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CHURCH-RELATED PROGRAMS IN AGRICULTURAL EDUCATION IN CAMEROUN AND UGANDA, AFRICA.

The Ohio State University, Ph.D., 1972
Education, general

CHURCH-RELATED PROGRAMS IN AGRICULTURAL EDUCATION IN CAMEROUN AND UGANDA, AFRICA

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Wade H. Reeves, B.Sc., M.Ed.

* * * * *

The Ohio State University

1972

Approved by

Ralph E. Bender

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PUBLICATIONS

"Expérience du Centre de Formation rurale de Libamba." Organisation et Dévéloppement de la Formation des Exploitants Agricoles en Afrique Centrale Francophone, pp. 85-95, FAO. Rome, 1967.

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CHAPTER I

NATURE OF THE STUDY

For many years, the Christian church has invested large amounts of money and many personnel in projects designed to teach agricultural methods and practices in less-developed countries where it was involved in missionary endeavor. Some of these projects have been successful in bringing about change, stimulating development, and generating employment in the agricultural sectors of these countries. In several instances, programs in agricultural education initiated by the church have resulted in government programs that have been developed after a similar pattern.

The church has approached questions of education in agriculture and agricultural development on the village level with creativity, effectiveness and efficiency. Edward S. Mason, in his book, Foreign Aid and Foreign Policy, writes, "The activities . . . of religious bodies in providing technical assistance in underdeveloped areas has been conspicuous."[1] Yet, literature dealing with agricultural development does not treat the technical assistance that has been offered and is being offered in this field by the church. This, it would seem, constitutes a gap in such literature, and it is this gap that this study would

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[1]Edward S. Mason, Foreign Aid and Foreign Policy. (New York: Harper & Row, Publishers, 1964), p. 27.

partially fill.

A complete picture of the factors contributing to the agricultural development of the countries of the less-developed world cannot be had without a consideration of the work in which the church has been involved for decades. This study is undertaken to document a part of this work in two countries, Cameroun, West Africa, and Uganda, East Africa (Fig. 1), by describing church-related agricultural projects. These project descriptions may be used to provide bases for consultations as to their implications for further recommendations and planning. They may provide criteria that can serve as a basis for self-evaluation on the part of agencies that are in the process of reviewing programs and looking for new avenues of effective approach. From these descriptions may be elaborated guidelines for those who would meet the challenge of attracting young people to vocations in the field of agriculture. They may be of help to those who administer these projects from other countries or who give program counsel in the field.

It is further hoped that this study will encourage a fuller participation of church bodies, with better directed and more effective efforts, to upgrade and escalate programs that contribute to the elimination of hunger and provide vocational training.

Finally, the descriptions, if made available to those associated with development projects, should contribute to their familiarity with efforts similar to their own and should provide them not only with a basis for evaluation but also with new ideas and valuable counsel.

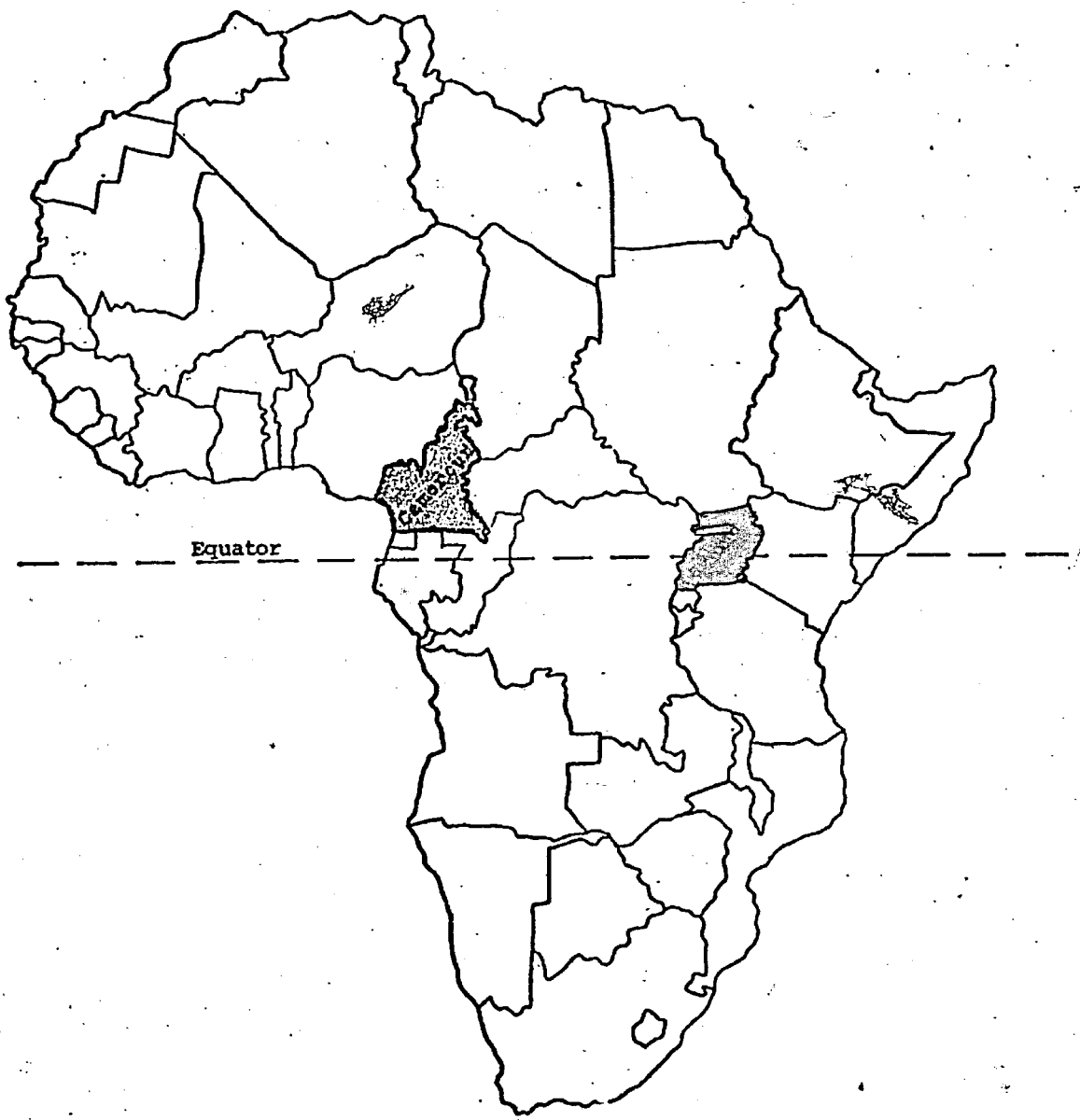

Fig. 1.--Map of Africa indicating location of Cameroun and Uganda

Purpose of the Study

The major purpose of the study is to establish in literature the involvement of the Christian church in agricultural education and development in Cameroun, West Africa, and in Uganda, East Africa. The descriptions of the projects deal with such factors as the reasons for their initiation, their goals, programs, cost and financing and, to the extent possible, their effects and accomplishments.

Objectives of the Study

Principal objective

The principal objective of the study is to establish the contribution of the Christian church in the field of agricultural education in two less-developed countries of Africa.

General objectives

The first general objective is to describe the development, program and activities of the projects to be represented in this study. Included under this objective are considered such subjects as the reasons for the creation of the project, its goals, its clientele and the program that has been elaborated for the purpose of attaining the goals which have been set.

The second general objective is to describe the financing and finances of each project.

The third general objective is to describe the personnel who are and, in some cases, who have been associated with the project.

The fourth general objective is the examination of problems with which the project has had to deal and future problems that may be

anticipated.

Finally, an attempt is made to describe the accomplishments and effects of each project.

Projects Described in the Study In Cameroun, West Africa

The Fignolé Rural Training Center. The Fignolé Rural Training Center operates a program of agricultural training and extension education among school-leavers and established farmers in the semi-arid northern part of Cameroun.

Fôkpayônô. Fôkpayônô is an extension education scheme designed to serve the needs of farmers along a 250 km. (155 mile) stretch of road in the eastern part of Cameroun.

The Libamba Farm-school. The Libamba Farm-school combines theoretical and on-the-job training in agricultural production for unemployed school-leavers. Services to former trainees and the local population are provided through two rural assistance centers and one pilot farm.

The Presbyterian Rural Training Center and the Rural Technical Assistance Center. The Presbyterian Rural Training Center provides theoretical and practical instruction in agricultural production for unemployed school-leavers. Services to former trainees and to the local population are provided through the Presbyterian Rural Technical Assistance Center.

In Uganda, East Africa

Bannakaroli Brothers School-leavers Farming Project. The Bannakaroli Brothers School-leavers Farming Project has pioneered the training of unemployed school-leavers in its district and has helped to identify and solve problems facing farmers in the district.

Bishop's Senior Secondary School. Bishop's Senior Secondary School offers "agriculture" as a required subject and uses the newly-developed curriculum of the three East African states of Uganda, Kenya and Tanzania. The school operates a farm to provide practical experience for its students.

Christian Rural Service. Christian Rural Service operates a program of extension education in the villages of southwestern Uganda. It provides leadership and training to assist the population in its struggle for a more abundant life.

The Gayaza Farm-diet Scheme. The Gayaza Farm-diet Scheme is a program associated with a girls' senior secondary school. It is designed to provide the girls with an opportunity to learn about and appreciate modern farming methods and sound nutrition. The school operates a farm to provide practical experience for its students.

Nyakashaka and Wambabya Settlement Schemes. The Nyakashaka Settlement Scheme successfully trained unemployed school-leavers for vocations in agricultural production and settled them on land donated by the Government of Uganda. The Wambabya Scheme is based on the Nyakashaka Scheme but operates in a different area of Uganda and faces unique problems.

Procedure

Data for the project descriptions were gathered primarily by means of the administration of an instrument (Guide) during personal visits to the projects described. In those few cases where personal visits were not possible, the instrument was administered by mail to those directly involved in the projects concerned. Additional information was gathered from church agencies that provide financial support and expatriate staffing for the projects. Much of the information received from those directly involved in the projects and from supporting church agencies was in the form of reports, articles, personal records and budgets.

Instrument for the Gathering of Data

The instrument that was used for the gathering of data was elaborated by the author, who has had more than fifteen years of experience in the planning, funding and administration of church-related agricultural projects in Cameroun. It was designed to serve as a guide to direct the respondents' attention to the following areas of the projects with which they were associated:

1. General background information concerning the location, the scope and the goals of the project.
2. The means of attaining the goals set, such as program, methods, duration of training and number of trainees.
3. Personnel, including both local and expatriate personnel.
4. The future of the project.
5. Materials written by or about the project.
6. The accomplishments and effects of the project.

7. Extension education activities.
8. Financing.
9. Background information concerning traditional local agriculture in the area in which the project was organized.
10. Problems.

Finally, some questions of a general nature were posed as a means of eliciting responses concerning particular preoccupations of those involved in the projects. These also permitted respondents to share information concerning sources of technical assistance and materials helps and to suggest what they feel to have been their most important accomplishments and where they have acted most creatively.

A copy of the instrument, entitled "Guide," may be found in Appendix A.

Related Literature

A review of literature dealing with agricultural education and development in tropical agriculture reveals little mention of the role of the Christian church in these fields. Agricultural Development in Tropical Africa, a major work by John C. deWilde, et al., carries but a one-sentence reference to work that is being carried on under the auspices of a Christian body. Mentioning the Farmers' Training Centers operating in Kenya to offer short courses to farmers, the authors state, "As of the end of 1963 there were twenty-four Farmers' Training Centers in operation and under construction. Included in this number

were the six sponsored by the Christian Council of Kenya."[2]

A report of a seminar sponsored by the Food and Agriculture Organization of the United Nations (FAO) in Yaoundé, Cameroun, in January, 1967, treating the subject, "The Organization and Development of the Training of Agriculturalists (Farmers) in French-Speaking Central Africa," reviewed three projects being conducted by churches in Central Africa. In this report are brief descriptions of these projects.[3] One of these, a Catholic project, is more fully described in the publication, La Maison Rurale de Fignolé.[4] This book describes the program of this training center.

A source of information concerning programs that are in operation in the three states of East Africa, Kenya, Uganda and Tanzania, is the publication, New Hope for Rural Africa, a report of a conference of the contribution of voluntary agencies to rural development in these countries.[5]

It is noted in the 1967 report of Kenya's Agricultural Education Commission that seven of that country's Farmers' Training Centers are

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[2]John C. deWilde, et al. Experiences with Agricultural Development in Tropical Africa, Vol. II. (Baltimore: The Johns Hopkins Press, 1967), p. 19.

[3]FAO, "Organisation et Dévéloppement de la Formation des Exploitants Agricoles en Afrique Centrale Francophone," Rapport du Seminaire Tenu dans les Locaux de l'Organisation Commune Africaine et Malgache (OCAM). Yaoundé, Cameroun. 16-24 janvier 1967. (Rome: Organisation des Nations Unies pour l'Alimentation et l'Agriculture, 1967).

[4]E. deLoisy, La Maison Rurale de Fignolé, (Abidjan: Institut Africain pour le Dévéloppement Economique et Sociale, 1966).

[5]E. R. Watts (editor), New Hope for Rural Africa, (Nairobi: East African Publishing House, 1969).

run by the Christian Council of Kenya.[6]

Sources that were consulted in the search for published literature on the topic of this study include the following:

> Biological and Agricultural Index
> Edited by Florence A. Arnold (New York:
> The H. W. Wilson Company) from Sept.
> 1960 through Feb. 1970)

In this Index, related literature was sought under the subheadings, "Agricultural Education," "Agricultural Extension," "Agricultural Missionary," "Agriculture, Cameroun," "Agriculture, Uganda," "Under-developed Areas," "Missionaries" and "Missions." In all of these listings, no references were found concerning the topic of this study.

> Steward E. Fraser, "International and
> Comparative Education" in Review of
> Educational Research of the American
> Educational Research Association, Feb. 1967

This article contains a bibliography of publications on international education. Once again, no references concerning the topic of this study were found.

> Peter F. M. McLoughlin, Research on
> Agricultural Development in East Africa,
> The Agricultural Development Council, Inc.,
> 630 - 5th Ave., New York 10020

None of the titles of research listed in this publication pertain to the topic of this study.

> Cowan L. Gray, Education and Nation-
> Building in Africa, (London: Pall Mall
> Press, 1965).

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[6] Republic of Kenya, Report of the Agricultural Education Commission 1967. (Nairobi: Government Printer, 1967), p. 193.

This work makes no mention of projects initiated or operated by the Christian church.

The list of books, bibliographies, articles and other publications consulted to no avail may be lengthened. If done so, however, it would only serve to further emphasize the lack of representation in literature of church-related agricultural projects in the countries of Cameroun and Uganda.

Related Studies

A 1968 study by John Lewis Steva, graduate student at The Ohio State University, "Preparation and In-service Training for Agricultural Mission Service in Africa," reviews studies related to the present one.[7] Mr. Steva found eight studies that relate to the present one in-so-far as they treat the subject of agricultural missions and missionaries. None, however, presented in-depth descriptions of church-related agricultural projects.

Definitions

Agricultural education

In the context in which it is used in this study, "agricultural education" includes all means of extending information about agricultural production, agricultural credit, marketing, farmers' organizations and fields of endeavor directly related to agriculture.

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[7] John Lewis Steva, "Preparation for In-service Training for Agricultural Mission Service in Africa." Individual Study. The Ohio State University, 1968.

Christian church

As used in ths study, "Christian church" includes all Christian denominations and sects.

Christian body, church body

These terms are used interchangeably in the text and refer to organizations within denominations and sects or to joint endeavors of denominations and sects (Ex.: World Council of Churches, National Christian Council for Kenya) of the Christian church.

CHAPTER II

PROJECTS IN CAMEROUN

Chapter II is divided into four parts, each of which describes one church-related agricultural project or projects so closely associated that they are treated as one. All of the projects described in the chapter are found in the Federal Republic of Cameroun. They are located throughout the country, from the arid north, to the tropical rain forest of the south, to the western highlands (Fig. 2).

Each description is accompanied by a map that shows the area of influence of the project described. The maps also serve to identify nearby towns that may subsequently be located by the reader on more extensive and detailed maps and in various geographical and demographical materials.

Part 1

La Maison Rurale de Fignolé

The Maison Rurale de Fignolé (hereafter termed the "Center") is located adjacent to the village of Fignolé in north Cameroun (Fig. 3). This village is 15 miles from Poli, the nearest seat of Government, and 110 miles south of the capital of north Cameroun, Garoua. The Center was opened in 1963 by Father Louis Chauvat, a French Roman Catholic priest who had been living in Fignole since 1953.

When Father Chauvat arrived in Fignole, the people were living in

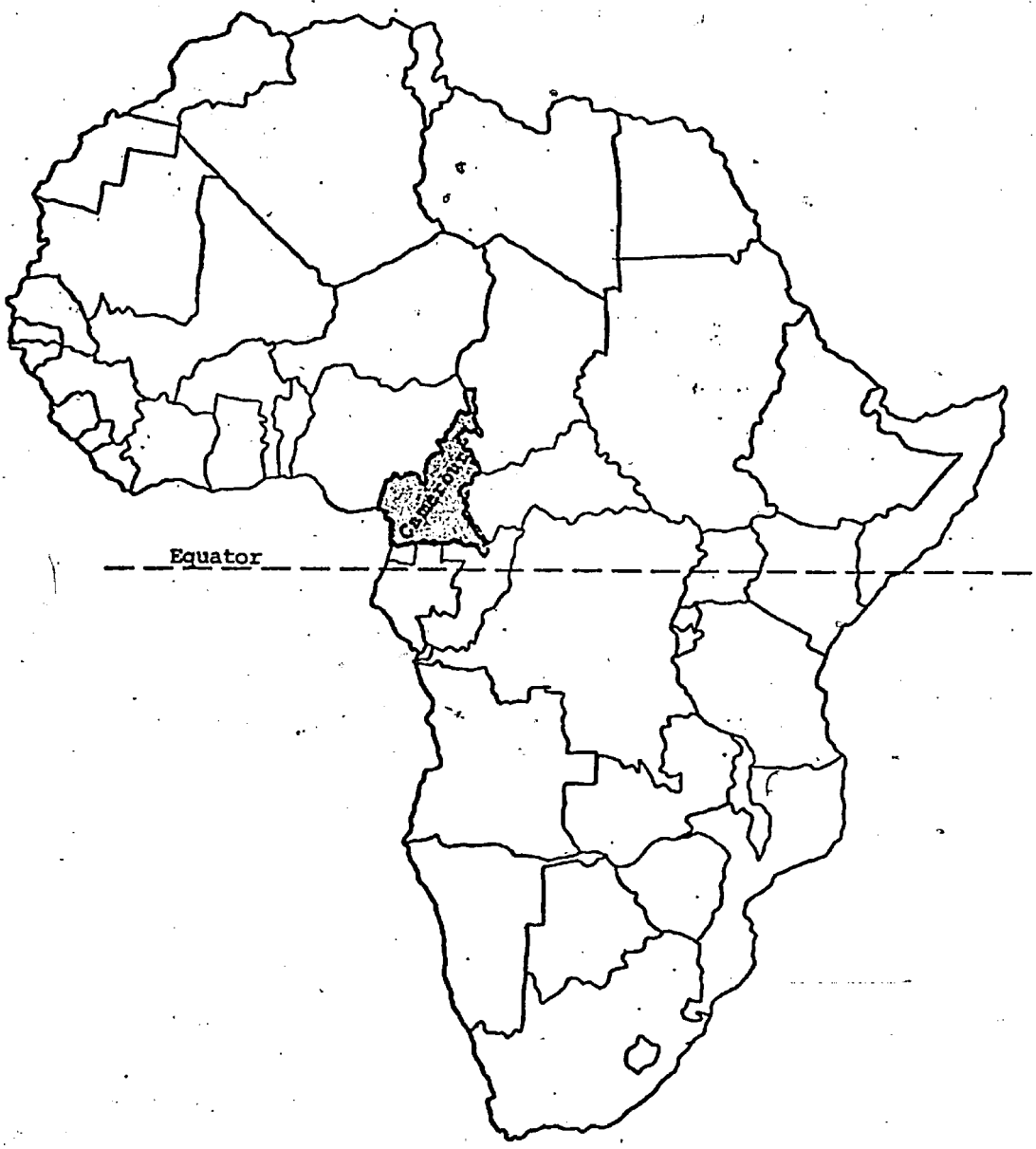

Fig. 2.--Map of Africa indicating location of Cameroun

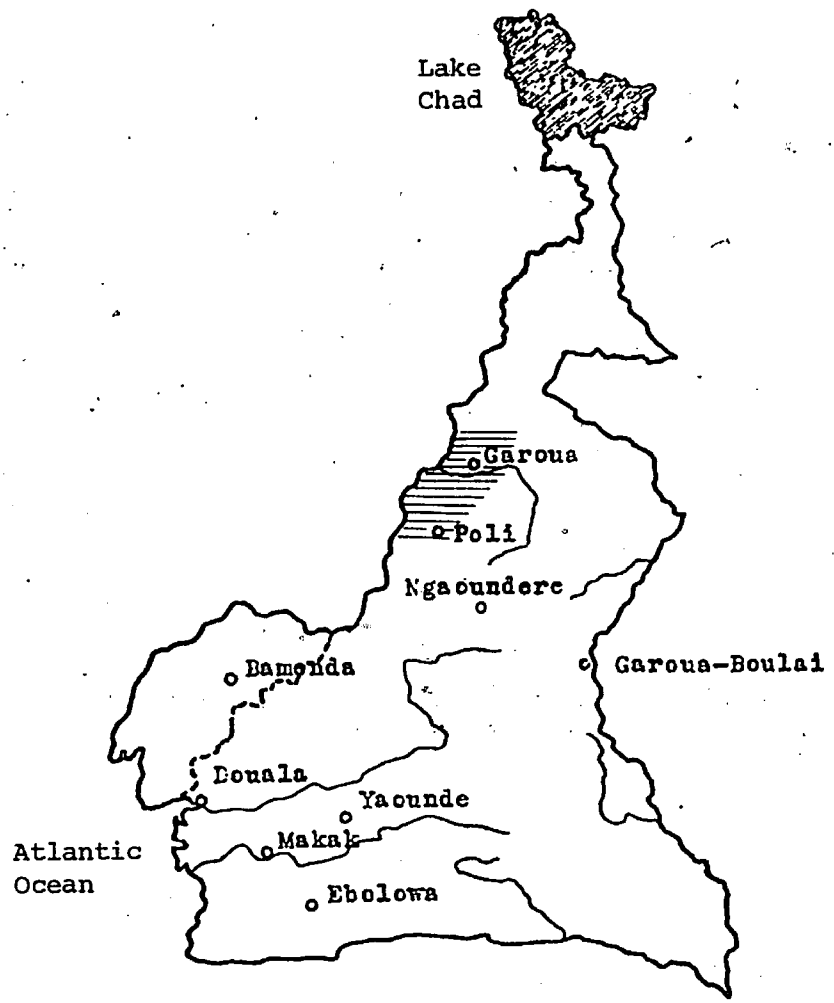

Fig. 3.--Map of Cameroun. Shaded area indicating area of influence of "La Maison Rurale de Fignolé"

extreme poverty with almost no money. They were almost perpetually hungry. It was impossible for many young men to marry because they were incapable of paying the bride price. Consequently, they could see no future in staying in the village and it was rare to find young men between the ages of 16 and 20 there. The village's greatest resources of favorable climate, adequate rainfall and potentially productive agricultural land were not being utilized to their fullest. In addition, there was no school in the village.

Father Chauvat reasoned that if a school were opened, it would transform the village and give it new life. Young people would find in it at least the attractiveness of an education. Ultimately, Father Chauvat hoped to teach the educated young people how they could develop the resources of the village and find a bright future in farming.

The village people resisted the idea of a school, fearing that, instead of leaving the village at the age of 15 or 16, the young men would, because of their education, leave it at the age of nine or ten. They could not understand why the young people would not want to escape from the difficulty of life in their village if they had the opportunity of doing so.

Father Chauvat, who spoke the local language and was trusted by the villagers, asked them to have confidence in him and to send their children to school, believing that new life for the village would result. The first year, one parent sent his child to school. The second year, there were ten pupils, the third, 22 pupils. Within a few years, 95 to 98 per cent of the boys and 80 to 90 per cent of the girls were attending school. At the same time, Father Chauvat began experimenting

with crops and methods that he felt could not only increase the villagers' cash income but would also stem the misery and sickness that resulted from hunger and poor nutrition.

Le Centre de Formation Agricole et Rurale (The Center for Rural and Agricultural Training)

The first program of agricultural training was for adults of the village and the surrounding area who had been hired as laborers for the construction of the school, dispensary, residences and other buildings of the mission. The men had become accustomed to earning money regularly. As a result, they had raised considerably their standards of living: better and more abundant food, clothing, family stability and improvement in their housing.

Father Chauvat became concerned that, when the building was finished, these adults would no longer be satisfied with the life of the village and that they, too, would be lost to it. Thus, he sought to introduce crops and agricultural methods, adapted both to the region and to the possibilities of the villagers, that would result in greater and more abundant harvests, a portion of which could be sold. Feeling that the villagers could not cultivate with the hoe more land than they were actually cultivating, Father Chauvat decided to try to train the small but sleeping-sickness-resistant cattle of the region to pull a plow and other implements. For this, he asked his cousin, Mr. Joseph Martin, to come to Cameroun to assume the task of training cattle to become draft animals, looking after the crops that would be planted, and, ultimately, teaching new methods and practices to villagers. Mr. Martin had had much experience with animal traction and farming in

France and brought with him a high level of expertise and experience.

The goals of the project with the adults, called the Center for Rural and Agricultural Training, were to introduce animal traction, soil conservation techniques, new methods of planting and new crops. It was planned that the men, who would work three days per week, would be considered apprentices and would receive pay for the work they did in developing a farm associated with the Center. In addition, each man would be permitted to plant and harvest 1300 square meters of peanuts and 1000 square meters of rice on land they helped to develop. It was hoped that this provision for continuing income would not only keep them in the village during their year-long association with the Center but would provide them with the knowledge and experience that would enable them to increase not only the amount of food produced, but also their cash income above the $12 or $15 which was the annual cash income of most families in the village and the region at the time.

The Center for adults was opened with the blessing of the Cameroun Government in 1958 with 20 men of Fignolé, all of whom had been employed by the mission during its construction. It was financed by a grant of approximately $6000 from the French "Fonds d'Investissement pour le Dévéloppement Economique et Social des Teritoires d'Outre-Mer" (Investment Funds for the Economic and Social Development of Overseas Territories). With this grant, the Center was able to purchase equipment and start a herd of the local cattle by purchasing four cows, two heifers, a steer and a bull. The bull and the steer had been trained to work as a team and were the first draft animals to be used.

During the first year with the adults, four hectares (10 acres)

of grassland were cleared and cultivated and the use of cattle as draft animals was introduced. A second technical innovation was then introduced, that of finding points of the same level across the fields and raising dikes along these points so as to curb runoff and contribute to the conservation of both soil and water. Two hectares of these contoured fields were planted in peanuts while one hectare was planted in grain sorghum, both traditional crops in the area. Finally, one-half hectare was planted in a crop that had never before been planted in the region, rice. By the time the fields were planted, the men had learned to work with the draft animals. In addition, using a simple instrument made at the Center, they could find the contour across a field and could raise dikes along that contour. Also, they had learned to plant rice in place and in rows. They were, nevertheless, skeptical and had only learned these new methods because they were being paid to do so. When Father Chauvat asked them if they would like to use the same methods in their own fields, they asked how much he would pay them if they would permit it!

When it was time to harvest the crops they had planted, however, the men lost all skepticism and became convinced that perhaps the ancestral methods were neither best nor most fruitful. The harvest produced almost 4,000 pounds of rice alone. Prior to this time, rice could only be purchased and was considered a delicacy to be afforded only for the most special occasions. Now, rice could be cultivated and kept or sold according to the will of the farmer in question.

The first group of men left the Center after their year there and made the transition from salaried to farming with no difficulty. In

1959, 20 more adults were accepted at the Center and worked according to the same plan that had been developed for the first group. In 1960, 40 men were accepted. In that year, a grant of approximately $5,600 was received from an organization of German Catholics to provide the funds necessary to carry on the training program.

By 1962, over 100 men had had the opportunity of working and learning at the Center and had returned to their villages to continue in farming. In the villages they continued to demonstrate an openness to new methods and new crops. Their physical situation had been improved because of more abundant and more varied harvests. However, the problem with the educated young still remained. They and their parents still thought that farming was not a worthy occupation for those who had been to class and could read and write and do arithmetic.

Nevertheless, ideas of the young toward farming were changing. There was evidence that some young men who had been to school were convinced from what they had seen that one could make a decent living in working the soil and that they preferred this to hanging around the urban centers of Poli or Garoua unemployed. Therefore, the adult program was stopped in 1963 and a program was started for young men who had been to school.

La Maison Rurale

The goal of this Center is to contribute to the human, economic and social development of the regional population. It proposes to do this by helping young men with a primary school education become farmers whose knowledge of agricultural theory and technique will enable them to better their existence in their villages, both economically and

socially.

The institutional form of the project is that of a residential vocational training center. The trainees spend approximately 20 months at the project, including two rainy seasons and one dry season. They arrive just prior to a rainy season and leave after the harvest following the second rainy season.

The trainees are housed and fed at the Center. They receive no pay, but they have the opportunity to work one day each week on experimental plots that various research organizations have on the Center's farm. In this way, they earn enough pocket money to provide for small purchases of essential items.

The Center emphasizes "learning by doing" although there are formal classes for an hour and a half each evening during which such subjects as French, arithmetic and agricultural sciences are taught.

Upon his arrival at the Center, the trainee receives four plots of ground for which he will have full responsibility during his stay at the Center. On these plots, he plants rice, cotton, peanuts and grain sorghum (Appendix B).

In addition, the trainee may ask for as much land as he wishes on which he may plant for extra cash or extra food whatever he would like to plant.

In order to prepare the soil for planting as soon as the trainee arrives, the Center's tractor and cultivating equipment are often used. The trainee has nothing to do with such mechanized equipment, however. During the course of his stay at the Center, he learns to train and use draft animals.

Under the close supervision of Father Chauvat, Mr. Martin and two former trainees, who now serve the Center as teachers, the trainee spends his days in the field planting and caring for his plots. On the plots that are allocated to him for grain sorghum, peanuts, rice and cotton, the trainee must conform strictly to the methods that are recommended by the Center.

Until 1969 the entire amount of money realized from the sales of the harvests for these plots belonged to the trainees and was kept for them in joint savings accounts until their departure from the Center. These funds provided the trainees with the capital they needed for starting their own farms. In 1964, the average amount set aside by the trainees at the end of two rainy seasons was 23.000 francs ($94). In 1970, the average amount set aside was 47.208 francs ($193). Beginning in 1968, however, at the suggestion of the Cameroun Ministry of Rural Development, the trainees were required to participate in the cost of their training. Thus, the sum of 3.500 francs ($14) per year was taken from their accounts and was applied against the operating costs of the Center. In 1970 this was raised to 5.000 francs ($20) per year. Therefore, trainees leaving in 1970 left the Center with credits of only 40.000 francs, or 5.000 francs less than the trainees of the previous year.

The trainees major expenses for starting their own farms were estimated as follows:

Team of draft animals	28.000 francs	($112.00)
Yoke, collar, etc.	2.100 francs	(8.40)
Plow	3.900 francs	(15.60)
Trailer	17.000 francs	(68.00)
Peanut sheller	3.500 francs	(14.00)
Total	54.500 francs	($218.00)

The Center recommends that, wherever possible, trainees settle near enough to each other to share some of the above capital expenses and to encourage each other in the work. There is some evidence that former trainees have experienced difficulties with members of their village in that they were teased for having returned to farming after having attended school. They were thus thought to have failed to capitalize on their education, that is, to find a way to leave the village. Other points of contention between former trainees and villagers were the methods used by the former trainees and, at times, the crops they planted. Since they differed from those used by the villagers, they were interpreted as a threat to them--at least until the first harvest.

Conditions for admission

To be admitted to the Center, young men must meet the following requirements:

1. Solicit admission in writing and agree to the rules of the Center.
2. Be not less than 16 years of age nor more than 20 years old.
3. Have attended a primary school and be able to read and write.
4. Be of good moral character.

The Center was originally designed to serve the local population,

those living within 25 miles of Fignole. As the work of the Center became more generally know, however, applications began to be received from those living outside the immediate area and up to 200 miles away. If these men met the above conditions, and if there were places for them, they were admitted. By 1970, in fact, only five of the 40 trainees were of the original immediate area.

A further change that was observed in those applying was that during the first five years of the project, their educational level rose from four years of primary school to six or seven years.

The project considers that 40 trainees is an optimum number. A new group of 20 trainees is admitted at the beginning of every rainy season. There are at the Center, therefore, those who are "first-rainy-season" trainees and "second-rainy-season" trainees, and, in theory, 20 of each. This system provides continuity and has the special advantage that the second-rainy-season trainees assist in the training of the new arrivals.

Total enrollment from 1963 to 1971 has been 274.

Daily schedule

The trainees get up between 5:30 and 6:00 A.M., eat breakfast and report for work at 7:00 A.M. During the hours between 7:00 A.M. and 12 noon, the trainees work in the plots of imposed crops (peanuts, sorghum, rice and cotton) under the supervision of the staff.

At noon, the trainees return from the field, eat lunch and rest until 3:30 P.M. when they are free to work either on their plots of imposed crops or on their "free" plots where they may grow whatever they wish; but they must be at work in one of the two. At 5:30 P.M.

they return from this work. From 6:00 P.M. to 7:30 P.M., the trainees attend class.

One day of each week is set aside for working on the experimental plots of IRAT (Institut de Recherches Agronomiques Tropicales et des Cultures Vivrières - Institute of Research in Tropical Agronomy and and Food Crops) and of IRCT (Institut de Recherches du Coton et des Textiles Exotiques - Institute of Cotton and Textile Research).

This schedule is modified when necessary, according to season or unusual circumstances.

Yearly schedule

The chart presented in Appendix B illustrates the schedule of cultural operations to be effected on land and crops during a calendar year.

The advantage of this schedule is that the trainee, and ultimately, the farmer, is employed during the dry season, a season when all farming activities were traditionally stopped.

Instruction

The philosophy concerning the relationship between on-the-job training and in-class instruction is that the latter completes the former. On-the-job training is considered the more important of the two, and it is stressed.

Practical and classroom instruction are arranged under four general titles: the soil, plants, animals and farm management. The trainees learn about the physical structure of soils, methods of bringing new fields into production, methods of cultivation, methods of soil

conservation and means of enhancing soil fertility.

Instruction having to do with plants includes the study of their growing cycles, the growing and protection of plants and the various products and by-products that are produced by them.

The trainees learn to care for animals, to diagnose and treat disease and to train and use oxen for farm power.

In addition to the above areas of instruction, the trainees learn how to manage the finances of the farm; and in their daily lives at the Center, they learn the value of cooperating with others to cut costs, to enhance the effectiveness of soil and plant treatments and to augment the market value of their crops. The Center does not actively encourage the formation of cooperative societies. Rather, it believes that such societies will be formed when the farmers feel a need for them. At the moment, there often exists a deep mistrust between neighbors and any cooperation created from the outside would be on shaky ground, indeed.

Father Chauvat felt that 40 trainees was the maximum number that the Center could train at one time. The number of applications received from young men who met the qualifications for admission was so great by 1966, however, that it was decided to open a similar center in another area of north Cameroun. This center was opened in the county of Tcholeré and is operating with the same success as the Fignolé Center.

Information concerning materials written by or about the project

In 1966 a study of the project was made by the Institut Africain pour le Dévéloppement Economique et Social (African Institute for Economic and Social Development), a Catholic organization whose head offices are in Abidjan, Ivory Coast. The study was published under the title, "La Maison Rurale de Fignolé."[1]

A report written by Father Chauvat appeared in an FAO study document, "Organisation et Dévéloppement de la Formation des Exploitants Agricoles en Afrique Centrale Francophone" (Organization and Development of Farmer Training Programs in French-speaking Central Africa).[2] The report describes the Center and its program.

Accomplishments and effects of the project

The project has been responsible for the introduction of a number of tools, methods and crops in the Fignolé area. Among these are the following:

1. Father Chauvat determined that the local breed of livestock could be trained as draft animals and he introduced them as farm power. Along with this introduction was that of the plow, the harrow, the ridger, the planter, the sled and other tools used in association with draft animals. By 1972, the

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[1] E. deLoisy, La Maison Rurale de Fignolé, (1966: Institut Africain pour le Dévéloppement Economique et Social, B.P. 8008, Abidjan, Ivory Coast), 85 pages.

[2] FAO, "Organisation et Dévéloppement de la Formation des Exploitants Agricoles en Afrique Centrale Francophone." (Rome: 1967). R. P. Chauvat, "Expérience de la Maison Rurale de Fignolé," pp. 66-85.

use of the local breed of cattle for farm power had received general acceptance by the local population.

2. Hand tools that were introduced included long-handled hoes, shovels and pickaxes.
3. Three important crops introduced through the Center were rice, cotton and beans.
4. Cultural methods that were introduced include plowing, contouring, planting in rows, irrigation, the use of animal manures and agricultural chemicals.
5. The corral was introduced as a place where the herd could be kept and fed and treated and where manure could be gathered.
6. Manure was shown to improve crop production and, thus, a value became attached to it.
7. The project introduced silage-making as a means of feeding animals during the dry season.

The project has received recognition by the Cameroun Government and by the FAO. It has been used on a continuous basis for variety and fertilization trials by two research organizations, IRAT and IRTC. The fact that the project's trainees are involved in caring for such trials and become acquainted with the research scientists conducting them, enhances the trainees' openness to new methods, new cultural practices and new varieties of plants.

That the Government holds the project in esteem is demonstrated by the fact that it invited Father Chauvat to participate in the planning of Cameroun's second Five-year Plan for the development of north Cameroun.

Approximately 80 per cent of the trainees have returned to rural areas to farm. In some cases, they have been offered jobs as extension agents or teachers by the Cameroun Department of Agriculture and by the CFDT, a cotton industry that has developed in northern Cameroun. The trainees have exerted an influence wherever they have settled and, in many cases, young men have asked to be able to join with them in their farming enterprises so as to be able to learn from them what they had learned at the Center.

One indication of success that farming has been made an acceptable occupation for those who have attended school is that many young men in the last years of primary school have already learned to work with oxen and say that they look forward to attending the Center. Another indication that farming has become acceptable is observed in young children who now play "oxen," fashioning yoke and plows from sticks and taking turns at being ox and driver.

The project has focused attention on diet and its relationship to health. The introduction of rice and beans as new food crops has diversified the diet, and the introduction of these two plus cotton has afforded the people three cash crops that they didn't previously have. The surfaces cultivated have increased because of the use of draft animals as a source of farm power. This, along with the new cultural practices, has increased not only the amount of food available but has also been responsible for an increase in income.

In 1963, a study was made of the effect of the training program on the adults who had spent a year at the Center as apprentices. To determine the effect of the program the person responsible for the

study, Dr. Pierre Tubery, established the amount of land cultivated, the production, consumption and cash income of a typical family of five not having been influenced by the Center. This was then compared with the same factors of those who had been influenced by the Center. The results are found in the following reports.[3]

Not Influenced by Center Production	Family of Five Value Consumed	One Year Cash
Grain sorghum		
½ hectare = 400 kg. @12 fr.	4.800 fr.	
Garden		
Corn, vegetables	700	
Peanuts		
50 kg. @15 fr.	750	
10 kg. sold at market		150
Livestock	2.000	
Wages		1.500
	8.250 fr.	1.650 fr.
Total/family = 9.900 fr.		
Total/person = 1.980 fr.		

Influenced by Center Production	Family of Five Value Consumed	One Year Cash
Grain sorghum		
½ hectare = 400 kg. @12 fr.	4.800 fr.	
Garden		
Corn, vegetables, beans	1.500	
Peanuts		
½ hectare = 100 kg. @15 fr.		
Consumed 200 kg.	3.000	
Sold 800 kg.		12.000
Rice		
0.3 hectare = 900 kg. @15 fr.		
Consumed 500 kg.	7.500	
Sold 400 kg.		6.000
Livestock	2.000	
	18.000 fr.	18.000 fr.
Total/family = 36.800 fr.		
Total/person = 7.360 fr.		

[3] E. deLoisy, La Maison Rurale de Fignolé, pp. 67 and 68.

In the latter report, it appears evident that the introduction of new cash and food crops along with new agricultural practices has more than tripled gross family revenue. Since this study was made, cotton has been introduced as a cash crop and this has further increased income possibilities. The increase in food consumption by those who had been directly influenced by the Center is to be noted.

Part of the above increase may be attributed to the introduction of animals as farm power, permitting farmers to cultivate more extensive land surfaces than they were able to cultivate with the hoe.

Finally, the Center has had an effect on housing. The traditional housing consists of round thin-walled mud huts with conical roofs made of thatch, two or three yards in diameter. The height of the walls is about one yard and there are no windows. The only entrance is a narrow opening in the wall about two feet high. Cooking is done outside, in the open.

The housing of former trainees and of those having been directly influenced by the Center is more spacious and more comfortable. If the houses are round, according to the traditional architecture, they are nevertheless larger and higher. The walls are thicker and are penetrated by small windows. The entrance is a door the height of a man. Frequently, a smaller hut is built apart from the main one, and this is used as a kitchen.

Several of the former trainees have built square or rectangular houses with windows, a door and several rooms. This is considered to be a distinct improvement in the standard of living and is, in part, permitted by the increased revenues.

Extension activities

The extension activities of the Center are the following:

1. Distribution of seeds of crops that have been shown to be adapted to the region.
2. Counsel and instruction for those who seek help.
3. Weekly meetings of former trainees and others for exchange of news, discussion of problems and instruction.
4. An annual three-day seminar where former trainees and others meet to compare notes and to study.

Credit is not made available to former trainees by the Center. However, trainees are supported in their requests for credit from the Cameroun Development Bank.

Agricultural chemicals and marketing helps are obtainable either from Government agricultural posts or from the CFDT.

Financing

As noted earlier, an initial capital investment of $6,000 was received from FIDES in 1958. This was followed in 1960 and again in 1961, by an investment of the German Catholic Assistance Organization (MISEREOR) of approximately $5,600. In 1963, the local Government offices at Poli set aside $1,000 for the Center and a further subsidy was received from the Government agricultural services. The 1964 operating budget was underwritten in its entirety by the Cameroun Government.

By 1965, the annual operating budget stabilized at approximately $6,000, including all salaries, dormitory expenses for the trainees, labor, acquisition of materials and draft animals, and new construction. From year to year, the budget was met from several sources

including Government subsidy, gifts from religious organizations, the French Embassy and from individuals.

Yearly Government subsidies received by the project have, however, decreased from $4,000 in 1966 to $600 in 1971. Furthermore, the Government, represented by the Secretary of State for Rural Development, has threatened to suspend them completely if the project doesn't become self-supporting in the near future.

In response to this worsening financial situation, the project decreased its budget from $6,000 to $4,000, more in line with its income possibilities, and has decreased enrollment from 40 to 26.

Problems

The precariousness of financing the Center from year to year seems to be the predominant problem with which it has to deal. In 1968, at the suggestion of the Government, it began to withdraw an amount of $14 (later raised to $20) from the account of each trainee each year for participation in training costs. This helped the project become partially self-supporting. To become entirely self-supporting, however, the project would have to keep back the totality of the earnings of the trainees. This would mean that the trainees would leave the Center with no funds with which to buy draft animals and tools, with which to marry and to live until the first harvest. Father Chauvat believes that such an alternative is impossible both from his point of view and from that of potential trainees.

If a solution to the problem of financing this work is not found, its future as a residential training center is in doubt.

Reasons for success

Father Chauvat feels that the success of the Center in accomplishing its goals is due to the following factors:

1. The people responsible for the Center have spent many years at Fignolé; they know the local language; and they have a profound knowledge of the people.
2. The goals that were set were realistic in light of local resources.
3. Great attention was paid to adapting to the local situation whatever system or techniques were brought in from outside the area.
4. From the start, there was a close collaboration between Government authorities and employees of the Department of Agriculture. The project was not working at cross purposes with the Government.

Part 2

Fôkpayônô

The name of the project, "Fôkpayônô," is a Gbaya work meaning "the field that produces well." The project's headquarters are located in Garoua-Boulaï, in the eastern region of Cameroun (Fig. 4). Its area of service is along 250 kilometers (155 miles) of the main road linking Yaoundé, the capital, with Garoua, the northern capital.

The person responsible for Fôkpayônô is Mr. William J. Peters, a missionary-agriculturalist of the Sudan Mission. Mr. Peters started planning the project in 1968 when he went to live with the Gbaya people in the area of service. During this time, he learned the language of

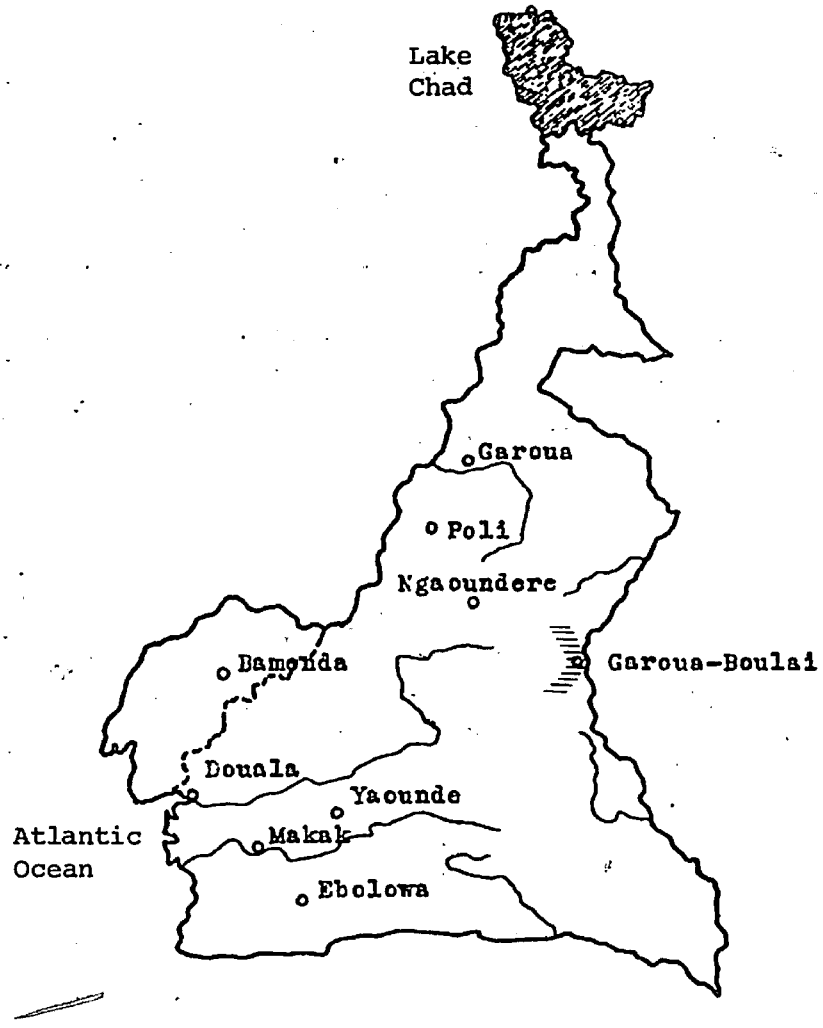

Fig. 4.--Map of Cameroun. Shaded area indicates area of influence of Fɔ́kpayɔ́nɔ́

the Gbaya, observed their agricultural practices and became acquainted with climate, soils, crops and markets. In addition, he established two five hectare farms (12.5 acres) in two soil and climate regions, one near the southern boundary of the area served, the other at the northern boundary. These farms are used for experimentation and demonstration purposes and to provide a source of income to pay for the operating expenses of the project.

The project is a joint venture of the Sudan Mission, the Norwegian Missionary Society and the Evangelical Lutheran Church of Cameroun and the Central African Republic. It is this latter organization that administers the project.

The goals of the project are to improve the standard of living of those served by improving crop and cattle production, to render a service to the country by assisting in the development of this particularly poor region of Cameroun, and to strengthen the local church.

Rather than establishing a center where trainees would come to be trained, it was decided that the resources of the project would be taken to villagers at the rate of two villages per year. A primary reason for this decision over that of establishing a training center, is the difficulty of guaranteeing that participants in a training center actually become farmers after their period of training. A further reason that a training center was not established was that it would have been difficult for the church to receive a land concession from local Government authorities. Under the present formula no land is needed other than that which is cultivated and for which no concession is required.

Method of operation

Through contacts with villages, the personnel at Fôkpayônô assess the level of interest in intensified agriculture. When they find a village or villages in close proximity in which 15 men are sufficiently interested to agree to adhere strictly for one year to Fôkpayônô's instruction and methods, arrangements are made for Fôkpayônô to work in that village.

The men must meet the following requirements:

1. Be between 18 and 35 years of age,
2. Have demonstrated particular interest in intensified agriculture in years past,
3. Be physically capable of performing farm work, and
4. Have satisfactory references as concerns attitude and moral character.

There is no requirement of religious affiliation nor is classroom education required. It is useful, however, that participants be able to read, write and speak French.

When the village has been selected and participants have been recruited, the personnel of Fôkpayônô seek 15 hectares (37.5 acres) of good farm land that is unoccupied (there is no shortage of unoccupied land in the region). Each participant is assigned one hectare (2.5 acres) for which he will be responsible. Work on this land begins in November when each participant, under the direction of a trained representative of Fôkpayônô, who stays in the village for the entire year, clears all trees and roots from his land. This work is generally completed by the middle of January and provides the personnel of Fôkpayônô

with a means of assessing the participant's sincerity and willingness. If the work of clearing is not done at all or is poorly done, the participant is not allowed to continue the program.

Following the final selection of participants, described above, daily classes are held for a period of six weeks or until the rains begin. The subjects considered during this period of classroom studies include:

1. The natural surroundings
    a. The forest and its products
    b. The grassland and its products
2. Soils
    a. Kinds of soils
    b. Soil conservation
    c. Soil nutrients
3. Plant nutrition
4. Field preparation
5. Crops (cassava, yams, sweet potatoes, Irish potatoes, coco yam, corn [maize], rice, peanuts, plantains, banana, coffee and garden vegetables)
    a. Physical features and nutrition
    b. Cultivation and crop management
    c. Economic importance for subsistence and export
    d. Rotation systems
6. Animal husbandry
    a. Cattle for farm power
    b. Small animals (sheep, goats)

7. Poultry husbandry

8. Farm and family accounting

9. Human nutrition and hygiene

At some time during the course of the classroom studies but before the beginning of the rains, the Fôkpayônô tractor prepares the fields for planting. This is a free service provided for participants in the program. The planting begins under the supervision of Fôkpayônô personnel as soon as the rains begin. Two new agricultural practices are introduced at this time, the planting in lines or contours and monoculture and the planting of one crop on one seed bed. It is also at this time that new planting methods, new crops, new varieties of known crops and the use of agricultural chemicals are introduced.

Once the planting is completed, participants begin training with oxen and learning also to train oxen as draft animals. Other activities during this period are the building of graneries to receive the harvests of corn, peanuts, rice and beans and the building of sheds for storing the anticipated harvests of the root crops such as Irish potatoes, yams and sweet potatoes.

Surplus production, that which is not needed for sustaining the farm family for the coming year or for seed, is transported in a Fôkpayônô vehicle to marketing centers. The money received from the sale of such surpluses, minus expenses, is then distributed to the participants in the program according to that which each produced. This is not a formal cooperative but may be called a "pre-cooperative" or "quasi cooperative" arrangement.

Loans are extended to the participants in the Fôkpayônô program

for the purchase of oxen and equipment and seeds. These are to be paid back over a three-year period.

During the first year of operation, 18 farmers participated in the program. As of this writing, 25 others are participating.

Personnel

The Fôkpayônô at present employs 15 people, of whom one, the director, is an expatriate. Mr. Peters holds a Bachelor of Science Degree in Agricultural Economics and Animal Husbandry from the University of Minnesota. His duties include the administration of the project, instruction of the participants, formation of village workers and the management of Fokpayono's two farms.

Local personnel include a counterpart for Mr. Peters, two village workers, two tractor drivers, one oxen trainer and driver and eight laborers who work Fôkpayônô's two farms.

Mr. Peters' counterpart holds the Brevet Diploma (approximately 10th grade education) and has been a sixth grade teacher for six years. The plan is to train this man in the methods used by Fokpayono and in its operation and, subsequently, to offer him a scholarship in a school of agriculture in Cameroun for further agricultural training. The counterpart's duties include assistance to the director; supervision in the fields; and teaching of health, hygiene and nutrition. If all works according to present plans, this man will replace Mr. Peters at a future date.

The two village workers have the sixth grade school-leaving certificate (C.E.P.E.) and have received agricultural training from Mr. Peters. Their duties are to live in the villages selected by the

program and work as instructors alongside participants in their fields.

Fôkpayônô foresees the end of its present stage of operation in 1978. At that time, there would be a participating village every 30 kilometers (19 miles) along the road. In the meantime, it hopes to develop a marketing cooperative and to be a source of tools, agricultural chemicals, draft animals, seeds and planting materials. It also hopes to form a credit union to assist farmers in the region who would have no other source of agricultural credit.

Accomplishments and effects

The project has been responsible for the introduction of oxen as draft animals. Of the 18 participants in the first year's operation, 14 have purchased oxen for training and labor. Two of the others plan to rent the oxen of their neighbors and two have been hired by the project, one as oxen trainer and driver and the other as tractor driver.

Fôkpayônô has introduced the planting in lines or contours and the growing of one crop on one seed bed. It has shown farmers how the fertility of a field may be maintained and enhanced through the use of organic and chemical fertilizers and crop rotation. It has also taught the use of pesticides.

Crops that have been introduced into the region by Fôkpayônô include coffee, Irish potatoes, rice, garden vegetables and new varieties of yams.

The local agricultural officers of the Cameroun Government are impressed with Fôkpayônô's organization and program and have expressed a desire to create a Government sponsored project similar to Fôkpayônô

in order to mount a cooperative effort leading to the agricultural development of the region.

One measure of the effect of Fôkpayônô on those who have participated in its program is that they are now willing to break with tradition and to purchase, train, care for and work with oxen.

Extension activities

Extension-type services offered to participants in Fôkpayônô's program are described above. The following services and materials are available to all who desire them:

1. Marketing aid on a pre-cooperative basis.
2. Tractor leasing for virgin land.
3. Oxen rental for non-virgin land.
4. Tools and equipment for oxen cultivation.
5. Seeds and planting materials.
6. Chemical fertilizers and pesticides.

As interest in intensified agriculture grows, merchants in the area stock materials and tools that are needed by farmers. Making merchants aware of possible profits through the sale of such goods is a result of the extension work of the Fôkpayônô-type projects.

Finally, Fôkpayônô's farm and those of participants serve as demonstrations of new crops, varieties, agricultural practices and oxen cultivation.

Finances

An initial capital investment of 17,862,000 fr. CFA ($65,430) was provided by the German Protestant relief organization, "Bread for the

World," and was distributed through the Community Development and Liaison Service of the Lutheran World Federation, Geneva, Switzerland. In addition, it has made a grant of 7,908,000 fr. ($29,000) for operating expenses for a period of four years.

Mr. Peters' salary and benefits are provided from the United States by the Sudan Mission. His transportation while working on the project is provided by Fôkpayônô.

Participants in the Fôkpayônô program are neither paid nor do they pay for the instruction and services they receive.

The project hopes to be self-supporting by 1974, after four years of subsidization. It counts on the production of its two farms and a cattle herd for such achievement.

Printed materials that have been of particular value to Mr. Peters include the FAO publication, Agricultural Development in Tropical Africa, in which one can find analyses of agricultural projects that failed to achieve their goals. Further publications of particular value are those produced by the Bureau pour le Dévéloppement de la Production Agricole (Office for the Development of Agricultural Production) for the National Ministry of Education of the Congo Republic. These consist of two two-volume works designed to aid in the teaching of agricultural subjects at training centers and in fifth and sixth grade classes: Cours Agricoles pour les Centres Elémentaires de Formation Professionelle, Type Rural, G. Josset, République du Congo, Ministère de l'Education Nationale, Brazzaville, 1968 and Fiches d'Enseignement Agricole pour les Ecoles Primaires, G. Josset, République du Congo, Ministère de l'Education Nationale, Brazzaville, 1968.

Mr. Peters feels that the method of operation of Fôkpayônô is a unique contribution that should enhance the chance of attaining the project's goals. Problems that must be solved include the absence of an exportable cash crop and inadequate and costly transportation to marketing centers.

Part 3

Libamba Farm-school

The Libamba Farm-school was opened in 1960 by the Cameroun Presbyterian Church. It is located adjacent to the village of Libamba, 11 km. (7 miles) west of Makak and 90 km. (56 miles) west of Yaoundé, along the Douala-Yaoundé railroad (Fig. 5). The site of the location was selected in consideration of the following factors:

1. The proximity of Cameroun Christian College, a union institution of several churches and missions in Cameroun with a student body of over 400 educating through secondary school under the French System (7th grade through Junior College). By locating the Farm-school near the college, it was hoped the students' opinion of agriculture as a vocation would be improved as a result of their interraction with teachers and trainees of the farm-school and as a result of increased knowledge of intensified agriculture. This has proved to be the case.
2. The proximity of the railroad, the principal artery between Douala and Yaoundé, the two largest markets in Cameroun.
3. The availability of land.

The project was started by Mr. Pascal dePury, a missionary-

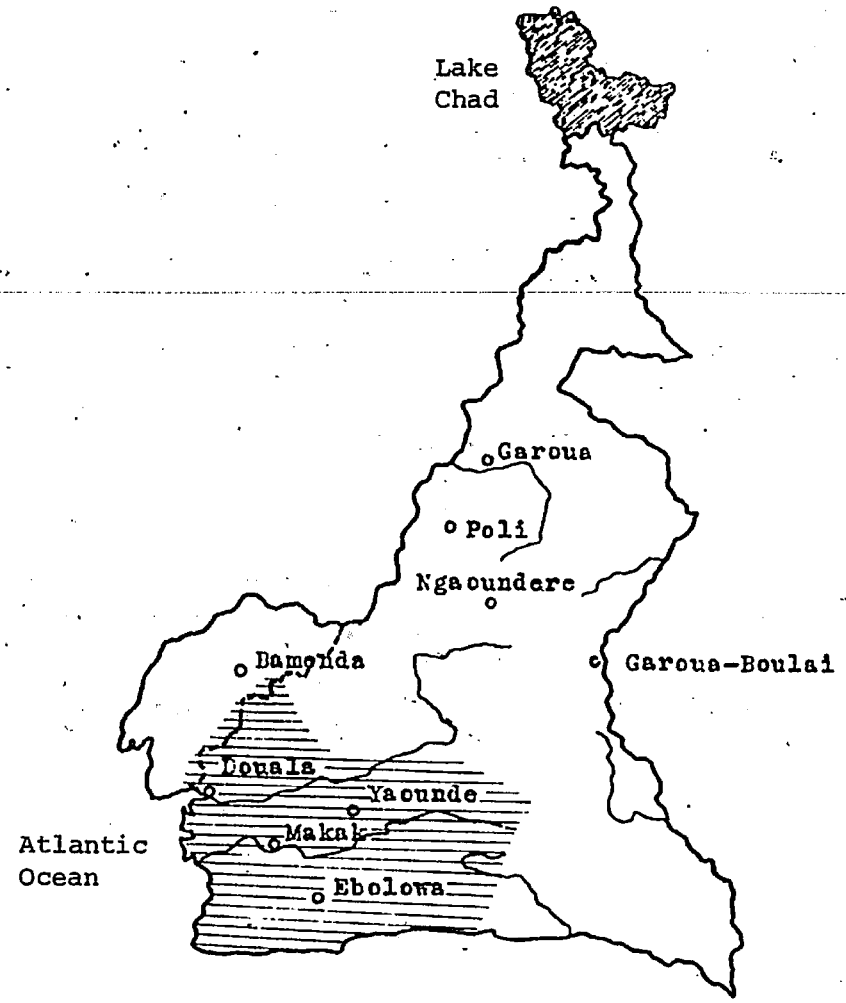

Fig. 5.--Map of Cameroun. Shaded area indicates area of influence of the Libamba Farm-school and its affiliated Rural Assistance Centers

agriculturist of the United Presbyterian Church in the U.S.A. working under the Cameroun Presbyterian Church. The goals of the Libamba Farm-school were:

1. To teach farming as a vocation to young men who had graduated from church schools and could not find employment;
2. To provide the correction of nutritional imbalances caused by the lack of animal protein by stressing poultry and animal husbandry; and
3. To stimulate the transition from the subsistence agriculture practiced in the region to a more commercialized agriculture that would take into account the increasing food needs of urban dwellers.

The region possesses three exportable cash crops--cacao, coffee and oil palms. These were not stressed in the program of the Farm-school because of the emphasis placed on these crops by Government and foreign agricultural services. The emphasis of the Libamba Farm-school was to seek a local solution for the growing food deficit of urban areas. The particular problem was to convince educated young men that the raising of small animals and the growing of food crops, traditionally the role of women, was both profitable and worthy.

Those to be served by the project were the young men who would receive training at the Farm-school and would, after training, receive assistance in establishing themselves as farmers. Others to be served included the general population which would benefit from the example of the Farm-school, from extension-type services offered through it and through rural assistance centers that were opened for this purpose.

The institutional form of the project is that of a residential vocational training center whose facilities include a farm, classroom, laboratory and dormitories. On the farm are raised poultry (chickens and geese), sheep, swine, rabbits and fish. Crops grown include bananas, pineapple, avocados, garden vegetables and corn (maize). Much experimentation is done both with animals and crops in an attempt to discover ways to increase production and to take advantage of markets that exist.

The farm has grown markedly in the 11 years since the project was begun. In 1960, it consisted of approximately three hectares (7.5 acres) of cleared rain forest, a one-acre fish pond, a staff residence, a barn/shop and two dormitory buildings with facilities for ten trainees and a supervisor. Equipment included a half-ton pick-up, a Farmall Super A tractor with power take-off and a small hammermill for the grinding of feed. Livestock on the farm included 80 pullets purchased at four months of age and several rabbits.

By 1970, there were approximately ten hectares (25 acres) of cleared land, including three hectares (7.5 acres) of fenced pasture. Buildings included the barn, a vehicle storage shed, three dormitory buildings with facilities for 24 trainees and a supervisor, three staff residences (one a duplex), a classroom/office/laboratory building, a shop and numerous permanent and temporary buildings for livestock. Equipment included a tractor with trailer, a half-ton pick-up, a one ton truck, a feed mill with a fourth-ton/hr. capacity, an electric egg candler/weigher and two diesel generators with approximately 50 KVA capacity. The farm had been wired for electricity and a water system

had been installed. Livestock included the following: 4,700 laying hens, 1,840 broilers, 180 sheep, 90 rabbits, 41 pigs and 47 geese.

In addition, a plantain and banana garden of 1,050 plants were planted as well as 6,500 plants of pineapple and 105 avacado trees.

Recruitment

Trainees are recruited through the church, through radio broadcasts and through the country's newspapers. To qualify for admission, a candidate must be at least 20 years old, have received the sixth grade school-leaving certificate (CEPE), present a medical certificate attesting to good health and have satisfactory references concerning attitude and moral character. From among applications, a preliminary selection of candidates is made. These are invited to the project for a month of classroom studies and work on the farm. At the end of the month, an examination is given and an assessment is made of the work and attitude of the trainees. Those who pass the examination and have proved by their work and attitude that they are able to meet the demands of the training program are invited to stay. Once this final selection is made, only flagrant breaches of discipline will cause a trainee to be expelled.

The number of trainees to be accepted by the Farm-school each year is 24. In order to have this number after the final selection, up to 28 candidates are invited to participate in the month preceding the final selection. If all of these wish to stay and have passed the examination and assessment, they are permitted to do so. However, it is unusual that this should occur.

There is no requirement of religious affiliation. The original

stipulation that the project was to serve only those who had graduated from church schools was dropped two years after the opening of the Farm-school.

Trainees receive free lodging. Those who are single are assigned rooms in dormitory buildings. Those who are married and have their families with them are assigned a room and a kitchen. Trainees are not fed. Those who are single contribute 350^{f} CFA ($1.40) per week to a kitty, hire a cook, buy food and eat together. Until two years ago, trainees received 500^{f} CFA ($2.00) per week for the project to provide for food and other necessities. Presently, trainees must deposit 15,000^{f} CFA ($60) for this purpose at the beginning of the training program. This deposit is returned to them week by week during the course of the 11 months the trainees spend at the Farm-school.

Program

In order to provide as much practical instruction as possible, all farm work is done by the trainees under the supervision of the project's personnel. The practical experience is enriched as each trainee is made responsible for an animal enterprise each month on a rotational basis. By the end of the training period, trainees are well-acquainted with every aspect of poultry and small animal husbandry and fish culture including feed preparation and the preparation of produce for market.

The daily schedule provides for four and one-half hours of general farm work, a minimum of one and one-half hours of work with the particular animal enterprise for which the trainee is currently responsible, two and one-half hours of classroom instruction and one hour of

supervised study. Saturday and Sunday schedules are somewhat modified (Appendix C).

Classroom studies cover the following general areas:

1. The soil
2. The plant
3. Crop plant production
4. Pasture management and improvement
5. Poultry husbandry
6. Small animal husbandry
7. Fish culture
8. Farm management and accounting
9. Agricultural institutions (cooperatives, credit unions, etc.)
10. Civics
11. Religious instruction

A detailed outline of this program may be found in Appendix D.

Classes are suspended during the month of August each year, and trainees are allowed to return to their homes for a period of two weeks if they wish. Hypothetically, half of the trainees would be on vacation while the other half operate the farm.

For security reasons, trainees are not allowed to raise animals privately during their stay at the Farm-school. They are, however, encouraged to have vegetable gardens in order to become increasingly familiar with strange crops and varieties, to test privately methods and materials recommended by the Farm-school and to earn extra cash.

At the end of the training period, trainees who have kept a C

average (10/20 in the French system) may qualify for a loan of up to 50,000[f] CFA ($200) with which to start their farming enterprise. This loan is paid back from receipts over as long a period as necessary. All trainees receive regular visits from the extension personnel who are attached to the project and qualify for the extension services provided by the project.

Results

Through 1971, the project has trained in its regular program a total of 178 men. Of the 130 trained by the end of 1969, 73 had successfully established commercial farms. Others had obtained employment because of the skills they learned at the Farm-school. One of the former trainees became director of the Farm-school in 1965. Two others work at the Farm-school. Others are employed in the extension activities of the church while still others have been employed as supervisors in farm-schools that have been opened by churches in other parts of Cameroun. Three have been employed by Government agencies to care for livestock.

Personnel

The personnel situation has evolved over the years as the project has grown and as extension and assistance facilities have been developed. Mr. Pascal dePury, who holds a diploma from the French school of tropical agriculture at Nogent-sur-Seine, had three years of experience in educational work in Cameroun before starting the Libamba Farm-school in late 1960. His first group of trainees consisted of four men, one of whom remained at the Farm-school to assist him.

In August, 1962, Mr. dePury went on leave in Switzerland, and Mr. Wade H. Reeves (B.Sc. in General Agriculture and Master of Education in Agriculture from California), a missionary of the United Presbyterian Church in the U.S.A. with ten years experience in Cameroun working with the Cameroun Presbyterian Church, took over the direction of the Farm-school. He was assisted by a trainee of the Class of 1962, Mr. Samuel Mbog, holder of the BEPC diploma (tenth grade), and by Mr. dePury upon his return in 1963. At this time, Mr. dePury began to travel extensively to visit former trainees and to be of assistance to them.

In 1964, Mr. dePury moved to Yaoundé to become coordinator of the rural work of the Cameroun Presbyterian Church, to start a rural assistance center to aid former trainees with problems of supply and marketing and to be more centrally-located vis-à-vis these former trainees. Mr. dePury also traveled to the Farm-school for a period of two days every two weeks to teach and to become acquainted with the trainees. In 1964, Mr. Mbog was accorded a scholarship by the United Presbyterian Church in the U.S.A. to study poultry and animal husbandry in France for one year.

Early in 1965, Mr. André Schulé, a Swiss farmer, member of the Reformed Church of Switzerland and supported by a grant from the United Presbyterian Church in the U.S.A., arrived to assist Mr. Reeves at the Farm-school, to take over its operation upon Mr. Reeves' departure on home leave in July and to assist Mr. Mbog, now named director, upon his return from France in August. Mr. Schulé stayed at the Farm-school for a period of 18 months.

Upon his return from home leave, Mr. Reeves was assigned to

assist Mr. Mbog at the Farm-school and to coordinate the rural development work of Protestant missions and churches in Cameroun, the rural work of the Cameroun Presbyterian Church, and to direct the Yaoundé Rural Assistance Center during Mr. dePury's home leave. By this time, 1966, two additional centers designed to assist former trainees and others had been opened--the Rural Assistance Center at Douala and the Pilot Farm at Elat, Ebolowa.

In August, 1968, Mr. Reeves was assigned to Ebolowa to develop an extension program in the southern area of Cameroun, supervise the work of the Elat Pilot Farm and assist former trainees and others living in the area.

Upon Mr. Reeves' departure from the Farm-school in 1968, it no longer received subsidized personnel in residence but was required to pay the salaries of all personnel out of its profits. Personnel at this time and, subsequently, included the following:

1. Mr. Samuel Mbog, Director.
2. Mr. Maurice Tsagué, a former trainee, serves as work supervisor in the morning and as secretary in the afternoon.
3. Mr. Luc Bassek, a former trainee, serves as an instructor.
4. Two or three young Frenchmen are generally employed under a program that permits service in educational institutions overseas in lieu of compulsory military service. These men serve as teachers and in some other capacity such as accounting, construction, or assistant to the director. They may be trained in agriculture, but this is not always the case. Though their transportation expenses are paid by the French

government, the Farm-school must pay their monthly salaries of approximately $100 and provide housing for them. They stay at the project for 18 months.

In addition to the above personnel, the Farm-school employs a carpenter, a mason, a jack-of-all-trades and two men who mix animal feeds. Until 1970, all feed was mixed by trainees. However, when the local demand for feed rose to 50 tons per month, it was necessary to replace trainees with hired laborers who could work at that job eight hours per day.

Mr. Mbog has requested that the church provide a European or an American agriculturist to assist him at the Farm-school until such time as a suitably-trained Camerounian can be found. The present formula of using the young Frenchmen is inadequate because they are not trained when they arrive, and they don't stay long enough to acquire adequate training. This places a heavy and continuous burden of responsibility on Mr. Mbog and on the finances of the Farm-school.

Information concerning materials written by or about the project

Two books have been written by Mr. dePury as a result of the project's success in raising chickens and sheep in the equatorial rain forest. The books, of the "how to" variety, are detailed and illustrated and have been written in such a way as to be easily comprehensible for village populations of the humid tropics. Both books are in the French language:

Pascal dePury. Comment Elever les Poules (How to Raise Chickens); Editions CLE, Yaoundé, 1968.

Pascal dePury. Comment Elever les Moutons (How to raise Sheep), Editions CLE, Yaoundé, 1969.

In addition, Mr. dePury presented a brief review of agricultural work done by churches in Cameroun in the following article:

Pascal dePury, L'Action Agricole des Eglises au Cameroun, L'Actualité Missionnaire, No. 1 Janvier-Février 1967 12e année (Département missionnaire des Eglises Protestantes de Suisse romande. Chemin des Cidres, 5. 1000Lausanne 9.

In January, 1967, Mr. Reeves presented the work of the Libamba Farm-school at a regional seminar of the FAO held in Yaoundé, Cameroun. This presentation was subsequently printed in the following FAO publication:

W. H. Reeves, "Expérience du Centre de Formation rurale de Libamba." Organisation et Dévéloppement de la Formation des Exploitants Agricoles en Afrique Centrale Francophone. FAO. Rome, 1967, pp. 85-95.

In addition to the publications listed above, Mr. dePury, Mr. Reeves and Mr. Mbog have written articles for the Protestant weekly, "La Semaine Camerounaise," and extension materials on specific agricultural topics.

Several articles have referred to or have been written about the project including the following:

Stanley J. Rowland, Jr. "Hatching a Poultry Revolution," Presbyterian Life, December 15, 1966, pp. 36, 37.

George Milloan, "Churches in Africa," The Wall Street Journal, Vol. XLI, No. 116, June 13, 1968, p. 1.

Accomplishments and effects

The accomplishments and effects of the Libamba Farm-school have been many and varied. Perhaps the greatest of these is that of convincing educated young men that production agriculture, farming, was a

vocation worthy of their attention. From the first year of operation, the project's success in producing and marketing eggs and poutry attracted the attention of potential trainees and villagers alike. Villagers had had such poor success in keeping the few chickens found in most villages that they had forthrightly stated that commercial poultry and egg production could not succeed, and they waited for the failure of the Libamba project. When the project succeeded by producing in one day more eggs than most villagers had seen in a lifetime, the villagers became a ready audience. In addition, in spite of the intensely practical nature of the training program and the fact that no diploma was given, applications for admission to the Farm-school have, from the third year of operation, exceeded the number of places available. Moreover, the educational level of those applying has risen.

Villagers in the area saw the opportunity of raising poultry for profit and invested money in chickens and chicken feed--something that had before been considered ridiculous, if not scandalous. The personnel of the Libamba Farm-school agreed to assist them with problems of supply (of stock, feed and veterinary products) and marketing on the condition that they follow instructions given to them concerning housing, feeding, vaccination and treatment schedules, care and delivery of eggs. Thus was established a system of "outgrowers" which was for several years administered on a pre-cooperative basis where producers received the difference between proceeds from the sale of their production and expenses. This informal pre-cooperative arrangement was formalized in 1965 with the formation of the Minka Poultry Producers Cooperative. In 1970, this cooperative had a membership of 20 of whom 14

were outgrowers and six were former trainees. Its egg production had grown from 100,000 in 1965 to 700,000 in 1970 and its gross revenues from $8,100 in 1965 to $42,700. In 1967, the geographical map of Cameroun used in primary schools to teach the children about their country and its products pictured in the region of Libamba a chicken!

By 1967, two additional poultry producers cooperatives had been formed--one in the capital city of Yaoundé and the other in the port city of Douala--to serve former trainees of the Libamba Farm-school and others.

As a result of the intensified poultry and egg production brought about through the efforts of the Farm-school, Cameroun ceased in 1965 to import eggs and began exporting eggs, by air, to the neighboring countries of Gabon and Chad.

Because of the poultry industry that was increasing in size and importance, increased quantities of feed were necessary. Two components of the poultry feed could be grown locally, corn and cassava, accounting for 60 to 70 per cent of the ration. In order to encourage local production of corn (more nutritious than cassava), the Farm-school guaranteed a market for all of the corn the local villagers could produce. Along with this encouragement and guarantee, it planted demonstration plots in many villages and introduced, through these, monoculture; the planting in rows; the use of chemical fertilizers, fungicides and pesticides; and two new varieties of corn, Cuban Yellow and NS 1 from Nigeria. Results, though not spectacular, were impressive. In 1962, barely 900 pounds of corn were presented for purchase by local villagers, mostly women. In 1965, this had risen to more than

30,000 pounds and by 1970 to 59,400 pounds, or 27 long tons, with a market value of 46,000[f] CFA ($2,000). Thus a new cash crop was introduced into the local area. However, since the Farm-school utilizes more than 400 tons of corn per year, the majority of its purchases of corn is made outside the local area, in the western highlands, thus having a beneficial economic effect on that region as well as on the railroad linking the two regions. The creation of this poultry industry has also provided the cotton and peanut industries of Cameroun and the Central African Republic with a market for their by-products of cotton seed meal and peanut meal.

In the years since the project was started, only one food item in Cameroun has decreased in price, the egg, and this by a third or more. Partially for this reason and partially because eggs are becoming acceptable as food to the Bantu population of Cameroun, the market for eggs has grown markedly. Thus, a nutritious high protein food was made more generally available and within reach of the population of southern Cameroun.

In addition to the increased number of eggs and poultry that has been made available, the project has had a significant effect on the raising of small animals.

Traditionally, small animals such as chickens, pigs, goats and sheep receive no care. They survive as scavengers or not at all. For this reason, they are in poor health and produce little. Through the work of the Farm-school, it was demonstrated that even small amounts of care and supplemental feeding would cause the animals to reproduce more frequently and more of the young to survive. In addition, providing

housing would make manure available for gardens. That this demonstration has had an effect on the population is shown by the fact that villagers now regularly purchase balanced rations in small amounts, especially for young birds, vaccines and other veterinary products, and fertile eggs of purebred strains. In addition, they frequently bring sick animals to the farm entrance (understanding the importance of keeping sick animals separated from healthy ones) and call upon the personnel of the Farm-school to diagnose and prescribe treatment for the malady.

Further evidence of the effect of the Farm-school on villagers is their readiness to adopt the counsel of the Farm-school concerning animals and crops alike. Thus, the suggestion that newly-hatched chicks be taken from the brood hen and kept in a home-made brooder for protection against snakes, ants, hawks, sickness and the elements and to use high-quality feed was followed by many. As a result, most of the chicks survived to three or four weeks when they could be vaccinated and taken out of the brooders; whereas, before, only 10 to 20 per cent of chicks survived the first three weeks. Similarly, when the Farm-school suggested the production of beans, corn or soybeans, guaranteeing a market for these commodities, response on the part of villagers living in the proximity of the Farm-school was favorable and immediate.

The project introduced geese into the southern region of Cameroun by raising them at the Farm-school and selling fertile eggs to villagers. Eggs were hatched by placing them under setting hens or ducks. The Farm-school keeps a flock of 47 geese for egg production. Breeds of geese kept include the "Toulouse Industrielle," a large, gray goose,

and the "Oison de Guinée," a smaller, white breed. Geese have proved to be efficient converters of grass to meat and are not difficult to keep under the conditions of the tropical rain forest.

The project introduced a simple method for putting up silage that permitted it to carry a larger flock of sheep than would otherwise have been possible. The silage was fed as a supplementary feed during the dry season when pasture was inadequate.

The Farm-school introduced improved varieties of bananas, pineapple, avocado, mango and papaya, along with appropriate cultural practices, thus providing the local population with an additional cash crop and with a highly nutritious food crop. Surplus production of fruit is sold to the Cameroun Christian College, adjacent to the Farm-school, in the cities and to a group of young people in a nearby village who produce jellies and jams for sale to institutions in the city of Yaoundé. In addition, fruit production is becoming increasingly promising for export to the European market.

Finally, the Farm-school developed a method of growing tomatoes under plastic, thus, providing for local production of a popular and nutritious food that had previously been imported from northern Cameroun and from Europe.

The project has received recognition in many forms from Government and from international organizations. Of primary importance is the official recognition the Government has accorded to the Farm-school, the first of its kind in the country, and to the other farm-schools that have been opened as a result of its success (Appendix E). Each year, the project receives visits from regional agricultural and

veterinary officers and is the destination of an annual field trip for students in the Federal University, Faculty of Agriculture. The FAO has made a study of the project. In addition, FAO invited its participation in the 1967 regional seminar on The Development and Organization of Commercial Farmers in French Central Africa.

The project enjoys the support of county Government officials who find it a stimulus of the local economy and a catalyst for development.

The railroad has made numerous exceptions for the Farm-school over the years. One of these is that of permitting the express train to Douala and Yaoundé to on-load perishables such as eggs, rabbits, live poultry, vegetables and fruit. The railroad also altered the local station in such a way as to permit easier and safer off-loading of feed, concentrates and chemical fertilizers. Without the cooperation of the railroad, the Farm-school would not have been able to develop as it has.

The project has sensitized the local population and others to the importance of sound nutrition and a balanced diet. This has been a by-product of the great amount of attention that has been paid to livestock and plant nutrition. It has also increased awareness of the importance of sanitation, hygiene and housing. It was found that a great deal of carry-over occurred automatically and gently from the discussion of plant and animal nutrition to that of human nutrition.

Extension activities of the project

Extension services provided for former trainees of the Libamba Farm-school are classified into three general categories:

1. Financial assistance

2. Technical assistance

3. Assistance with problems of supplies and marketing

As stated earlier, trainees, who complete their year at the Farm-school with satisfactory grades in class, practical work and conduct, qualify for a loan of up to $200 with which to establish themselves in farming. Only a small portion of this loan is furnished in cash; and the rest is provided in stock, feed and materials. This loan is to be repaid as quickly as possible although no time limits are set.

Technical assistance is offered through visits of extension personnel to the farms of former trainees and others. In addition, letters and printed materials are sent to former trainees concerning technical problems or opportunities.

Assistance with supplies and marketing is perhaps the most important of the services provided. Supplies of livestock, veterinary products, feed, seeds, agricultural chemicals and materials are all difficult or impossible to find on the local market. It is therefore necessary for the extension services of the project to provide for their supply.

Similarly, marketing in a country with poor and overpriced communications is difficult. The extension services of the project, therefore, offer considerable aid in this area, receiving produce from former trainees and assuring its sale.

The above services are offered through the Farm-school itself and through three assistance centers that have been opened for this purpose--one in Yaoundé, one in Douala and the third in Ebolowa. With the exception of financial aid, offered only to former trainees of the

Libamba Farm-school, the assistance centers serve all those who call upon them for help.

In addition, the assistance centers at Yaoundé and Douala provide meeting space for cooperatives, for women's sewing and homemaking groups and for seminars on subjects having to do with agricultural subjects. Both provide a source of books and other printed materials concerning agricultural production for farmers and other interested persons.

In 1964, a week-long short course in poultry husbandry was offered at Libamba for a group of 35 interested persons, both men and women. Recruitment was effected simply by accepting the first 35 applications received after the announcement of the short course in the newspaper and over the radio. The participants were housed and fed at Cameroun Christian College and were required to pay approximately $10 for the week. Participants were assigned to trainees to learn to care for and feed the animals of the farm. In addition, classroom discussions and movies were provided for them by the personnel of the Farm-school.

Participants included those who had had almost no education and those who had graduated from junior college; but because of the practical nature of the experiences and discussions provided, the differences between educational backgrounds were minimized. All came away from the week with highly positive comments.

Finances

The project was organized in such a way as to provide for its own operating expenses through profits from the farm. Subsidization was

received by the project only during those years in which missionary-agriculturists, paid by the United Presbyterian Church in the U.S.A., provided services for the Farm-school. These subsidized services ceased completely when Mr. dePury left the Cameroun project in 1971.

The Farm-school, using land donated by the French Protestant Church, was opened on the site of a rural life project that had been started in 1953 and closed in 1958 when the Cameroun Presbyterian Church became unimpressed with its extension-oriented program. Left over from this project were buildings, equipment, supplies and improvements (described earlier) valued at approximately 7,000,000[f] CFA ($28,000). In addition, there was a cash credit of 400,000[f] CFA ($1,600). This capital investment and cash credit had been provided by the United Presbyterian Church in the U.S.A., and it was with this that the Farm-school was started. Throughout the years, the farm's profit has provided for operating costs and current expenses and has also been adequate to supply some of the less expensive of the capital improvements such as clearing and the construction of livestock shelters made of local materials. During these years, the farm's operating budget increased from 200,000[f] ($3,200) in 1961 to approximately 25,000,000[f] ($100,000) in 1970. The more expensive of the capital improvements for the Farm-school were obtained through grants made by the following organizations and for the following purposes and amounts:

Donor	Purpose	Amount
Fonds d'Aide et de Cooperation Francaise (French Foreign Aid)	Buildings	5,000,000[f] CFA ($20,000)
	Equipment	1,400,000[f] CFA ($5,600)

Donor	Purpose	Amount
World Council of Churches--Committee for Emergency Action in Africa	Buildings	14,020,111[f] CFA ($56,000)
Ambassador's Self-Help Fund, Embassy of the U.S.A.	Electric generator	1,000,000[f] CFA ($4,000)
Fonds d'Aide et de Cooperation Francaise (French Foreign Aid)	Electric generator	600,000[f] CFA ($2,400)
United Presbyterian Church in the U.S.A.	Buildings	2,500,000[f] CFA ($10,000)
Bread for the World	Water supply system	4,700,000[f] CFA ($18,000)

Total capital investment for the Libamba Farm-school has, therefore, been in the order of 36,600,000[f] CFA or $146,400.

The Yaoundé and Douala Rural Assistance Centers and the Elat Pilot Farm were capitalized separately from the Farm-school.

Until 1970, the Cameroun Government had not subsidized the Libamba Farm-school. In 1971, it provided it with a subsidy of 160,000[f] CFA ($640).

Problems

Problems encountered during the course of the early development of the Libamba Farm-school were primarily of a technical nature or having to do with supply and marketing. Problems in the technical category recur each time the Farm-school develops a new area of emphasis (egg production, broiler production, swine, sheep, garden vegetables, field crops). Though some technical problems persist (e.g., pasture management and soil management), most have been satisfactorily solved within a short time.

The problems of developing adequate sources of supply and transportation of supplies also occur with each new emphasis and tend to grow as the areas of emphasis are expanded both by the Farm-school and by its former trainees and outgrowers. With poultry, much difficulty was experienced in finding adequate quantities of corn and peanut meal to be used for animal feed. Feed supplements, imported from France, were frequently delayed en route or in customs. Veterinary products, such as vaccines, could take weeks to arrive though shipped by air. For corn, the problem has been solved by encouraging increased production and by building storage space to permit purchasing in large quantities during the corn season. Since the peanut oil industry in Cameroun proved to prefer to export peanut meal for foreign exchange rather than to sell it locally, the peanut meal problem was solved by purchasing this commodity in the Central African Republic. The problems with commodities and supplies that were imported from France were solved by building storage space, maintaining larger inventories of these items and ordering well in advance.

For former trainees of the Farm-school and outgrowers who were engaged in poultry production, either for eggs or broilers, there was inadequate production of balanced rations in the country. Feed could be purchased only from the two feed mills owned by the Government Service of Animal Industries and these mills would not ship feed. The problem was, therefore, attacked by the construction of feed mills by the Farm-school and, subsequently, by the Douala Rural Assistance Center and the Elat Pilot Farm. As of May, 1970, these mills were producing approximately 40 per cent of the balanced rations used in

Cameroun. In addition, these mills will ship feed.

Marketing problems in a restricted market situation appear early and grow rapidly in importance. As the production of eggs began to meet the needs of the foreigners living in Cameroun, surpluses began to be experienced. This was especially apparent during the months of June, July and August when the Europeans in Cameroun went to Europe on vacation. Reducing the price of eggs helped little because the Bantu would not generally eat eggs in any case, and the Europeans were buying as many as they wanted regardless of price. Although a continuing problem, this had become less serious. One adjustment that has been made is to plan flocks so that the older flocks' production decreases during the summer months and the young flocks come into production in September and October. Action was also taken to bring the Bantu population of Cameroun into the market by vigorous advertising campaigns through the use of posters, newspapers and radio. These campaigns have been successful in extending the market. In addition, markets were sought in Gabon and Chad; and the exporting of eggs to these countries by air began as early as 1965 and continues.

In 1966, fearing a glutted market for eggs and the bankruptcy of many poultry farmers, the Government Service of Animal Industries began requiring authorizations for the importation of day-old chicks as a means of controlling egg production in the country. In the opinion of many, this action not only restricted a rapidly growing market but also provided a means by which Government could extend favors or otherwise practice discrimination.

The result of such action on the part of the Service of Animal

Industries was a shortage of eggs for a period of two years and the suppression of the export market. In addition, it greatly complicated operations of poultry farmers living far from the capital city. The presence and intervention of the Rural Assistance Centers in Yaoundé and Douala have facilitated operations for these farmers.

The falling price of eggs has proved to be a serious problem for the Farm-school since the costs of production have not decreased over the years. As profit margins narrowed, the Farm-school was obliged to increase its production in order to continue to be self-supporting. To do this, it has had to use more industrialized methods and housing that are not easily imitated by the trainees. Moreover, it is obliged to continue the emphasis on poultry husbandry at a time when other emphases such as swine, sheep and crop plant production would be more appropriate in consideration of marketing possibilities and local needs.

The Government could effect a partial solution to the problem and could give a boost to the country's animal industries in general by exempting from customs duties and taxes those commodities and items that are not produced locally and have to be imported such as chicks, feed supplements and packaging materials. Such an exemption would lower the cost of production of eggs by approximately 15 per cent. In addition, it would lower the cost of broiler mash to the extent that Cameroun poultry producers could compete against the price of imported frozen broilers whose exportation is frequently subsidized.

A second solution to the problem of self-support could be a subsidy to partially cover operating costs. There are, however, dangers associated with such subsidies. Perhaps the most serious of these

would be the possibility to depart from the realities of the market situation in the country and to instruct in areas where no employment opportunity exists. Another type of subsidy, that of subsidizing personnel for example, may be a sound way to assist in the solution of this problem.

A solution must be found in the near future, however, because the Government Service of Animal Industries has accused the Farm-school of undue competition with former trainees and others and has, on several occasions, threatened to refuse authorization for the importation of chicks. In the current situation, if the Government should refuse such authorizations, the Farm-school would either have to close or to expand production of other crops. A third solution would be to require trainees to pay for their training. This solution, however, would be discriminatory against those who most need training, that is, those who have no vocation and, therefore, no way to earn money to pay for training.

The requirement of self-support for a farm-school is unrealistic. Much more is demanded of it than is demanded of a commercial farmer. Not only is its labor force renewed each year but it also has many more laborers (trainees) than are needed to operate the farm. In addition to carrying a labor force that is too large, it loses much profit because of the mistakes made through inexperience. Furthermore, the farm-school must maintain a relatively large number of supervisors (teachers) and support personnel. Thus, what is demanded is not a normal profit but a truly spectacular profit. If some way could be found to require but a normal profit vis-à-vis the amount of investment and

to subsidize the difference between this and the amount of operating expenses, this would provide a solution to the problem of self-support.

Finally, there is the problem of personnel. As mentioned previously, operating a farm-school with non-agriculturally-trained volunteers who remain but 18 months is not satisfactory. As of 1971, no trained Camerounians could be found who were interested in teaching at the Farm-school. Until such time as they are found, this problem may remain unsolved since the institutions that have financed the Libamba Farm-school are apparently not willing or capable of sending trained personnel. In the meantime, the programs of the Farm-school that suffer most are those of research and experimentation.

Asked if because of the above problems and difficulties, he would have organized the project differently, a former director indicated that he felt that he would have attempted to spend less on capital improvements such as buildings. A large amount of investment for permanent buildings diminishes the flexibility of a project. Thus, if at some time in the future it should be appropriate to close the project or to transfer it to another location, the decision to do so would be more difficult.

Agencies that have been of particular assistance in providing counsel and educational materials to the Farm-school were the following:

1. U.S. Agency for International Development, Yaoundé
2. U.S. Information Service, Yaoundé
3. French Cultural Center, Yaoundé
4. Cameroun Service of Animal Industries, Yaoundé

5. Société d'Engrais et de Produits Chimiques d'Afriqe Equatoriale, Douala
6. Verkaufsgemeinchaft Deutscher Kaliwerke Gm^{b} H., Hannover, W. Germany
7. Bureau pour le Dévéloppement de la Production, Agricole, Paris

A list of books and other materials that have been of particular assistance as information sources is found in Appendix F.

It is felt by those who know the project that some of its more important accomplishments have been the following:

1. Demonstrating that hybrid layers and broilers could produce as well or better in the humid tropics as in temperate climates.
2. Being instrumental in effecting the attitudinal change towards agricultural production as a worthy vocation for educated young men.
3. Adapting chemical fertilizers to local food crops and making them available to the population.
4. Providing a market for some crops and exposing the existence of a market for others.
5. Contributing to the growing acceptance among the Bantu of eggs as food.
6. Adapting local materials to the requirements of modern techniques of poultry and animal husbandry.
7. Producing books and extension materials concerning poultry and animal husbandry and the production of food crops.

8. Demonstrating soil management techniques that enhance soil fertility.

When asked concerning problems that may have been created by the Libamba Farm-school, its present director, Mr. Samuel Mbog, replied:

> Rather than having created problems, the Farm-school has provided solutions to problems on both local and national levels. In its 11 years of operation, it has trained more than 200 young Camerounians, the majority of whom are now earning a good living in production agriculture. They have escaped the misery of many young people without training who gather in the large cities of the country, victims of unemployment and juvenile delinquency. They have become agents of development for the national economy. Their production of eggs and poultry, added to that of the Farm-school, account for more than 40 per cent of the national production of these commodities. Because of them, Cameroun, as early as 1965, ceased to import eggs and became an egg-exporting country.[4]

Part 4

Presbyterian Rural Training Center and Rural Technical Assistance Center

The Presbyterian Rural Training Center (PRTC) and the Rural Technical Assistance Center (RTAC) are located 12 kilometers north of Bamenda, West Cameroon, at Mfonta (Fig. 6).

The PRTC and RTAC are separate entities--the one providing training experiences for young men and carrying on experimentation with new crops, methods, animal traction, etc. and the other complementing and supplementing the training and experimental programs by providing extension services, marketing assistance and agricultural credit. In this study they will be treated separately, yet, as complementary projects.

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[4] Samuel V. Mbog, Personal Communication, April, 1972.

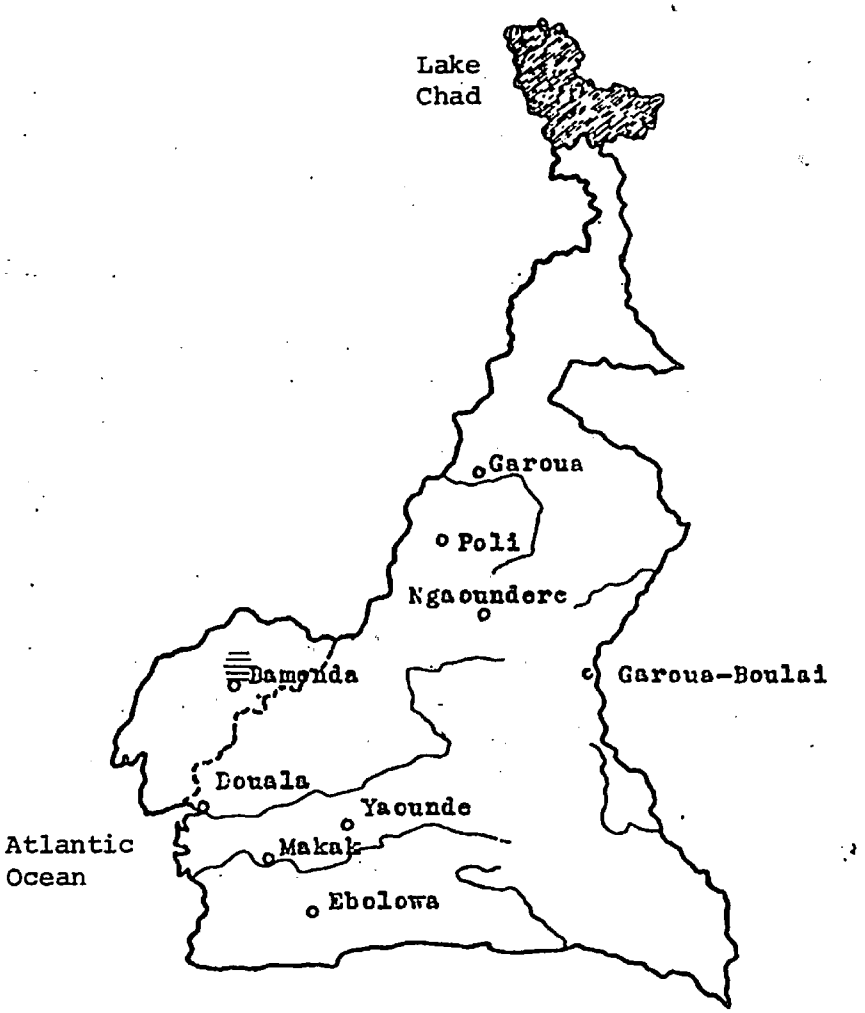

Fig. 6.--Map of Cameroun. Shaded area indicates area of influence of the PRTC and the RTAC

Presbyterian Rural Training Center

The PRTC was started in 1968 by Mr. G. Bos of Holland, who along with two Dutch volunteers and a work force fenced the agricultural land and divided it into the farms and grazing areas necessary for the development of the Training Center. The first class of trainees was received in January, 1970.

The goal of the PRTC is to produce through training which is primarily of a practical nature, farmers who are capable of combining agriculture, crop-growing and livestock breeding, and to give them professional skills by which they can earn a livelihood.

The zone of operation is within an area of 25 kilometers' (15 miles') radius of Mfonta. The institutional form of the project is that of a residential, vocational training center. The training program emphasizes on-the-job training supplemented by classroom studies.

Board of Governors

A Board of Governors was created in conjunction with the PRTC and the RTAC. It consists of 11 members nominated by the General Synod of the Presbyterian Church in West Cameroon and with the following composition:

--Five members to be appointed by the Presbyterian Church in West Cameroon

--Three members representing Government Departments

--Three members representing the local population.

At the time of this writing, the Board was composed of the following members:

Representatives of the Church

--Principal PRTC

--Principal RTAC

--Secretary of the Church's Rural Development Committee

--Representative of the Presbyterian Church in Bamenda

--Supervisor of Presbyterian Schools, Bamenda Region

Representatives of Government Departments

--Senior District Officer (Senior Government Administrator)

--Principle Agricultural Officer

--Senior Education Officer

Representatives of local population

--Fon (King) of Bafut

--Fon (King) of Bambui

--A local farmer

The duties of the Board of Governors are as follows:

1. a) Confirm the appointment of the Principal who shall be nominated by the Proprietor. It shall be informed of any change of staff arranged by the Proprietor, Rural Development Committee or the Principal.

   b) Have power to recommend to the Proprietor the termination at a stated date the appointment of the Principal or of any other member of the staff. No member of the staff shall be dismissed without consulting the Board.

   c) Be informed by the Principal of any suspension or expulsion of a trainee.

2. a) Scrutinize the budgets prepared for its consideration, satisfy itself of the proper expenditure of Grants/Donations, cause detailed accounts to be kept of the whole of the financial affairs of the Centre, and arrange for the audit of the accounts and receive the auditor's report.

b) Make regulations regarding fees, subject to the approval of the Rural Development Committee.

c) Take such steps as are necessary to maintain the property of the Centre in a proper state of repair and to ensure adequate accommodation for trainees and staff.

3. Control the policy of the Centre, subject to any general Directives by the Director of Agriculture of West Cameroon and subject also to the directives given by the Presbyterian Church in West Cameroon.

4. Receive the Principal's report for the previous year.[5]

The farm

The PRTC farm of 250 hectares (625 acres) is organized to serve two basic functions, that of rendering the project self-supporting and that of providing training experiences.

The policy of the Presbyterian Church of West Cameroon regarding its agricultural projects is that they must be self-supporting within five years of their opening. Because of the fact that donor organizations (including governments) are rarely willing to subsidize the operating expenses of projects for long periods of time; and because local churches do not have the resources to do so, this is a wise and realistic policy. The problem posed is that of choosing an enterprise, or enterprises, that will provide adequate revenue over long periods of time without glutting the market or creating competition with former trainees of the project.

The enterprise selected by Mr. Bos to provide continuing support for the project was that of beef cattle. Beef is in short supply in

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[5]PRTC, Regulations, October 25, 1969.

the humid tropics of West Africa, and there exists an export market for beef and beef by-products in the unlikely event that the West African market should be glutted. In order to contribute to the state of the art in cattle raising and to increase production, Mr. Bos improved 36 hectares (90 acres) of pasture and rotates the project's herd of approximately 170 head on this and on the 166 hectares (415 acres) of natural pasture owned by the project.

The herd of cattle and its management provides, in addition to revenue, training in cattle raising and pasture management for the project's trainees as well as a source of draft animals for the project, former trainees and others.

There are two types of diversified farms on the project. One is a farm that is designed to assist in the support of the project by providing food, marketable surpluses and training. The other is a "model farm" built on the steep hills and slopes found in the region. These model farms (Appendix G) are used as training stations to demonstrate the management of a diversified farm (one incorporating both plant culture and animal husbandry for subsistence and income).

A great variety of crops is grown on the two types of farms including the following:

coffee
oil palm
yams
sweet potatoes
Irish potatoes
plantain, banana
cocoyam
cassava
cowpeas
peanuts
soybeans
pigeon peas
beans
corn (maize)
sugar cane
melon
pumpkins
amaranthus spinach
huckleberry
tomatoes
temperate vegetables
tropical fruits

Animals raised on the farm include:

pigs	cattle	poultry
sheep	horses	rabbits

In addition, a fish pond has been dug and stocked, providing both fish and training in fish culture.

Feed for the animals, with the exception of feed supplements such as fish meal, bone meal, etc., is grown on the farm. To tide the cattle over the dry season and to permit the carrying of a larger herd, hay is harvested from the improved pastures and stored in stacks in the field.

Equipment for the farm includes a tractor and plow. This equipment is used to prepare fields for the project's farm, to prepare fields for former trainees who are planting them for the first time and the equipment is made available on a rental basis.

Selection of trainees.

In order to become a trainee at the PRTC, interested young men should have a First School Leaving Certificate (sixth grade level), a medical declaration of fitness and firm rights to a plot of land of at least five acres, preferably accessible by tractor.

A selection committee interviews applicants and makes a preliminary selection of trainees. These are invited to the project for a month during which they work as trainees. At the end of the month, an examination is given and an assessment is made of the work and conscientiousness of the trainees. Those who pass the examination and have proved by their work and their participation in dormitory life that they are able to meet the demands of the training program are invited

to remain at the project. Once this final selection is made, only flagrant breaches of discipline will cause a trainee to be expelled.

The number of trainees to be accepted by the PRTC each year is 24. In order to have this number after the final selection, up to 28 young men are invited to participate in the month preceding the final selection. If all of these wish to stay and have passed the examination and assessment, they are permitted to do so. However, it is unusual that this should occur.

There is no requirement of religious affiliation.

The training program

The training program extends over a period of 45 weeks. In 1971, this was from January 18 to November 27 and included 40 weeks of effective training, three weeks of examinations and tests and two weeks of vacation in August. Food and lodging are provided free of charge. Trainees may earn pocket money from the sale of vegetables from small vegetable gardens that they may tend during periods of free time.

When the trainee arrives at the project, he is assigned a plot of ground, measuring 24 meters by 18 meters, for which he will be completely responsible but which he must plant in the manner prescribed by the project's staff (Appendix H). In years when the RTAC doesn't have enough money for loans to former trainees, the profits from the individual plots are kept for the trainees. In years when credit may be assured following training, profits from the individual plots are kept by the project and contribute to its support. The amount of the loan is calculated on the care that was taken with the individual plot and on its production.

The daily schedule (Appendix I) provides for two hours of practical instruction, two hours of practical work, two hours of chores, 45 minutes of lessons in the classroom and one hour of supervised study hall. The practical instruction is given on the model farms, the individual plots, and in the different sections of poultry, pigs, cattle, horses, vegetable garden, nursery, crops and pastures.

The practical work is performed on the model farms, in the food crop section for internal food supply and in the different animal sections.

The chores are performed on the individual plots and on the model farms by the trainees who are divided into three groups for this purpose. The groups are rotated periodically to permit trainees to become familiar with all aspects of the farm's operations.

Classroom lessons are arranged as follows:

1.	Cattle husbandry and pasture management	10 lessons
2.	Farm management and economics	10 lessons
3.	Crop husbandry (annuals)	25 lessons
4.	Mathematics (cost price calculation)	20 lessons
5.	General subjects, incl. soil conservation	10 lessons
6.	Animal husbandry	20 lessons
7.	Poultry husbandry	20 lessons
8.	Bookkeeping and administration	15 lessons
9.	Vegetable production	20 lessons
10.	Plantation crops	10 lessons
11.	RTAC briefing	10 lessons
12.	Farm planning	10 lessons

13.	Religious education	10 lessons
14.	Guest lectures	10 lessons
	Total	200 lessons

In addition to the activities described above, trainees make day-long excursions to agriculture shows two or three times per year. The project participates in these shows by exhibiting pigs, sheep, poultry, cows and produce. It also conducts demonstrations of horses and oxen pulling plows, carts and sleds.

Once a year, the project organizes a parents' day during which as many as 25 demonstrations are given at once on the farm. Many hundreds of people in addition to parents are attracted to this occasion to see all the local crops and animals gathered in one place at one time and to see the demonstrations that are provided which show draft animals at work, new crops, new varieties of traditional crops and new cultural practices.

The Apprentice Program

A program designed to serve young men who would like to receive training but who don't have the educational level required for entry into the regular training course has been initiated. This is called the Apprentice Program.

In 1971, there were 11 young men who were accepted into this program and who received both practical training and classroom instruction in the same subject matter areas as the trainees. Instead of having individual plots, the apprentices rotate through the various areas during the year. They receive 750 F CFA ($3) pocket money each month in addition to food and lodging. If they distinguish themselves as

apprentices, they receive first priority for admission to the regular training program the following year.

In addition to the regular training program and the Apprentice Program, the possibility exists for accommodating those wishing to gain knowledge and practice in specific areas. Thus, during 1970, over a period of ten weeks, two men were trained in the use of draft animals as farm power.

During 1970, the number who received intensive training at the PRTC was 42.

Personnel

The PRTC employs 17 permanent staff members who are divided among three sections: nine in training, five in maintenance and three in cattle. In addition, temporary workers are employed when work is available for them.

Expatriates working at the PRTC include the principal, Mr. Bos, and two of his assistants, Mr. Hoetink and Mr. van Apeldoorn. These men have been sent to the project by Dutch Volunteer Organization, a Dutch Government organization that pays salaries, transportation and medical expenses for its personnel. The Presbyterian Church provides housing.

Mr. Bos has had extensive farming experience, including working with draft animals, and has studied at both the secondary and post secondary levels in various Dutch schools of agriculture. For two years, he studied plant breeding and seed production at a specialized school in Holland and was, for seven and one-half years, manager of a plant breeding experiment station where he was in charge of plant breeding,

seed production, administration and sales.

Mr. Bos' duties include:

1. General direction and supervision of the PRTC.
2. Planning, organization, evaluation and adjustment of the project's training and technical schemes.
3. Administration and financial management.
4. Personal matters pertaining to staff, trainees and farm personnel.
5. Lessons on farm management, pasture improvement and economics.
6. Planning of model farms.
7. Practical instruction for pasture improvement.
8. Supervision of the farm.
9. Supervision over staff living quarters and classroom building.
10. Contacts with other training and research institutions.
11. Report writing.

Mr. Hoetink has had nine years of formal training in the field of agriculture. His practical experience has, however, been limited to internships on farms and in cooperatives. He came to the PRTC directly from school and plans to stay for a period of two years.

Mr. Hoetink's duties include:

1. Lessons on crops, mathematics and general subjects.
2. Responsibility for the animal section.
3. Supervision over model farm N°1.
4. Practical instruction for farm layout and soil conservation.

5. Supervision over trainees' individual plots.
6. In charge of food production for internal supply.
7. Supervision over the mechanical section, carpentry and equipment store.
8. Planning and construction of fish ponds.
9. Supervision over dormitories and workshop buildings.

Mr. van Apeldoorn has studied tropical agriculture at the post secondary level for four years. In addition to these formal studies, Mr. van Apeldoorn has accumulated nine months of practical experience on farms in Holland during three summers of internships associated with his formal studies. He came to the PRTC directly from school and plans to stay for a period of two years.

Mr. van Apeldoorn's duties include:

1. Lessons in animal husbandry, poultry and bookkeeping.
2. Responsibility for poultry section.
3. Supervision over model farm N°2.
4. Practical instruction in poultry, pigs, sheep and draft animals.
5. Veterinary considerations for all animals.
6. Medical care for students and other personnel.
7. Supervision over the poultry scheme, the piggery, the flock of sheep and over the training of draft animals.
8. Supervision over the stables.
9. Supervision over the feed store.

Local members of the teaching staff include Mr. Njinoh who is instructor in the apprentice program and Mr. Mforbesi and Mr. Ndifang,

instructors in the regular training program. Mr. Mforbesi was a primary school teacher for three years and followed a three-month course in general agriculture at the Bambui Experiment Station before being employed by the project in 1968, early in its development. He received further training at the PRTC and was advanced to staff position at the time of the arrival of the first trainees in 1970.

Mr. Mforbesi's duties include:

1. Lessons on vegetable production.
2. Supervision over the vegetable section of model farm N°2.
3. Practical instruction in gardening.
4. Supervision over the vegetable instruction garden and nursery.
5. Organization of the dormitory kitchen and food supply.
6. Responsibility for the kitchen and kitchen store.

Mr. Ndifang was a primary school teacher for three years before taking a nine-month course for extension workers. Following this course, he worked for three years as an extension agent and two years as a field instructor for a large coffee estate. His training includes a one-month short course in agricultural chemicals, followed at a Government agricultural school.

Mr. Ndifang's duties include:

1. Lessons on plantation crops.
2. Supervision over the crops section of model farm N°1.
3. Practical instruction for crops and special instruction for the individual plots.
4. Supervision over the coffee, plantain and oil palm

plantations.

5. Responsibility for the workers' quarters and their gardens.

6. Responsibility for the upkeep of lawns and yards.

The future staffing of the project poses serious problems. It had been hoped that Mr. Bos would be able to turn over his responsibilities to a Cameroonian when he leaves the project in 1973. It has been impossible for the church to find a replacement for him, however. The Dutch Volunteer Organization is willing to continue to staff the project with its people, but it seeks Cameroonization of the project at the earliest possible moment.

Materials printed by or about the project

Materials that have been produced by those involved in the project include mimeographed copies of all lessons and the results of a study entitled, "Agricultural Possibilities in the Bafut Area."

In 1971, the project began to mimeograph and distribute technical reports on the results of experiments conducted by the project.

Accomplishments and effects

The project has been responsible for the introduction into the area of new tools, new varieties of crops and new agricultural practices. Tools that were introduced include the hand cultivator, the long-handled hoe, manure forks, hay forks and various tools used in association with animal traction--plows, harrows, ridgers, carts and sleds. Though it did not introduce stronger shovels and agricultural sprayers of the back pack type, it encouraged their use, made them available and saw them become more common as a result.

New varieties of seeds and planting materials brought in by the project include: yams (two varieties from other parts of Africa), Kitale SII and Kitale CE corn from Kenya, cowpeas from East Cameroun, tomatoes (Indian River and Homestead), Rhodes Grass (Chloris gayana), an Ibo variety of cocoyam and the Boxer bean, brought in from Holland. All of these varieties have been extended through the efforts of the RTAC field staff and through trainees.

New practices or methods introduced include: using horses (well-known in the region) as draft animals, the idea of mixed farming (crops and animals), the idea of one seed bed-one crop (monoculture) and the digging of holes for yam production. The project was also the first in the region to plant pasture on a field scale, to use rotational grazing and to put up hay.

The project introduced from the East Cameroun a new breed of sheep that produces more meat than the local breed. A new breed of pig was also introduced into the area.

Though the project did not introduce agricultural chemicals, including chemical fertilizers, insecticides and fungicides, it did extend their use among the local population by recommendation, demonstration and by making them available in small quantities at reasonable prices.

The effect of the project on the local population has been great. The alternatives suggested by the project to the familiar seeds and planting materials and agricultural practices have been so successful that the project now has a ready audience, open to further suggestions. People copy what they observe at the project and come regularly to the

project to buy seeds, planting materials, draft animals, pigs, sheep, mixed feeds, chicks, etc. They have also sought the project's help as regards problems of marketing.

The effect of the project on diet has been a favorable one. As the role of nutrition for plants and animals has been explained, trainees and others have understood the relationship between good nutrition and good health for them and their families. Also, the variety of foods available has greatly increased as a result of the project's efforts.

The effect of the project on the region is evident from the number of applications that have been received from young men living outside of the intended zone of action of the project. In addition, official Department of Agriculture trials for fertilizer and grassland improvement are held at the project. The Department of Agriculture has also placed two bulls at the project for cross-breeding trials.

The project has served as the site of a six-week long Peace Corps training program and has become a center for information and materials for Volunteers working throughout the area.

The Pan African Institute for Development has twice sent people to the project for the purpose of making week-long studies.

Finally, an indication of the impact that the PRTC has had on the region is the fact that Mr. Bos was invited by the Cameroon Government to sit on the committee that elaborated Cameroon's third Five-year Plan.

Finances

The initial capital investment for the PRTC was provided by the Government of the Netherlands and by the Presbyterian Church of West Cameroon. The Government of the Netherlands agreed to finance the project up to 75 per cent of the capital investment needed. Accordingly, it has contributed a total of 37,420,875 F CFA ($152,738).

The land on which the PRTC is located was given to the Presbyterian Church of West Cameroon by the Fon (King) of Bafut. The value of the land was estimated at three million francs CFA ($12,245). This amount, constituting 6 per cent of the total, was considered as the contribution of the Presbyterian Church of West Cameroon to the project.

It was estimated that current expenses for the first five years would amount to 16,324,250 F CFA ($66,630) at the following amounts each year:

1st year	5,146,250F CFA ($21,005)
2nd year	3,277,500F CFA ($13,378)
3rd year	2,886,500F CFA ($11,783)
4th year	2,507,000F CFA ($10,232)
5th year	2,507,000F CFA ($10,232)
Total	16,324,250F CFA ($66,630)

The following donors have underwritten these current expenses:

West Cameroon Government	5,100,250F CFA ($20,817)
Churches in the Netherlands	6,474,600F CFA ($26,427)
Oxfam, England	4,749,400F CFA ($19,386)
Total	16,324,250F CFA ($66,630)

Self-support

In order to be entirely self-supporting, Mr. Bos estimates that the project would need to be able to achieve an imcome of three million francs CFA ($12,000) per year. Using cattle as the principal source of income, the project's herd would have to number 600 head. At present, it numbers under 200 head and the land available for grazing is being used to capacity. Mr. Bos is currently negotiating with the Government for an unoccupied tract of 500 hectares (1,250 acres) of rangeland which would make it possible to increase the cattle herd to 600 head.

Sources of information and technical help

Mr. Bos has received much help from the Bambui Experiment Station which is located less than five miles from the PRTC. The Veterinary Department of the Cameroon Government has also been particularly helpful.

Publications that have proved to be of most value have, in general, been published by the FAO. A list of these and other helpful publications is found in Appendix J.

Mr. Bos feels that one of the most important accomplishments of the project has been the respect that it has gained on the part of Government officials. The Government invites Mr. Bos to all agricultural planning activities in the region and officials of Government regularly visit the project.

Mr. Bos feels that the PRTC has been most creative in its adaptation of agricultural methods and practices to local possibilities. The local population especially appreciates the fact that the PRTC has

placed emphasis on the improvement of local food crops and that recommendations made to the local population are within its reach.

Problems

Already mentioned are problems having to do with self-support and those having to do with finding counterparts and replacements for expatriates on the staff. A third problem that has been encountered is that of inadequate marketing facilities in the region. This problem is expected to become increasingly serious as former trainees and others increase production as a result of following the project's recommendations. An urgent need, therefore, is to develop marketing facilities in the region. This is being done by the RTAC and the Bamenda Co-operative Vegetable Society.

The project is developing along the lines hoped for and no alteration of goals is seen to be necessary. However, Mr. Bos is of the opinion that if he had the chance to start anew, he would do so on a smaller scale. He doesn't regret the number and variety of schemes tried because this was necessary to determine what would succeed in the region, under what conditions and how worthwhile the various alternatives would be. The size of the project contributes to the problem of finding qualified replacements for the project's expatriate personnel.

The project has been responsible for the displacement of seven Fulani families that occupied the area now occupied by the PRTC. The settlement made with these families seemed to be satisfactory and they appreciated the fact that the project would benefit them by providing them with a market, with employment possibilities and by providing veterinary services for their livestock. The problem was created by Bantu

families of the area who moved closer to the "action" and thus put pressure on the Fulani herdsmen. As in the Far West, the Bantu farmers are putting up fences along the Fulani cattle drives and tensions have been created to the point that the Fulanis may have to be displaced again.

When asked what there was about the PRTC, its results and influences, that frightened him, Mr. Bos replied that he feared that many of those whose hopes and expectations have been raised so high by the project would be disappointed by fewer returns than anticipated.

Rural Technical Assistance Center

The Rural Technical Assistance Center was created by the Presbyterian Church in West Cameroon in conjunction with the Presbyterian Rural Training Center. Its goal is to give assistance to former trainees of the PRTC and others who apply for assistance in starting and operating their farms.

The types of assistance provided by the RTAC fall into three general categories:

1. Technical assistance
2. Assistance with supplies and marketing
3. Financial assistance

The technical assistance offered includes assistance in the following areas:

1. Farm planning
2. Farm management planning
3. Supervision of farms and management
4. Veterinary services

Assistance with supplies and marketing includes:

1. Source of tools, seeds and planting materials
2. Source of trained draft animals for purchase or hire
3. Tractor rental services
4. Market research (sources of supply and customers)
5. Assistance with the commercialization of produce

Financial assistance includes:

1. Short-term and long-term loans for tools, seeds or planting materials, crops, poultry, pigs, a working horse, cattle and buildings
2. Mutual livestock insurance fund protecting against the loss of of draft animals and pigs

The RTAC is headquartered at the PRTC at Mfonta. This is advantageous in that those involved in the assistance of former trainees and others have the opportunity of keeping up to date on the activities of the Training Center and are also able to provide feedback to it concerning needs and problems of those it assists. In addition, the staff of the RTAC is able to establish a relationship with the trainees of the PRTC before actually serving them in the field.

Methods used by the RTAC in assisting its clientele include the following:

1. Office consultations
2. Visits to the farms of those seeking assistance
3. Preparation and dissemination of technical materials
4. Radio broadcasts
5. Newspaper articles

6. Demonstration of new tools, crops, varieties, agricultural practices, etc.
7. Refresher courses and seminars
8. Legal counsel for those experiencing land tenure difficulties

The area of action of the RTAC is the same as that of the PRTC, that is, within a 25 kilometer (15 mile) radius of Mfonta.

As of April, 1971, the RTAC was serving the 24 trainees of the PRTC class of 1970 plus approximately 50 farmers. It has no institutionalized form although it actively encourages those it assists to become members of the Bamenda Cooperative Vegetable Society, a supply and marketing organization.

Personnel

The RTAC employs five people, of whom four are expatriates sent to the project by the Dutch Volunteer Organization. These include the principal, Mr. Peter van Beyma; two field men, Mr. Willem Hielkema and Mr. Martin Homs; and a sociologist, Dr. Jan Pieter Derksen.

Mr. van Beyma is a technical expert employed by the Dutch Volunteer Organization sent to the RTAC for as long as the Dutch Volunteer Organization agrees. Mr. van Beyma has studied tropical agriculture at the university level. His experience includes four years of work as extension specialist on the Gila River Project in Ethiopia. He lives at the PRTC. His duties include the coordination and administration of the RTAC and its personnel, the visiting of those served, teaching in the PRTC, writing and dissemination of extension materials, ordering supplies, representation of the RTAC to church and Government, and the writing of reports.

Mr. Hielkema and Mr. Homs are volunteers of the Dutch Volunteer Organization who have been sent to the RTAC for a period of two years. Both of these men live in villages in the area of action of RTAC, Mr. Hielkema at Bafut and Mr. Homs at Bambui. Their duties include in-the-field assistance to those served by the project. They extend to farmers the materials, seeds, supplies, techniques and methods coming from the PRTC and serve as a means of feedback from the farmers to this organization. In addition, they coordinate vegetable production and marketing for the farmers served.

Mr. Hielkema was raised on a farm and took over the management of the family farm at the time of his father's death. In addition to extensive farming experience, he studied agricultural subjects at the secondary level.

Mr. Homs had no farming experience before joining the staff of the RTAC. He was trained as a forestry technician, studying the subject for three years in secondary school and three years at the post-secondary level. His experience included a year spent in Canada working in the field of forestry.

Dr. Derksen has been trained as a sociologist. His duties include field studies designed to provide the PRTC and the RTAC with information concerning the introduction of new technology, dealings with trainees and villagers and relationships between trainees and villagers. It is hoped that Dr. Derksen will find ways to enhance the impact and effectiveness of the PRTC and the RTAC while obviating the creation of problems for the local population.

Dr. Derksen lives in the village of Big Babanke, within the area

served by the project.

The one Cameroonian working for the RTAC is employed as storekeeper and is reponsible for serving the needs of former trainees of the PRTC by supplying them with planting materials such as seeds and agricultural chemicals. He has a primary school education and six months' experience working for the Bamenda Cooperative Vegetable Society.

In addition to the above personnel, Peace Corps Agricultural Volunteers in the area of action of the RTAC work in association with it by extending its services to its clientele.

The future of the RTAC

The ultimate goal of the RTAC is to be taken over by the extension services of the West Cameroon Department of Agriculture. Until this occurs, the RTAC plans to serve its clientele according to their needs. The numbers served continue to grow and, in particular, the number of former trainees to be served grows with each annual promotion of the PRTC.

If the Bamenda Cooperative Vegetable Society does not succeed in its role as supply and marketing arm for vegetable growers and poultry producers in the region, the RTAC would assume its functions.

In the event that the church opens another training center, a technical assistance center would be opened in conjunction with it.

Accomplishments and effects

The accomplishments and effects of the RTAC and the PRTC are a result of a joint effort. These are treated in the pages dealing with

the PRTC.

Finances

Salaries, housing, medical expenses and transportation of RTAC expatriate personnel are covered by the Dutch Volunteer Organization.

The Basel Mission of Switzerland provided a budget of one million francs CFA (approximately $4,000) to be used as needed by the RTAC. In addition, the RTAC received 1.1 million francs ($4,400) from a Christian organization in Holland to be used for starting a revolving loan fund for former trainees of the PRTC.

Churches in Holland and Switzerland have underwritten the RTAC's running costs of one million francs CFA per year ($4,000) for a period of five years. Additional grants from Government and from international organizations are being sought. Self-support is not one of the goals of the RTAC.

Sources of information and technical help

The RTAC's main sources of information and technical help have been the West Cameroon Department of Agriculture, the Bamenda Cooperative Vegetable Society and the PRTC.

Problems

Among the problems and difficulties encountered by Mr. van Beyma are the following:

1. Planning in advance for changing situations. It is difficult to anticipate future needs early enough to secure funding to meet them. Donors generally provide funds on the basis of

precise plans and estimates and few will agree to provide funds to be used as needed.

2. Obtaining needed supplies. Communications are such that needed supplies frequently aren't received as early as required. Here again, with growing and changing needs, it is difficult to anticipate future needs far enough in advance to always meet them.
3. Inexperienced extension agents. Volunteers provided by the Dutch Volunteer Organization (and Peace Corps Volunteers) are associated with the project for only two years before being replaced. The result is that the volunteers reach their maximum effectiveness just before leaving the project. Peace Corps Volunteers may opt for a third year of service. Dutch Volunteers do not have this possibility open to them.

Mr. van Beyma feels that the project should have been organized differently as regards timing and direction. He is of the opinion that the RTAC should have preceded the PRTC. As it is, the RTAC must react to situations created by the PRTC, some of which aren't promising, such as marketing.

Mr. van Beyma also feels that because of the similarities between the PRTC and the RTAC, one principal would be better than the present two. This one man would have authority over two departments, the PRTC and the RTAC.

A problem that has been exposed by the success of those served by the RTAC is that of the inadequacy of the marketing structure in the area. If this can't be developed in such a way as to provide a market

for that which is produced as a result of the work of the PRTC and the RTAC, disillusionment will result and harm will be done to those who have invested in intensified agriculture.

A further source of concern is the future of those served by the RTAC when subsidies cease in 1974. If the church or Government or some other body is not able to assume the functions of the RTAC at that time, it could signal a collapse of supply and marketing lines set up for producers as well as their source of credit. The result would be similar to that mentioned above, disillusionment and a loss of investments.

Former trainees of the PRTC have encountered problems upon their return to their villages. The agricultural practices they use are different from those used in the village and this seems to cause a feeling of jealousy on the part of some. It has been observed, however, that this jealousy frequently serves as a trigger for change as villagers imitate the successful methods and practices used by the former trainees of the PRTC.

CHAPTER III

PROJECTS IN UGANDA

Chapter III is divided into five parts, each of which describes one church-related agricultural project or projects so closely associated that they are treated as one. All of the projects described in the chapter are found in Uganda (Fig. 7) although one project, the Christian Rural Service Provincial Program, spills over into the neighboring countries of Rwanda and Burundi.

The projects that are treated in this chapter are located throughout Uganda, from the sparsely-populated Bunyoro District of the west to the densely-populated Kigezi District of the southwestern corner of the country. Two of the projects described are within a short distance of Kampala, the country's largest urban center.

Each description is accompanied by a map that shows the area of influence of the project described. The maps also serve to identify nearby towns that may subsequently be located by the reader on more extensive and detailed maps and in various geographical and demographical materials.

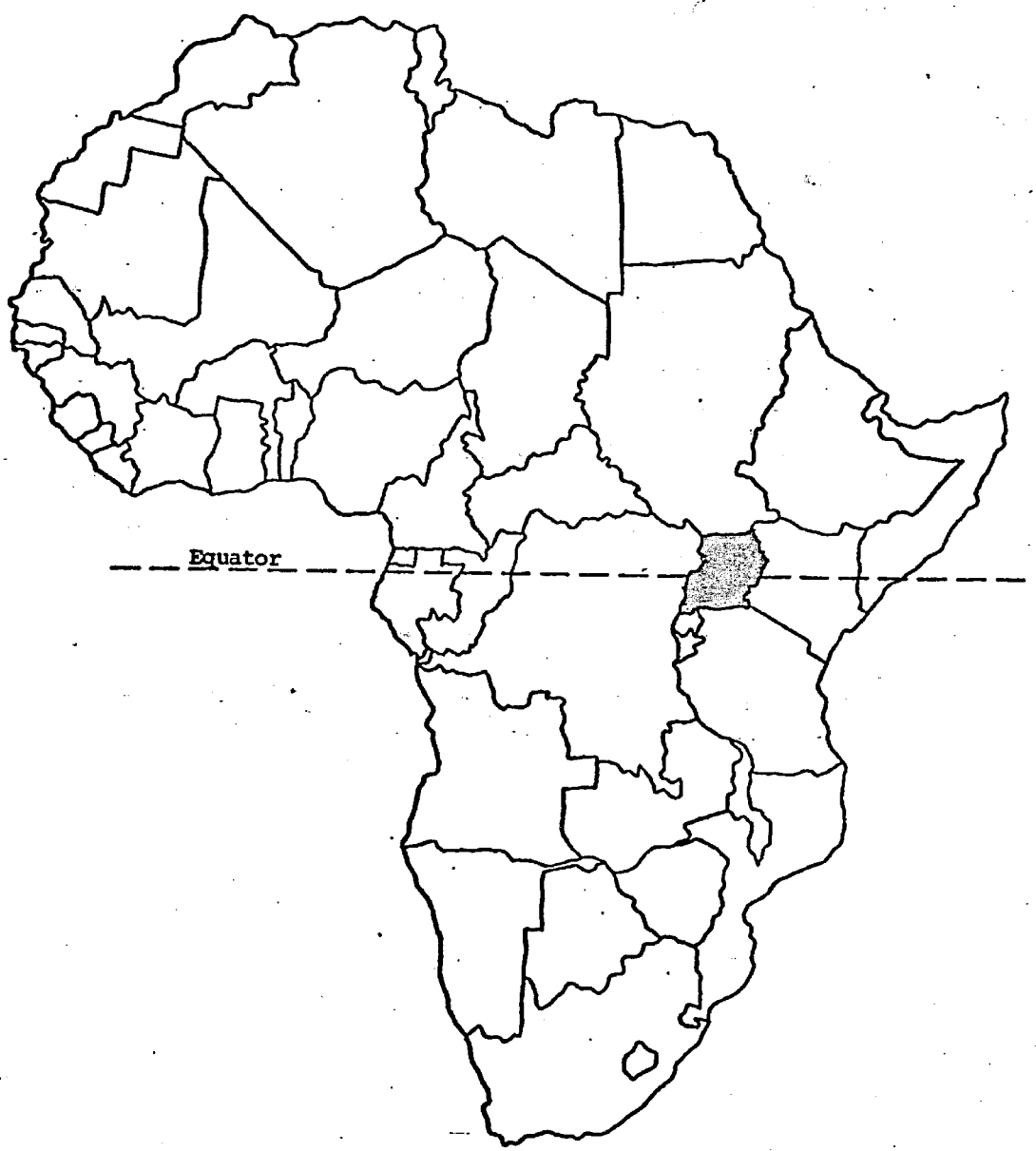

Fig. 7.--Map of Africa indicating location of Uganda

Part 1

Bannakaroli Brothers School-leavers Farming Project

The Bannakaroli Brothers School-leavers Farming Project is located near Kyotera, 30 miles from Masaka, Uganda (Fig. 8). It was started in 1967 by Brother Urbano as a response to the growing need of attracting school-leavers to vocations in agricultural production.

The goals of the project are the following:

1. To teach school-leavers to grow horticultural crops such as vegetables and flowers.
2. To teach school-leavers to grow crops such as coffee, bananas and other food crops that may be sold for cash.
3. To teach school-leavers animal husbandry.
4. To maintain a breeding center for animals that can serve as a source of supply of high quality animals for people in the district.
5. To provide demonstrations in agricultural methods and practices for local farmers.
6. To work for the improvement of nutrition in the area of influence of the project.

Though the project was primarily designed to serve school-leavers, it has extended its services to all those who seek its assistance.

The institutional form of the project is a training center. The 12 school-leavers it trains each year are neither housed nor fed by the project. Most of them either come from within six miles of the project or have relatives living nearby. Brother Urbano hopes to expand

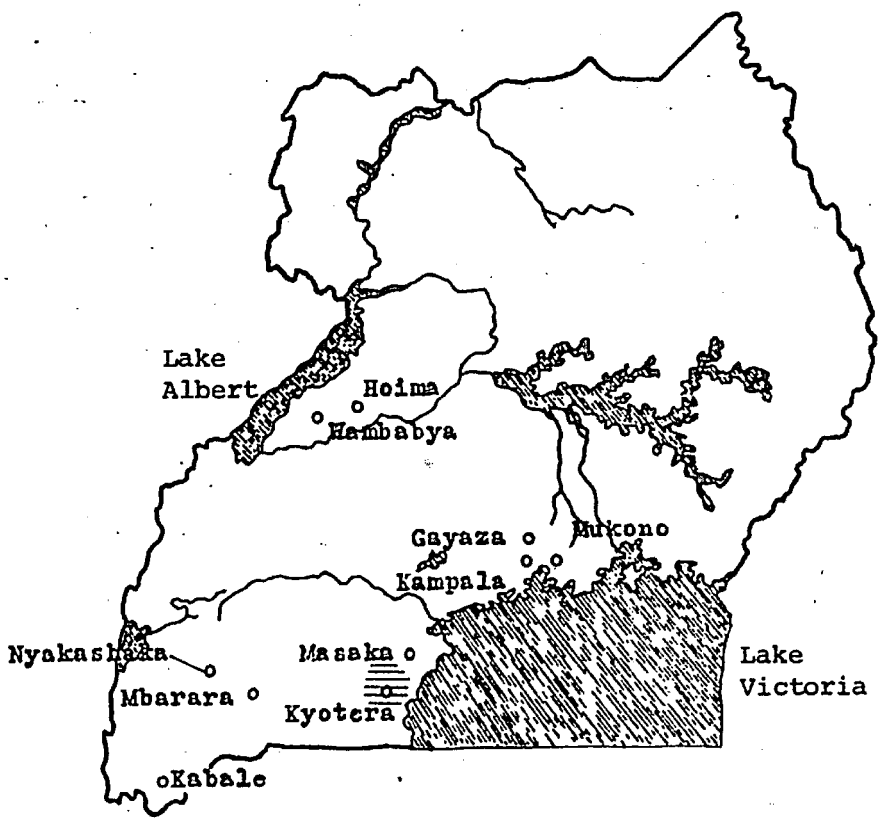

Fig. 8.--Map of Uganda. Shaded area indicated area of influence of the Bannakaroli Brothers School-leavers Farming Project

enrollment at a future date by providing dormitory facilities.

The property occupied by the Bannakaroli Brothers is leased from the Ugandan Government and covers two square miles. Of this area, one square mile is used for the Brothers' farm and agricultural training program. Part of the remaining area is used for other technical subjects taught by the Brothers, including: carpentry and cabinet making, plumbing, welding, blacksmithing, shoemaking, engine mechanics, electricity, masonry and brick and tile making. This land is also used for a feed mill and a factory for processing pepper, a cash crop grown in the region.

The farm practices mixed farming producing both crops and animals. All varieties of local food and cash crops are grown. The main animal enterprises are a herd of dairy cattle, a herd of pigs and flocks of poultry, both layers and broilers. The farm owns a tractor that was purchased used and has been employed primarily for the improvement of pastures for the dairy herd and the cultivation of garden plots.

The project's program consists almost entirely of practical, on-the-job training. When the trainees arrive at the project, each is given a plot of land that he may farm under the supervision of the personnel associated with the project. The produce from these plots is marketed in Kampala by the project and the proceeds, less expenses, are remitted to the trainees according to their production. In addition to maintaining their plots, trainees spend a minimum of two weeks in every department of the project's farm: horticulture, field crops, dairy, piggery and poultry.

In addition to the practical work described above, the trainees attend one class in English daily and have two classes in mathematics and one class in geography per week.

Recruitment of trainees has not been necessary. Brother Urbano indicates that many more school-leavers ask to be admitted to the program than places are available. The trainees range in age from 12 to 26 years and have completed between five and seven years of primary school.

Total enrollment since the beginning of the project has been 45.

Personnel

The project's personnel includes Brother Urbano and an expatriate from Malta who has been sent to the project for a period of one year. Brother Urbano has extensive farming experience and has attended courses at the Kabanyolo Farm of Makerere University College.

The expatriate works primarily with the dairy herd. He is the holder of a degree in agriculture and has had nine years of farming experience. The project provides him with board and room only. The organization that sent him to the project has responsibility for his salary of shs. 300 ($42) per month.

The project's future

As funds become available, either through outside donors or through farm profits, the project plans to build dormitories in order to be in a position to accept a larger number of trainees. This will also extend the area served by the project since it will then be possible to house and feed trainees. It will also permit the project to

engage in more extension activities than is now possible.

Extension activities of the project

Until more funds become available to permit an expansion of the project, extension activities are limited to the sale of seeds and materials not available in the local area, marketing aids and technical assistance.

Loans are not made to former trainees (although trainees do accumulate capital through their garden plots) nor are seminars and short courses provided. Both are planned if and when resources become available.

Finances

The project has received no outside support whatsoever. Its initial capital investment of shs.80,000 ($11,200) was acquired as a five-year 7 per cent loan through a local bank. Of this, shs.200,000 ($2,800) was used to increase the dairy herd; shs.20,000 ($2,800) was used for the poultry project; and shs.10,000 ($1,400) was used to acquire a tractor.

Land was acquired from the Ugandan Government under a 49-year lease.

The project is self-supporting. Through its profits, it manages to repay its loan at the rate of shs.1,500 ($210) per month. At the same time, it has raised its net worth to shs.141,500 ($19,810).

When the project is able to build dormitories and, thus, have a residential training center, it plans to assess its trainees 20 per cent of the production of their individual plots in exchange for food

and lodging.

Problems

The primary problem of the Bannakaroli Brothers School-leavers Farming Project is financial. The project feels a need to expand its operations but cannot do so because of a lack of resources. It considers that this problem may be solved in one of two ways, either from subsidization by Government or private organizations or by the procurement of long-term loans.

Accomplishments and effects

The project has been successful in introducing new varieties of plants and new breeds of livestock into its area of influence. Along with these, it has introduced the use of agricultural chemicals and new ways of dealing with livestock.

The local population has benefited in two ways from the project's emphasis on vegetable growing. It has discovered a new cash crop that requires only a small initial investment and that provides a return on this investment within a period of a few months. Secondly, it has learned the importance of vegetables in the daily diet.

The increased local production of milk, eggs and meat has also had a beneficial effect on the population's level of nutrition. Sanitation and hygiene have also been improved as a result of the work done by the project.

Of great importance is the fact that school-leavers have discovered that farming can be profitable. Those who have left the project have applied the knowledge and training acquired there and many are

succeeding in making a good living in production agriculture.

Brother Urbano indicates that the successes of former trainees have caused many of the young men of the region to stop looking down on farming as they once did. Some who had gone to the city to find employment, but without success, have returned to the country to take up farming.

Finally, the project has been instrumental in the organization of four poultry, livestock and dairy cooperatives. A Brother is treasurer of the Mukisa Dairy and Beef Cooperative while another Brother is president of the Masaka Livestock Cooperative Union, Ltd. By contributing 70 indigenous cows to the Ssembabule Balunzikwebera Cooperative, it enabled the cooperative to retain title to its land. Finally, the project is a member of the Wankoko Cooperative through which it markets its poultry. A vegetable cooperative, The South Masaka Vegetable Growers, is in the process of being formed.

The project has attracted the attention and support of both Government and Makerere University College. Mr. E. R. Watts, former head of the agricultural extension program of Makerere University College in Kampala, published an article several years ago dealing with the possibility of using existing institutions as bases for school-leaver training. He writes:

> The Bannakaroli Brothers at Kyotera, Masaka District have pioneered the training of unemployed school-leavers in their area. Using a minimum of additional facilities to the existing secondary and trade schools, 30 school-leavers come daily from their homes for training and practice in carpentry, building and farming.
>
> What the Bannakaroli Brothers are doing may not in itself be making a great contribution to the national problem. But in the Kyotera area several boys are now

> working on their fathers' farms growing vegetables for local markets. If the Brothers' example could be followed all over the country, there could be a major impact on the school-leaver problem. All that would be needed is a government programme to sponsor school-leaver training in existing institutions. On a per head basis such a programme would provide training at an extremely low per capita cost. Government could supply funds for equipment and materials such as seeds plus an inspection service to approve such training.
>
> Such a low cost school-leaver training scheme could free funds for the more crucial aspects of settling young people in self employment. These are the development of profitable occupations and the granting of loans for equipment and materials.
>
> Mobilising existing institutions has the added advantage that it can help to reduce the trend towards increasing the rural bureaucracy. Far too high a proportion of rural development funds are at present being swallowed up before they reach the grass roots where development begins. By extending such a programme on the lines of the Bannakaroli Brothers our impact on this serious problem could be greatly increased.[1]

Thus by pioneering a possible solution to the school-leaver problem, this project, administered from the beginning only by Ugandan Roman Catholic Brothers, rose spontaneously, as it were, and set an example for the nation.

Part 2

Bishop's Senior School Agriculture Course

Bishop's Senior School is a growing school of approximately 500 student body located at Mukono, 13 miles east of Kampala on the main highway linking Kampala with Nairobi, Kenya (Fig. 9). The school prepares its students for the East African Certificate of Education

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[1] E. R. Watts, "An Answer to School Leaver Unemployment," Uganda Argus, Feb. 25, 1971.

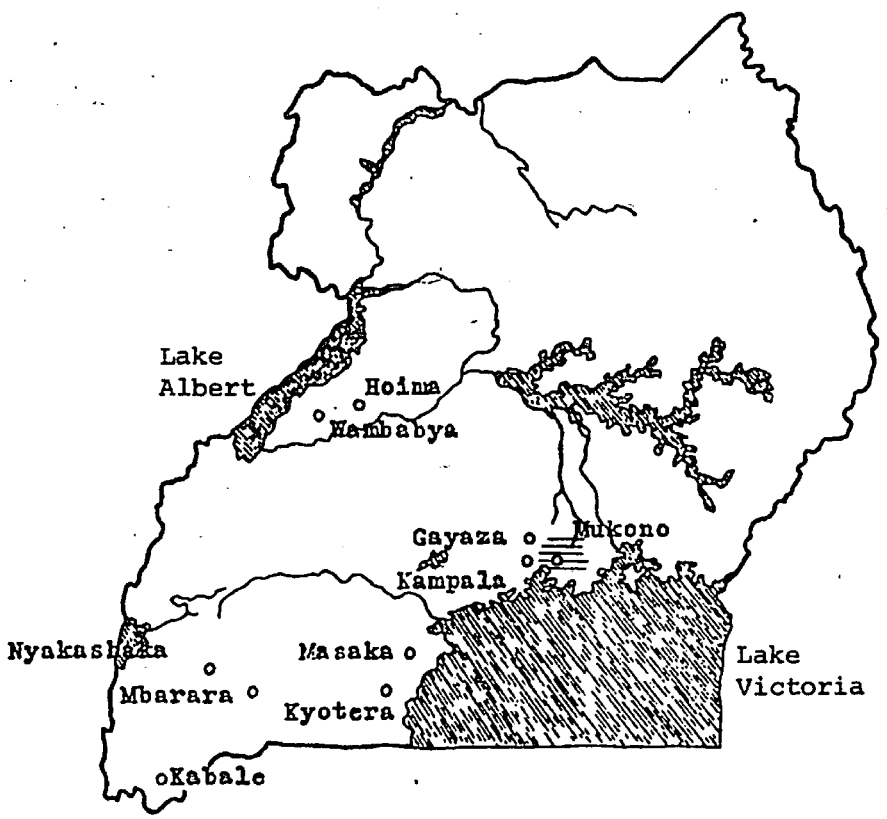

Fig. 9.--Map of Uganda. Shaded area indicates area of primary influence of Bishop's Senior School Agriculture Course

Examination, a standardized Government examination. The programs of schools preparing students for such examinations are frequently restricted to meeting the anticipated requirements of the examination. The examination is the focal point of years of study and the leverage of the student's secondary education stands or falls on the results of it. Consequently, the program developed by the secondary school becomes a cramming course that is little-concerned with its practical usefulness for the student.

In the middle 60's, Mr. W. G. Silk, Church Missionary Society missionary and headmaster of the school, along with the school's Board of Governors resolved to introduce a practical bias to the program of Bishop's School. Because the school is located in a potentially rich agricultural area, agriculture seemed to have most relevance as a practical subject.

The goals that were identified for the agricultural course by Mr. Silk and the Board of Governors were the following:

1. To stimulate an interest in agriculture.
2. To demonstrate that farming can be a dignified and profitable occupation as well as an interesting one.
3. To provide basic training in agriculture.
4. To act as a catalyst to the development of agriculture in the Mukono area.

The course was not intended to be vocational. This possibility was precluded by the continuing necessity to prepare students for the standardized examination. It was, however, hoped that some students would take up careers in farming. Though the majority of the students

would not be directly connected with agriculture, many would be able, as leaders in their communities, to influence people's attitudes towards farming. All would be able to pass on knowledge and experience acquired in the agriculture course to relatives and friends who are farming. Some would subsequently invest in farming though keeping their jobs in other occupations. Thus, it was hoped that many advantages would accrue to the students, to others and to the country as a result of the introduction of the agriculture course in the program of Bishop's School.

For the planning and development of the agriculture course and farm, Mr. Silk and the Board of Governors of Bishop's School brought in Mr. R. M. Stickney, a Scottish agriculturalist with four years experience in Africa. The course and farm were started in February of 1968. The agriculture course is a four-year course and is compulsory for all students for three of the four years the teenage students spend at the school. It is allocated four forty-minute periods per week and is not regarded as a substitute for a science but as a practical subject to be studied in addition to the sciences.

Subsequent to the starting of the course, delegates from the three East African countries of Uganda, Kenya and Tanzania drew up a curriculum in Agriculture for the Certificate of Education Examination. The curriculum covers Crop and Animal Husbandry, Farm Economics, Farmer's Organizations and the History and Geography of Agricultural Production in Uganda.

In order to stimulate the students' interest in agriculture, to provide them with the opportunity of learning practical farming skills,

to permit them to have projects, to demonstrate a variety of crop and livestock enterprises and, hopefully, to demonstrate the profitability of farming, five hectares (12.5 acres) were set aside by the Church Missionary Society to serve as a farm for the agricultural course. Although the farm is twice as large as family farms in Uganda, it has the same resources, or lack of them, as the family farms in the area of Mukono.

Two hectares of the five-hectare farm consist of a laterite outcropping with only a thin covering of stony topsoil. On either side of the laterite outcropping are areas of fairly deep, rich soil. One of these areas is of two hectares and has an 11 per cent slope. The remaining hectare has a 14 per cent slope.

The two-hectare laterite outcropping has been divided into six paddocks and is being managed as permanent pasture where each paddock is grazed for four days. Two paddocks were sown with seed mixtures containing Brachiaria ruziziensis, Panicum inocunum, Seteria spacelata and Chloris gayana (Rhodes grass). The other four paddocks are in natural grasses and have been improved by weed control practices, manuring, trimming, some hand planting of Cynodom dactylon (Star grass) and the sowing of Stylosanthes gracilis. In addition to the manuring, 120 kilograms of calcium ammonium nitrate are added after every second grazing.

The hectare of deep, rich but steeply sloping soil to the side of the laterite outcropping has been planted in perennial crops. Coffee, both Robusta and Arabica, was planted in one-fifth of this area. Fruit, pineapple and papayas, occupy another one-fifth while bananas,

both cooking and sweet, have been planted on two-fifths of the hectare. The remaining fifth has been planted in cocoa, a crop that, according to Uganda's Third Five-year Plan will become increasingly important in East Africa in the years to come.

The two hectares of deep rich soil to the north of the laterite outcropping are managed as an annual crop/elephant grass-Desmodium uncinatum rotation. Since the rainfall pattern at Mukono is bimodal in nature, two plantings of annual crops may be made each year. The annual crops that are used in the rotation include garden vegetables, corn (maize), sweet potatoes, peanuts (groundnuts), soybeans and a sudan grass/sorghum hybrid that is cut for forage.

A "kitchen garden" of 0.1 hectare has been developed and is used to provide green vegetables and fruit for the kitchen. Though no irrigation is available on the farm, it is hoped that a means may be found to collect rain water for this garden.

Livestock kept by the farm for profit and for demonstration purposes include cattle, swine, poultry and sheep. The cattle herd, as of October 30, 1971, included ten cows of exotic breeds, two heifers in calf and seven heifers ranging in age from 18 months to one week. All male calves are sold at the age of three days.

The cows are brought in from pasture only for milking. Supplementary feeding includes elephant grass and banana or sweet potato peels. During the dry seasons, pasture is supplemented by sweet potato tops and corn and sudan grass/sorghum silage. A concentrate mixture is purchased and is fed at the rate of four pounds concentrate for every gallon of milk produced.

Calves are raised inside and are fed whole milk to the age of six months. After this age, they feed on elephant grass and Desmodium which is cut and brought to them. They are turned out for grazing with the cows some weeks before they are due to calve.

Four of the cows were gifts of the Ugandan Minister of Animal Industry, Game and Fisheries.

The swine enterprise consists of two sows and their litters. These are divided into two groups, one of which is fed on purchased pig meal, the other on swill. Sows are taken for breeding service to a prison farm located one mile from Bishop's School.

Poultry kept at the school include 300 layers of two hybrids, one light and one medium. Day-old broilers are purchased from Kenya at the rate of 200 per month. Forty to 50 birds are marketed dressed in Kampala each week. Brooding has been done with hurricane lanterns and with infrared lamps.

In 1971, 100 day-old turkeys were purchased. Over half of these died during the brooding stage, but the remainder thrived and a profit was realized on this enterprise in spite of the high initial mortality.

The school owns one 100-egg capacity incubator.

Housing for the poultry has been on slats in cages as well as on deep litter in mud poultry houses. Both methods have been satisfactory.

Rabbits were kept by the farm for a period of two years but were discontinued when they proved to be unprofitable.

The school keeps a flock of nine ewes of a local breed and one Kent ram. The flock is grazed on the school compound.

All buildings on the farm are made of local materials with the exception of the roofing, which is of corrugated iron. A 4,500 gallon capacity cistern made of reinforced concrete was built under the dairy shed and is used for the cattle.

The farm employs a foreman who is housed on the farm and five workmen. These are all paid from the profits of the farm. Students participate in the farmwork through individual and class projects and by providing labor. Partly because Bishop's School is a day school where no students are "on campus" in the late afternoon and early morning, and partly in an attempt to maintain student interest in the agriculture course, the more routine and least attractive tasks are confined to the farm's laborers. Students do the more interesting and instructive tasks such as planting, applying fertilizers, pruning, controlling pests and diseases, marking out and construction of buildings, and fencing.

Class projects for 1971 providing practical training were the following:

First-year students - vegetable and cassava culture.

Second-year students - corn (maize), peanuts (groundnuts), and sweet potato culture.

Third-year students - poultry. Each third-year class was given 100 day-old pullets which they raised and for which they will care for a complete laying year.

Fourth-year students - no class project. Students are free to participate in the poultry and vegetable

projects of other classes or to have individual projects.

The members of a Young Farmers' Society organized at the school have had individual and group projects in vegetable culture, pig keeping, sheep and broilers. By June, 1971, a total of 150 students were involved in vegetable projects either on school land or in villages in the vicinity of the school. Because marketing was done by the students holding such projects, little definite information is available as to the amount of profit realized from them. It is known, however, that several students have received something more than $14 from sales of vegetables from one season (the per capita annual income in the district is $54) and that one student's sales from a plot of tomatoes exceeded $56.

By June, 1971, 96 students had had broiler projects at the school or in the vicinity of the school. Housing for the birds frequently consisted of simple cages constructed of slats of wood or bamboo set up off the ground on platforms of equally simple construction. Even so, some $980 in profits were returned to these students from sales of dressed birds marketed in Kampala.

The school has aided 11 students to buy and feed, until point of lay, about 550 day-old pullets. In addition, it has purchased and distributed, on a cash basis, over 2,000 day-old pullets and broilers to students, parents and Young Farmers' Societies.

Participation in school-sponsored field days and district agricultural shows are among the activities during which students may put on demonstrations or compete. In June, 1969, at the occasion of the

official opening of the farm by the Uganda Minister of Education, a field day was organized. At that time, about 90 students gave demonstrations on the farm.

In June, 1970, farm demonstrations put on by students featured prominently at the 60 Year Jubilee of Bishop's School. During the course of the celebration, the Vice President of Uganda, who held the portfolio of Minister of Animal Industry, officially opened the agricultural mechanics shop.

For both of the above occasions, there was press and television coverage and there was a large number of visitors including parents and former students in attendance.

The Young Farmers' of Uganda Society participates in district agricultural shows in Young Farmers' Achievement Days and School Science Fairs.

In addition to the above activities, the school farm has been featured in television and radio programs.

Personnel

The personnel responsible for the agricultural course and the farm include two expatriates and one Ugandan. Mr. R. M. Stickney is the head of the department. He is on contract with the Uganda Government which pays his salary as a teacher and with the British Ministry of Overseas Development which provides an inducement allowance. The project is responsible for assuring expenses of travel associated with his work.

Mr. Stickney's qualifications include the Scottish Diploma in Agriculture, the English National Diploma in Agriculture and the

Certificate in Education. His experience includes four years of farm work in Britain, two years as an agricultural extension worker in Uganda and 19 months as the principal of the Farmers' Training Centre at Bushenyi, Uganda.

The second expatriate associated with the project is Mr. M. E. Evans, a Volunteer recruited by the Catholic Institute for International Relations. Mr. Evans' salary is paid by the Uganda Ministry of Education. Bishop's School is responsible for his passage.

Mr. Evans' qualifications include the English National Certificate in Agriculture, the Advanced National Certificate in Agriculture and the National Certificate in Farm Organization and Management. His experience includes two years of teaching Agricultural Science in a secondary school in Zambia.

Mr. Evans plans to spend two years at Bishop's School and has been assigned the duties of teaching all first and third year classes and of supervising the school's Young Farmers' of Uganda Society.

The third member of the agricultural staff is Mr. G. Wamala-Mutebi who worked as a teacher at Bishop's School and who is, at this writing, in Holland for further training. His salary was paid by the Uganda Ministry of Education. His qualifications include three years at a farm school (farm-based education in place of a secondary school) and a City and Guilds Certificate in tropical agriculture.

Materials written by or about the project

Teaching materials have been developed to supplement the syllabus for the East African Certificate Examination in Agriculture. Mr.

Stickney, however, no longer uses them. His desire to make the course a practical course where general principles may be learned was thwarted to some extent by the students' inclination to rote memorize any printed materials received. Such tendency towards rote memorization seems to be inherent in examination-oriented systems and is frequently responsible for the failure to discover principles that would ultimately prove to be of more use than the details memorized.

The following articles have been written about the project:

"An Approach to the Teaching of Agriculture at a Secondary School." Published in the "Uganda Agriculture Teachers' Newsletter," July, 1970, and in the Church Missionary Society's "Rural Development Bulletin," N°11, Sept. 1971.

"The Development of Bishop's Senior School Farm." Published in the "Uganda Agriculture Teachers' Newsletter," July, 1970, and the CMS "Rural Development Bulletin," N°11, Sept. 1971.

"Bishop's Senior School Farm." Published in the October, 1970, issue of the "Uganda Agricultural Society Journal."

"Agriculture in the Secondary School Curriculum," a paper delivered to the Uganda Science Teachers Assn.

Articles concerning the agriculture course and farm at Bishop's School have appeared in such newspapers as the "Uganda Argus," "The People," and "New Day."

Extension activities

For the most part, extension activities have been of an informal nature occurring through visits, demonstrations, television and radio, and the activities of students when they return to their home villages.

Formal activities of an extension nature include the purchasing and distributing of day-old chicks, three-week-old chicks, exotic cows, seeds, agricultural chemicals and animal feeds. Mr. Stickney has, on a number of occasions, visited local farmers and has provided marketing helps for them.

Lesson plans developed by Mr. Stickney have been distributed to teachers of agricultural courses in other secondary schools. On one occasion, students from Bishop's Senior School spent two weekends building a poultry house and demonstrating fence construction at a nearby school. On another, students spent a weekend building a poultry house at a settlement for blind people.

Mr. Stickney states that there are many opportunities for extension work. The school is limited in this regard, however, by inadequate staffing and the absence of funds to pay transportation expenses of extension workers.

Financing

Financing of the agricultural course at Bishop's School is realized largely through Government subsidization. Teachers' salaries are paid by the Ministry of Education which also provides a subsidy of seven dollars/year per student enrolled in "practical courses." This subsidy was begun in 1970 and is to be used for equipment and materials needed in association with practical courses.

The farm was started in 1968 on land donated by the CMS and with a grant of $1,400 from the school. An additional grant of $700 for running expenses was provided by the school in 1969. A summary of expenditures and income since the starting of the project follows:

Item	1968	1969	1970	1971
Labor	$1,025	$1,292	$1,371	$ 1,713
Tools and equipment	172	196	1,469	544
Building and fencing	359	740	291	
Feeds	148	1,527	3,267	4,271
Fertilizers and sprays	40	110	112	222
Livestock	60	200	768	1,249
Poultry	136	390	621	
Seeds and planting materials	40	17	100	62
Miscellaneous	15	114	235	349
Total farm expenditures	$1,995	$4,586	$8,234	$ 8,410
Farm income	510	3,972	5,145	10,202
Net farm expenditures	$1,485	$ 614	$3,089	$-1,792

It is to be noted that much of the expenditure for tools and equipment was for non-farm shop and laboratory equipment needed in the agricultural program.

Farm income for the year 1971 was from the following sources and in the following amounts:

Milk	$ 4,750
Eggs	1,512
Crops	279
Livestock	1,756
Young Farmers (refund on broilers)	1,814
Other refunds for credit	91
Total farm income	$10,202

As of December 31, 1971, the value of the farm's livestock was estimated at $3,640.

From the above, it is apparent that though the Government 1970 subsidy of $2,030 was entirely used up, the 1971 subsidy of $3,500 was not used at all. The 1971 profits from the school farm were adequate to cover expenses totaling $1,262 for the non-farm agricultural program. The net cash gain to the school as a result of its farming operations and agricultural program in 1971 was, thus, $4,030 (farm profit plus the Government subsidy per pupil enrolled in the agriculture

program).

Accomplishments and effects of the project

Of the most important accomplishments of this project, according to those associated with it, are that it has pioneered the teaching of agricultural subjects in what was otherwise a normal secondary curriculum, that it has shown that an agricultural course can be accepted with enthusiasm by students and that this can be done with relatively little capital outlay.

Because of its role as pioneer, the project has on numerous occasions been in a position to encourage and guide other schools in the development of their agricultural programs. Mr. Stickney states that he feels free to claim that his project has inspired other schools to start agricultural courses.

It has helped to dispel the impressions held by many, that African young people will not study agriculture. The fact that students at Bishop's School enthusiastically study agricultural subjects, that they are willing to hold projects and do manual work on the farm, and that only five out of 83 of the 1971 fourth-year students dropped agriculture when given the opportunity to do so, presents evidence that African secondary school students will study agricultural subjects if they are presented in such a way as to capture their interest.

The project has attracted much attention from neighboring farmers, from parents and from Government. It has been the subject of press, radio and television coverage.

Other effects claimed by those involved in this project are the

following:

1. The project was responsible for the creation of a school garden at Bishop's Primary School, a school of about 800 pupils.
2. It has been responsible for the adoption of a practical agricultural emphasis at Bishop Tucker College, a theological school, where the students now keep poultry and have planted crops on two acres of land.
3. Green vegetables and milk are supplied to Bishop's School for the school lunch program.
4. The project has made available for purchase eggs, chickens, milk, meat and some vegetables, corn (maize), and peanuts (groundnuts).
5. It has created the possibility of part-time employment for students who needed help in paying their tuition, having paid out to 1971 a total of $514.
6. It has created employment for the farm workers who have been paid approximately $4,480 by the end of 1971.
7. It has spurred the economy of the Mukono area through example, demonstration and the awakening of the community to marketing opportunities.

Mr. Stickney feels that the project has succeeded in demonstrating to the majority of students at Bishop's School that farming is a dignified, interesting and profitable occupation.

Sources of help

Bishop's School agriculture course has benefited from a loan negotiated between the International Development Association and the

Government of Uganda. As a result of this loan, buildings, an agriculture shop and equipment were provided to the project. No farm buildings were built with funds from this loan, however. Another source of material help has been CARE, which has provided a wheelbarrow and some small items of equipment for the Young Farmers' Society.

Sources of advice, counsel and useful educational materials have been the following:

Uganda Agricultural and Veterinary Departments

Faculty of Agriculture, Makerere University College

Twiga Chemicals

A list of some of the more helpful publications may be found in Appendix K.

Problems

Mr. Stickney cites as a problem his feeling that the agriculture course at Bishop's School has failed to give the students as much basic practical training as had been hoped for.

In order to improve the situation, he suggests the following:

1. Before starting an agriculture course, it should first be decided what basic knowledge and what practical skills are required by a progressive farmer in the local situation. These should become keystones of a syllabus and should indicate those practical skills that students should be given the opportunity to learn thoroughly.
2. A complete and detailed scheme of work should be drawn out. Much of the syllabus should be covered on a project basis. It is essential to allow sufficient time for full and

thorough coverage of keystones of the syllabus. If the syllabus is too lengthy for the time available, it should be trimmed.

3. Examinations must test what had been hoped to be taught. They must test the students' understanding of basic principles rather than his memory for detail. They should test his ability to carry out projects and perform practical skills.
4. Teachers must have had thorough training in small-scale farming, in skills required for this and in the organization of projects.
5. Enough teachers should be available to provide for adequate supervision. At Bishop's School, one teacher is required to supervise 40 students. It is impossible to provide adequate supervision in this case, claims Mr. Stickney.

A second problem to which Mr. Stickney alludes is that of recovering loans made to students and others. He has found that the only effective way to do this is to control the marketing of whatever is produced. As a result, unless those who make the loan are free to travel, loans may be made only in the immediate area of the school. This precludes excellent opportunities to work with students and their parents and neighbors who are located outside the immediate area of the school.

A third problem is that the school farm is too large, according to Mr. Stickney. He is of the opinion that land area should be decreased by one-third (four acres) and that all enterprises should be scaled down by the same amount.

A problem that may be anticipated is that presented by the temptation to improve on farm buildings and equipment. The temptation will be to provide concrete floors for the cattle yard and calf pens, to build a large dipping tank, to purchase a tractor, to build expensive fences on each side of roadways, etc. In Mr. Stickney's opinion, falling to any of these temptations would be retrogressive steps and would provide the local farmer with the occasion to, once again, say, "You can do these things because you have lots of money . . . ."

Concluding remarks

In response to the question, "What have been your most important accomplishments?", Mr. Stickney writes:

> Our farm has become a good demonstration for students, parents and local farmers. Buildings and equipment used are simple and can be copied by the ordinary farmer who lacks capital.
>
> There is a tendency to judge a good farm as one that has elaborate buildings and equipment. Many farmers spend their capital on such things and then have insufficient cash to buy factors of production such as livestock, feed, concentrates or agricultural chemicals. It has been our policy to invest first in planting crops and buying livestock. Simple buildings have been erected. The farm is now paying its way and we are able to invest in teaching aids, student projects and some experimentation. We have been able to get students involved in practical farm work while maintaining and, in fact, increasing their enthusiasm. This has been achieved by making the practical work educational and by allowing students to earn money from their projects.
>
> The majority of our students have a genuine interest in agriculture. They are confident that farming can be profitable and, given reasonable opportunity (adequate land and capital), many would be willing to take up farming as a vocation.[2]

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[2] R. M. Stickney, Personal Communication, February, 1971.

The Uganda Veterinary Department has on three occasions brought groups of farmers to visit the school farm. Many others, including educators, agriculturalists and those representing international agencies have also visited the project. The project has thus served a demonstration role. In addition, the students attest to the fact that they pass on what they learn to their parents.

The project has provided for the availability of seeds, planting materials, agricultural chemicals, livestock and feed in the Mukono area. In 1968, chicken feed was not available at Mukono. Mr. Stickney estimates that by October, 1971, over seven tons of such feed was sold through the small commercial center at Mukono each week. Though these developments would eventually have certainly occurred without the leading of the project, Mr. Stickney is convinced that their development was accelerated by the project. In this way, the project served a catalytic role.

Although Mr. Stickney has not done follow-up studies on the 1970-71 graduating class, he is aware of eight of that class who keep poultry in the Mukono area. Two others have organized Young Farmers' Societies in the primary schools in which they are teachers. Mr. Stickney presumes from the activities of these that others of the class are applying the knowledge they acquired while associated with the project.

Part 3

Christian Rural Service

Christian Rural Service in the densely populated Kigezi district of Uganda (Fig. 10) was started in 1964 by the Reverend Richard E. Lyth

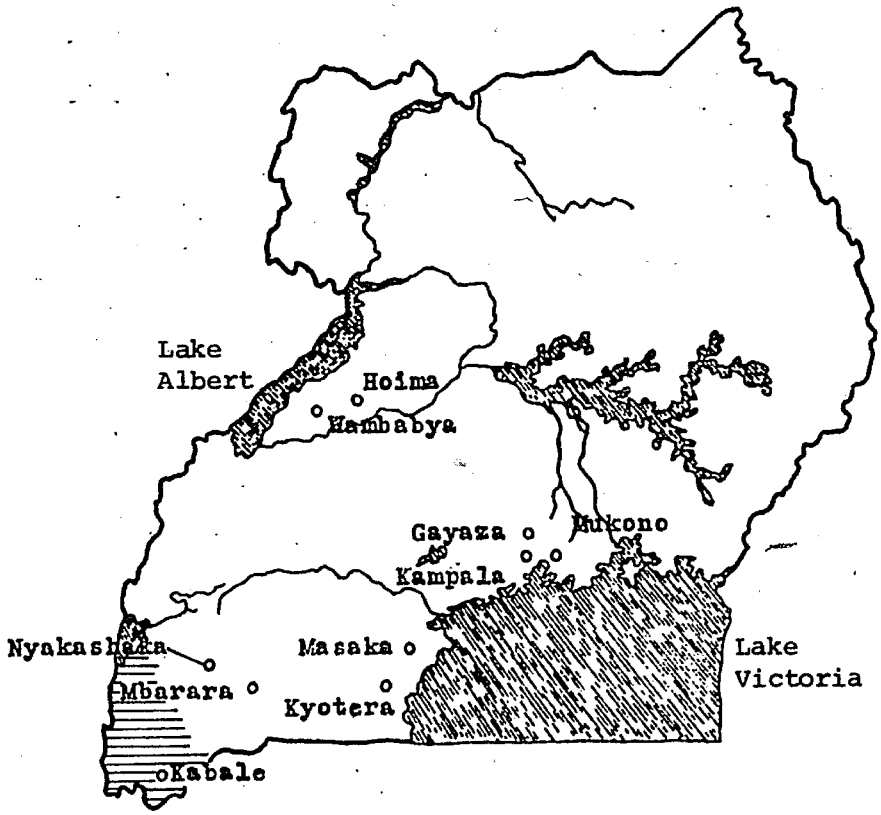

Fig. 10.--Map of Uganda. Shaded area indicates area of influence of Christian Rural Service, Kigezi District

(subsequently made Bishop of Kigezi) of the Church Missionary Society, London, in response to his reasoning that,

> If church members do not have more fertile and productive farms than those who are without Christ, if their houses are not cleaner and more beautiful, if their children are not happier and more healthy, then surely there is something missing of the "life more abundant" that should be theirs.[3]

Christian Rural Service was organized in such a way as to provide an opportunity for co-operation between Roman Catholics and Protestants and between these two churches and the Government to build together for the good of all. According to Bishop Lyth,

> It teaches service and citizenship. Instead of just giving advice, it lends a hand. It helps people where they most need help, and is welcome to Government and to the common people alike. Kigezi is on tiptoe to advance in all directions; and its people, hard-working and quick to perceive an advantage, are ripe for the self-help methods of progress that Christian Rural Service offers.
>
> For it is by means of self-help that Christian Rural Service operates. There is no pouring in of vast sums of foreign charity, with its inevitable effect of robbing the people of their self-respect and creating parasites or enemies. Instead, Christian Rural Service seeks to give people, in Christ's name, opportunity and responsibility; not only improving the economy of the district and raising the standard of living, but strengthening the character of rural folk, building up their energies, and giving them a stake in the affairs of the country as a whole.
>
> It has four great advantages over a static agricultural settlement scheme: it makes less demand on financial assistance from outside the district, for it aims at helping people to help themselves; there are no problems about the obtaining and holding of land with all the ill-feeling that can create; instead of benefiting the few hundred people that an agricultural settlement scheme can benefit, it can much more quickly reach out and touch the

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[3] Rt. Rev. R. E. Lyth, "Christian Rural Service in Kigezi District of Uganda," New Hope for Rural Africa, ed. by E. R. Watts, (Nairobi: East African Publishing House, 1969), p. 126.

> whole district in every department of the people's lives; and, finally, if a European missionary is involved in the work of Christian Rural Service, no stigma attaches to him, for he is in no position of authority nor can he be accused of having an unwanted influence in the affairs of church or state. As Christ said, so he seeks to be able to say, "I am among you as he that serveth," or, like Paul, "your servant for Jesus' sake." And so he offers what he has to offer--he offers but he does not order; and the people accept or refuse as they have a mind to.[4]

Goals

The goal of Christian Rural Service was to assist the population of the Kigezi District of southwestern Uganda in the struggle for a more abundant life by establishing on a parish basis a rural development program embracing Christian service, teaching and evangelism and leading to better farming, home improvement, improved health and hygiene, the availability of adult education, the creation of village industries, youth work, Christian stewardship of the land and community self-help projects.

By 1967, Christian Rural Service had proved to be making good progress toward its goal, and had gained the support and enthusiasm of thousands of villagers. In addition, it had elicited much interest in other areas of East and Central Africa. Accordingly, in that year, the Provincial Assembly of the Church of Uganda, Rwanda and Burundi resolved to extend the program of Christian Rural Service to the other areas of Uganda, Rwanda and Burundi served by the Church.

The new extension was called the Provincial Christian Rural Service. It embraces the same goals, program and method of operation as

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[4] Ibid., pp. 126, 127.

the Christian Rural Service in the Kigezi. Though separate as concerns personnel and financing, these programs, because of their great similarity, will, for the purposes of this description, be considered together.

Program

Christian Rural Service is a program of extension education. It operates no farm, owns no land and has no restrictions concerning those who may participate in its program. It is open to all members of a community and the surrounding area. It may accommodate any number of participants and is limited only by the number of volunteer leaders who make themselves available to the program. The program is continuous and operates on a year-round basis.

Participants in the program are encouraged to have projects. These most frequently take the form of home-centered farming, home improvement and handwork. Profits realized from projects belong to the participant, however, many participants contribute to the funds of the clubs that are organized by Christian Rural Service and/or to church funds. In addition, all clubs are encouraged to engage in some form of service to the community and the church.

Christian Rural Service does not participate in agricultural fairs or field days per se, however, members of the various clubs set up through Christian Rural Service do participate in such events.

Field workers concentrate a great deal of attention on youth. By the end of 1969, there were 23,209 members in the 3,001 youth clubs that had been organized by Christian Rural Service field workers. These members are mainly girls, most of whom have not had the chance to

attend school. The clubs meet once or twice a week and learn such subjects as reading, writing, sewing, hygiene and nutrition.

In conjunction with the Ugandan Department of Agriculture, 146 Young Farmers of Uganda Clubs with a membership of 5,117 were organized by the end of 1969. These clubs are open to boys and girls who assume the responsibility for projects on which records are kept. Among those who are invited as speakers for meetings are Government Agricultural Assistants.

In addition to youth and young farmer clubs is a club that was organized primarily for school-leavers. As of the end of 1969, eight of these clubs, with a membership of 168, had been organized. They have proven to be effective in helping school-leavers make a realistic appraisal of agriculture as a vocation. The attractiveness of vocations in agriculture is far from apparent to school-leavers who have a tendency to equate agriculture with the toil and meager return of the subsistence farming practiced by parents and grandparents.

Adult education groups stressing literacy were formed early in the program. By 1969, these numbered 1,209 with a total membership of 29,928. As a result of these groups, the demand for books has increased considerably. Christian Rural Service helps to satisfy this growing demand by providing books, at cost, to merchants who have agreed to add books to their wares. In the Kigezi, there is at least one merchant every eight miles along main roads who sells books. As well as Bibles and other religious books, books concerning farming, young people, health and the home are also sold.

Finally, Christian Rural Service assists in the organization of

farmers' and women's self-help groups and of groups for adult farmers. The self-help groups are frequently involved in activities that are designed to improve the well-being of members by providing products or materials that may be used by members or sold for income. In Rwanda, for example, the roofs of many homes have been tiled, thus creating semi-permanent houses. Thirty-three local farmers working in five Christian Rural Service self-help groups produce the tiles. Tiles are used by members of the groups and are sold to earn cash for family requirements.

Method of operation

The basic units served by the project are parishes of the church. Field workers are sent in pairs to parishes to work and live in housing provided by church, Government or villagers. Their means of transportation is the bicycle.

In the parish, the field workers are supported by the pastor who would have also received training from Christian Rural Service.

The first activity of the field workers is to make a survey of the parish (Appendix L). From the results of this and from the level of knowledge in the parish, areas of opportunity are identified. These areas of opportunity are then presented to the people. Where sufficient members express interest and show a willingness to cooperate, clubs and self-help groups are formed and the program is put into operation.

Field workers submit weekly and monthly reports of their work and progress. They receive frequent and regular visits from the team leader. The operation of the team is also supported by the director

and his wife who visit the parishes, and stay in them for several days. The service vehicle which they use for these visits is equipped with a loud speaker and carries slide and movie projection equipment.

Decisions concerning projects to be undertaken are made by the clubs and groups in conjunction with the field workers. During his visits, the director has the possibility of suggesting projects, especially while showing slides of what has been done in other parishes.

At regular intervals, teams return to headquarters for a week of spiritual and mental refreshment, to exchange news and ideas and to acquire new skills that may be extended in the parishes.

Personnel

Christian Rural Service in the Kigezi District was started in 1964 by Reverend Richard E. Lyth. In 1967, the program passed under Ugandan leadership when Reverend Eric Ruzindana became director. Subsequently, Mr. Solomon Bekunde assumed this post with Mr. James Kakombe as Team Leader of the District's permanent field workers. In addition to providing the day-by-day leadership of the project in the Kigezi District, Mr. Bekunde and Mr. Kakombe are responsible for the project's training program for field workers, pastors and voluntary leaders including those who are sent by the Provincial program for this purpose.

There are no longer any expatriates associated with Christian Rural Service in the Kigezi.

Qualifications sought in field workers include the following:

1. A personal experience of Jesus Christ as Saviour and Lord.
2. A definite sense of vocation to rural service work.
3. A minimum of Primary Six education (sixth grade).

4. Sound health and ability to endure hardships.
5. A friendly, cooperative and understanding attitude, with a love and respect for village people, a willingness to live and work among them and an ability to win their confidence.
6. A practical turn of mind with an ability to learn new skills and to communicate them to others.
7. Ability to cooperate with fellow workers.
8. Ability to participate in group thinking and discussion.
9. Resourcefulness in stimulating self-help and mutual-help and finding solutions to problems.
10. A sense of humor.
11. Contagious enthusiasm.

Expatriate personnel associated with the Provincial Christian Rural Service Extension Program are Mr. and Mrs. A. Baillie, British citizens who have been sent to this work by the Church Missionary Society. Christian Aid has assumed responsibility for their financial support while World Neighbors and the World Council of Churches provide them with housing and transportation. The program itself has no obligations vis-à-vis the Baillie's financial support.

Mr. and Mrs. Baillie bring to the work in which they are involved an experience background of 12 years in Kenya, including some years as principal of a farmers' training center. Mr. Baillie holds a diploma in agriculture. Mrs. Baillie is a certified teacher and holds a diploma in speech and drama.

The Baillies' duties include the administration of the Provincial Christian Rural Service, the supervision of the Ugandan personnel

working in this service, program planning, the production of teaching aids, training of staff and volunteer workers and all the clerical work required in the administration of the service. In addition, Mr. Baillie serves as secretary to the Provincial Christian Rural Service advisory committee.

Mr. and Mrs. Baillie plan to maintain their association with Christian Rural Service until such time as it becomes self-supporting. They estimate that this will be the case within eight to ten years.

Local personnel who are employed by both projects include 49 trained Ugandans plus others who are in training. Financial support for Ugandan personnel is obtained through the Church of Uganda, Rwanda and Burundi with World Neighbors, Christian Aid, Bread for the World and the World Council of Churches assisting in this support. No financial support is received from the Government of Uganda.

Those who are chosen to participate as workers in the Christian Rural Service program are trained lay readers in the Church of Uganda, Rwanda and Burundi. All have had from two to five years of experience in a rural parish. The educational background of the local personnel ranges from Primary Six to Secondary Two standard. Their duties include local extension and organization of club programs, supervision of home-centered projects and evangelistic outreach work, including preaching and teaching on Sunday.

In addition to the paid staff workers associated with Christian Rural Service during 1970 were 3,782 volunteer workers who were responsible for club and group leadership.

According to Mr. Baillie, Christian Rural Service will be considered to be fully staffed when there are four trained staff workers in each of the Church of Uganda, Rwanda and Burundi's 12 dioceses. Development and expansion of the program will then be accomplished through the training and encouragement of volunteer leaders. Supervision and guidance will be the responsibility of a diocesan board.

Extension and training

The relationship of Christian Rural Service to participants in the programs it sponsors is a continuing one. The nature of the relationship is one of service. Through contacts and activities in villages, Christian Rural Service seeks to enrich village life physically, materially and spiritually.

> The Service has given a good deal of attention to the training of leaders as being the most effective way of reaching the maximum number of people in the least time. Courses have been held, each attended regularly by fifty men and women, at which the principles of extension work have been taught and instruction given in a variety of subjects connected with village life; various aspects of agriculture and animal husbandry; health, hygiene, and nutrition; village industries; co-operation; etc.
>
> In addition to these courses advantage has also been taken of the existence of a divinity school in the district where 45 men are training for Christian service. Weekly instruction has been given to them in the subjects mentioned above. During their vacation wives are brought in for a three-week course. This embraces the above subjects but includes also cooking, needlework, a visit to the local hospital and "how to be a team with the husband in the home".[5]

The Ugandan Government has cooperated in the training program by sponsoring training courses for pastors and field workers at the Kigezi

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[5] Ibid., pp. 135, 136.

District Farm Institute. In addition, it has provided a concentrated four-month course in community development for two field workers.

Short courses and seminars are provided for church leaders and volunteer club and group leaders. The participants are recruited from church membership in the case of the volunteer leaders. There is no fee charged for training activities. Accommodations are provided by churches, schools and District Farm Institutes. Food is provided either by the local church or by the participants themselves and is generally prepared by members of the local church.

Christian Rural Service distributes but a limited amount of printed literature and, this, mainly to field workers. The literature that is distributed is distributed free of charge and comes from such sources as the Nsamizi Community Development Training Centre, from Kenyan 4-K Club publications, from publications of the Ugandan Government and from East African Literature Bureau publications.

Christian Rural Service has become involved in the distribution and sale of farm and household chemicals, seeds and, in conjunction with its literacy program, simple magnification spectacles and books.

No provision is made by the projects to extend credit. Instead, villagers are encouraged to join together to pool resources on a regular basis to create a source of funds that may be used as credit.

Financing

Christian Rural Service, Kigezi District. The total cost of Christian Rural Service in the Kigezi from its inception until June 30, 1971, has been approximately $75,000. This amount has been

underwritten by two agencies, World Neighbors of Oklahoma City, Oklahoma, U.S.A. ($38,648), and by Christian Aid of London, England.

An approximate annual budget for Christian Rural Service would be the following:

Salaries:	CRS Leader (1/2)	Shs. 3,060.	($428.40)
	Team Leader	4,284.	($598.96)
	17 Workers	49,076.	($6,870.64)
		56,420.	($7,898.00)
Leadership Training		29,000.	($4,060.00)
Program Expense		3,140.	($439.00)
Office Expense		1,600.	($224.00)
Transportation		12,300.	($1,722.00)
Total		Shs. 102,460.	($14,344.00)

Support for this project has been arranged through 1974 (Appendix M) with World Neighbors, Christian Aid, Bread for the World (Germany) and the Church of Uganda, Rwanda and Burundi underwriting the program.

Provincial Christian Rural Service. The initial capital investment for the Provincial Christian Rural Service was one automobile ($2,800) and household furniture for the expatriates associated with the project. Capital investment was underwritten by World Neighbors, Inc., of Oklahoma City, Oklahoma. Total capital investment to date has been in the order of $5,880.

Provincial Christian Rural Service employs two expatriates at a cost of Shs. 45,000 ($6,300) per year. In addition, there are 16 paid Ugandans who are associated with the project at a cost of Shs. 40,320 ($5,645) per year. Financial support for the expatriates is assured through Christian Aid, London, England. Support for the Ugandan personnel is assured through World Neighbors, Inc. As of January 1, 1971, the World Council of Churches, Geneva, Switzerland, began participation in the project. Its support will be forthcoming over a three-year

period and is designed to permit the expansion of the project to all the dioceses of the Church of Uganda, Rwanda and Burundi.

The Church of Uganda, Rwanda and Burundi participates in the support of this project by providing housing for Provincial Christian Rural Service workers and by helping in the operation of training courses and seminars.

An approximate annual budget for Provincial Christian Rural Service would be the following:

Salaries	Shs. 85,320.	($11,944.80)
Transportation	27,960.	($3,914.40)
Training Courses	26,540.	($3,715.60)
Program Expenses	2,890.	($404.60)
Rent for Exp. Personnel	3,120.	($436.80)
Office Expenses & Misc.	2,000.	($280.00)
Total	Shs. 147,830.	($20,696.20)

The project receives no grants or subsidies from the Ugandan Government nor has it received any material support from international agencies or diplomatic missions.

Churches and religious bodies that have contributed to Provincial Christian Rural Service are the following:

Undesignated church in U.K.	Shs. 6,000.	($840)
Christian Aid	45,000./yr.	($6,300)
World Neighbors, Inc. (1971-72)	63,000.	($8,820)
World Council of Churches (1971-74)	157,042.	($21,986)

Financial support from Christian Aid and from the World Council of Churches is scheduled to end in 1974. Support from World Neighbors, Inc. is for an unlimited length of time. Further support will be sought in relation to needs and depending upon how well the project has achieved a status of self-support.

Effects and accomplishments

The project has introduced much that is new in the region of its activity and beyond: new methods of growing food crops; new tools for farm and home; new types of plants; agricultural chemicals; and new skills in handwork, meal planning and food preparation. It has organized clubs and groups oriented toward agriculture, small industry, homemaking or village improvement.

One of the important effects of Christian Rural Service on those who participate in the programs it sponsors is the increased hope that life in rural Uganda can be satisfying. The skills they learn, the experiences they share with others and their growing Christian experience help participants make this a reality on the farm and in the home.

Standards of nutrition have been improved through the introduction of vegetables, soybeans, corn and grain sorghum and through the teaching of new cooking skills such as the baking of bread and the making of soya milk. The introduction of new recipes and new ways of preparing food and combining foods have all had an effect on nutrition.

Standards of housing, hygiene and sanitation have been improved through such activities as the protection of water sources, the digging of latrines, the improving of housing and the spraying of dwellings with insecticides.

An increase in income is an effect of the work of Christian Rural Service, and this becomes increasingly evident and important with the passage of time. Thus, the increases in income in the Kigezi District, where Christian Rural Service has been at work for almost eight years, are greater than in the dioceses where Provincial Christian Rural

Service was begun in 1969, for example. When Christian Rural Service begins work in an area, first attention is not paid to increasing the income of participants in the programs organized but to those activities and those crops that will result in a bettering of the standard of living. Only later are crops and activities designed to increase income introduced. Cash crops are not emphasized until nutritional problems have been solved. However, even before this time, some profits are realized from sales of surpluses that result from the introduction of new methods, new varieties, compost-making and agricultural chemicals.

In the Kigezi District, various factors have made the development of village or cottage industries an important means to increase income--the shortage of land, the increasing density of population in this area that is among the most densely populated in all of rural Africa, the fact that there are no large-scale industries (except agriculture) even on the horizon and the fact that agriculture, partly because of the hilly nature of the district and partly because of the distance from a railhead or a large city, is not easily developed to give high profits.

Among the village or cottage industries introduced are iron-work, wood-work, bead-work, basket weaving, needlework, pottery-making, mat-making and the making of roofing tiles. Work has been done with poultry and rabbits but with only limited success. The introduction of bee-keeping has been successful. By 1969, just five years after the formation of Christian Rural Service in the Kigezi District, the number of beekeepers exceeded 1,000 and the project has developed into a small

Christian Rural Service-sponsored industry where honey and beeswax are purchased from beekeepers and are processed and marketed by Christian Rural Service which has succeeded in finding assured markets for this produce. This realistic commercial enterprise has received a license from the Uganda Government and markets its honey under a specially designed label, "Pure Kigezi Honey".

The government of Uganda has agreed to include beekeeping in its present Five-year Plan. This will enhance and extend the work already being done in this field by Christian Rural Service.

Christian Rural Service staff workers are hopeful that the beekeeping industry in this district will soon organize itself on a co-operative basis.

Two types of communal projects have been the object of attention of Christian Rural Service. These are designed to recuperate unused village lands and resources and to use them in such a way as to increase the material and physical well-being of the village as a whole. One of these is the digging and stocking of fish ponds. This is done in co-operation with the Ugandan Government. As of the end of 1969, 70 ponds had been established. In addition to providing high protein food and an additional source of income for the village, the ponds have served to clean up swampy areas and to reduce the incidence of bilharzia, dysentary and various other mosquito and water-borne diseases.

The second type of communal project that has been designed to put unused resources into production for the good of the village is that of

draining communal swamps. The swamps, once drained, cleared and leveled, are used for the production of crops such as tea, vegetables or rice.

In a low-producing, low-income society, even slight increases in production and/or income have an important effect on morale and hope. Mr. Baillie tells of one man who, before a large gathering in his village, told how he had planted his millet in lines. Instead of having two grain stores of food, his usual production when broadcasting his seed, he had, for the first time in his life, five grain stores of food.

Another man said that as a result of planting cabbages, a new crop, he was able to sell some of his production and was therefore able to afford long pants for the first time in his life. Not only that, he was able to purchase two pairs of pants and they were made of Tetron! Such testimonies from participants in the Christian Rural Service program have had a great effect on village populations and have enhanced the outreach of Christian Rural Service.

Participation in the Christian Rural Service program has caused many to alter their personal goals. Among the changes frequently found by Christian Rural Service staff workers are the following:

1. Women aim at a much higher standard of home life.
2. Families work to build semi-permanent houses using roofing tiles to replace the traditional and temporary grass dwellings.

3. Husbands and wives seek to make Christ the center of their home life and to establish better relationships with their children, based on love rather than traditional customs.

The tables in Appendix N help to illustrate not only the activities of the Christian Rural Service program but also to give some idea of its dimensions.

The future

Christian Rural Service is organized in such a way as to permit it to grow and to spread throughout the whole of Uganda, Rwanda and Burundi, branching into new areas of service as needs are discovered.

It is anticipated that, over time, there will be a gradual increase in local responsibility for the financial support of the project. When the project is completely self-supporting, or at least locally-supporting, it is hoped that Christian Rural Service-type work will have become a normal part of the ministry of ordained and lay workers in the church.

Materials written by or about Christian Rural Service

Christian Rural Service has not become involved in the development of printed teaching materials. Bishop Lyth and Mr. Baillie have both written numerous reports. Excerpts of these may be found in the book, New Hope for Rural Africa.

Articles about Christian Rural Service have not been numerous. In the work, In Search of the Missionary by Helen and Richard Exley, there is some mention of Christian Rural Service submitted as one

example of the type of work in which missionaries are involved. The authors' concluding paragraph does, however, reveal their impressions of this project.

> The amazing thing about Christian Rural Service to us was its very simplicity--the low costs, the lack of complications. In fact, when you look at it, it is just so obvious. Yet different from the grand schemes and expensive projects because it gets through at the grass roots, transforming village life.[6]

Reference was made to Christian Rural Service in a survey carried on by Mrs. Nina Lengyel under the auspices of the Advisory Committee on Technical Services, an arm of the World Council of Churches.

Mrs. Lengyel writes in her report:

> The adoption process of the rural population towards agricultural improvement limited, in some cases, the efficiency of extension work (of the Government). Unprepared individual farmers often resented compulsory measures for the modification of traditional methods. The agents of the Agricultural Department were often regarded as performing functions more appropriate to the police. As the farmers themselves played no part in planning agricultural programs, or in devising methods of implementing Government orders and regulations, the relations between the rural population and Government officials responsible for agricultural development were not always cordial.
>
> Thus it becomes obvious that rural extension work must be based on a sound knowledge of both the agricultural and socio-economic problems of the community in question.
>
> Agricultural extension work relying on a common philosophy of co-operation between the farmer and the extension worker naturally adjusts itself to the particular conditions of the area. The work done by Christian Rural Service in Kigezi is "remarkable" because it developed on the sound basis of getting directly to the population and being accepted and followed by the farmers.

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[6] Helen Exley and Richard Exley, In Search of the Missionary. (London: The Highway Press, 1970), p. 35.

> A remarkable thing is that in observing where the weakness of the Government extension service in the Kigezi lies, the Christian Rural Service became the link between the population and the Governmental institutions. An average farmer does not know what kind of help he can expect from the Department of Agriculture with regard to credit facilities or seeds and the supply of fertilizers. Moreover, he does not know how and whom to ask for such assistance. The Christian Rural Service is advising and helping farmers in this field.
>
> Christian Rural Service workers remain in close contact with the local agricultural assistant from the Department of Agriculture and the District Administrative Authorities.[7]

Problems and preoccupations

The problems encountered by Christian Rural Service are primarily those involving the immensity of the area to be served with the trained personnel available. The problem is complicated by difficult and expensive conditions of transportation within the area.

In some areas, it is difficult to attract volunteer leaders to assume responsibility for clubs and projects that are organized by Christian Rural Service workers.

The problem of finding young men with suitable education and the Christian committment required by the nature of the work to be done is a constant one. Rapid expansion within the area to be served is impossible without new personnel.

As a result of Christian Rural Service, the Church of Uganda, Rwanda and Burundi finds itself faced with problems of eventual financing of this project and planning and staffing.

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[7]Nina Lengyel, Unpublished report.

The most preoccupying problem for those involved with the direction of Christian Rural Service, however, is that of finding markets for the increased production that is already becoming evident as a result of the work of this project. Mr. Baillie points out that dealing with small numbers of people producing small surpluses, as is now the case, is not difficult. If, however, as a result of the work of Christian Rural Service, large numbers of people were to produce surpluses of whatever kind, marketing at a reasonable price would be impossible under present conditions of marketing organization and transportation.

Some general questions

In response to the question, "Which are the agencies that have served you best in providing information and material help?", Mr. Baillie indicated that World Neighbors, Inc. has been most helpful in this regards.

Concerning sources of printed materials, Mr. Baillie has found that those that have been of most use and value to him are those that were produced and printed locally by the agencies already mentioned.

When asked what he felt to be his most important accomplishment and where he felt he had been most creative, Mr. Baillie responded that, at this point, the most important accomplishment is that of the growing involvement of local Christians in the Christian Rural Service program. He and Mrs. Baillie feel that they have been most creative in their sharing with Christian Rural Service staff workers their vision of a ministry to the whole man--body, mind and spirit.

Part 4

The Gayaza High School Farm-diet Scheme

The Gayaza High School Farm-diet Scheme functions as an integral part of the program of a senior secondary school for girls. The school is located 19 miles north of Kampala, at Gayaza (Fig. 11). Adjoining the school is the Kabanyolo experimental farm of Makerere University College.

The Scheme was started in 1955 by the school staff along with Sir Joseph Hutchinson who was at that time director of the Cotton Research Station at Namulonge. Sir Joseph had a vision of trying to relate the growing and the preparation of food. His desire to get a nutrition project started was given impetus when, in 1953 and 1954, the nutritional disease, Kwashiorkor, was recognized and described for the first time.

The Scheme was started as a project that aimed to demonstrate the link between agriculture and nutrition to secondary school girls and to give them opportunities to appreciate and learn about modern farming methods and sound nutrition.

It was started in conjunction with a girls' senior secondary boarding school because of the belief that changes in diet would be more acceptable to educated girls than to village women. Moreover, since the possibility existed that these girls would eventually be among the leading ladies of Uganda, their influence would be great.

A factor that influenced the Church Missionary Society to select the Gayaza Girls' School as the site of the Farm-diet Scheme was its

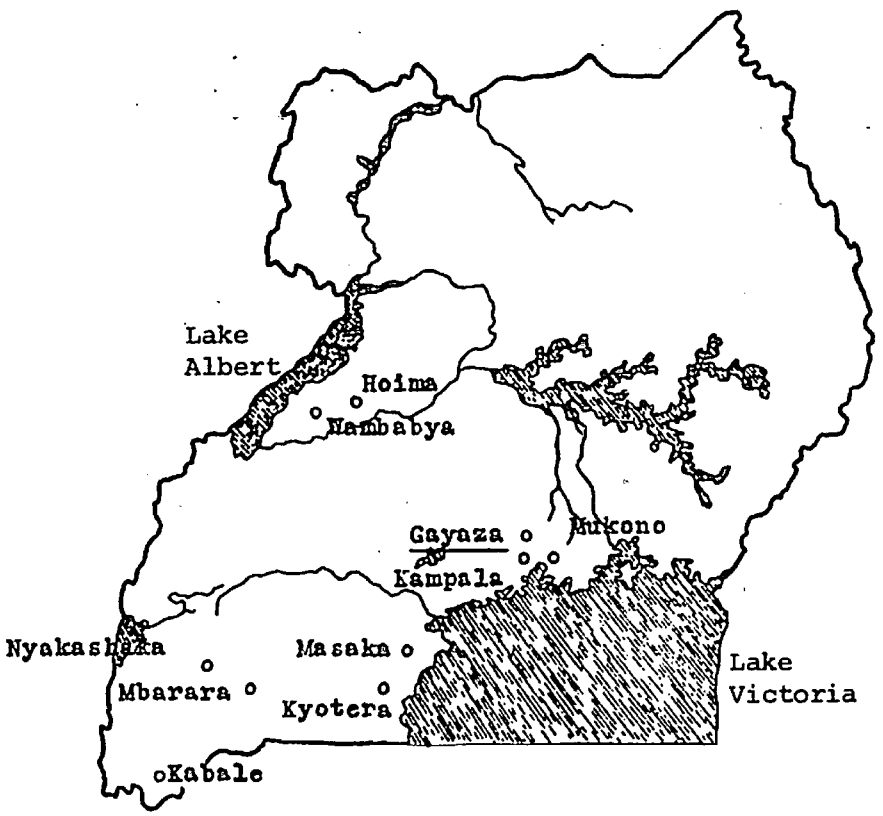

Fig. 11.--Map of Uganda. Gayaza (underlined) indicates location of the Gayaza High School for Girls

proximity to Namulonge. This meant that Sir Joseph would be able to oversee the development of the farm and the diet scheme.

There were three objectives that were outlined for the Farm-diet Scheme:

1. To devise from locally-produced crops and livestock a diet that would be nutritionally balanced, palatable and appetizing.
2. To work out a cropping system that would produce the foodstuffs required in suitable proportions and would be consistent with the maintenance of the land in a state of high fertility.
3. To enlist the cooperation of the students in the project and to insure their understanding of and sympathy with its objectives.

Early in the Scheme's history, it was agreed that too rigorous an interpretation of these objectives would place unnecessary restrictions on the Scheme. It was argued that an attempt to make the school self-sufficient (as implied by a literal reading of the first two objectives) is not the point of the Scheme, and that it would be proper to buy certain foods rather than exclude them from the diet or be forced to grow them on the school farm. It was thought that there was no merit in trying to produce foodstuffs on the farm for the sake of the diet if it would be cheaper to buy them. The acceptance of these points has been implicit in the day-to-day conduct of the Scheme, but no attempt has been made to restate the objectives.

The third objective receives considerable emphasis, and the Scheme claims a good deal of success as regards student interest and co-operation in the Scheme.

All of the students at the school receive both classroom instruction and practical experience in subjects related to agricultural practices and nutrition and diet. Courses such as Agricultural Biology and Home Economics are taken by all students. In addition, the students participate in work on the school farm and in the school kitchen. Work on the school farm permits the students to learn improved agricultural practices while work in the kitchen permits them to prepare and serve food in new ways.

At present, there are 540 girls enrolled in the school. These range in age from 12 years to 19 years, and they have come to the school from all parts of Uganda. The girls spend from four to six years at the school, from Secondary One to Secondary Four or Secondary Six. The girls are admitted to the school according to their intellectual prowess.

Clubs organized at the school include a young farmer's club as well as a nutrition club. Members take part in agricultural fairs and field days. They compete in poultry and cattle judging, put up exhibits and do nutrition demonstrations. Students also participate in the Gayaza Follow-up Project which will be described below.

The Gayaza farm

The farm has been developed from land surrounding the school and at present is a mixed farm of 85 acres. Several factors that have

affected the farm's development are worthy of being noted:

1. The farm, started in 1955, has developed slowly due to the fact that being one of the first mixed farms of this size in Uganda, it has been a question of feeling the way and working out the best policy over the years.
2. The farm, by definition of the Scheme, is linked to the production of foodstuffs--cash crops have not been grown.
3. The farm would have developed differently had it been a commercial enterprise and not an educational establishment.
4. The farm would have become self-supporting more quickly had the land been fertile and not worn out and badly eroded as it was in parts, due to 50 years of constant cropping.

The aim over the years has been and still is towards an economically viable mixed farm with the emphasis on food production, increased stock carrying capacity of the land and increased soil fertility. It has been necessary to try and hold a balance between aiming for a profit-making concern and the need to carry on enterprises not in themselves profitable but valuable for educational purposes.

Description of the farm

The land at Gayaza is divided into two sections with 22 acres on the western slope of a ridge and 63 acres on the eastern slope of the same ridge. The farm and school buildings occupy the ridge itself.

The land on the western side slopes gently and has not been badly eroded. When first cleared of brush, the soil was found to be fairly fertile and was able to produce reasonable crops. This area is at

present under Chloris gayana-Panicum inocunum leys that are grazed by the farm's dairy herd.

The eastern slope is steeper than the western slope and had been badly eroded, the top soil having been washed into the swamp at the foot of the slope. The soil was infertile and acid and this resulted in total failures of the early crops planted there. Through the years, by careful management, the soil of this slope has been improved. During 1970, this area was planted with:

20 acres sown ley (planted pasture),
8 acres corn for fodder,
2 acres elephant grass for fodder and grazing,
4 acres corn,
4 acres soybeans,
3 acres plantains,
2 acres vegetables,
3 acres are swamp, and
17 acres left in natural pasture.

At present, the farm has six areas of emphasis:

1. Dairy cattle
2. Poultry
3. Vegetables
4. Plantains
5. Arable crops
6. Pastures

Dairy cattle

A herd of Guernsey cattle is the main enterprise of the school farm. The herd was founded on 15 animals imported from Kenya between 1960 and 1963. By 1970, the herd had grown to 30 milkers, including two Friesians that were presented to the school by the vice-president of Uganda. In addition to the milking herd are 25 heifers, two bullocks, two Nganda cows, two Aberdeen Angus X Nganda heifers, one Friesian X Nganda calf and two Guernsey X Nganda calves.

Breeding is carried out by artificial insemination. This is greatly facilitated in that the inseminator is based next door to the farm at Kabanyolo.

Management of the dairy herd pays particular attention to grazing conditions, supplemental feeding and disease prevention and control. Staff involved with the herd includes one manager and two herdsmen, all of whom are Ugandans. Milk which is produced in excess of the needs of school and staff is taken to Kampala daily.

Poultry

The poultry enterprises of the Gayaza farm includes laying hens and ducks.

Laying hens are kept on a small scale. Three 100-hen capacity deep-litter houses permit three groups of girls to look after laying hens at one time. Eggs are used by school and staff. The used litter, coffee hulls, is useful in the vegetable garden.

Four pens of improved White Muscovy ducks are raised in the swamp at the foot of the eastern slope. Each pen contains a drake and four ducks. These provide the school with a supply of ducklings that are

taken from the pens in the swamp at the age of one to two weeks and are fattened for ten weeks. They are then killed, dressed and marketed in Kampala.

Gardens

The vegetable garden is on the lower slopes of the eastern side of the farm, above the swamp. It covers a surface area of approximately two acres. The main crops are tomatoes, egg plant, peppers, lettuce, green beans, amaranthus spinach, marrows and cucumbers. Most of the vegetables are sold to the school and the school's staff. Any surplus is transported to Kampala and sold there. One aim of garden management is to have crops ready to harvest during the months that school is in session but this is difficult to attain without the possibility of irrigation.

During the period that the school is in session, the girls care for the vegetable garden. In addition to such chores as seed bed preparation, planting and transplanting, the girls learn to make and use compost, to use manure and agricultural chemicals. Of particular value is that the girls learn to grow new and/or unfamiliar varieties of vegetables, thus increasing the agricultural alternatives with which they return to their villages.

Above the vegetable garden is a banana garden of three acres.

At present, the only crops that are grown on field scale are corn and soybeans. Small plots of peanuts, beans and sweet potatoes are grown for teaching purposes.

Pastures

Pastures are used to provide forage for the dairy herd and as a part of the rotation devised by the farm to improve fertility. Some lime and fertilizers are used and there is currently a long-term experiment being conducted to determine whether planted pasture is able to improve soil fertility more quickly than natural pasture.

The two acres of elephant grass may be cut or grazed.

In addition to the principal enterprises described above, the farm keeps rabbits and has made and stocked a fish pond adjacent to the swamp. The rabbits are a new venture undertaken to provide Young Farmers projects for the school girls.

Farm machinery

Farm machinery includes one of each of the following:

Massey Ferguson 135 tractor plus transport box and trailer

Disc plow

Disc harrow

Ridger

Planter

Fertilizer spinner

Rotamower

Spray race (powered by tractor PTO)

Hammer mill (powered by tractor PTO)

Pick-up used for light carrying jobs on the farm

Datsun pick-up used to take milk, ducks, vegetables, etc. to Kampala and bring back foodstuffs, fertilizers, etc.

Management and labor force

The management and labor force includes:

Farm manager

Head stockman - responsible for all cattle and hens

Foreman

Tractor driver

Handyman

Herdsmen who work full-time with cattle (2)

Vegetable garden workers who are responsible for vegetables, ducks, fish and rabbits (2)

Laborers (5)

All the workers except the tractor driver have been trained at Gayaza. Although every effort is made to integrate the different enterprises into a coherent whole (e.g., manure is used in the vegetable garden and fish pond, and vegetable wastes are fed to the livestock), the labor force could be decreased almost by half and profits increased by discontinuing the minor enterprises and concentrating on dairying. This emphasizes the fact that the farm would have developed differently had its main objective been commercial rather than educational.

Finance

Over the 14 years from 1955 to 1970, the capital required for the farm has been £20,000 ($56,000). The farm is now almost fully developed and will soon begin to realize a profit. As mentioned above, a profit could have been made earlier had the primary aim been commercial and not educational, to afford to every girl passing through Gayaza

High School the opportunity to gain an appreciation of food production and land use.

Land for the farm was donated by the Church Missionary Society. The capital required for its development was provided by the Nuffield Foundation and Christian Aid through the auspices of the Church Missionary Society.

Personnel

Expatriate personnel for the Gayaza Farm-diet Scheme has included one missionary agriculturalist and one missionary nutritionist. Throughout the years, these have been women who have also had other responsibilities in the high school. Currently, the farm manager is a young lady who is a Volunteer Service Organization (VSO) volunteer from England, an agricultural graduate with a major in dairying and with extensive experience in that field.

Local personnel associated with the Farm-diet Scheme have been enumerated under the description of the farm and extension activities. Personnel associated with the farm are paid from the proceeds of the farm.

Extension activities

In 1962, Christian Aid Organization in London provided funds for the initiation of a program of extension and follow-up. This permitted the hiring of a staff member whose primary responsibility is extension. In this, she receives help and co-operation from other members of the staff, from students and from former students.

Extension activities during the school year and during school vacations differ. During the school year, activities are centered in the proximity of the high school. During the periods of time when there is school vacation, the extension activities take place in areas far removed from Gayaza.

During the school year, the extension staff visits five women's clubs around Gayaza. Each group is visited once a week, and the attendance ranges from ten to 25. The subjects covered in these teaching groups and in others similar to them are the following:

1. Food groups and importance of balanced meals
2. How to prepare and cook foods for children who are being weaned
3. Fruit salad and raw vegetable salad
4. Ways of cooking fish
5. Meat stew using flour for thickening
6. Feeding the school child
7. Cake baking
8. Seed beds and vegetable gardens
9. The compost heap
10. A visit to the Gayaza School Farm
11. A visit to Mwanamugimu Clinic in Kampala where mothers are able to observe children with nutritional disorders and that which is being done to treat them.

Also during the school year, the extension staff visits seven schools in the area to advise and counsel concerning lunch programs and menus. The two top classes are invited to visit Gayaza farm and, last

March, the staff sponsored a one-day course at Gayaza for 63 primary teachers from these schools. The subjects taught during the course included school gardens, compost and school lunches.

Still another extension activity of the Farm-diet Scheme is that of working through the YWCA to provide agriculture and nutrition short courses for club leaders. The ladies come from the YWCA, from Mothers' Union, Save the Children Fund and Catholic clubs. Through demonstrations and discussions, they take up such subjects of nutrition as balanced meal planning, sack lunches, foods for the expectant mother and for the child who is being weaned. The agricultural subjects that are discussed and demonstrated are soil erosion, seed bed preparation, compost-making, transplanting and the spraying of crops for insect control.

Other formal extension activities include short courses for village chiefs and the training of cooks from other schools. Informally, the farm receives many visitors who observe farm practices.

The Gayaza Follow-up Project

The Gayaza Follow-up Project is an extension activity that takes place during school vacations. The intention of the project is to determine to what extent the agricultural and nutrition education gained at the school is of any practical value to the students when they return home. It is also used as a means to determine whether or not the students are able to influence the farming patterns and feeding customs of their parents, relatives and friends.

Visits for forthcoming vacations are planned during the school term. The area of Uganda to be visited is chosen and, during the term,

the girls from that area meet to determine the topics to be treated during visits to their homes.

At their homes, the girls greet the extension team and introduce the members to their families. They then proceed to conduct the visit which may include gatherings of large groups as well as meetings with families or individual villagers. The specific topics treated vary according to the area and the requests of the girls but always include information and demonstration regarding both nutrition and agriculture. Care is taken to assure that whatever is recommended is locally available and accessible to the population.

It has been noted that the girls are effective teachers. They are usually working in a community where both they and their parents are known. As educated girls, they are respected. With the girls' interest in their home communities, they are able to meet the people and their problems with sympathy and understanding. Because of their studies at Gayaza, the girls are able to answer most of the questions posed by villagers but, where this is impossible, staff members on the extension team come to their assistance.

There are many advantages to the system of extension described above. Foremost among these may be that, in teaching others, the girls consolidate their own learning. They are more readily able to associate classroom work with real-life problems, and they see for themselves the importance of agriculture and nutrition in the everyday lives of the majority of people in the country. An additional advantage is that the visits help bridge the gulf that may exist between the well-educated and those whose formal education has been minimal.

Still another advantage of the system is that staff who work with the girls away from the school environment come to know and understand the girls in a way that is not possible at school. The formal staff-student relationship breaks down as both prepare material for group instruction. Staff members gain first hand experience with the problems being faced in the rural areas and the difficulties encountered when trying to introduce new methods in farming and food practices. This experience helps them plan the theoretical and practical program in such a way as to be most valuable to the girls.

Accomplishments and effects

The accomplishments and effects of the Gayaza Farm-diet Scheme have never been formally assessed. The Scheme has played a part in stimulating interest in agriculture and nutrition. It has been the focus of visits from those associated with such organizations as Rockefeller Foundation and FAO, and it has enjoyed the attention and support of Government. Perhaps its most important accomplishment is that of having given to thousands of secondary girls from all parts of Uganda the opportunity to appreciate and learn about modern farming methods and sound nutrition.

Problems

The former and present staff of the Farm-diet Scheme mention problems that fall generally into two categories, those involving the management of the farm and its land resources and those of integrating the farm into the schedule of the school.

Problems of land and farm management are those involving land use, erosion control, suitable rotations and the improvement of fertility, especially as regards the eastern slope of the farm. With the aid of the farm staff and of researchers from the Cotton Research Station, from Government and from the research farm of Makerere University College at Kabanyolo, adjacent to Gayaza farm, these problems are satisfactorily solved.

The integration of farm activities into the schedule of the school is a continuing problem, presenting many practical difficulties. One of these difficulties is that of synchronizing the crop year with the school year. Though this may now be impossible to achieve in Uganda because of Ministry of Education regulations, it is an important point that may be considered where the liberty exists to adjust the school year to the crop year.

The impression of those who have been closely associated with this project since its creation is that no problems have been created by it nor has the development of the project caused the original goals to be altered. The project's greatest achievement seems to have been to stimulate and encourage the women of Uganda in realms where they are most free to act--the garden and the kitchen.

Part 5

The Nyakashaka Resettlement Scheme

The Nyakashaka Resettlement Scheme (Fig. 12) was planned as a result of a request by the Government of Uganda to Inter-Church Aid for a grant to finance the building and running of a farm school in the Ankole District. The Government hoped that by educating boys, who

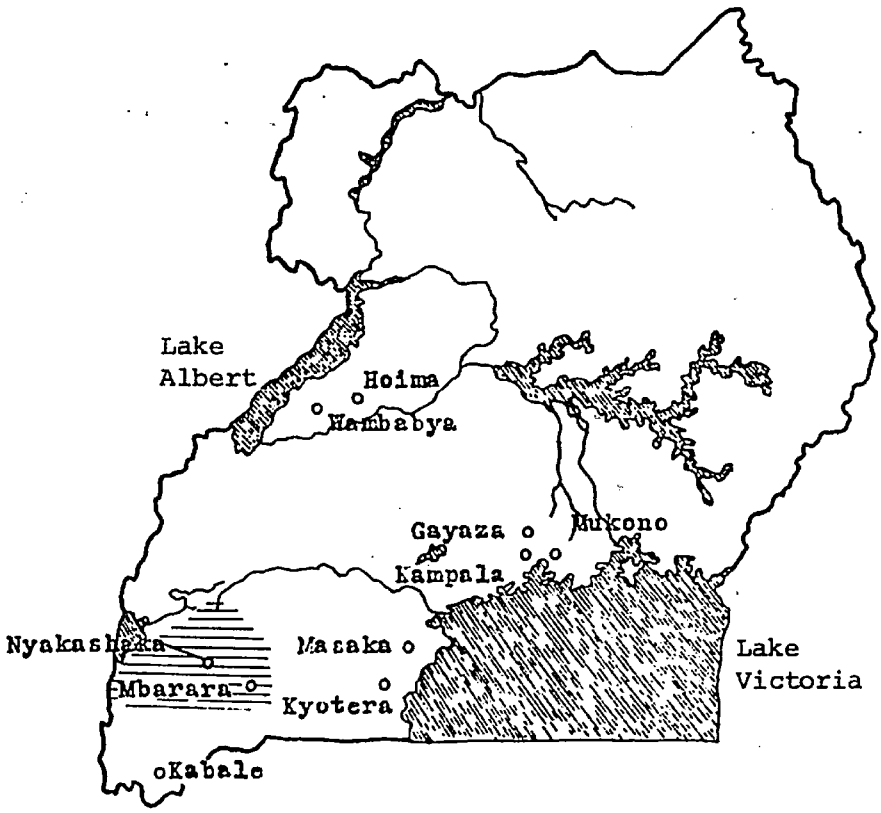

Fig. 12.--Map of Uganda. Shaded area indicates area of influence of the Nyakashaka Resettlement Scheme

would otherwise be unemployed, in modern agricultural methods, it would be possible to produce farmers with high potential earning ability.

The Church Missionary Society asked one of its missionaries, Mr. Stephen Carr, who was at the time managing a pilot agricultural settlement project in the Sudan, to react to the Government proposal.

For a variety of reasons, centered around the difficulty of guaranteeing that those trained by farm-schools will actually become farmers and the danger of high capital outlay per farmer placed, Mr. Carr advised against the creation of a farm-school and proposed instead a scheme for settling approximately 100 school-leavers of Junior Secondary standard within Ankole District. The proposal was approved by the Uganda Government and was financed by Inter-Church Aid with Mr. Carr as manager.

The goals of the settlement project proposed by Mr. Carr were:

1. To provide gainful employment for Junior Secondary school-leavers who would otherwise lack employment opportunities in the Ankole District.
2. To present an image of farming reflecting the success of improved methods, and the attractiveness of farming as a means of livelihood. This image should be demonstrable not only to the settlers within the project but also to farmers in the surrounding area. Methods and crops should therefore be relevant to such farmers.

3. The revitalization of a poor, depopulated area, by attracting population, raising income and ultimately improving local revenue, thus exploiting more fully the human and productive resources available.

Restraints placed on the settlement scheme by Mr. Carr during the planning period included the following:

1. Conditions on the scheme must resemble those in the surrounding countryside. Houses must be built by the settlers themselves. Clearing of bush must be done by the settlers. No advantages, such as running water or electricity, should be made available to the settlers if these are not available in the larger community.
2. The scheme must be financially viable and not dependent on massive subsidies not available to others.
3. The credit facilities made available to the settlers should resemble those that are available, or could be made available, to other farmers.
4. The scheme must be able to offer a final income that is sufficiently better than the average local income to change the image of farming.

With these goals and restraints in mind, the next decision concerned those pertaining to location. By definition, as presumed by goal number three and as stated in the original request to the Inter-Church Aid by the Uganda Government, the location should be a depopulated, depressed area of the Ankole District that:

1. Would be large enough to settle 100 farmers without disturbing existing inhabitants
2. Would benefit from the settlement
3. Would be suitable for cash crop cultivation.

After much investigation and after having traveled literally hundreds of miles on foot and by horseback, Mr. Carr decided on the Nyakashaka site as possessing the characteristics and requirements outlined above. The site was spread over 3,000 acres of steep hilly country covered with low scrub, bracken and small trees. It is located in the highest part of the Ankole District, ranging in altitude between 5,000 and 7,000 feet. The site was uncultivated with the exception of one small banana plantation in one of the valleys (the owner still lives there). Both coffee and wheat had been tried in the past but without success. In 1964 the only export from the area was a few sacks of dried peas. The area was poor and isolated and would therefore be likely to benefit from such services and increased income as the scheme would bring, notably, a cash crop, a feeder road (the site was located 15 miles from the nearest road), and as an outlet for food crops.

The highly acid soils, ranging in pH from 3.9 to 4.2, precluded the growing of the principal local food crops but did meet the requirements of several high value intensive crops for which markets existed, notably tea, strawberries, temperate vegetables, mushrooms, Irish potatoes and cut flowers for the London market (chrysanthemums, roses and carnations). The intensive crops could be grown in the small pockets of less acid soil between the hills, while tea seemed to be the obvious choice for the steep, acid land.

To attain the goals outlined above, the Scheme was planned and was operated on five basic premises:

1. Low overhead and operating expenses
2. Maximum self help
3. Minimal discipline
4. On-the-job training
5. Demonstration of the profitability of farming as a vocation.

Personnel

The staff of the Scheme included the following:

1. The manager, Mr. Stephen Carr, an expatriate with a B.Sc. degree in Agriculture from London. Mr. Carr has had extensive experience on a cattle ranch in Argentina where he lived between the ages of 11 years and 17 years, four years of experience on a farm in England and 20 years of agricultural experience in Africa.
2. The assistant manager, Mr. Karl Edwards, an expatriate with a B.Sc. degree in Agronomy. Mr. Edwards worked with Mr. Carr for a period of three years before assuming the position of manager and thus amassed considerable experience before being named to this position.
3. The foreman, an Ankole, had acquired experience in agricultural extension work while working among coffee farmers in the Kigezi District of Uganda.
4. Assistant foreman.
5. Clerk/storekeeper.

6. Driver.

7. Part-time mechanic.

The wives of Mr. Carr and Mr. Edwards were both active in the Scheme by dispensing medicines, organizing and helping with a club for settlers' wives and by entertaining farmers and settlers in their homes.

In order to keep overhead at a minimum, both Mr. Carr and Mr. Edwards accepted only token salaries.

Board of Governors

The policy of the Scheme was ultimately the responsibility of a Board of Governors composed of representatives of the Church of Uganda and the Ankole Kingdom Government, all of whom were Banyankole. From its inception the Scheme had the support of the Ankole Kingdom Government. This was an important factor since it helped to prevent the building of an impression that the Scheme would ultimately prove to be merely a means of attracting cheap labor for what would turn out to be a European plantation.

Development of the Scheme

Work on the Scheme began in 1963 when Mr. Carr and his family moved into a grass hut in the hills of Nyakashaka. He was particularly aware that success would depend in large measure on how well the following problems would be solved and the goals achieved:

1. Finding adequate labor.

2. Building an access road.

3. Establishing a tea nursery.

4. Selecting the first group of settlers.
5. Training the settlers.
6. Planting cash crops that would sustain the settlers until the tea could be plucked.
7. Maintaining the morale of the settlers until rewards began to be received.

In an isolated and lightly populated area, the problem of finding adequate labor could have been a serious one. However, because of the lack of employment opportunities in the Ankole District, the District supplied a large proportion of Uganda's migrant labor force; and it was from this force that laborers were found. These moved into the hills and established themselves in grass bivouacs.

Of the 600 laborers who were hired, 150 were used to build the access road from the site of the Scheme to the nearest road 15 miles away and 450 were used to establish the tea nursery that would ultimately supply the settlers with their tea stumps.

The access road, which for one-half its length is a mountain road, was traced by Mr. Carr and was built in 14 months entirely with hand tools and dynamite. The Uganda Government financed the building of this road with a grant of shs. 100,800 ($7,200) and continues to maintain it.

Concurrently with the building of the road, 450 laborers were occupied in terracing the hills, in transporting tea stumps on their backs for distances up to 15 miles, and in transplanting some 500,000 of these on the terraces they had shaped to serve as nurseries. This

labor force was also used to build the buildings that would be needed by the Scheme.

By the time the road was finished, the tea nursery was flourishing, and the manager was ready to receive applications from those who wished to become settlers. The Scheme planned to accept 30 settlers per year for a period of four years. Many of the 110 applications submitted to Mr. Carr came from young men who had worked as a part of the labor force described above. Thirty of these were selected to begin farming in 1964.

Maintaining the morale of young men who had left home to develop land through their own labors was recognized from the first as being important. Of the factors that were thought to encourage high morale were minimal discipline, security against the danger of eviction, and, perhaps of most importance, the presence of the manager on the Scheme and the intensity of his personal relationship with the settlers.

Once the subsidiary crops began to provide an income for the first settlers, the problem of morale was greatly lessened. The first settlers had tangible evidence of the results of their labors and following groups of settlers could look to the example of the first settlers as evidence of what they could become.

Selection procedures

Selection of settlers was made in two steps. Applicants who had provided evidence of an adequate standard of education (Junior Secondary II or its equivalent, though some Junior Secondary I dropouts have been accepted) were interviewed and received during this interview a careful explanation of the nature of the Scheme. Those who were

accepted did not automatically become trainees but had to first work as laborers for a period of six months. These laborers have been used for such work as road building, clearing of bush, care of the Scheme's nurseries, terracing and weeding. During this period, they were paid at a standard rate of two shillings (28¢) per day and received neither rations, nor housing, nor training.

The period of pre-selection labor was used to convince potential farmers that hard work is a necessary part of the Scheme and to discourage any illusions about the level of living that may be anticipated. It weeded out both those who could not manage hard physical labor and those who were not convinced that future rewards were worth their present hardships. It also provided a basis for assessment of the applicants' characters and abilities.

At the end of the period of work as laborer, applicants were interviewed by a selection committee composed of the manager and representatives of the Board of Governors. The interviews were conducted in the Ankole language, and the applicants were required to bring character references from their priest, pastor, catechist, teacher or chief. There was no requirement of religious affiliation. Selection was made on the basis of work records, character assessments, surmised potential as a farmer and, in special cases, family background.

The trainee

When the laborer had been accepted as a member of the Scheme, he was allocated six acres of land. He also qualified for a loan of up to shs. 5,000 ($700) and began a three year period of training during

which he developed his land and at the end of which he received a 99 year lease on it.

Five of the six acres of land were to be planted in tea. On the remaining acre, the settler built his house and planted subsidiary cash crops. Only a small amount of land was used for the planting of traditional low value food crops. It would be a misallocation of resources to plant such crops on land that could yield £75 ($210) per acre per year planted in tea or £1,500 ($4,200) per acre per year planted in strawberries.

For his food, the settler was required to descend to the valley and purchase it. This has helped in the development of farms in the valley by providing a market for the traditional food crops.

The trainee's first responsibility was to build a house on the land that had been allocated to him. The trainee was allowed approximately six months to do this and could withdraw up to shs. 400 ($56) of his loan for this purpose. He did not receive a food allowance during this period since it was found that to receive such an allowance often resulted in an unnecessarily prolonged building period. The house built by the trainee had to come up to approval standard before the trainee was allowed to occupy it, but the details of design and finish were left to the individual. The houses are, for the most part, rectangular mud and wattle structures with corrugated iron roofs, varying in size from one to three rooms. Traditional grass kitchens and latrines were built separated from the house.

The pattern of settlement depended somewhat on the physical character of the hills. Each farmer built his own farm, but as acreages

are relatively small and often contiguous, most farmers are within calling distance of a neighbor. Others are grouped in two's and three's. A few are relatively isolated, and this had a tendancy to lower morale.

After the trainee moved into his house, he received pocket money of shs. 40 ($5.60) per month from his loan with which to buy food and other necessities. He was now required to attend daily roll call and to begin to prepare his land for planting.

Roll call was an important part of the trainee's day and constituted the major part of the discipline to which he was subjected. All trainees were required to attend roll call each morning at seven from Monday to Saturday and to call at the manager's house on Sunday. Strict attendance requirements were introduced early in the Scheme when it was discovered that some trainees were reluctant to entirely commit themselves to settlement and were spending extended weekends cultivating land at their former homes to the detriment of their farms at Nyakashaka. It was felt that settlers had to be prepared to break such links with home if they were to be effective tea farmers. Checks on absences were therefore introduced.

In preparing his land for planting, the trainee did most of the work himself though he may have had some help from his neighbors on a reciprocal basis from visiting relatives or from hired labor allocated to him by the manager and paid for out of his loan. The manager resisted pressure to allow much hired labor at this stage, however, for if the farmer's loan was consumed too early in his career, he would

lack resources for labor at a later stage when it was needed for weeding tea.

The new trainee found life hard. He was living alone in most cases, and after putting in a full day's work, he had to get water and gather firewood, walk to the nearest village, perhaps more than two miles away, buy food, then carry it home and prepare his own meal. He may have congenial neighbors but be afraid to visit them in the evening for fear of animals or of falling on the steep muddy paths. The maintenance of morale at this stage depended on the farmer's willingness to believe that future returns would be worthwhile.

This was a period of close supervision and training for the new settler. He had to prepare his land for planting, learn to contour and terrace, to use manure and chemical fertilizers and to plant on three of the five acres to be used for tea, the 10,000 tea stumps he would have purchased with his loan. After this was done, he prepared for his subsidiary cash crops (strawberries, temperate vegetables, potatoes, poultry). When this was complete, he learned to bend his tea (a method that allows picking green leaf in less than two years after planting, compared with five years when pruning is used), to identify and deal with disease and the general care of crop plants or poultry. In the second year, supervision was gradually withdrawn, and by the third year, the farmer was visited only when he asked for help.

After about six months, the trainee's subsidiary cash crops began to yield some income. At this time, the trainee ceased to withdraw pocket money from his loan though he may have continued to request

hired labor from time to time from the manager or, if he preferred, to hire local labor on his own terms.

After 19 months, the trainee's tea would have been ready for plucking, and he would have begun to send green leaf to the tea factory.

Marketing

Marketing is done through two co-operatives that have been organized to fulfill this function. One co-operative was organized for the marketing of tea, while the other markets the strawberries, vegetables, potatoes, eggs and poultry that are produced as subsidiary cash crops. Two trucks, purchased by a grant from Inter-Church Aid, are used to transport all produce to Mbarara, Masaka and Kampala and the tea to nearby Bushenyi.

Loans

Loans were of two types--short term and long term. Short term loans were made in varying amounts, at the discretion of the manager, for subsidiary cash crops, and ranged from shs. 2,000 ($280) for hybrid layers to shs. 300 ($42) for strawberry plants for a fourth of an acre, to varying small amounts for seed potatoes and vegetable seeds.

Long term loans were those granted for the settler's house, his tea stumps, his pocket money and for hired labor. They may be repaid over a ten-year period.

All loans were repaid in installments as soon as the crops in question began to yield. Repayment is effected automatically by the marketing agencies (e.g., the co-operatives).

Outgrowers

As early as 1964, one year after the Scheme began, farmers living near the Scheme became interested in planting tea. They secured loans from the Uganda Credit and Savings Bank for the purchase of 1,000 tea stumps. Their source of stumps was the Nyakashaka tea nursery though it was the policy of the manager to refuse to deliver stumps until the outgrower's farm had been correctly contoured and terraced.

Outgrowers may become members of the Nyakashaka co-operatives. In this case, their production is marketed along with that of the settlers. By April, 1972, there were more than 1,000 outgrowers, in addition to 120 settlers, producing tea and other crops at Nyakashaka. There was evidence that former residents who had left the area had been attracted back by the prospects of becoming outgrowers and that the population of the area had increased by approximately 7,000 between 1963 and 1971 for this reason.

Eviction

Trainees who did not act on the advice and instruction given to them or who did not work enough ran the risk of eviction for inefficiency. Since, however, the threat of eviction seriously undermined the security of the settlers, an essential element for success, evictions were kept at an absolute minimum, had to be justified and were carried out as early as possible in the career of an unsatisfactory trainee. The power of eviction was retained by the manager for a period of three years only. Of the five trainees who have been evicted throughout the years, only one was evicted after having planted tea.

Financing

With the exception of the access road, financed by the Uganda Government, the Nyakashaka Resettlement Scheme was financed entirely by a grant of £42,000 ($117,600) from Christian Aid. A portion of this grant was to be used to cover overhead and managerial expenses including all salaries, while the remainder was to serve for loans for the settlers.

Of the £42,000 ($117,600) grant, a total of £12,000 ($33,600) was needed for overhead and managerial expenses. The remainder, £30,000 ($84,000), was loaned to settlers and is being recuperated as the loans are repaid. The total non-recuperable investment required for the Scheme was £14,305 ($40,054).

Accomplishments and effects

By the time the supervisory and management personnel provided by the Church of Uganda left Nyakashaka in 1969 and the farmers came under the general supervision of the Uganda Tea Growers' Association, 120 young farmers had been established on their own farms. In addition, more than 400 outgrowers had planted tea and other cash crops in the hills surrounding the Scheme and had joined the co-operatives that had been organized. These growers moved in because of the provision of planting material, a new road, an advisory service and marketing facilities.

The Scheme was responsible for the introduction of the following cash crops into the area: tea, strawberries, temperate vegetables and Irish potatoes. In addition, it introduced exotic poultry into the region, thus providing for egg and meat production.

The Scheme also introduced tea bending as a cultural method and was responsible for the introduction of agricultural chemicals and the practice of terracing.

It would be difficult to assess accurately the total value of cash crops being sold off the area covered by the Scheme before 1964, but according to Mr. Carr, it is unlikely that it would have exceeded shs. 1,000 ($140) per year. By 1969, the area produced some 250,000 pounds of made tea with an approximate value of shs. 750,000 ($105,000) and at least shs. 50,000 ($7,000) worth of strawberries and potatoes, for a total value of shs. 800,000 ($112,000). It is estimated that within a few years, the area should produce up to a million pounds of made tea per year with a value of between two and one-half and three million shillings ($350,000 to $420,000).

By 1972, a tea factory had been built at Nyakashaka to process the tea produced by both setters and outgrowers. Another factory is to be opened in 1973. The World Bank provided a loan for the tea factory as well as for the building of an access road and for stump loans to outgrowers.

Considerable success in raising income has been attained by the young men who settled Nyakashaka. Even as early as 1968, only four years after the first group of settlers was selected, some of them were earning more than shs. 3,000 ($420) per year. By 1971, it was reported that a dozen or so of the settlers had net incomes of approximately shs. 9,000 ($1,260) while the average net income was between shs. 2,000

and shs.£3,000 ($280 to $420). This, in an area when annual per capita income has been estimated at £3.8 ($10.64).[8]

Thus, in physical terms, some degree of success has been achieved. A depressed area has been developed and a number of young men have been settled into a career as farmers. This is not, however, the extent of the influence of the Scheme. Contact has been made with young people in the Ankole District by visits from top classes in a number of schools, articles in the press and radio broadcasts. In addition, there has been the influence exerted upon the steady stream of friends and relatives who visited the settlers.

Though the influence of the Scheme on others is difficult to measure statistically, one measure of its value may be found in the fact that the Ugandan Government asked the Church of Uganda to open a settlement scheme in the Bunyoro District.

Articles written about the project

Mr. Carr, the manager of the Nyakashaka Resettlement Scheme, has written two articles concerning the Scheme, one in New Hope for Rural Africa[9], pp. 41-48, the other in the Uganda Agricultural Society Journal, 1969, Vol. 2, No. 1, pp. 63-72.

A sociologist, Miss Caroline Hutton, made a survey of the Scheme in 1967. This may be found in Nkanga Editions No. 3, Land Settlement

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[8]J. D. Jameson, ed. Agriculture in Uganda. (London: Oxford University Press, 1970), p. 117.

[9]Watts, op. cit., pp. 41-48.

and Rural Development in Eastern Africa, edited by Raymond Apthorpe, pp. 38-56. (Transition Books, Ltd., Kampala, 1967).

Mr. E. R. Watts, until recently of the Department of Rural Economy and Extension of Makerere University College in Kampala, Uganda, mentioned the settlement scheme in an article he wrote for the Feb. 25, 1971, issue of the "Uganda Argus."

Reasons for success

Mr. Carr lists a number of factors which he feels are at least partially responsible for the success of the Nyakashaka Scheme:

1. Sound technical and economic planning. That tea grew well, that strawberries found a market and the assessment of probable costs proved to be correct, all contributed to the success of the Scheme.
2. A strict control of the size of loans. Loans were kept small and were thus not allowed to present an unreasonable burden for the settler.
3. The mechanism of obliging prospective settlers to work as laborers for six months before selection.
4. A minimum of rules and regulations that were clear cut and strictly observed.
5. The power of eviction was retained for three years only. Moreover, it was made clear to the settler that if his performance was good for the first year, only flagrant mismanagement would lead to expulsion after that.

6. The manager was available to the settlers and their committees at all times. In addition should they be dissatisfied with any decision of the manager, there existed a mechanism for them to appeal to the Board of Governors.
7. A sense of community was built up through shared hardships, daily meetings, voluntary work, the co-operative societies, the church and a football team. The feeling of security within a meaningful group is an essential factor to any lasting success in building new communities. Once it is achieved, it can provide the incentive to carry on even if a natural hazard denies a farmer the returns for which he had hoped.

Problems

Problems that threatened the viability of the Scheme arose neither during the course of the preparation for settlement (1963-64) nor during the period of settlement itself (1964-69). During the course of this latter period, four groups of settlers were admitted, 30 each year for the years 1964, 1965, 1966 and 1967. The last group had been at the Scheme for a period of two years before all outside management was withdrawn, and all was running smoothly.

Problems such as a slump in morale and possible other difficulties were anticipated to occur upon the withdrawal of the last of the outside management (Mr. Edwards left the Scheme in 1969). The slump in morale did occur and there was evidence of a lessening of activity during the year following Mr. Edwards' departure. However, this has

not continued and Mr. Carr, who has visited the Scheme several times since 1969, reports that morale is once again high and activity is intense.

The market for tea remains strong. The subsidiary cash crops of strawberries, potatoes, cauliflower, brussel sprouts and eggs continue to find good markets. The co-operative societies continue to fulfill their functions and, finally, loans have been and are being repaid on schedule and, in many instances, ahead of schedule. Any one of the above points could, however, become a problem at any time.

At the time of this reporting, all evidence is positive and indicates that the settlement scheme has attained its goals, and more, and that it has succeeded in inculcating a positive orientation towards agriculture and a willingness to engage in manual labor on the part of school-leavers.

Part 6

The Wambabya Settlement Scheme

The Wambabya Settlement Scheme was opened in 1967 by the Church of Uganda in response to a request by the Ugandan Government. Mr. Stephen J. Carr, a missionary of the Church Missionary Society, was placed in charge. The Scheme is located in the Bunyoro District of Western Uganda, 25 miles southwest of Hoima and 120 miles northwest of Kampala (Fig. 13). The region is lightly populated and there are areas of unpopulated potential agricultural land on which wild animals of all sorts (elephants, lions, leopards, wild buffalo, baboons, wild boar, monkeys, chimpanzees, antelope, etc.) roam freely and in large numbers.

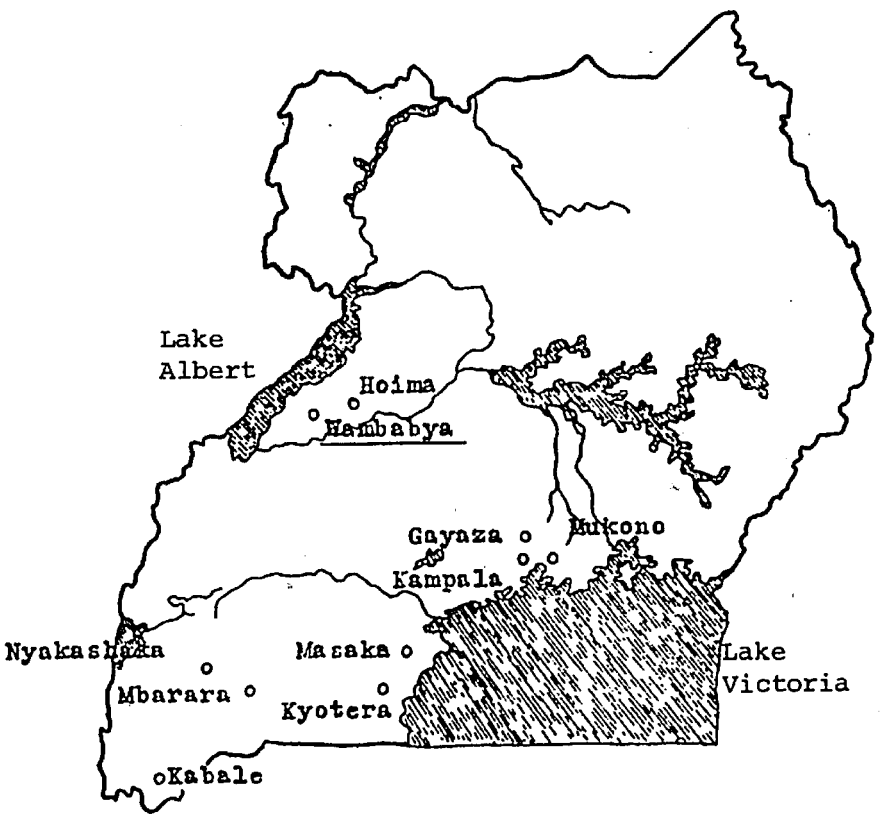

Fig. 13.--Map of Uganda. Wambabya (underlined) indicates location of the Wambabya Settlement Scheme

The factors which were considered in determining the site for the scheme were:

1. Rainfall
2. Soil
3. Absence of farmers
4. Proximity of a tea factory (within seven miles)

The actual size of the Scheme was selected in consideration of the above factors and after much consultation with the nearest Government authorities and with farmers in the region, who, though having no firm statistics on amounts, testified that rainfall was abundant.

Through the use of soil tests, it was found that the soil was the most fertile of the available land in the area and was adequate for the proposed main cash crops of tea and the subsidiary cash crops of chili peppers and, eventually, papaya and vanilla. The Scheme is situated in elephant grass glades surrounded by rain forest.

The general pattern of the Wambabya Scheme is similar to that of the Nyakashaka Scheme in its two-pronged approach of helping young men to demonstrate the possibilities of farming and attracting new developments to an area by the provision of planting material, marketing and extension services. Its goals differ somewhat from those of the Nyakashaka Scheme, however. Whereas the Nyakashaka Scheme sought to settle school-leavers from the Ankole District in a lightly populated area of the same district, the Wambabya Scheme set out to settle school-leavers from the highly overpopulated Kigezi District in this lightly populated area some 250 miles to the north of Kigezi. The objectives of the Wambabya Scheme are:

1. To initiate population movement from the most densely populated area of Uganda to one of the most lightly populated areas. This objective is to be achieved by moving a small number of people at their most movable age (young school-leavers without families) to act as a vanguard for a more general population movement that can be anticipated in five to ten years, for it has been found that whenever a few hundred people successfully settle a new area, thousands ultimately follow.
2. To use an intensely managed settlement scheme as a primer for development in a particularly poor and underdeveloped area.

Those to be served by this scheme are people who are suffering from land hunger in overpopulated areas and the small, poorly-served local population, that is, those living in a 100 square mile area surrounding the scheme.

The former group, the settlers, those suffering from land hunger in the Kigezi, are, upon their arrival, allocated eight acreas of land* and qualify for loans up to $700. With these loans, most of which are in kind, they buy their food and other necessities, build their houses, prepare their land for planting, purchase enough tea stumps to plant three acres and receive whatever other materials are needed for planting the subsidiary crop of chilis. In addition, they receive expert advice and marketing services.

*It was necessary to allocate more land at Wambabya than at Nyakashaka because settlers were not able to buy food and were required to grow their own.

As of 1971, there were 140 settlers who had come to the scheme from the Kigezi District. The Scheme is designed to settle 400 families.

The latter group, those living in the area surrounding the Scheme, number about 2,500 people. They have access, through the Scheme, to the following materials and services:

1. Seeds and planting materials
2. Agricultural chemicals
3. Expert advice
4. Tractor hire service
5. Marketing services

The institutional form of the Scheme is a settlement center that is composed of a group of eight-acre farms. There are no formal classes though, when necessary, 20 or 30 settlers are brought together for demonstrations in the field. Otherwise, all instruction is on an individual basis.

The settlers' farms are contiguous and are laid out on a contour along a slope at the bottom of which is a "bouquet" of tropical rain forest. The farms are approximately one-fourth mile deep across the slope and some 260 feet wide. The purpose of this arrangement is to create a relatively deep "buffer zone" between the forest and the houses and to bring the houses more closely together, thus providing both community and protection against wild animals. Tea is planted in contiguous blocks along the slope.

Settlers are recruited in three ways:

1. Through the Christian Rural Service in the Kigezi District.

2. By descriptive pamphlets distributed in the Kigezi District.

3. Through letters sent home by settlers.

Settlers must be at least 20 years old, have studied at least seven years and must come either from the Kigezi District or the Ankole District.

The duration of the settlers' association with the Scheme is, hopefully, their lifetime. As in the Nyakashaka Scheme, the settlers' formal relationship with the Scheme's management is three years plus whatever number of years is necessary for the repayment of long-term loans. The management will withdraw three years after the last group of settlers is admitted to the Scheme; at which time, extension responsibilities will be transferred to the Government of Uganda Extension Service.

A registered cooperative society, The Wambabya Farmers Society, has been organized for the settlers and for interested farmers in the region. As of May, 1971, six local farmers had joined the cooperative in addition to the settlers.

Personnel

The staff of the Scheme is composed of five men, of whom two, the manager and his assistant, are expatriates.

The manager is Mr. Stephen J. Carr who has a B.Sc. degree in Agriculture from London. His background includes extensive experience on a cattle ranch in Argentina, where he lived between the ages of 11 and 17 years, four years of general farm experience in England, and over 20 years of agricultural experience in Africa. Mr. Carr has been

associated with settlement schemes in southern Sudan and in Uganda at Nyakashaka. It is anticipated that Mr. Carr will be associated with the Scheme for a period of approximately five years.

The assistant manager, Mr. John Markie, was sent to the Scheme by Christian Aid. Mr. Markie's education includes a B.Sc. degree in Agriculture from Nottingham. He is gathering experience while working on the Scheme and is expected to be associated with it for a period of approximately three years.

Both Mr. Carr and Mr. Markie have accepted token salaries only. The Scheme provides them with housing, transportation and medical expenses. Their duties include the management and administration of the Scheme as well as the training and advising of settlers.

The three Ugandans who are on the staff of the Scheme are called Field Assistants. The salary for one of these is provided by the Sheffield Committee for the War on Want, while the Scheme itself provides for the salaries of the other two.

The Field Assistants, whose education ranges from seven to nine years, work both as evangelists and as extension personnel. Two of these have worked as supervisors on tea estates for as long as six years while the third was, for five years, a village school teacher. He was trained in extension by Christian Rural Service.

The Field Assistants perform the following duties:

1. Train and advise the settlers and others;
2. Supervise the settlers to make sure that they use correct methods of seed bed preparation, planting and care of their crops;

3. Survey new farms and lay out their boundaries;
4. Distribute seeds, agricultural chemicals and planting materials;
5. Organize the tractor hire service by measuring the plots to be worked, scheduling the tractor and collecting for the service; and
6. Look after the spiritual needs of the settlers and others.

Accomplishments and effects

The Scheme has been responsible for the introduction of the culture of chili peppers, soybeans and corn in the area. It was responsible for the introduction of agricultural chemicals and the method of bending tea rather than pruning it--a method which brings tea into production at the end of 19 months rather than in five years.

The Scheme has organized a cooperative society in the area.

It has made mechanical cultivation available for the first time. With its heavy duty Rotovator, it can transform three acres of elephant grass glades per day into ten-inch deep seed beds. This service is used mostly by the settlers who are thus able to plant their crops months earlier than if they had had to clear their land with hand tools.

The Government built an eight-mile long access road to link the Scheme to the nearest main highway. This will facilitate settlement in the area and would not have been built had the settlement not been planned.

The increase in the human population of the area as a result of the Scheme has been of benefit to the local population by causing a

reduction in the numbers of wild game. These were, and are, a problem because of the damage they cause to food crops.

The effect of the Scheme on the nutritional level of the settlers has been a positive one. The settlers have acreage available for growing a variety of crops:

Peanuts	Beans	Vegetables
Sweet potatoes	Plantains	Citrus
Finger millet	Corn (Maize)	Pineapple
Amaranthus spinach	Sorghum	Papaya
Soybeans		

They are particularly pleased with the possibility of having fruit, a food not available at the high altitudes of the Kigezi District.

Mrs. Carr conducts classes on nutrition and food preparation for the settlers, their wives and others who are interested.

Settler housing is better than it was in their home district mostly because a portion of the loan they received from the Scheme was to be spent in the building of their houses.

The potential income of the settlers is much higher than they could have hoped for in their home districts. This is due mainly to the fact that they now have land.

Personal goals were altered in that the Scheme provided the settlers with a means of becoming landowners rather than casual laborers. It gave them the opportunity to become farmers, an alternative that did not exist for them in their home district.

Extension activities

The extension activities of the Scheme include services already mentioned, namely: expert advice, planting materials and seeds,

agricultural chemicals, tractor hire service, lessons on nutrition and food preparation and loans (to settlers only).

In addition to these, the Scheme offers one-day courses on tea propagation to farmers in the region. The Uganda Tea Growers Association requested the initiation of this activity and assumes responsibility for bringing the farmers to the Scheme. A book on tea propagation has been prepared in the vernacular.

The most frequently used tool in the extension work that is done is the farmer's own farm. Most of the training that takes place is on-the-job training and on a one-to-one basis.

Finances

The Wambabya Settlement Scheme was started with a grant of $98,000 from Christian Aid on land that was donated by the Ugandan Government. In addition to the grant from Christian Aid, the Scheme is able to use the money received from the Nyakashaka settlers as they repay their loans.

The project cannot become self-supporting in the sense that it can operate on profits because it engages in no profit-making activities. It will not require additional grants, however, since it is able to use money recuperated from loans for new loans.

Although the Scheme has received small gifts from churches for specific projects totaling approximately $420 per year, it has received no other subsidies. The Uganda Government does not subsidize the Scheme. On the contrary, it perceives a tax of 15¢ Uganda (2.1¢ U.S.) on each kilo of tea that is produced.

Financial questions between the settlers and the Scheme are restricted to the loans that are made to the settlers. The loans are sufficient to plant three acres in tea and to build a small house. If the settler buys tea stumps from the Scheme's nursery for transplanting, he requires a loan of $700. If, on the other hand, he wishes to use vegetative propagation material for establishing his tea, his loan need not exceed $490.

Repayment of loans is made automatically as tea is delivered by the settler to the cooperative society. For every kilo of tea delivered to the cooperative, 25¢ Uganda (3.5¢ U.S.) is credited to the settler's loan. At this rate, loans should be repaid within a period of four years. Insofar as possible, all loans are made in materials.

The total non-recuperable investment for settling 400 farmers at Wambabya is estimated to be in the order of $53,200. Mr. Carr considers this figure ($134/settler) to be rather high. He points out, however, that in this figure are included the cost of staff housing, roadbuilding and surveying. Mr. Carr estimates that further settlement may be made for as low as $25 non-recuperable investment per settler family.

Materials published about the Scheme

One article has been published on the subject of the Wambabya Settlement Scheme. It may be found in the following publication:

"Development Projects," Gaba Pastoral Paper, No. 18.
Gaba Pastoral Institute, Box 4165, Kampala.

Problems

The most serious of the problems faced by any project seeking to attract educated young men to farming in Uganda is that of the disparity between rural and urban income levels. The best of farmers can ultimately hope for an income of about $560 per year. An average farmer may hope to have an income of $280.

At the same time, a beef inspector who has the same education as a farmer and whose services are ultimately paid for by the farmer is paid $1,540 per year.

A good cotton farmer, one who cares well for his crop, can hope to gross $56 per year. Yet, a road worker receives a salary of $252 per year.

While wages for non-farmers have increased at ten per cent per year over the last ten years, the prices of agricultural tools and chemicals have increased 50 per cent, and the prices received for all major agricultural produce have dropped by up to 50 per cent.

The farmer's position vis-à-vis that of the unskilled worker seems to become progressively worse each year. For example, in 1955, a coffee farmer had to sell 300 pounds of coffee to buy a good bicycle while, to buy the same bicycle, a road worker had to work for six months. In 1971, the same farmer would have to sell 1200 pounds of coffee to buy a bicycle of the same quality, whereas, the road worker would have to work for three months to buy the same bicycle.

Under such conditions, young people with intelligence and drive seek paid employment. For those who have of necessity become farmers,

it is difficult for them to be completely committed to their farms. Yet, if they are not completely committed to their farms, farming doesn't pay and a descending cycle begins.

A second problem faced by this Scheme is that tea farming (much like poultry raising) clashes severely with social life. Tea is a crop that requires attention six days a week every week of the year. In Uganda, the majority of farmers haven't encountered such a situation, and it is difficult for them to de-emphasize their social contacts in favor of their farms. This is one of the reasons why the Scheme's staff must pay such close attention to the morale of the settlers and why they must be willing to show the same dedication that they encourage on the part of the settler.

The settlers are at times under great pressure from their families to visit home. At Nyakashaka, where none of the settlers were far from home, this was not the problem that it is at Wambabya where the settlers are separated from their families by hundreds of miles. When a settler leaves Wambabya to visit his family in the Kigezi, he is away from his farm for at least two weeks and is obliged to spend $9.80 for transportation costs alone.

Mr. Carr has contributed to the solution of this problem by refusing to allow the settlers to leave the Scheme unless the situation at the settler's home seems to require it. In this way, the pressure is transferred from the settler to Mr. Carr.

Settlers at Wambabya face problems and difficulties they did not have to face in Kigezi. Malaria, not a problem in the Kigezi, is a problem at Wambabya. Wild game are also a problem that exist at

Wambabya that did not exist in the Kigezi, and they cause much damage and are dangerous. Because of the havoc they can wreak in a food garden, they have caused much discouragement; and there have been many nights when settlers have gone to bed hungry. Mr. Carr relates that many settlers have awakened in the morning to find that a herd of wild pigs had completely uprooted beautiful gardens during the night. In cases such as this, the settler would be left without food and would have to seek employment locally for his food needs.

The animals also present dangers to life and limb that did not exist in the Kigezi where no wild animals roam. On one occasion, a settler, walking in the rain at night with a basket of tea on his head, walked into the side of an elephant standing across the path. On another occasion, a settler beat a wild buffalo to a tree; but the buffalo wandered off with the settler's shirt still dangling from its horns. Mr. Carr was attacked by several large male chimpanzees and barely managed to outrun them.

A still more serious problem than those already mentioned was the absence of adequate rainfall during the early months of 1971. Tea that had been recently planted defoliated completely, and damage was also done to older trees.

From his house on the edge of the Scheme and slightly above it, Mr. Carr watched downpour after downpour follow the edges of the rain forest and drop nothing on the elephant grass glades that are under development. This situation causes a great deal of concern and has resulted in 30 settlers leaving the Scheme. In addition, the flood of applications from those wanting to become settlers has dwindled to a

trickle. This is very probably the result of the tale of those who left the Scheme because of starvation, malaria and wild animals.

Though he consulted every source he could find concerning rainfall in the area and though there is a tea estate within seven miles of Wambabya and tropical rain forest along the fringes of the Scheme, Mr. Carr fears the possibility that the Scheme was established in a small area of recurring drought. If this proves to be the case, the main cash crop will have to be changed to a less drought-prone crop than tea.

A formula for success

From his experience with settlement schemes, Mr. Carr proposes that to be successful, the manager must be interested in people; be willing to live under remote conditions and work hard; learn the local language; and apply his experience to create a structure that will motivate people to come together, live together and work together under strange and threatening circumstances. He must find a way to keep morale high for, in high morale, he finds the tool that enables people to cope with all sorts of difficulties and will cause them to come to a place with few material advantages.

Though the settler may at first feel no sense of confidence in the region in which he settles, he must feel confident within the structure of the settlement scheme. Then, through this structure, the manager may apply his knowledge and experience for the introduction of new crops and new methods.

CHAPTER IV

SUMMARY, CONCLUSIONS AND GUIDELINES

This study, entitled "Church-related Programs in Agricultural Education in Cameroun and Uganda, Africa," describes projects that have been initiated by the Christian church in Cameroun and Uganda to teach agricultural methods, stimulate development and generate employment in the agricultural sector. The descriptions are narrative in form and provide about each project such information as the general background, goals, scope, financing, staffing, problems and the effects and accomplishments of the projects.

The purpose for which the study was undertaken was primarily to establish in literature the involvement of the Christian church in such areas as agricultural education, agricultural development and employment generation in the agricultural sectors of Cameroun and Uganda. Beyond this, it was hoped that the project descriptions would serve as a source of information to those who are actively involved in such projects, as an instrument to facilitate evaluation and as a basis for the planning of new projects.

Accordingly, the primary and secondary objectives of the study were to document the involvement of the Christian church in the areas mentioned above and to describe this involvement. The descriptions are in somewhat more detail than may be appreciated by those whose interest

in the subject is no more than cursory. However, the descriptions are perhaps not sufficiently detailed for those who are actively involved in projects similar to those described or to those who are responsible for the planning of such projects. For the latter, the names and addresses of those directly involved in the projects described are held in Appendix O thus permitting them to more fully document themselves concerning details of particular interest to them.

The information that was used to compile the project descriptions was obtained through personal visits to the projects and through the administration of a "Guide" (Appendix A). The "Guide" suggested subjects upon which information could be provided in order to permit an adequate description of the project. No attempts at evaluation of the projects were made.

General Conclusions

Although the church-related agricultural projects described in this dissertation differ as regards institutional form, amount of investment and other factors, they have marked similarities as regards goals, emphasis of instruction, services provided and problems. Without exception, the projects share the goal of attempting to make life in rural areas less tedious, more healthful and more productive for rural populations. They also recognize the seriousness of the school-leaver problem and devote at least a part of their program to the solution of this problem by giving the school-leaver a vocation in agriculture and showing him that he has a future in this field.

One of the areas of emphasis common to the projects described is that of learning by doing. Though theory is presented, it is

subordinated to the practical work that is the focal point of the programs. For this reason, all of the projects, either directly or indirectly, engage in production agriculture by working through their own farms and/or through the farms of those served. Because of this emphasis and the consequent involvement in production agriculture, the projects maintain close contact with producers, with conditions of production and with the market. They are in a position of trying new crops and proving new methods, of constantly seeking that which would be worthwhile to extend to rural populations. It seems to be evident from the project descriptions that there has been little difficulty in convincing farmers to adopt that which the projects have sought to extend to them once they have seen evidence of the results. This would seem to attest to the appropriateness and recognized value of that which has been suggested.

Although several of the projects emphasize the use of animals for farm power, and several provide tractor services, it is, perhaps, significant to note that none of the projects attempts to promote mechanization. The largest machines that have been introduced through the work of the projects described have been small hand-operated grain mills and peanut shellers, both relatively inexpensive and both releasing the farm family from hours of work daily, grinding grains and shelling and crushing peanuts.

An area of emphasis that becomes apparent through a review of the descriptions is that of the attempt to improve, first and foremost, the physical, material and spiritual well-being of the rural dweller. This

evaluation of the appropriateness and effectiveness of their training programs. Because these projects are not strictly tied to contracts, bilateral agreements or other inhibitors of rapid changes, the results of evaluations may be acted on with little delay and programs may be adjusted to provide for current needs, problems and opportunities.

A further area of service of most of the projects described is that of providing for the supply of needs of those who have been trained. Where supplies needed to carry on farming according to the methods that had been learned were lacking, the projects set about to assure their supply. In several areas, these projects remain the only source of improved seeds and planting materials, pesticides, chemical fertilizers, stock, feed and veterinary products.

The effect of the services provided above has been that of assuring that those trained will have every opportunity of successfully applying what they have been trained to do. The financial and credit services have permitted them to begin to apply their training. The periodic visits have served to provide further training and to make farming operations more productive. The attention paid to supplying needed materials has validated the training received by permitting the use of new crops and new methods. Marketing aids have lightened the load of the producer by not only permitting him to concentrate on production but also by representing him in an area where he has the least experience, in an area where he is the most susceptible to sustaining loss.

Problems associated with the projects seem to fall most commonly into two general categories: (1) finances and (2) markets and

marketing. Financial problems are most critical for those projects that have inadequate sources of subsidization and must achieve a level of self-support sufficient to cover operating expenses. This category applies most precisely to such projects as Kitterede, in Uganda, and to the growing number of farm-schools in the southern Cameroun. As has been pointed out in the descriptions, the particular problem of these projects is to find high-profit enterprises with quasi unlimited market potential and to earn enough money from these to support the inefficient operating conditions inherent in any project that is top heavy as regards staffing and that uses student labor.

As evidenced in the descriptions, the projects are able to operate without difficulty under these conditions for a time. Eventually, however, the project will have trained a sufficient number of producers/competitors that the market will weaken and profits decrease. When this happens, the project, in order to continue to earn enough money to operate, is obliged to industrialize its production beyond the possibilities of those it trains, separates itself from them in this way and ceases to meet their needs as originally planned. At this time, the project should either find other suitable high-profit enterprises to emphasize or to consider the possibility of shutting down operations. It would be well to point out at this time, however, that when it becomes necessary for a project to choose between these alternatives, in no case does this spell failure, but, rather, success.

The financial situation of the Fignolé project is unique in that it no longer enjoys a sufficient level of subsidization to continue operations nor is it involved in any activity that would provide a

measure of self-support. Father Chauvat feels that the time has come to discontinue the project as a residential training center and to use it instead as a center for continuing education, seminars and short-courses. He would continue to train those served by the project but in their villages rather than at Fignolé. This suggestion has met with strong opposition on the part of those served who find the present formula attractive because it provides them with a means of obtaining sufficient capital during the training period to begin farming once this period is over.

However, it would seem that donor organizations which are apparently willing to provide funds for capital investment, but hestiate to provide funds for operating expenses, would do well to restudy this question and to consider the possibility of subsidizing these expenses in order to permit the continued operation of projects that are obliged to be self-supporting at unrealistic levels of difficulty.

The problem of markets and marketing is perhaps the most generally preoccupying problem facing the projects described. The new technology introduced by the projects, including seeds and planting materials, pesticides and chemical fertilizers, care and rational feeding of animals and new methods and practices, so quickly raises production and causes surpluses to occur that available markets are soon satisfied and risk being glutted. Compounding this problem is that of the difficulty of moving surpluses to available markets. In many instances, surpluses are produced far from large marketing centers or points of export. Communications, roads and railroad are frequently poor and/or

seasonal. Consequently, transportation costs are high and profits are frequently lost as a result.

Though a country's infrastructure of roads and railroads is primarily a government responsibility, projects may alleviate problems posed to agricultural producers by providing services that permit the pooling and marketing of surpluses. Several of the projects described have provided, informally, supply and marketing services until formal co-operatives could be formed. Fôkpayônô, Nyakashaka, Wambabya, Bannakaroli Brothers and the RTAC have all provided transportation of produce to market at cost and have thus provided producers with a means of obviating the highly inflated tariffs demanded by private transporters, tariffs shrewdly calculated to leave the producer no profit.

In addition, other factors held in common by the projects described in this paper are:

1. Governmental approval
2. Large audiences
3. Success in attracting educated young people to vocations in agriculture
4. Success in introducing new technology

Without exception, these projects enjoy the support and cooperation of both local and national governments. In two instances, Nyakashaka and Wambabya, projects were started at the request of the Ugandan Government. Fignolé, the Libamba Farm-school, Gayaza and Bishop's School have received government subsidization for their agricultural courses. Father Chauvat of Fignolé and Mr. Bos of the PRTC were nominated to committees to assist in the elaboration of Cameroun's

Third Five-year Plan. Mr. Mbog was awarded an official medal as a result of his work at the Libamba Farm-school. Still other evidences of government support of these church-related projects are found in the project descriptions.

The projects have succeeded in capturing large and attentive audiences. This may be attributed at least in part to their success in identifying and realistically dealing with problems of the rural populations served. However, some mention must also be made of the effect of the informal, nonthreatening nature of the relationships established by those working in these projects with those served by them.

A further common experience of the projects has been the willingness of educated young people to pursue vocations in the field of agriculture, in spite of the popular myth that they will not do so. Mr. Stickney of Bishop's School has remarked not only on their willingness to secure vocations in this field, but on their enthusiasm for agricultural studies. He attributes this to the practical nature of the instruction and training provided.

Finally, a reading of the project descriptions makes plain the fact that the projects have succeeded in introducing new technology. Though none of this may be qualified as "sophisticated" in a more developed nation, still it has met with ready acceptance by the people and has been recognized as a means of alleviating their problems.

Because of the work of these projects, progress has been made toward their goals of making life in rural areas less tedious, more healthful and more productive and in drawing educated young people to vocations in agricultural production.

Guidelines

The church-related agricultural projects described in this paper demonstrate many similarities and many aspects in which they are dissimilar. In spite of a general agreement of basic goals, no project is exactly like any other nor could it be, considering the unique factors with which each project has to deal: conditions of production (climate, soil, etc.), communications, market, financial support and personnel. The form of the project, whether a secondary school, a farm-school, a settlement scheme, or an extension approach, differs according to clientele and purpose and, yet, each has achieved a measure of success in attaining basically similar goals.

Mr. Peters, of Fôkpayônô, and Mr. Carr, of Nyakashaka and Wambabya, both rejected the "farm-school" formula because they maintained that it was impossible to guarantee that a high percentage of those trained would return to vocations in production agriculture. Yet, the Libamba Farm-school, the PRTC and the Fignolé project have all succeeded in establishing a healthy majority of their trainees as farmers. This majority becomes a quasi totality if one considers also whose who have secured employment in agriculturally-related occupations as a direct result of their farm-school training.

It would seem, therefore, that no formula should be rejected <u>per se</u>, but that there are principles that may be identified that, used with any formula, would tend to lead to its success in the attainment of its goals. If this is indeed the case, then it would seem to be useful and appropriate to attempt to identify these principles and to

use them as guidelines not only for the establishment of agricultural projects but also as a means of evaluating those that already exist.

1. The services of an advisory committee, composed of representatives of government, church and clientele, should be used in the planning, development and operation of projects.
2. Government plans for development should be taken into consideration during the planning, development and operation of projects.
3. Goals and objectives set for projects should be realistically attainable in light of available resources.
4. Evaluation procedures should be included as an integral part of project planning development and operation in order to provide a means by which progress towards goals and objectives may be measured.
5. The introduction of new technology of whatever kind, whether crops, materials or methods, should be preceded by a careful study of the conditions of production, marketing possibilities, and nutritional and cultural considerations.
6. Any new technology that is introduced should be within reach of those served.
7. Training provided by projects should be practical, on-the-job training.
8. Training should result in higher than average farming incomes.
9. Trainees should feel their social status to be enhanced as a result of their training.

10. Trainees should have access to land as a means for becoming established in agricultural production.
11. Provision should be made for the capitalization of former trainees either by extending credit to them or by some other means.
12. Follow-up procedures, designed to provide former trainees with technical assistance, assistance with marketing and the procurement of supplies, should be an integral part of any project.
13. Provision should be made for continuing education for those served through such activities as seminars, short-courses, demonstrations and technical bulletins.
14. Among the services offered by projects should be provision for the representation of former trainees in their dealings with government, marketing boards, transporters and merchants.
15. Personnel selected for projects should have extensive on-the-job experience and a background of successful association with those of other cultures.
16. Provision should be made by every project for the writing and dissemination of reports, articles and reviews, as a means of sharing information with those who would find such information interesting, useful and helpful.

APPENDIX A

Guide

I. Information Concerning the Project

A. Name of the project.
B. Location.
C. Person or persons responsible for the project and their titles.
D. When was the project started?
E. By whom was the project started?
F. Why was the project started?
G. Why was it located where it was located?
H. What were the project's goals at the beginning? Have these changed with the passage of time, in response to changing conditions, etc.?
I. What are the project's present goals?
J. Who was to be served by the project?
K. In what ways were these people, or these groups of people, to be served?
L. How many does the project serve?
M. What is the institutional form of the project (school, cooperative, hospital, credit union, etc.)?
N. Please describe the physical layout of the project. Include maps and pictures, if possible.

II. Information Concerning Program

A. What is the curriculum (course of instruction, subject matter) that is taught?
B. What teaching methods are used?
C. What do daily, weekly, quarterly, and yearly schedules look like?
D. Is there a farm associated with your project? If so, would you please describe it?
E. How are students recruited?
   1. How old are they?
   2. What is their educational level?
   3. From where do they come to participate in your program?
F. How many students can your program accommodate?
   1. How many are enrolled at this time?
   2. What is the total enrollment since the beginning of the project?
G. What is the duration of the training program?

H. Are the students encouraged to have projects?
   1. What types of projects do they have?
   2. What do they do with the profits from their projects?

I. Is participation in agricultural fairs or field days a part of the program? If so, please describe.

J. Are agricultural youth, young farmer, or adult farmer organizations a part of your program? If so, what are they called? Please supply as much information about these as possible.

III. Information Concerning Personnel

A. How many expatirate personnel are associated with the project?
   1. By whom are they sent?
   2. What is the responsibility of the project concerning their support, their housing, their transportation, etc.?
   3. What is their experience background?
   4. What is their educational level and background?
   5. How long do they stay?
   6. What duties do they perform?

B. How many local personnel are associated with the project?
   1. By whom are they paid? Does the project receive subsidies for them from Government or from some other agency?
   2. What is their experience background?
   3. What is their educational level and background?
   4. What duties do they perform?

C. What are plans for future staffing of the project?

IV. Information Concerning the Future of the Project

A. What are your hopes for the future of the project?
   1. Do you hope to start new projects like the present one?
   2. Do you hope to branch out into other areas of service?
   3. Do you hope to grow?
   4. Do you look forward to ceasing operations once your objectives have been attained? If so, what would you hope to leave behind? Would you then start another project elsewhere?

V. Information Concerning Materials Written By or About the Project

A. Have any teaching materials, articles, or books been written by those involved in the project?

B. Have articles, studies, or books been written about the project? (Please indicate how and where copes of the above may be obtained.)

VI. Information Concerning the Accomplishments and Effects of the Project

A. Has the project been responsible for the introduction of new practices or methods, new tools, new varieties of seeds or new crops, new ways of dealing with animals, new breeds of animals or new species of animals, chemical fertilizers, pesticides and herbicides, cooperatives, credit unions, agricultural clubs or organizations, etc.?
B. Has the project received recognition from Government or from agencies such as the FAO, the United Nations, etc.?
C. Has Government followed the example set by the project by setting up similar projects?
D. What has become of the students trained in the project?
E. What have been the effects of the project on the local population? on the region? on the country?
F. Has the project resulted in a change in the country's imports or exports?
G. How has the project affected the standard of nutrition of its students and their families? of those living nearby? of those living in the region?
H. What have been the effects of the project on its students as concerns factors such as housing, food preparation, hygiene, sanitation, diet, etc. (factors associated with standard of living)?
I. What has been the effect of the project on the income of its students and others who have been affected by the project?
J. Has participation in your program caused students to alter their personal goals? Please give examples.

VII. Information Concerning the Extension Activities of the Project

A. What services are provided for former students?
B. What services are provided for those living in the region of influence of the project?
C. Are short courses or seminars provided?
    1. If so, how are those participating recruited?
    2. What are the programs of study offered?
    3. Are living accommodations offered?
    4. How are the participants fed?
    5. What are financial arrangements with the participants?
D. Does the project distribute printed teaching materials?
    1. If so, where are these obtained?
    2. In which languages are they printed?
    3. Are they made available gratis or must they be purchased?
E. Is the project a source of tools, seeds, chemical fertilizers, pesticides, etc. for its students and for others?
F. Have correspondence courses been used in conjunction with the project?
G. Does the project use demonstration plots or small holdings as teaching and extension tools.?

H. Are extension agents used in conjunction with the project? If so, what are their methods of operation?

VIII. Information Concerning Financing

A. What was the initial capital investment of the project?
   1. Who provided the money to get it started?
   2. How was land obtained?
B. What has been the investment as far as personnel is concerned?
   1. What does this represent if one includes salary, transportation, medical, children's education, etc.?
   2. By whom or by what means has personnel been financed?
C. In what measure is the project self-supporting?
   1. Has the amount of self-support increased or diminished over the period of operation of the project?
   2. Who provides for current expenses? How much is provided?
   3. Who provides for capital expenditures? What is the total capital investment in the project to date?
D. What grants or subsidies does the project receive?
   1. From Government?
   2. From international organizations such as the FAO and UNICEF?
   3. From diplomatic and aid missions?
   4. From local churches?
   5. From churches in other countries?
   6. From interchurch agencies or other church-related organizations?
E. How long do you expect to receive regular subsidization? What then?
F. What is the financial arrangement with students?
G. Are copies of budgets for the project available?

IX. Information Concerning Local Agriculture

A. What tools are used by farmers in your region?
B. Is there farm power available? If so, of what type?
C. What are the cash crops of your region? How are these marketed?
D. What are the domestic crops in your region? Is there a market for these?
E. Have you noted shifts in the relative importance of these?
F. Is chemical fertilizer (and other agricultural chemicals) used?

X. Some General Questions

A. Which are the agencies that have served you best in providing information and material helps?
B. Which books or other printed materials have you found to be of most value?

C. Setting aside all modesty and humility, what do you feel have been your most important accomplishments?
D. Where do you feel you have been most creative?

Problems:

1. What problems have you encountered during the course of the development of your project?
2. What problems have been created by the project?
3. Is the way the project is developing leading you away from your initial goals?
4. Is there any situation that is developing that causes you concern?
5. Because of this, would you have organized the project differently if you were to start over again?
6. Do you feel that problems are being created as a result of your project (problems concerning the local population, or economy)? If so, what are they?
7. What is there about your project, its results, and influences that scares you?

APPENDIX B

Calendar of Cultural Operations for Field Crops

		Cultural Operations							
Season	Month	Corn	Early Sorghum	Late Sorghum	Peanuts	Rice	Cotton	Beans	Onions
Early Rains	April	Prepare soil & plant	Prepare soil & plant	Prepare soil	Prepare soil				
	May	Weed		Plant	Plant	Prepare soil	Prepare soil		
Rainy Season	June		Weed	Weed	Weed	Plant	Plant		
	July	Harvest	Harvest	Weed		Weed Irrig-ate			
	August				Hill	Irrig-ate	Weed Hill Treat	Prepare soil	
Late Rains	Sept.					"	Treat		Plant in nursery
	Oct.			Defol-iate		"	Treat		Prepare soil
Dry Season	Nov.					Irrig-ate Harvest		Harvest	Trans-plant
	Dec.			Harvest			Harvest		Weed Water
	Jan.			"					Harvest
	Feb.	Prepare new fields. Gather straw for bedding. Sort cotton. Train oxen.							
	March	"							

APPENDIX C

Schedules of the Libamba Farm-school

Daily

5:45 a.m.	Rising
6:00 a.m.	Morning chores in animal enterprise
7:00 a.m.	Morning devotions and work assignments
7:15 a.m.	Breakfast
7:30 a.m.	Farm work
12:00 Noon	Lunch, chores, rest and recreation
3:00 p.m.	Classroom lessons
5:25 p.m.	Sports
6:15 p.m.	Evening chores
6:30 p.m.	Evening meal
8:00 p.m.	Supervised study
9:00 p.m.	Free time and retirement

Saturday

The Saturday schedule differs from the daily schedule in that there are no scheduled afternoon activities other than evening chores and the evening meal.

Sundays and Holidays

The only activities scheduled on Sundays and Holidays are chores and meals.

APPENDIX D

Classroom Instruction of the Libamba Farm-school

A. General subjects

1. The soil

a. Physical, chemical, and biological composition of soil
b. Qualities of arable soil
c. Soil erosion and degradation
d. Soil conservation
e. Cultural practices and their effect on the soil

2. The plant

a. Botany
b. Physiology
c. What plants produce

B. Crops

This section includes studies of the principal food and cash crops of Cameroun. The emphasis is placed on those crops that would seem to be the most promising economically in light of region of production and marketing possibilities.

C. Crop diseases and pests

This section includes studies of plant diseases, insect pests and damage by animals. Life cycles of diseases and insects are studied as well as means of control. The emphasis is on local problems.

D. Animal husbandry

1. General

a. Feeds and feeding
b. Veterinary considerations
c. What animals produce

2. Study of specific animals

   a. Poultry husbandry: chickens, turkeys, geese, ducks, rabbits, guinea pigs
   b. Sheep and goats
   c. Swine production
   d. Cattle raising
   e. Horses and donkeys
   f. Dogs

   In each of these areas is considered:

   - anatomy
   - breeds, crosses, hybrids, genetic selection
   - housing
   - nutrition and production
   - reproduction
   - diseases and treatment of diseases
   - cost of production and return on investment

3. Techniques of transportation of plant or animal production such as handling, extraction of oils, grinding, fermentation, and drying. The utilization of plant and animal by-products is also studied in this section.

4. Fish culture

   a. Building the pond
   b. Stocking the pond
   c. Feeding
   d. Harvesting

E. Farm management

1. Accounting

2. Farm organizations (research centers, extension services, credit unions)

3. Professional organizations (Chamber of Agriculture, farm unions, coops)

F. Civics

The purpose of civics (one hour/week) is to make the trainee aware of his role in his country and its economy.

G. Religious instruction

Religious instruction (one hour/week) is centered around the study of the Bible.

APPENDIX E

Farm-schools and Rural Assistance Centers

Following is a list of farm-schools and rural assistance centers that have been opened to 1971. These institutions have the same goals as the Libamba Farm-school and the Rural Assistance Centers at Douala and Yaoundé and operate in much the same way although with different emphases as regards crops and animal enterprises.

1960 Libamba Farm-school

1964 Rural Assistance Center at Yaoundé

1964 Pilot Farm at Elat, Ebolowa

1966 Rural Assistance Center at Douala

1968 Ndoungui Farm-school, Nkongsamba

1969 Presbyterian Rural Training Center, Mfonta, Bamenda

1970 Rural Technical Assistance Center, Mfonta, Bamenda

1971 Bagam Farm-school, Mbouda

1971 Kumba Farm-school, Kumba

APPENDIX F

Books and Materials

The following books and materials were particularly useful to the personnel of the Libamba Farm-school:

Jacob, A., and vonUexküll, H. Fertilizer Use, Nutrition and Manuring of Tropical Crops. Hannover: Verlagsgesellschaft für Ackerbau, 1963.

Mortensen, Ernest and Bullard, Ervin T. Handbook of Tropical and Subtropical Horticulture. Washington, D.C.: Agency for International Development, Department of State, 1966.

Shaw, Earle J., ed. Western Fertilizer Handbook. Sacramento: California Fertilizer Association, 1965.

Tindell, H. D. Fruits and Vegetables in West Africa. Rome. FAO, 1965.

Viguié, Jean. Fiches Vétérinaires Avicoles. Verzeille (Aude): Editions J. Viguié, 1964.

Winters, Harold F., and Miskimen, George W. Vegetable Gardening in the Caribbean Area. Washington, D.C.: U.S.D.A., 1967.

APPENDIX G

Model Instruction Farms

I. Points to consider in the setting up of model farms for instructional purposes.

A. The model farm must be closely linked to conditions of farming in the areas from which trainees are recruited. Special attention should be given to:

1. Topography
2. Farm size
3. Soil type and inherent fertility
4. Availability of irrigation water
5. Accessibility by road
6. Land tenure
7. Tribal and cultural considerations

B. The model farm must demonstrate the agricultural possibilities of the area as well as to deal with its problems. Special attention should be given to:

1. Differentiation of crops
2. Differentiation of animals
3. Soil conservation methods
4. Improvement of soil fertility
5. Crop rotation
6. Fallow planting of grasses and legumes
7. Improved methods of cultivation
8. Irrigation systems
9. Production of improved seeds and seedlings
10. Improvement of local animals

C. The model farm must demonstrate the economic possibilities of agriculture in the area. Special attention should be given to:

1. Marketing possibilities of different types of produce
2. Financial considerations such as investment requirements, working capital and credit facilities
3. Return on investment
4. Possibilities for growth

D. Management aspects that must be taken into consideration are:

1. Labor required including type of labor (family or otherwise) and division of labor over the year
2. Record keeping and bookkeeping systems
3. Priorities in planning
4. Decision-making
5. Technical ability and perseverance
6. Love of farming

E. Technical aspects that must be taken into consideration are:

1. Introduction of better tools and equipment
2. Creation of storage facilities
3. Sources of such supplies as tools, chemicals, and seeds
4. Maintenance of tools and equipment
5. Storage of dangerous chemicals

F. Subsistence section of the model farm. A farmer should produce first of all his own food and the food needed for his family. This subsistence section is the most important section on the farm because of its role in feeding the farm family. Whatever type of commercial production the farmer may want to perform, he must give priority to the development of his food farm. Important aspects of this are:

1. Avoiding purchases in the local market
2. Improving the daily diet through:
   a. Cultivating a wide range of crops
   b. Keeping a year-round vegetable garden
   c. Raising small animals
   d. Constructing a fish pond
   e. Planting trees for building materials and firewood
3. Educating family members in the operation of the farm

G. Cash crop section of the model farm. The following alternatives should be explored for providing for an increase in farm income:

1. Cattle for beef production, farm work, and manure production
2. Poultry flock for eggs, meat, and manure production
3. Vegetable garden for market sales (carrots, beans, leeks, tomatoes, cucumbers)
4. Production of fish (carp and Tilapia)
5. Production of surplus food crops such as corn, yams, beans, egusi
6. Pigs for fattening
7. Goats for commercial purposes

II. Proposed layout for model farms.

A. Subsistence section (based on the food needs of the farmer, his wife, and a small child or a relative--two and one-half consumers).

1. Food crops

a. Yams			
1) Guzang yellow	40 stands		
2) Guzang white	40 stands		
3) Sweet yams	10 stands		
4) Ogoja Yams	10 stands		
Total	100 stands		150 m^2
b. Cocoyams			
1) Colocasia Ibo type		150 m^2	
2) Xanthosoma (white)		300 m^2	450 m^2
c. Sweet potatoes			
1) Common type		300 m^2	
2) Improved type		150 m^2	450 m^2
d. Cassava			
1) Red type		150 m^2	
2) White type		150 m^2	300 m^2
e. Irish potatoes			
1) Local variety			100 m^2
f. Sugar cane			50 m^2
Total root crops			1500 m^2
g. Maize			
1) Local variety		300 m^2	
2) Cuban yellow		600 m^2	
3) Kitale		600 m^2	
Total maize			1500 m^2
Remark--After maize, beans in season: variety Boxer and Black Climb.			
h. Beans			
1) Boxer variety		300 m^2	
2) Santa variety		300 m^2	
3) Black C variety		150 m^2	750 m^2
Remark--After beans, late maize to be planted: local variety.			
i. Groundnuts			
1) Erect type		100 m^2	
2) Spreading type		100 m^2	
3) Bambara		100 m^2	300 m^2
j. Cow peas			
1) Local Bambui			50 m^2
k. Egusi (melon and pumpkin)			400 m^2
Total legumes + egusi			1500 m^2
l. Soil improvers for fallow (pigeon pea, soya bean, Tephrosia var., Pueraria)			1500 m^2

2. Orchard

a.	Plantains	40 stands
b.	Bananas	10 stands
c.	Papayas	10 trees
d.	Oranges	10 trees
e.	Avocado pear	4 trees
f.	Mango	2 trees
g.	Quava	2 trees
h.	Colanut	2 trees
i.	Plums	2 trees
j.	Lemon	2 trees
k.	Grapefruit	2 trees
l.	Pineapple	100 trees

Total area 700 m^2

Remark--The plantains, bananas and papayas to be planted in a proper plantation lay out with pineapples interplanted. The rest of the trees to be planted along the fences.

3. Vegetable garden + nursery
   a. Huckleberry
   b. Amaranthus
   c. Sweet pepper
   d. Hot pepper
   e. Okra
   f. Egg plant
   g. Spinach
   h. Cabbage
   i. Tomatoes
   j. Green beans
   k. Leeks
   l. Lettuce
   m. Carrots
   n. Cucumber

Remark--Production beds of 5 m^2. Nursery 10 m^2. Continuous production.

Total area 150 m^2

4. Domestic animals
   a. Poultry: 10 chickens (5 layers + 5 cocks for fattening)
   b. 2 goats
   c. 1 pig (native breed or cross breed)
   d. 2 ducks
   e. 2 female rabbits

Total area 900 m^2

5. Family fish pond
   a. Stocked with Tilapia and carp

Size 50 m^2

6. Afforestation
   a. Eucalyptus trees for firewood, building material, and wind breaks. Total 100 trees

b. Other trees
   1) bamboos
   2) Tephrosia candida } Staking material 500 m^2

7. Raphia Bush
   a. A small raphia plantation for the production of building material (raphia bamboos).
      Total area 500 m^2

8. Compound
   a. Family house
      1) 1 sitting room
      2) 2 bedrooms
      3) 1 kitchen
      4) 1 toilet (outside compound)
   b. Farm houses
      1) 1 store or barn with drying possibilities
      2) 1 poultry house
      3) 1 pig pen
      4) 1 goat stable
      5) 1 duck basin
      6) 1 rabbit box
   c. Flower garden for decoration

   Remark--Family house to be built in stages.
      Total area 200 m^2

9. Basic equipment
   a. Wheel barrow
   b. Head pan
   c. Buckets (2)
   d. Watering can
   e. Spades (2)
   f. Rake
   g. Fork
   h. Hoe
   i. Cutlasses (2)
   j. Hand sprayer

10. Total area needed for permanent use of subsistence crops 0.9 ha. or 9.000 m^2 (2.25 acres)

B. Suggested composition of the model farms

1. Model farm no. 1

a. Cattle rearing (3 heads + stable)	2	ha.
b. Pig fattening (1 sow + offspring + pen)		
c. Maize production	1	ha.
d. Late bean production		
e. Yam production (1500 set)	0.2	ha.
f. Egusi production	0.3	ha.
g. Sweet potato production for the pigs	0.2	ha.

h.	Commercial fish pond	0.2 ha.
i.	Commercial raphia bush	0.1 ha.
j.	Subsistence section	0.8 ha.
	Total area	4.8 ha.

2. Model farm no. 2

a.	Poultry flock of 30 layers, in continuous production + houses (different ages)	
b.	Maize production for poultry feed	0.6 ha.
c.	Commercial vegetable production (5 types)	0.05 ha.
d.	Goat rearing for meat production (5 goats + stable)	0.55 ha.
e.	Subsistence section	0.8 ha.
	Total	2.0 ha.

C. Conditions for planning

1. Labor input must be based on the labor capacity of one family (the farmer, his wife, and a relative). In terms of manpower, 1½ - 2 man labor.
2. Required starting capital should not exceed $500.
3. Profits--The net profit over a year should amount to a minimum of $240.
4. Requirements--the need to be worked out in terms of materials, seeds, and planting materials.
5. Development--in stages, according to season and priority.
6. Economics--An estimate concerning required starting capital and expected returns must be worked out.
7. Training aspect--As much as possible, the trainees must participate in planning, setup, and management.

APPENDIX H

Layout of Individual Plots 1971

Length: 24 meters (78 feet)
Width: 18 meters (58.5 feet)
Surface area: 4.32 ares (0.1 acre)

1	2	3	4	5	6	7	8	9	10	11	12
Yams: Guzang White 17 setts Plant in ridge 150cm wide Spacing: 70cm between setts		Cocoyam: Ibo Colocasia 17 setts Plant in ridge 150cm wide Spacing: 70cm between setts									
	Yams: Guzang Yellow 17 setts Plant in ridge 150cm wide Spacing: 70cm between setts	Cocoyam: Xanthosoma 17 setts Plant in ridge 150cm wide Spacing: 70cm between setts									
		Sweet potatoes: Local variety 64 cuttings Plant in ridge 150cm wide Spacing: Every 60cm on both sides of ridge (staggered)									
			Corn (maize): Local Bambui Plant two rows 75cm apart on bed 150cm in width Spacing in row: 25cm								
				Corn (maize): Cuban Yellow Plant and space as in 4 above							
					Corn (maize): Kitale CE Plant and space as in 4 above						
						Beans: Santa Red Plant 3 rows 40cm apart on bed 150cm in width Spacing in row: 30cm					
							Beans: Bozer Plant and space as in 7 above				
								Peanuts (groundnuts): Local variety Plant 4 rows 30cm apart on bed 150cm in width Spacing in row: 30cm			
Storage area: manure compost mulch pegs poles									Cabbage	Pole beans (5 meters)	Carrots (5 meters)
									Amaranthus spinach	Locks (5 meters)	Huckleberry
									Green peppers and chili peppers	Tomatoes (5 meters)	Egusi (melon): Local variety Plant in ridge 150cm wide Spacing in ridge: 60cm

Crop Rotation Sequence

Season	Beds 1, 2 & 3	Beds 4, 5, & 6	Beds 7, 8, & 9	Beds 10, 11 &12
1	Root crops	Cereals	Legumes	Misc. crops
2	Cereals	Legumes	Misc. crops	Root crops
3	Legumes	Misc. crops	Root crops	Cereals
4	Misc. crops	Root crops	Cereals	Legumes
5	Root crops	Cereals	Legumes	Misc. crops

APPENDIX I

Daily Schedule of the PRTC

6:15	Rising
6:30 - 7:45	Daily task
8:00 - 8:15	Breakfast
8:30 - 10:30	First practical lesson
11:00 - 13:30	Second practical lesson
13:45 - 14:15	Lunch, rest
15:00 - 16:00	Classroom lesson
16:15 - 17:15	Evening chores
17:30 - 18:15	Sports
18:30 - 19:00	Shower
19:15 - 19:45	Dinner
20:00 - 21:00	Supervised study
21:05	Evening prayer and free time
21:30	Retirement

APPENDIX J

Recommended Books

Title	Author	Publisher
Getting Agriculture Moving	A. T. Mosher	Praeger
Land Use and Agricultural Development	M. Brouwers	FAO
An Agricultural Notebook	T. A. Philips	Longmans
Farm Management in West Africa	T. A. Philips	Longmans
Modern Coffee Production	A. E. Haarer	Longmans
Agriculture in the Tropics	Webster, Wilson	Longmans
West African Crops, Vol. 2	F. R. Irvine	
Fruits and Vegetables in West Africa	H. D. Tindall	FAO
Handbook of Tropical and Subtropical Horticulture	E. Mortensen and E. T. Bullard	USAID
Animal Husbandry in the Tropics, 2nd Edition	Williamson & Payne	Longmans
West African Agriculture 3rd Edition, Volume 1 West African Soils	P. M. Ahn	
Soil Erosion by Water Measures for Control on Cultivated Lands		FAO
The Samaka Guide to Homesite Farming	C. M. Hoskins	Samaka Service Center, Manila
Efficient Use of Fertilizers	V. Ignatieff	FAO
Legumes in Agriculture	R. O. Whyte	FAO

APPENDIX K

Recommended Books

Title	Author	Publisher
Agriculture in Uganda	ed. Jameson	
Agriculture in Malawi	Ministry of Aric.	
Agriculture in the Tropics	Webster & Wilson	Longmans
Tropical Agriculture	Wrigley	Faber & Faber
Soil Conservation	Khonke and Bertrand	
Soil Science Simplified	Khonke	
The Soil Resources of Tropical Africa	ed. R. P. Moss	Cambridge
Annual Crops of Uganda	Dunbar	East African Lit. Bureau
Bananas	Simmonds	Longmans
Coffee Production	Haarer	Longmans
Kenya Hort. Handbook	Agric. Dept.	Kenya Gov't
The African Veterinary Handbook	Mackenzi & Simpson	Pitman
Blacks Vet. Dictionary	Miller & West	A. C. Black
Animal Husbandry in the Tropics	Williamson & Payne	Longmans
Poultry Nutrition		H.M.S.O.
Egg Production		H.M.S.O.
Poultry Keeping in East Africa	Cockburn	
Modern Poultry Husbandry	Robinson	Crosby Lockwood
The Farm Tractor	Bell	Cassels
Field Enginerring	Longland	Gov't Printer Tansania
Farm Buildings Pocketbook		H.M.S.O.

APPENDIX L

Church of Uganda, Rwanda and Burundi,
Christian Rural Service,
P.O. Box 495
Mbarara, Uganda
January 1969

Survey for Christian Rural Service

Diocese: Parish: Date:

1. General information

Size of parish — Population
Altitude — Annual rainfall
No. of Muluka churches — No. of village churches
How many of the following are these in the parish?
Primary schools — Secondary schools
Hospitals — Dispensaries
Health centers — Maternity clinics
Local produce markets — Trading centers
R.C. churches — Other churches
Grinding mills
Carpenters shops — Blacksmiths shops
How many Government staff live and work in the parish? List below:
1. 4.
2. 5.
3. 6.

2. Farming

Is land scarce or plentiful?
How long is land cultivated before resting?
How many farmers have enclosed land?
Can farmers buy and sell land?
List main food crops in order of importance. Show month of planting.
1. 4.
2. 5.
3. 6.
List main cash crops in order of importance:
1. 3.
2. 4.
How do farmers sell these cash crops? Give details.

What are the most profitable cash crops?
1. 2.
What food crops do farmers store?
What method do they use?
What pests and diseases are common in parish?
1. 3.
2. 4.
Do farmers usually grow a mixture of food crops? If so, give details.

Where do farmers obtain seeds for main food crops?
Is there any tradition of seed selection?
What crops are usually planted in lines?

3. Livestock

What proportion of farmers keep cattle?
How many farmers have exotic cattle?
What proportion of farmers keep sheep? and goats?
How many farmers have improved poultry?
Do any farmers keep pigs?
Do many farmers sell milk? Where?
Do many farmers sell eggs. Where?
How are hides and skins sold?
Are there any sheds for drying hides and skins in parish?
How many farmers use boma manure on their fields?
Are cattle kept in bomas at night? How many have roofs?
How many farmers use oxen for cultivation?
What are the most common animal diseases in parish?
1. 3.
2. 4.

4. Homes and health

What are the commonest materials used for house building in parish?
1. Walls 2. Roofs
Are these materials plentiful or scarce?
What proportion of houses are permanent?
What permanent materials are used? Walls Roofs
Describe on separate sheet, give a plan, a typical homestead in the parish with details of all buildings and hedges.
Is water plentiful or scarce?
What are main sources of water in order of importance?
1. 3.
2. 4.
Do any of these sources fail in dry season? If so, give details.
1. 3.
2. 4.
Have Government a scheme for improving water supplies? If so, give details.

What are commonest diseases among children?
What are commonest diseases among adults?

Does Government provide an immunization program?
Against what diseases?
Do adults and children eat fish?
Do adults and children eat eggs?
Do adults and children drink milk?
What vegetables are popular with local people?
What fruits are popular with local people?

5. Village industries

What are the main hand crafts of local people?

1. 3.
2. 4.

What items are made for the home or personal use?

What items are made for sale?

Is there any organized marketing or export?

Do many people keep bees? What hives are used?
Is honey consumed by beekeepers or sold?
Is there any organized marketing?

APPENDIX M

Program Budget for C. R. S., Kigezi District

		1971-72	1972-73	1973-74
Salaries: Director and field workers (14)		$ 7,500	$ 7,500	$ 7,500
Training Center and Hostel:				
Building:	$19,000		500	500
Land:	1,715			
Furnishings:	2,857	23,572		
Leadership Training:				
Subsistence and equipment		5,000	4,850	4,500
Transportation:				
Maintenance, fares		2,200	2,200	2,200
Program Expense:				
Materials, utilities		640	650	675
Office Expense:		225	240	250
Total budget		$39,137	$15,940	$15,625
Anticipated Income:				
Christian Aid (Eng.)		$ 3,500	$ 3,500	$ 3,500
Bread for the World (Germany)		3,000	3,000	3,000
Church of Uganda		9,400	2,500	3,000
World Neighbors (USA)		23,237		
Total anticipated		$39,137	$ 9,000	$ 9,000
Balance needed		0	$ 6,940	$ 6,125

APPENDIX N

Christian Rural Service Projects and Participation 1970

Kigezi District

Name of Project	N° Projects	N° Members
1. Youth clubs	2,983	22,695
2. Fish ponds	70	87
3. Literacy classes	1,159	28,678
4. Smokeless kitchens	22	176
5. Protected water sources	117	11,470
6. Self-help groups	230	12,470
7. Latrines constructed	786	7,860
8. Clean-up campaigns	73	1,495
9. Beekeepers helped		1,183
10. Bees wax self-help groups	2	
11. Individual farm families guided		7,703
12. Vegetable gardens	11,240	101,650*
13. Experimental gardens	50	
14. Compost pits	1,649	16,490*
15. School-leavers farm groups	8	168
16. Young farmers clubs	130	4,820

*Estimated number of people helped.

Number of centers	750
Number full-time workers	17
Number volunteer workers	3,643
Number people assisted directly	131,900*
Number people assisted indirectly	181,800*
Number of teachers trained	1,355

*Estimate

Provincial Program

	Number	Members
Group Projects		
Adult education clubs	50	1,248
Women's self-help groups	17	530
Farmers' self-help groups	7	179
Youth clubs	22	782
Young farmers clubs	16	418
Sunday schools	27	1,328
Home Improvement Projects		
Pit latrines dug	76	
Kitchens built or improved	162	
Home vegetable gardens planted	250	
Compost/rubbish pits dug	92	
Cattle corrals built	35	
Homes sprayed	133	
Community Self-help Projects		
Protected springs	43	
Service roads	20	
Farm Development Projects		
Improved bookkeeping	37	
Improved coffee husbandry	57	
Row planting food crops	266	
Christian Stewardship Projects		
Demonstration plots at church centers	23	
God's acre plots at farm homes	13	
God's acre plots on church land	25	
Program Details		
Number full-time workers	15	
Number volunteer workers	139	
Number of centers	61	
Number of people assisted directly	25,227	
Number of people assisted indirectly	126,135	

APPENDIX O

Names and Addresses of Those Responsible for the Church-related Agricultural Projects Described

Cameroun

La Maison Rurale de Fignolé

Rev. Père Chauvat
La Maison Rurale de Fignolé
Poli par Garoua
Cameroun, West Africa

Fôkpayônô

Mr. Bill Peters
Fôkpayônô
Sudan Mission
Garoua-Boulai
Cameroun, West Africa

The Libamba Farm-school

Mr. Samuel V. Mbog
Ferme-école de Libamba
B. P. 41, Makak
Cameroun, West Africa

Presbyterian Rural Training Center

Mr. G. Bos
Presbyterian Rural Training Center
Mfonta
P. O. Box 72, Bamenda
Cameroon, West Africa

Rural Technical Assistance Center

Mr. Pieter vanBeyma
Rural Technical Assistance Center
Mfonta
P. O. Box 72, Bamenda
Cameroon, West Africa

Uganda

Bannakaroli Brothers School-leavers Farming Project

Brother Urbano
Kiteredde Farm
P. O. Box 2507
Kyotera, Uganda
East Africa

Bishop's Senior School Agriculture Course

Bishop's Senior School Agriculture Course
c/o Headmaster
Bishop's Senior School
P. O. Box 75, Mukono
Uganda, East Africa

Christian Rural Service, Kigezi District

Mr. Solomon Bekunde
Christian Rural Service
P. O. Box 192, Kabale
Uganda, East Africa

Christian Rural Service, Provincial Program

Mr. A. Baillie
Christian Rural Service
P. O. Box 7046, Kampala
Uganda, East Africa

The Gayaza High School Farm-diet Scheme

Miss Jean Cox, Headmistress
Gayaza Girls' Senior Secondary School
Private Bag, Kampala
Uganda, East Africa

The Nyakashaka Resettlement Scheme and The Wambabya Settlement Scheme

Mr. Stephen J. Carr
P. O. Box 192
Kabale, Uganda

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