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*Ent to Mr Jones ✓*

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Transmitted herewith is the Terminal Report with attachments of Otis E. Cross, Agriculture Engineering Advisor (Extension).

The Division considers this a constructive and usable report since its contents and attachments will be of value to the successor to Mr. Cross and to other Brazilian and American Agricultural technicians.

The Operational Achievement section is commendable; the Summary Evaluation well presented; and the Recommendations are of a sound and practical nature. Particular attention is directed to the closing paragraph of the report in which the author makes reference to the possible use of the Livestock and Poultry Housing plans in other areas of Latin America. It is the opinion of this Division that this thought is worthy of serious consideration by the proper authorities in ICAN/.

The Division considers that Mr. Cross has made a commendable contribution to the FSA program in Brazil. It is regretted that Mr. Cross has found it necessary to terminate his work as a Foreign Service Technician.

OTHER AGENCY

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- Attachments:
1. Pages 2 through 7 of this airgram.
  2. Two copies of the report on "Rural Construction in Espirito Santo".
  3. Three copies of leaflet "Planejamento das Benfeitorias".

*Rept come in - 2 copies -  
1 filed - Cross, Pers.*

*MAN - RF  
11/28*

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TERMINAL REPORT

Otis E. Cross

I. INTRODUCTIONA. Background of Qualifying Professional Experience

The writer was born and raised in a farming community in the center of the wheat belt in Kansas. After one year of junior college, he began working in the production and engineering departments of aircraft factories in Wichita, Kansas. After alternate periods of work and school, he graduated from Kansas State University with a Bachelor of Science Degree in Agricultural Engineering with major studies in farm buildings and equipment. The pre-graduation aircraft work offered excellent training in techniques of factory production, design, and during the latter phases, teaching experience.

After college graduation in 1946, he accepted a position as assistant professor in Agricultural Engineering at the University of Georgia, a position he held for ten years, that is, until July 1956. Requirements were completed and the writer received his Master of Science in Agricultural Engineering in 1949, again with major studies in farm structures.

In addition to his teaching duties at the University of Georgia, he engaged in engineering and land surveying and became registered as a professional surveyor and also as a professional engineer. He also designed and constructed 5 rural homes and one city home. All such experience was in line with his training as farm structures specialist.

B. Arrival and Orientation to Living in Brazil

This report covers the second tour of duty of this technician in Brazil. As such, orientation and living problems were encountered and successfully solved during the first tour. Therefore, the family and technician re-adjusted quite readily.

C. Orientation to Job

Orientation to the job was not necessary since this was a second tour. During the first tour, this technician worked and travelled without the assistance of a counterpart. It must be said that this individual's intensive effort to locate and hire a counterpart finally paid off. The counterpart's views and opinions were invaluable in planning and executing the work to be done.

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## II. ASSIGNMENT TO DUTY (AS AGRICULTURAL ENGINEER)

### A. Project Activities

This phase of work still remains a relatively new activity in the development of an Agricultural Extension Service in Brazil. Previous technicians in the field of farm structures consisted of one individual whose work consisted of planning and operating commercial grain storages. Therefore, this writer, during his first two years and his last two years, has started from scratch in order to build up interest and get results in the farm structures field.

Generally speaking, farm structures throughout Brazil are considerably retarded. This includes the farm homes, all types of livestock housing, all types of feed processing and storage, and the overall sanitation situation on the farm. In relation to the farm home - seldom was a farm home observed which could be considered ideal and many were in such condition that they did not afford decent housing. On livestock housing - some scattered examples of "fair" structures were found, but generally speaking the housing was inadequate in many aspects. Feed processing and storage on the farm is practically non-existent. The general practice is to use a portion of the home as a feed storage area. Sanitation difficulties arise from (a) livestock and poultry areas entirely too close to the home, (b) poor planning of livestock and poultry areas resulting in profoundly inadequate sanitation conditions, (c) a total lack of understanding of the necessary requirements in order to obtain a safe and dependable household water supply, (d) the home and the farmstead not planned or designed to offer even the basic essentials needed for comfort and sanitation and (e) although very few of the farms have privys, those which did have privys were not constructed or maintained in a sanitary condition.

The solution to many of these problems is not within the scope of achievement of the individual farmer. His lack of education and lack of knowledge of improved conditions demands that he receive assistance. The method of assisting the farmer is through the extension service. Even within this service organization, the local agents are not trained to recognize nor offer solutions to the above listed adverse conditions. Through the media of publications, information leaflets, demonstrations, training sessions, and radio can the extension personnel be educated and in turn educate and improve the farmer's standard of living. The major portion of the writer's work has been connected with ETA Agricultural Extension Projects 2, 6, 11, 15, 17 and 33. However, consultant, advisory, and supervision work has been done with other ETA projects as well as with State and Federal organizations (ETA Projects 3, 10, 18, 27, 38, 42, 43, 44 and 45).

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**B. Functional Objectives**

1. To prepare extension-type farm structures training material.
2. To train Brazilian county agents in the farm structures program.
3. To assist local, state and federal groups on the farm building and equipment problems.
4. To train Brazilian Extension County Agents in the design and use of practical farm structures.
5. To train a Brazilian counterpart to be an Extension Agricultural Engineer specializing in structures.
6. To serve as advisor and consultant to U.S. and Brazilian structures interest.
7. To promote interest and understanding in improvements in the rural structures field.

**C. Operational Achievements**

The actual work during the past two years got off to a slow start. In January the writer was on a 3 months TDY to Ethiopia. This time was not entirely lost. A counterpart was hired in January 1958 and he took his extension training in the Rural University of Minas Gerais at Vigosa during the same three months that this writer was in Ethiopia.

The field work has covered 11 states of Brazil with work being more-or-less equally divided among these states. A total of 26 (239 days of travel) trips were taken. Some trips were multiple purpose involving two to four different subject matters. The general trips classification may be summarized as follows:

1. Assistance to poultry projects	8
2. Assistance to swine projects	5
3. Assistance to dairy projects	4
4. Collecting data for rural construction survey	4
5. Extension training	3
6. Procuring a counterpart	3
7. Assistance to turkey project	2
8. Assistance in farmstead layout	1
9. Temporary duty to Ethiopia	1

The above listing shows the major fields of endeavor. In addition to these were requests for assistance in the following subjects: potato storage installations, privy construction details, septic tank and disposal field installation, simple farm home furniture, trench silos, cistern and accompanying water filter, water distribution layout for a state farm, housing plans for a state farm, livestock corral installation, manure pit plans, hay drying barn, installation and operation of a farm machinery steam cleaner, farm home design, grain storage buildings, rabbit production

installations and bee hive installations.

Further discussion is necessary on item 4 above "Collecting data for rural construction survey". Early in 1959 ETA and ABCAR initiated a program of improving rural construction. The wide scope of projects included indicated the need of a thorough understanding of the existing rural construction situation. The 4 trips, covering a total time of 57 days travel, were made to collect data. At the end of the survey of the state of Espirito Santo, a detailed report in Portuguese was prepared. This was handed to the information division of ABCAR in February 1960. To date the report has not been published. Attached to this terminal report are two copies of this technician's evaluation and recommendation report on the rural construction status in the state of Espirito Santo.

In April or May of 1960, ABCAR decided not to include rural construction as one of their extension programs. At that time their technician in rural housing was asked to resign. The decision on the discontinuance of this program, whether it was lack of funds, personality conflicts, or etc., is unknown to this technician. This writer insisted at that time, as well as at the present time, that a grave error was being committed. Numerous requests from extension offices for construction design materials have been received. To satisfy such requests this division has prepared a total of 71 sets of blueprints and their lists of materials for distribution. A complete blueprint library has been established to facilitate cataloging and distribution.

#### D. Summary Evaluation

It may be said that three major achievements have been realized with numerous sub-achievements attributed to each. Achievement number one consisted in locating and training of a counterpart. A U.S. participant training proposal has been submitted for him. If his English proficiency reaches the required level, he will go to the U.S. in March 1961 for a period of 16 to 18 months training.

Achievement number two consisted of establishing the previously mentioned blueprint library. This library consists of 71 sets of plans and materials lists as follows:

22	blueprints	on swine housing and equipment
17	"	" dairy housing and equipment
10	"	" poultry housing and equipment
3	"	for 4-H Club projects
3	"	on potato storage
16	"	on miscellaneous subjects

These miscellaneous subjects include privys, trench silos, hay drying barn, water filter, complete corral installation, manure pit, water distribu

tion system, guest house design, germinator for dande seed and bunk bed.

Achievement number three consisted of a survey of the rural construction situation in the state of Espírito Santo. The report of the findings and recommendations is attached to this terminal report.

In addition to the major achievements listed above was the advancement of the work and interest in extension training. Because of the excellent contact work of the ICA Extension Adviser in the northeast of Brazil, this area realizes the need of technical assistance which the national office technicians can give. This writer recently gave three training sessions and all three were considered, by the trainees, a complete success.

### III. CONTACT WITH OTHERS

#### A. Brazilian Agencies and Individuals

During the period covered by this report, numerous contacts were made with state secretaries of agriculture, directors of state and federal experiment stations, prefeitos, directors of universities, personnel in the extension service and a multitude of farmers.

#### B. Other Americans

Contact with other Americans has included personnel of USOM/Brazil and personnel of various American commercial and industrial firms. Other contacts include tourists and missionaries.

### IV. RECOMMENDATIONS

#### A. For Continuation of Project

It is the opinion of this writer that the work on rural construction not be left to "drift with the tides". Brazilian personnel are not yet sufficiently trained to adequately do the work. The designs, excluding poultry, prepared by this writer were drafted especially for the state of Espírito Santo. Naturally such plans cannot be used detail-by-detail throughout Brazil.

Since ABCAR has recently abandoned this program and in view of the conditions shown by the attached survey report, it is strongly recommended that every effort be made to persuade ABCAR to re-enter a program of rural construction improvement. Certain Brazilian agencies, specifically Serviço Social Rural, have shown considerable interest in the past work done in rural housing improvement. If a work program could be re-established with ETA, ABCAR and SRR, progress toward rural housing improvement would be aided tremendously.

Summary recommendations for future work should include:

1. Livestock housing plans treating more fully such points as sanitation, animal comfort, increased production, labor saving arrange-

ments and devices, and utility of structures.

2. Farm home plans treating more fully the aspects of sanitation, comfort, convenience, adaptability and safety. This sector should also include simple plans for home-made furniture.
3. Publishing of various plans for safe, economical on-the-farm storage of farm produce.
4. Development of simple plans suitable for 4-H Club projects.
5. Development of more material in reference to farmstead arrangements. A leaflet was prepared on this subject which should be published as a bulletin. Three copies of the leaflet are attached.
6. Expansion in number and scope of demonstration and training meetings on all of the preceding points.

B. For Closer Coordination of Division and Mission Activities

The Agricultural Extension projects are widely scattered throughout Brazil and the tendency is for each project to isolate itself and not work as an overall national team. Free and continuous interflow of information should be encouraged.

The difficulty which this writer had in trying to publish his reports points up the need of an effective workable publishing service within an existing Brazilian agency. This service should be unhampered by a superabundance of restrictive controls.

It will be noted that the attachment "Rural Construction in Espirito Santo", contains numerous housing designs for swine, dairy, poultry, etc. It is this writer's opinion and recommendation that these designs, with minor modifications, be adapted and reproduced for use in all South America and Latin American ICA programs.

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