increased by the Government from $4.40 to $5.20. Dr. Allee said we have reduced our indebtedness from $76,000 to $54,000. This will be reduced by $15,000 more this year and $7,500 next year. Most of the deficit was a deliberate expenditure. We had a $20,000 debt to begin with and then agreed to spend $25,000 for laboratory equipment. Mr. Pierce commented that international organizations find it practically impossible to operate without a reserve fund because appropriations from legislatures are either uncertain or are delayed. He understood that this Institute operates without a reserve fund and has had to call on the Pan American Union to meet these periods when there is no money in the bank. Dr. Allee and Dr. Hume agreed that the Institute should try to build up a reserve fund.

Dr. Allee commented on the fact that our former auditors charged us $700 a year, whereas Price and Waterhouse, the auditors suggested by the Pan American Union, charged us $3,750 this year. They think we should have a reserve of at least $150,000.

In 1946 Dr. Allee said we had a budget of $165,000; now it appears at $324,000 net. We had some predicted farm income, and what this must do is clear our deficit and build up our reserve within perhaps the next three years. Our only opportunity to increase our spending power is to get more grants or to have increased quotas from countries. Neither prospect seems very good at the present juncture. Grants really add to our burden because we have to put something into them. The Shell Oil Company grant is about the only one on which we will break even. There are a number of countries on the verge of ratifying the Convention, but this has been the case for three years now without a single country ratifying. Some countries are just not interested; some don't have the dollars; and some suffer from inertia. Dr. Allee does, however, think that the Technical Assistance might help us in this direction in some respects because we will have people working in these countries and they will at least know who we are. However, if all the countries except Brazil should ratify the Convention, it would add only another $45,000 to our budget; that is one of the reasons for feeling that we ought to cut down on our basic plant here. The budget estimate will now go to the Finance Committee of the Board, and out of that meeting we will have a report which will be circulated to the staff.

Dr. Allee spoke briefly on the change in our accounting system. Since the Treasurer of the Pan American Union is also the Treasurer of the Institute, the accounts were kept in the Pan American Union. In the beginning this worked out quite well, but it worked less well as time went on and a year ago we started transferring the accounts back to Turrialba. We are now carrying the administrative accounting

here and send the balances up to Washington. December, 1950 was the first time we have had a balance within less than three to five months after the end of a quarter so we could know where we stand.

TECHNICAL ASSISTANCE

The Executive Secretary of the Coordinating Committee on Technical Assistance of the Organization of American States was present at the Institute at the time of the Administrative Committee meetings to advise the Committee on the progress of the Technical Assistance program. This official briefly traced the history of the Technical Assistance program and brought the members up to date on the status of the program.

Dr. Hume stated that Technical Assistance means coordination of all the values that we can lay our hands on, but basically it is an extension program. Mr. Pierce said it is essentially a training job. Dr. Hume said that then perhaps we can bend our efforts in that direction and at the same time carry on our research in the field. He then asked Mr. Pierce to touch briefly upon the Technical Assistance Program as it relates to our Extension Service.

Mr. Pierce stated that if the Institute received approval for one large project there was a likelihood that it would receive approximately $400,000 for the rest of 1951. The purpose of the project is to develop three programs for training in extension methods laid out in the three major climatic regions of the Western Hemisphere--temperate zone, Andean zone, and tropical zone--and to establish headquarters in each of those three regions out of which technicians provided by the Institute would give instruction through demonstration projects or short courses to the countries served, the exact details to be worked out in advance by the official or officials of the Institute responsible for the program in a particular area and with the government concerned. The program is phased in two distinct steps. The first is that the Institute be authorized to appoint a potential head and a small planning staff for each of these program areas for the purpose of these consultations with each government in the area concerned, and after this the specific training programs and the estimated budgets will be submitted to the Coordinating Committee on Technical Assistance for approval and allocation of funds. The Institute's project is in the priority one group. All members of the Council would like to see it go ahead as soon as possible, since the agricultural economic problem is the major one in Latin America.

Dr. Allee made it clear that the second phase constitutes part of the same project and the budget is included in the entire budget as listed for the project. Nobody, he said, has faced up to the problem as to what would happen to the project in the second year should the Council fail to approve it, but he suspects that the 1952 projects will be mostly continuations of the projects begun during the first year. Dr. Walker was of the opinion that a single year of

operation of such a program would be worse than nothing. Dr. Allee said he believed everybody recognizes this. He also noted that any funds left over from a project at the end of a year would revert to CCTA for reallocation.

Dr. Morales asked if the first phase of the program must be completed before the initiation of the second phase. Mr. Pierce said he believed that it must be completed with respect to any one zone, but all three zones would not have to go forth simultaneously. The Council has said that before a project is initiated, the majority of the countries for which it is designed must indicate their approval. However, the Institute project has already been approved by the representatives of the 21 American Republics. One good thing about the program is that, with the exception of funds from the United States, we don't need U. S. dollars from other countries; in fact, we prefer national currency. Dr. Madrid offered the services of his college to the program and indicated that it has the necessary facilities but not the necessary staff to make use of them. Dr. Morales pointed out the advantage of the Technical Assistance program in that a technician can rotate from one institution to another.

Dr. Hume said the Technical Assistance Program has a very large bearing on our planning here, and it means that on our part there must be large emphasis on the research phases of this program in order to make the plan effective. It is directly in line with what our own thinking has been--that the results of research work in agriculture be put into effect most rapidly. This puts us in much better shape in the coordination of efforts than we could ever have expected to be. We must emphasize research in order to make the extension phase the best that we can offer. It requires a change in our approach.

Dr. Walker said that this program releases the subject matter to its end point. The work will be screened through a national group in the countries for which it is intended. Dr. Hume said that this, as he sees it, is an organization of the countries to get the job done. It is a matter of cooperation in the whole field for the advancement of technological knowledge in agriculture. Dr. Walker pointed out that it requires a tie-in between our research institution and research institutions in each country. Dr. Allee said it is a matter of stimulating coordination. Mr. Pierce said he believes this project is a very good complement to the research program of the Institute. The question came up, when the project was being considered, as to whether or not it was desirable to use emergency funds for research. CCTA decided that it was not, but that they could be used for spreading existing knowledge to the people who could use it. The Institute can try to breach the gap in the Technical Assistance field.

The Administrative Committee unanimously approved the responsibility of the Institute for the agricultural phases of the Technical Assistance Program of the Organization of American States with the exception of the "aftosa" program, which was given to the Pan American Sanitary Bureau, but is supposed to revert to this Institute eventual-

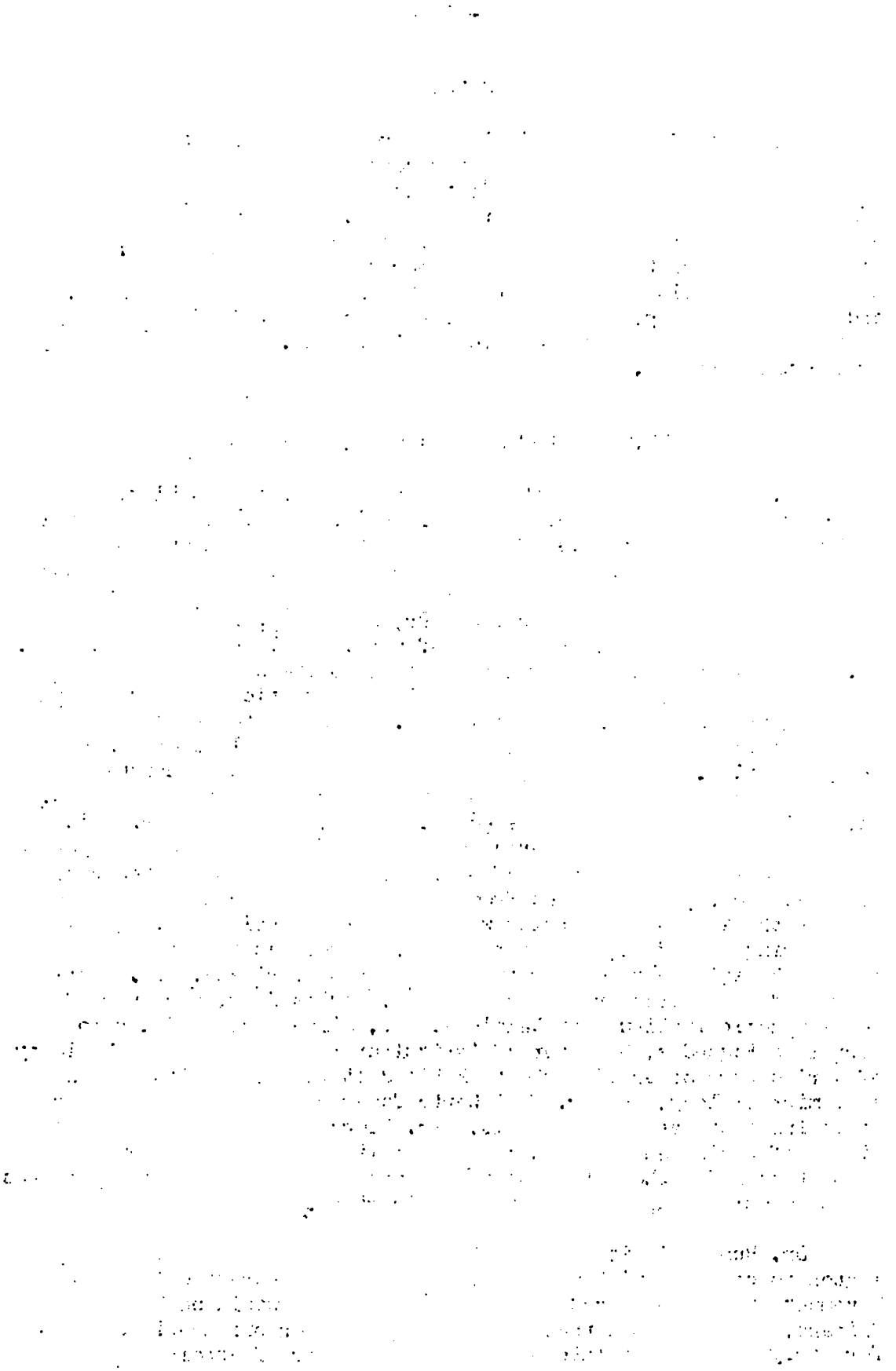
ESSO PROJECT

Dr. Allee discussed briefly the proposal of the Standard Oil Development Company to establish a second Esso Project at the Institute. He thought it a good project and noted that it gives us more administrative funds than the previous one. The Company has in mind a man from Cornell University to be in charge of the project. Initiation of the project would depend on our having housing for him; however, he is willing to come for 5 or 6 months without his family, and later on we hope to get four houses from the United States Department of Agriculture Rubber Station in Turrialba. The Committee approved this project.

COMMITTEE MEMBERSHIP AND NEXT MEETING

Dr. Hume said that with the enlargement of the Institute's undertaking in the field of Technical Assistance, it seems advisable to bring the Administrative Committee up to its full membership. Only four out of the proposed five members were ever appointed, and it has been planned to bring the membership up to seven. The appointments were for four years, but Dr, Hume's appointment was renewed for two more. His six years of service will be up in December. Dr. Hume said consideration must be given to the appointment of at least four new members and indicated that suggestions should be made to the Board as to possible appointees. He suggested that no appointment be refused on the basis of non-signatorial governments to the Convention. We need men, he said, who are not only capable, but who can give attention to details. Ross Moore would be a good man, but he is too busy. He suggested Dr. Walker, but the latter said that, while he would be honored to serve, he believed Knowles Ryerson was a capable representative of California, and the Committee would not need two representatives from that part of the country. Allee did not think this overlapping would matter and said the field of engineering should also be represented, as well as the Far West. We should, he said, have one or two other Latin Americans. Dr. Madrid suggested a man from Brazil, perhaps Dr. Carlos Krug, Director of the Agronomic Institute at Campinas. Dr. Allee suggested Alvaro Barcellos Fagundes, Director of Agricultural Research of the Ministry of Agriculture of Brazil, who took his doctorate at California in soil microbiology, and Dr. Felisberto Camargo, Director of the Agronomic Institute at Belem, Brazil. Mr. Pierce suggested the advisability of having an Uruguayan on the Committee. Dr. Hume thought it best to leave the matter of the number of North and Latin Americans on the Committee up to the Board of Directors.

Dr. Hume said it has been the custom to hold a meeting in Washington to coincide with the meetings of the Land-Grant Colleges in November but he believed the one for this year would be held in Chicago. He suggested that a tentative date for our meeting be set for early November or late October. The matter of appointments



would have to be taken up before that. He suggested that the men mentioned and/or other possible candidates be contacted and asked if they would be willing to serve should they be appointed. Dr. Allee mentioned the fact that for some time the Board has thought that there should be a Mexican on the Committee, but there has never been one who could serve. Mr. Pierce suggested that we propose to the Board that new appointements be made and indicate that we would be glad to make suggestions as to possible candidates if they so desire.

Dr. Allee extended the great appreciation of the Institute to Dr. Hume for his services, both as Chairman of the Committee, and for his long association with the organization before then. All regret that he feels that he cannot remain on the Committee. Dr. Hume said that he has been very much interested in the whole problem of hemispherical solidarity. He believes that every product that may be needed in the Western Hemisphere can be grown somewhere between Alaska and Patagonia. This would give us a stability that we have not enjoyed in this hemisphere because of the terrible upsets that have taken place in various parts of the world. He believes we can do anything here that can be done in the rest of the world.

Dr. Hume suggested Dr. H. S. Wolfe, Head of the Department of Horticulture of the University of Florida as a possible member for the Committee. He is an outstanding individual, as well as a horticulturist related to tropical conditions. Dr. Allee also suggested that we should consider having on the Committee a woman in the field of home economics, but he did not believe there were any outstanding Latin Americans in the field. Dr. Hume said that a representative of that phase of farm life should not be overlooked, and we have to think of the prominence of the person and obtain one who can render real service.

STUDENTS

In the absence of the Registrar, Mr. Fernando del Río, Dr. Morales reported briefly on the student training program. A total of 140 students has been registered since 1946, listed by departments as follows: Plant Industry, 28; Cacao, 41; Agricultural Engineering, 2; Animal Industry, 6; Agricultural Economics, 13; Applied Rural Science, 48; and Library, 2. Seventy-five have received degrees or certificates. Venezuela has sent the most students, 47, followed by the United States with 22, Mexico and Costa Rica with 13 each, and Ecuador with 8. In 1946 there were 9 students; in 1948 and 1949 there were 46; and in 1950 twenty-seven new students were enrolled, but 11 second-year students bring the total number up to 39. An additional number could be trained if funds were available.

Dr. Hume wanted to know what the graduates of the Institute are doing now, and Dr. Allee suggested that the matter be brought up at the next staff meeting to determine where our alumni are and what they are doing. Dr. Morales believed a large proportion of them are working in the fields for which they were trained. The list above does not include short-course students, such as those attending the recent Extension Training Center. The reduction in the number of cacao students and Applied Rural Science students has reduced the total number of enrollments during 1950. Dr. Allee said we could train more students now, and some candidates are under consideration, but they will have to come with their tuition, board and room paid for by their governments, by themselves, or otherwise because of our limited budget.

KELLOGG PROJECT

Dr. Morales explained that the W. K. Kellogg Foundation is primarily interested in health and related fields. Two or three months ago one of their representatives, Dr. Benjamin G. Horning, saw what we were doing in the field of diets here in Turrialba, and an interest developed in the influence of diets on health and the status of people. The Foundation will help us to a limited extent to carry out this study. They would like to have anthropologists go in with their people. The Institute will help them in that field, and they in turn will help us in the field of nutrition. We will take the responsibility in the field of sociology and economics to see how the diets of people can be improved. We are submitting cooperatively with the Institute of Nutrition of Central America and Panama, a proposal for $40,000 or $50,000 to increase personnel in sociology and economics to do this extra job. The project is now being drawn up and will come up for consideration by the Board of the Kellogg Foundation in September.

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Dr. Allee asked Dr. Hume for his suggestions as to activities of the Committee after his departure. Dr. Hume said he would like them to really see the Institute and become thoroughly acquainted with what is going on. He himself was very much pleased with two things. We have, he thought, made definite progress in working our way into the confidence of the people of the American countries whom we are designed to serve. Second, between now and the first time he saw the property of the Institute, he noticed a tremendous improvement in the farm. There is much to be done, but we are on the right track.

Before adjournment at 4:15 p.m., it was suggested that the CCTA be invited to meet jointly with the Administrative Committee in Turrialba sometime.

* * * * *

The Administrative Committee met again at 2:40 p.m. on Friday afternoon, with the following present:

Dr. Ralph H. Allee
Dr. Mariano Montealegre, Member from Costa Rica
Dr. Carlos Madrid, Member from Colombia
Dr. H. B. Walker, Professor of Agricultural Engineering, College of Agriculture, University of California, Davis, California
Dr. C. H. Batchelder, Entomologist, USDA Abacá Program being carried out in Turrialba
Dr. Knowles A. Ryerson, Member from the United States
Prof. Juvenal Valerio, Department of Agricultural Economics and Rural Life

Dr. Allee served as Chairman of the Committee during the rest of its meetings, since Dr. Hume had to depart on the ninth of March.

ABACA PROJECT

Dr. Allee started with a brief explanation of the abacá project being conducted at Turrialba by the United States Department of Agriculture. The question of fibers, he said, has long been of interest to the Board of Directors. The Inter-American Economic and Social Council created a Commission on Fibers several years ago and got Dr. Brittain B. Robinson to make a survey of fibers in Latin America, and he prepared a report on this. At the same time, the United States Government began work on abacá. During the war, it was evident that there were more and more problems on this crop which required research. It was suggested that the Institute might be a reasonable place for the abacá group to center, and an agreement was drawn up and signed with the Bureau of Plant Industry, Soils, and Agricultural Engineering whereby the work would be centered here. The abacá staff members are considered as members of the Institute staff with all the rights and privileges that may exist.

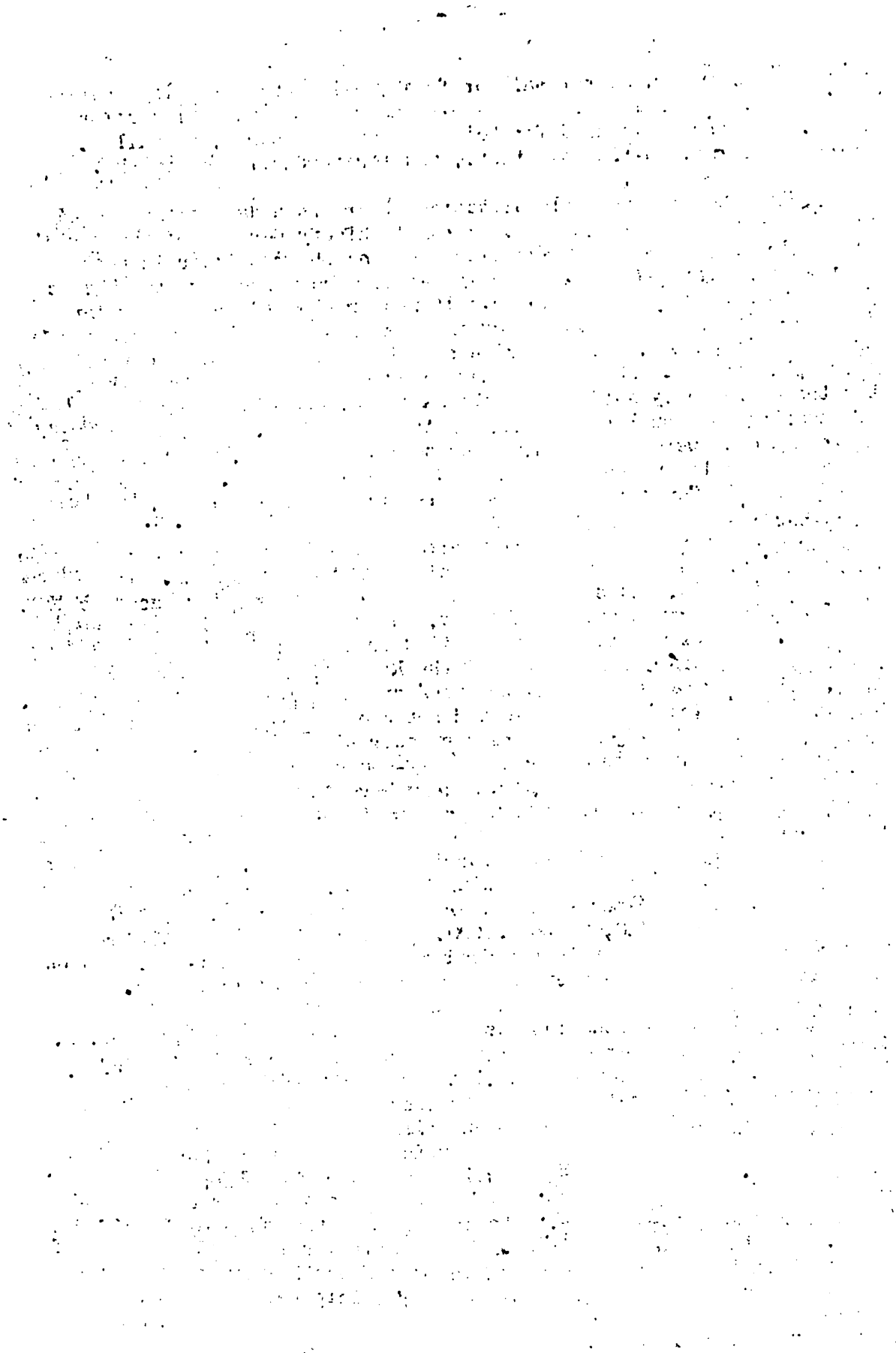
Since Dr. Robinson, head of the project, was not present Dr. Batchelder spoke briefly on abacá and the program being established at the Institute. Abacá is produced in 300-pound bales (a miniature was passed around.) in processing plants which receive the stalks of the plant and decorticate them to release the fibers. It is only recently that so many people have been concerned about this plant. Abacá is a Spanish word which came to us from the Philippines. The plant is a close relative of bananas, except that abacá contains fibers which run the entire length of the stalk. The fiber on the market is known as manila rope, which is used for hoists, block and tackle, yard arms on vessels and docks, rigging on vessels, to tie ships to the wharf, fishing nets, etc. It is the only kind of fiber

that resists water, either salt or fresh, which has very high wearing capacity. Its tensile strength is extremely high, and it lasts for years. On land it is used for hoisting hay into barns, to pull things on farms, to tie down tents, and for tarpaulins on trucks.

With the present world situation, there is a danger that abacá may be removed from our market. Formerly ninety percent of the world's production was grown in the Philippines, and the remainder in the Southwest Pacific Islands. It originated in commerce when the United States took over the Philippines. It was previously grown only for local use in small plantations or in backyards. It did not have the uses that it now has. Some Americans took the leadership in establishing large plantations. About 1912 they began to sell out to the Filipinos, and these gradually sold out to the Japanese, who did an excellent job of insuring good quality and keeping the price down. When the war developed and we were cut off from our source of supply, the United States had a stock pile on hand which lasted until about 1945. With the help of abacá grown in Central America, we were able to pull through.

In 1925, the United States Department of Agriculture had introduced some abacá plants on a small island off the coast of Panama. There were ten acres in 1939, and since then the acreage has been increased to 100. Abacá requires a huge outlay of money, supervisory organization, and know-how. Appeal was made to the United Fruit Company to undertake the project, and abacá was placed under the Reconstruction Finance Corporation, which now has a monopoly on abacá grown in the Western Hemisphere. We found from experience that we did not know all there is to know about growing abacá. The Japanese were very secretive about it. We have accumulated some information through trial and error. There are diseases and insects which affect the plant, and there must be a much more efficient method of growing the plant. It was considered highly advisable to find out why we had so many sick plants and what could be done about them. Therefore, the project in Turrialba was set up. We are to see that future plantations are made with the highest efficiency. The production per acre is expected to be around 18,000 pounds per year. It has fallen to around 10,000 to 12,000, due largely to heavy flooding in some areas, to drought in the Honduran area, and to tip-over disease in which the plant falls over due to deterioration of the roots.

In 1940 world production was in the vicinity of 1,500,000 bales. Approximately ninety percent or 1,200,000 bales was produced in the Philippines. After the war the Philippine figure of production dropped from 728,000 bales in 1927 to less than 500,000 in 1949. It is expected to be lower in 1950. The Filipinos did not know how to grow it; they weren't willing to apply the same methods that the Japanese did. Probably the plantations got into the hands of people who were speculating in land. The United States consumed approximately 43,000 bales in prewar times. Its consumption has risen toward 50,000 bales. All the world needs rope. There is a danger that we might be cut off from the Southwest Pacific supply in times of disturbances, but why not grow abacá in the Western Hemisphere? It is the type of cooperative thing in which the Central and South American countries in the area where it can be grown can participate.

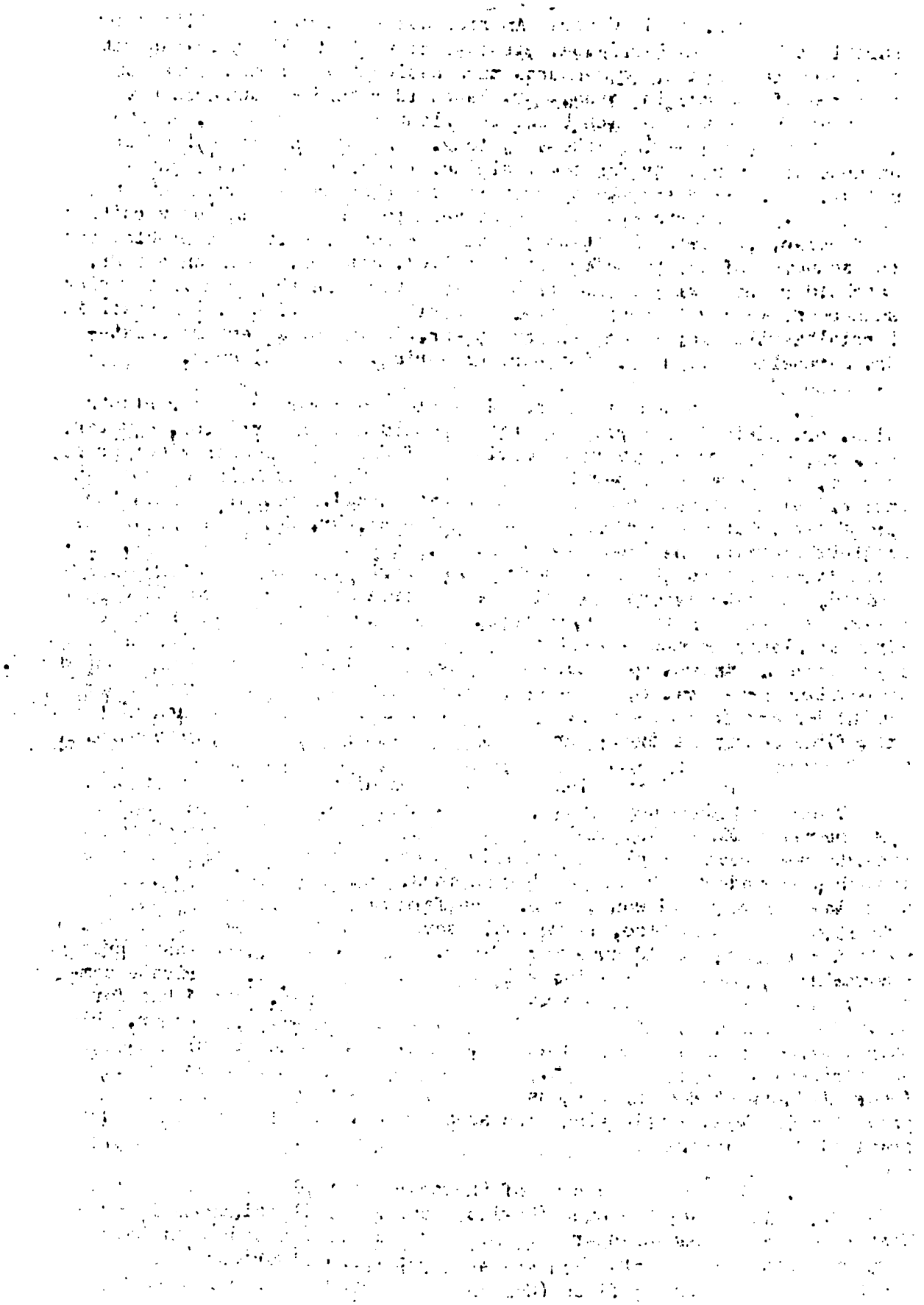


No other place in Central America was found with facilities comparable to those in Turrialba. It is a convenient place; we can get to Guatemala, Panama, or Honduras much easier than if we were at the extremes of the growing area. Dr. Batchelder said he has no doubt but that the problems which beset the plant can be overcome, and he does not believe it will take very long. The present project offers an unusual opportunity for the training of people in botany, entomology, etc. It offers the opportunity for them to use equipment in the field--an opportunity offered by very few colleges and universities in the world. They will get to see the methods of solving a problem and the sequence of events before it is solved. Both Dr. Robinson and Dr. Batchelder are anxious to contribute whatever time they can in training such people and will cooperate closely with the Institute. The staff in Turrialba will include an agronomist--Dr. Robinson, an entomologist--Dr. Batchelder, a pathologist--Dr. Loegering, and a soilsman.

Dr. Madrid asked if the abacá people would work on other plants also. Dr. Batchelder replied that they would not in Turrialba. However, the project operates under the Division of Cotton and Other Fiber Crops, and Dr. Robinson was supervising projects in Cuba and Haiti on soft and hard fibers, but none of them compare with abacá. Dr. Allee said the project here might be coordinated with others. Dr. Walker asked if the methods of using the plant are known. Dr. Batchelder said they are. Previously, the fiber was removed from the plant by hand, and it was very laborious work. In the Central American area there are about 22,000 acres of plants at the present time. Plans are to increase these to 50,000 acres. At the present time a machine is used into which the logs are put and crushed. The soft tissue surrounding the fibers is brushed off. The fibers are carried through a washing machine and are sorted before going into an immense drier. The capacity of the plants is much higher than the fiber being utilized--perhaps five times what is being processed.

At Bataan in Costa Rica there are two districts of plantations, 5,000 acres at Good Hope and 5,000 at Monteverde. There are 6,000 in Panama and 5,000 in Guatemala. One of the jobs of this project is to locate new areas for planting abacá and to avoid some of the mistakes which were made in the original plantings. Bananas can be grown in wet land where abacá won't grow. The farm at Bataan could handle 12,000 to 15,000 plants. Also, if we could save more of the material wasted by the machines, we would have more fiber. Besides this, the waste products contain wax and several acids which should be valuable. A private company is setting up a mill to use the waste for paper. Abacá has for many years been used to make a fine grade of paper--Manila paper. This use of the waste products is an unexplored field which should lead to future industrial development. There is some doubt as to how much improvement in processing methods can be made, but everyone believes the problem of the decorticating process and the use of the waste products should be tackled.

Dr. Allee mentioned some of the other fiber plants grown in the Western Hemisphere--henequen (Mexico), and sisal (Haiti and El Salvador) which for some uses are substitutes for abacá but do not have the resistance to water; fique (Colombia); cabuya (various countries)



from which coffee sacks are made; kenaf, which is a new crop in this hemisphere and has been developed commercially only in Cuba. Kenaf is thought to be a reasonably good substitute for jute, and the Americas are interested in such a substitute as a security measure. The main bottleneck with all these crops is the processing.

In reply to Dr. Walker's question as to the problems, root troubles, wet soils, and insects, etc. involving the abacá plant, Dr. Batchelder replied that at the present time the main problem is the banana root borer--a little weevil almost 1/2" long which also attacks the banana and reduces the size of the yield. The Panama disease attacks bananas, but abacá is almost immune to it. The banana root weevil cuts through the bulbous root of the plant, and as a result the roots deteriorate. The stems grow about 3/4 as much as they should, and the top is then so heavy that it falls over. The abacá plant when full grown is almost as high as a banana plant, but the stalk is a little smaller.

Dr. Allee said that the abacá is a very interesting project to the Institute and one which it might very well have undertaken itself if it had the funds. Abacá is being grown on old banana plantations in most cases. The bananas were driven off by the Panama disease. The Philippines have several diseases transmitted by plant lice. We don't yet have mosaic in Central America, but we need to make frequent inspections in order to detect any possibility of imported diseases as soon as possible.

Dr. Walker asked if it might be possible to develop abacá in Central America where it could command a world market. Dr. Batchelder said there would be such a possibility if the crop were managed efficiently and scientifically. It takes 1-1/2 to 2 years for the plants to be gotten into production. We should make the opportunity for the small grower to raise abacá, but at the present time we can't afford to make recommendations that it be grown on small farms or tell them how to protect the plant from diseases and pests because we don't know enough about it.

Dr. Allee said the problem of community action on decorticating has never been attacked. Abacá will not compete with bananas where the two have an equal chance. It is, however, now selling at 26 cents a pound as compared with 9 cents in the 1930's. The log is heavy, about 90 percent water, Dr. Walker observed, and would have to be carried to the place of processing. Dr. Batchelder said river transportation was considered in Ecuador, but it was subject to great fluctuations.

Dr. Allee said we should have a broad fibers program, and he expected that in the future we would have.

FORESTRY PROGRAM

Dr. Allee explained that Dr. Holdridge, Head of the Renewable Resources Service, has gotten a long way without much support and has pointed a way for operating in this field in the future. Dr. Holdridge showed the group an ecological map which serves as the

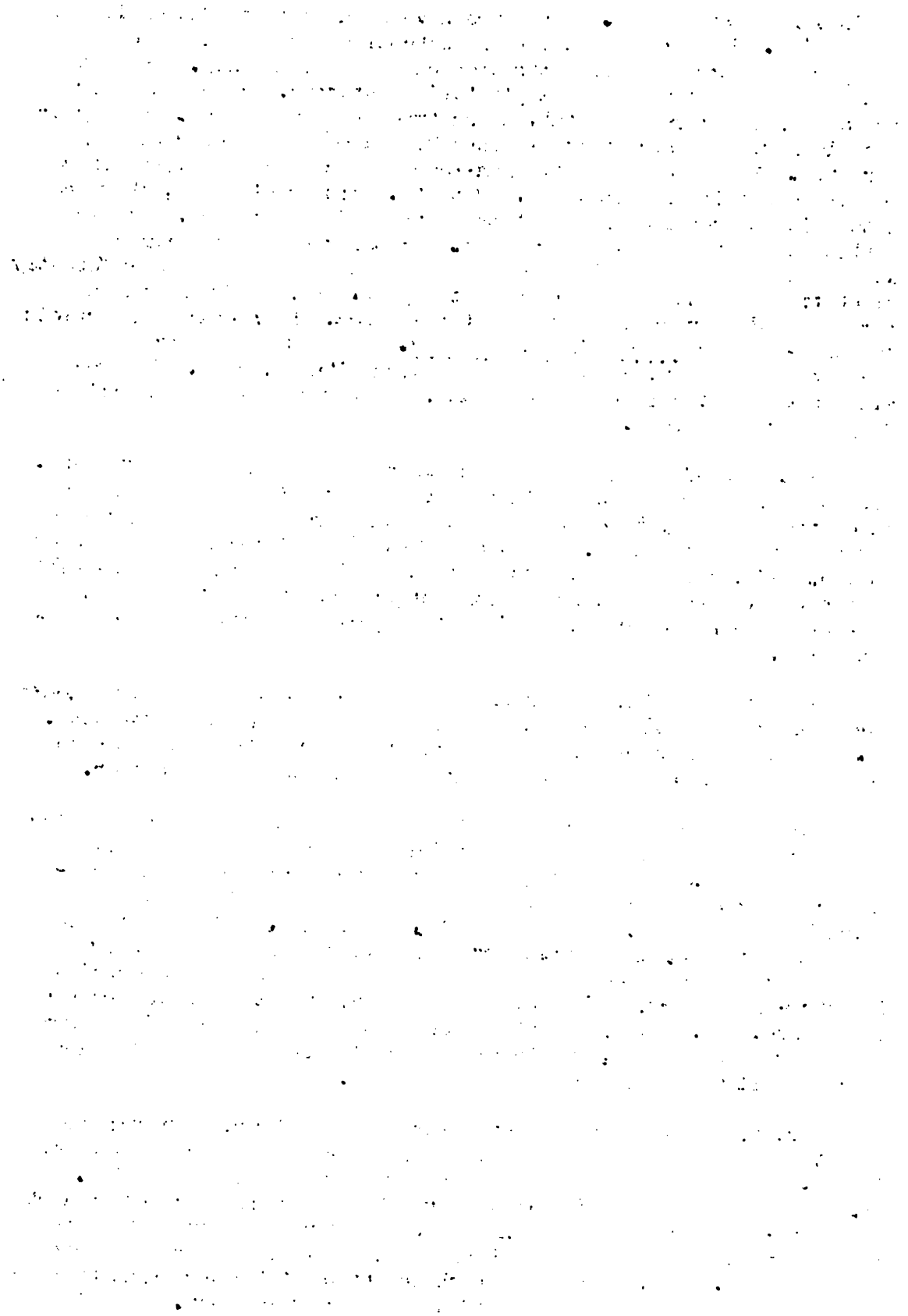
basis for forestry work. Such maps have been made for Guatemala and Costa Rica. Last year a survey of Guatemalan forests was made and a report prepared with concentration on two regions only. In Costa Rica he has tried to get some plantations started. Firewood is cut to pay for the costs of establishing two-acre plantations. Last year the Ministry of Agriculture of Costa Rica asked for cooperation on forestry. It has two forestry men--one a specialist in silviculture and the other in fruiticulture. With Dr. Holdridge's help, they are attempting to set up demonstration plots on farmers' land. We are getting a great deal of information. Two operations were run in Atenas and one paid for both of them. We have studied as many forestry plantations as have been put in in the past. Dr. Holdridge has a farmer's bulletin on cypress almost completed. He prepared an article on the alder for The Caribbean Forester. The alder is grown as a shade tree for pasture grass in connection with dairying. It provides nitrogen and improves the grass. Next year a bulletin will be prepared on the alder.

A number of odd jobs have also been done. Next week reforestation of the watershed at Acosta will be investigated. Water supply is critical in many towns in Costa Rica and advice has been given on how to handle watersheds. The idea of national forests has also been pushed, and there is a possibility that the United Fruit Company will cooperate with the Ministry on this matter and have certain lands protected which the government is not prepared to protect at the present time.

Forest formations are based on climatic data, and since we don't have enough meteorological information here, we work with crop data. Dr. Peterson and Dr. Holdridge come very close together on land-use planning and expect that the association will become even closer.

Dr. Allee said we are an institution serving many countries and asked how the work being done now relates to the problems of all these countries. Dr. Holdridge said we have species which are common to several countries. The work on laurel and cedro would be valuable to Central America, Colombia, and Brazil. If demonstration areas were set up, they would serve as places where people could come to observe forestry operations. Costa Rica is psychologically forestry-minded now, and perhaps people from the other countries can visit here. Dr. Holdridge said he could use one or two trainees now to help with this work, and Costa Rica could become a demonstration area for all the countries that are similar.

Dr. Allee said that with the Technical Assistance Program we hope to put on two additional foresters and get some more assistance for Dr. Holdridge, and also to locate two men in other countries. Dr. Walker asked how difficult it would be to develop forestry talent in the various centers of Latin America. Holdridge said he believes it is best for a forester to get his experience in the area in which he is to work. He is trying to push the type of forestry that trainees can go back to their countries and do in a practical way.



Dr. Allee said there are no forestry schools in the Central American area except in Mexico. Venezuela has one; Peru has some courses; and Brazil has a school. The school in Mérida, Venezuela has been in operation a year. The University of Michigan has turned out thirty or forty trained Latin American foresters. A large portion of these are not working in forestry now, but would constitute a nucleus with which to work, were there a forestry outlet for them in their countries. Dr. Ryerson wondered how much outlet there is for trained people in Latin American countries. Dr. Allee replied, stating that the State Department spent a great deal in training foresters, and probably most of them are not in forestry at the present time, but he believes Holdridge's practical training of men who would be expected to use their knowledge of forestry may be the answer to the problem. Dr. Madrid suggested that it would be a good idea to send a forestry professor to one of the Latin American colleges to give an intensive course for two or three months.

Dr. Ryerson said that more countries are going to have to train their own leaders. The universities in Europe will not be able to do it and should not do it. The United States wants to train Latin Americans and also wants to send American students to Latin America, but it is possible to spoil a good man by sending him to the States. It depends on whether he is willing to do things in his country upon his return at a different level from that in the United States, and whether his country is ready to accept him when he gets back. Dr. Allee said the universal feeling among the graduate students here at the Institute is that they would have done better to have gotten their undergraduate work in their own countries and then gone to the States for their graduate work. Dr. Ryerson agreed, because then they would be taking their advanced training with an idea of the problems back home and would have gotten an objective. Dr. Walker said that the question of fuel is vital in many of these countries, and much forestry work could be done though a man is not a graduate forester. Dr. Holdridge agreed, saying their forestry is simple, and most of these countries don't need a forestry engineer just yet.

APPLIED RURAL SCIENCE TRAINING PROGRAM

Dr. Allee said this is one of the most interesting things we have done; it is an experimental program to get at the problem of what kind of training, if any, can be given to a group with less than college training and make them useful.

Professor Valerio spoke on the method he has developed for practical education for undergraduate students in agricultural skills. In most cases, he has observed, the graduate of an agricultural school lacks skills. He is trying to apply skills based on learning projects. This has a pedagogical significance and is important to the Institute since many of the member countries do not have graduate students to send to the Institute, and a large share of the applicants for training here have less schooling than a degree in agriculture.

The Institute has enough well directed experiments, Professor Valerio continued, to serve as an excellent laboratory for the training of such students. His task is to make use of these experiments, which are technically directed by the departments, and adapt them to those students who are not graduates so that they may get a lesson from them that will help them to develop a skill. He gave coffee cultivation as an example of the training provided by the experimental farm. Such things as the following can be adapted to this type of student: (1) handling of soil, (2) methods which pay the most and are most economic, (3) methods which are most likely to promote an increased crop, (4) favorable and unfavorable methods of harvesting coffee, (5) which type of cultivation is best, (6) methods of adapting cultural methods to the different conditions of the areas in which coffee is grown, etc. He says the technical study of coffee provides eight methods of study adaptable to these undergraduate students, and the teaching opportunities offered here are available in very few other places.

Professor Valerio says he has Applied Rural Science students in coffee, cacao, and animal industry. There are more applicants for studies in these fields as well as in sugar cane. Besides these special projects, all the students take certain courses in such subjects as soils and fertilizers, farm management, practical techniques developed at the Institute, farm inventories, agricultural accounting, marketing, credit, and land use. The lack of a knowledge of the principles of elementary economics is one of the greatest lacks of the farmers, he said. They plant without thinking, might buy a tractor for a farm of less than twenty acres, and don't know which enterprises are paying for the farm and which are costing money. An agricultural bank wants to send seven or eight students here to get some training in agricultural economics.

Professor Valerio has a list of 200 skills which pertain to farming in these areas, and job sheets are being made on the basis of each of them. They are based on the immediate needs of the farmers in these areas. When they are tried out here and proven satisfactory, they can be used elsewhere in Latin America, and they can serve very well those who hope to teach practical agriculture. In the future this material will be gotten out in the form of a handbook.

Up to the present time, Professor Valerio's students have had an average age of 25 years. The two cacao students had ten years of experience in Venezuela before coming here. He prefers not to take people with less than six years of formal training and prefers students who are older. They have practical field work in the morning and library and classwork in the afternoon. All of them have to take natural history and mathematics. We have tried to teach them English, but find that it doesn't pay too well. At the present time they are being taught only functional English.

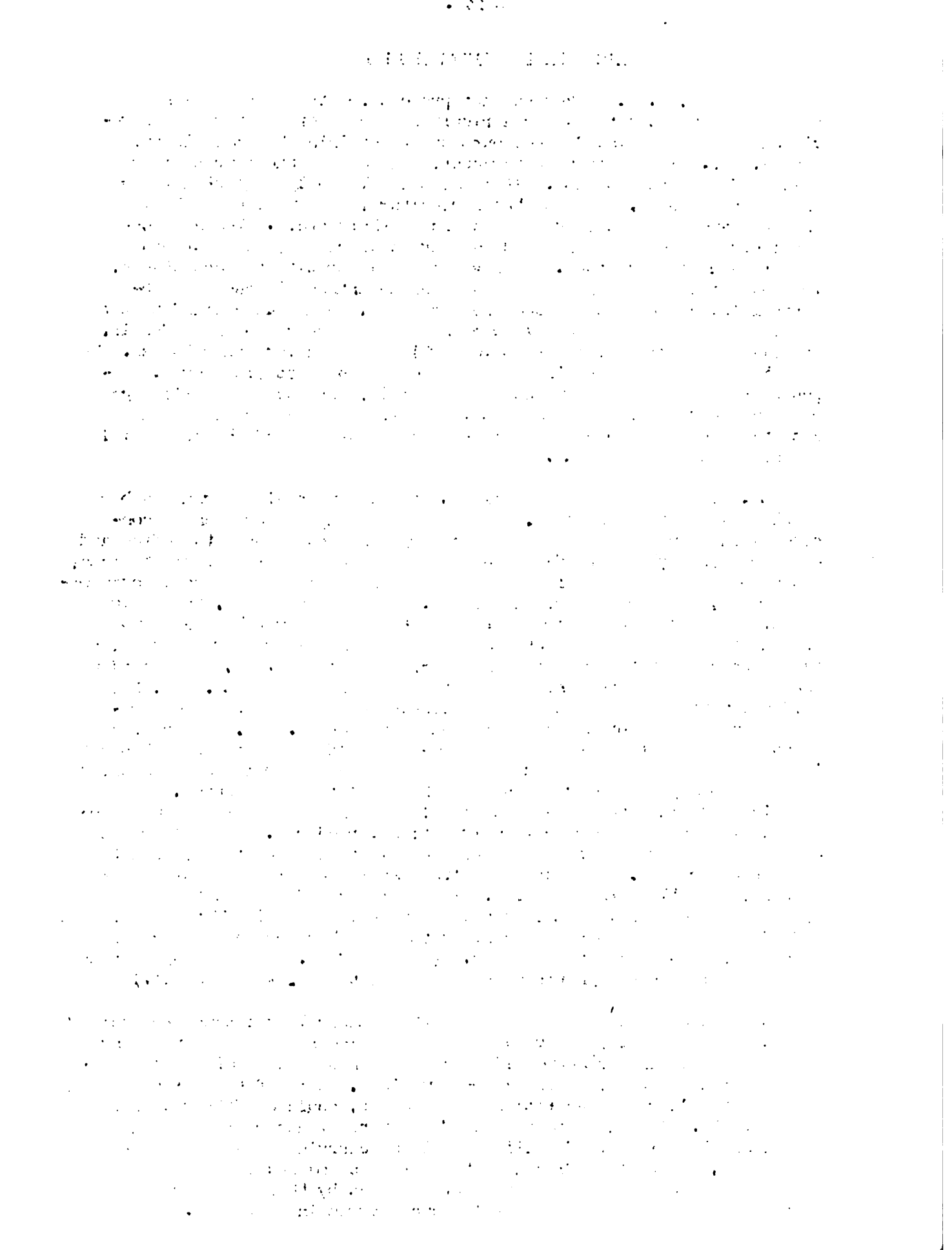
Dr. Allee said it is hoped that we will eventually have several handbooks published--one on prerequisite courses in natural history and mathematics, one on the agricultural skills, and one on the extension training which Mr. del Río is doing. Mr. del Río was unable to speak to the Committee because of illness.

AGRICULTURAL ENGINEERING PROGRAM

Since Dr. H. B. Walker was not present for the opening plenary session of the Committee, the agricultural engineering program was reviewed the second time for the purpose of obtaining his consultative advice. Dr. Allee said that engineering is one of the four pillars on which the Institute stands. It is also a relatively neglected field in this hemisphere. Most of the agricultural institutions in Latin America have no agricultural engineers on their staff. There is one machinery station in Brazil and another in Argentina, but most other countries don't have them. We have one engineer with two assistants. The Head of our Agricultural Engineering Department is due his sabbatical leave and wants to take some courses, so it was decided to put the program in abeyance until more ample provision can be made for it. It will be a saving of about $12,000 which we need for other things. We have been facing a situation of rising costs and a static budget. Expenses have been reduced as much as possible, but there is still a gap between our resources and expenses. We will arrange for one of the assistants to do graduate work in the United States and the other will do survey work on the farm.

Dr. Walker said that no agricultural experimental program can be complete without engineering. As far as delaying the program is concerned, there will be engineering problems in connection with coffee and cacao particularly as pertains to management and handling of plantations, and he would regret allowing them to go on for long without some engineering phases, although he agreed with Dr. Allee's views. Dr. Hume said the difficulty stemmed from the fact that we have never been able to provide the facilities for the engineer to work. If we were to go along on our present status with the Engineering Department, Dr. Allee said we would be materially weakening other things which we must do. Dr. Hume said the matter of grain drying and storage and a new method for processing coffee cannot be solved without engineering. Dr. Walker also pointed out that the engineer will be at a disadvantage if he is brought into the program at a later date. There should be a related engineering approach to any of the crops on which the Institute is working. The question of structures relates to local environments, habits of the people, etc.; these should be largely national projects. Dr. Walker did not think we should go too far into mechanization, except as it relates to a specific crop. The public health authorities are interested in sanitation, as well as the engineer. There is much of this that can be handled on a national basis, provided that the over-all effort is directed toward helping the countries to understand the background of procedure that has been used in other places. (A copy of Dr. Walker's suggestions on engineering in the Institute program is attached. - Appendix I.)

Mr. Pierce said that there is in the Technical Assistance Program a project approved for the creation of a housing research and training station, whose main objective is to develop on the basis of local materials low-cost types of units or constructions. Some of the aspects of the Institute's research problems, he thought, could be fitted into that program. Dr. Allee said that each of the three zones would have an agricultural engineer. We will not only be carrying information out to the people, but will be finding out their problems and carrying them back to the Institute. From the information gained by these engineers, we will get an ideaas to how to develop our program in Turrialba.



This session adjourned at 5:10 p.m.

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The following members met together on 10 March at 11:40 a.m.

Dr. Knowles Ryerson
Dr. Carlos Madrid
Dr. Mariano Montealegre
Dr Ralph H. Allee (acting chairman)
Dr. J. Harvey McLaughlin, Inter-American Cacao Center, Plant Industry Department

SUGGESTED REORGANIZATION

Dr. Allee read and discussed a note from Mr. Colom suggesting that instead of four Department Heads, we might have one man in charge of research and one in charge of education, and one in charge of Technical Assistance. The first would cover all the present projects of the existing departments; the second would be in charge of training and our relationships with other educational organizations. All other staff members would be project leaders. Dr. Ryerson favored the idea, believed the money should be kept for specific projects and that it is easier to get support that way. Dr. Allee said the question is, are we going to have a coffee project, a cacao project, a dairy project, etc., or are we going to have a plant physiology project, an entomology project, a pathology project, etc.? Dr. Ryerson said we are here to work on practical problems and the crop is the important thing and easier to justify. Dr. Allee said we all have to sell our work to the people. You can't sell lawyers and political people a plant physiology project, but you can sell a vegetable crops project. Dr. Ryerson said you cannot keep the departments separate because one runs into another. Dr. Allee noted that there has been a lot of interplay between them. Ryerson said they have a department of Plant Pathology at the University of California, but they also have pathologists in other departments. Dr. Hume believes we should have a soilsman per se. Ryerson said we must realize that we cannot do everything here at the start. Dr. Allee said he would try to draw this suggestion up into a concise proposal for further consideration and for presentation to the staff to see what the implications are.

CACAO PROGRAM

Dr. McLaughlin spoke briefly on the cacao program as follows: The biggest operation at La Lola at the present time is spraying for Phytophthora. Forty hectares are sprayed with 3/4" pipe line. The pressure is supplied by a portable sprayer and filled from a tank hauled out on a tram car. A portable sprayer only is being used on about 25 hectares. A 4-4-50 Bordeaux mixture is being used. There is a fungicide comparison plot of ten acres, on which four chemicals are being compared with a check. This project was started

in September, and it is a little early to see the results. SR-40 has not been too satisfactory; Dithane is no good; Bordeaux is doing well. There is not too much difference between the 30-day cycle and the 60-day cycle. This experiment is a follow-up of a series of screening tests which are being conducted in nurseries. Some of the fungicides are good but won't stick on. If some way can be found to make them stick, we might find something that would take the place of Bordeaux.

Mr. Bowman has plans for a propagator which should give us a capacity of turning out about 10,000 rooted cuttings a year. It is simple, very small, and cheap. A large proportion of these would be planted on our farm. A rehabilitation program would require a lot of them, and we have been informed that we could sell all we can produce.

The cacao plant physiologist arrived several weeks ago and will soon begin some work on problems concerned with shade, rooting of cuttings, cherelle wilt, fertilizers, etc. We have good soil. Our main problem in Costa Rica is the control of Phytophthora. We could double production if we could control it.

Some selection work has been done. We have about 26 trees under observation at the present time in connection with other experiments. There are 16 in our fungicide comparison plots on which we are taking records for yield and diseases. We are getting individual tree data on another 1,000 trees. A plant collection station is being set up at Mayaguez, Puerto Rico, to which we can bring material from any part of the world for observation and then use it here.

Dr. Allee suggested that the group meet again on Sunday morning and take a look at the future of this program. Alvim would be asked to meet with the group, as well as Don Fiester, a graduate student who has been offered a position by Bowman.

This session adjourned at 12:10 p.m.

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No verbatim notes were taken on the other sessions of the Committee or on the individual discussions with department heads and staff members.

UNIVERSITY OF CALIFORNIA
College of Agriculture
Agricultural Experiment Station

Division of Agricultural Engineering
Davis, California

April 20, 1951

Dr. Ralph H. Allee, Director
Inter-American Institute of Agricultural Sciences
Turrialba, Costa Rica

Dear Dr. Allee:

I have your valued letter of April 12th. It is good to hear from you and to learn something of your plans for the Technical Cooperation Program.

I have reviewed your outline and I feel certain it is sound in basic principles. The objective of increased food production must be directed early, toward programs which will show measurable results. This may involve better crop returns from better seeds, fertilization, better seeding, cultural, and harvesting methods and preservation and storage of crops following harvest.

These are best achieved when land capabilities are known and the economic resources of farmers understood. However, I should not want all action programs to await the completion of extensive surveys and resource inventories. Something should be found early, based on existing knowledge to make an early action program productive of direct, measurable results toward better living for the less privileged in these areas. If such a program can be initiated, it can be used also to show the need of surveys, land use studies, and the like. Likewise, if a sound action program can be uncovered early it will reveal the need for engineering and likewise, it will result in immediate application of such principles on a practical scale.

I like the idea of greater unit production per unit of area. Also greater unit production per worker. This would result in greater total production and a higher standard of subsistence. Saving the crop after it is grown from the ravages of pests and unfavorable environments is sound even if the approach is initially primitive and simple. It is from such a start that the higher levels of agricultural practices are reached.

The development of low lands is a task in which national interest must be cultivated. Capital investments are necessary for large reclamation projects. To justify such, a sound background of technical data are needed.

Personnel training for technical cooperation must be on a "down to earth", realistic basis with the objective of obtaining some direct, measurable results which people can recognize and politicians can evaluate, if these programs are to be continuing. Therefore, I suggest program reviews to:

(1) Find practical, simple, action programs.
(2) Support these and enlarge scope of operations with fact

(3) Train leaders toward objective programs.
(4) Make engineering programs incidental to the objectives of the broad basic programs like increased agricultural production.
(5) Use local facilities and transfer as much responsibility as possible to the people to be benefitted.
(6) Be slow to undertake extensive land development projects unless governmental cooperation is evidenced.
(7) Stick as close as possible to projects which can be carried out by financial resources available locally and now.
(8) Make all demonstrations so objective that quick, simple action will be a logical response.
(9) Avoid undertaking too many things. Look for a ringer and drive it hard.
(10) Equip your programs to meet actual needs rather than to equip liberally for anticipated needs.

In general, the outline has a broad base and I should think a good detailed action program could be developed from it.

I appreciate an opportunity to review your statement. I am sure you will use a good factor of caution in connection with my suggestions.

Sincerely yours,

(Signed)

H. B. Walker
Division of Agricultural Engineering