

War on Hunger

A Report from The Agency for International Development



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FRONT COVER: Trainees from developing nations visit Pennsylvania cornfields to learn modern census techniques in preparation for a worldwide agricultural census. (See p. 1)

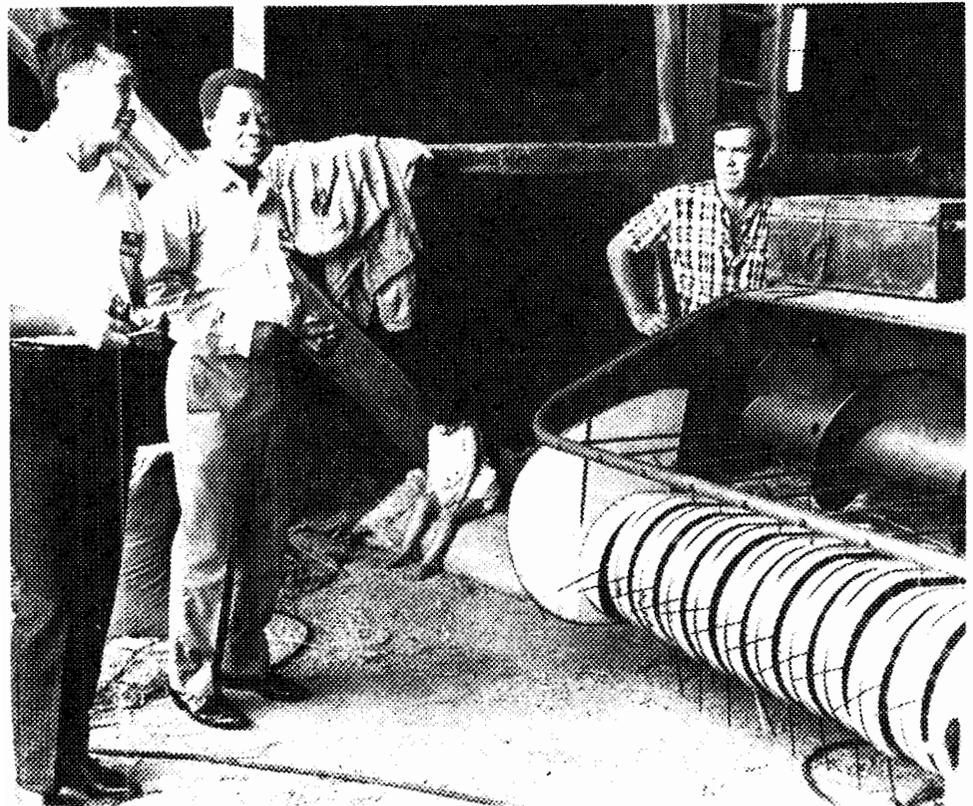
War on Hunger

A Report from The Agency for International Development

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Agency for International Development.

Dr. John A. Hannah, Administrator

Irwin R. Hedges
Acting Assistant Administrator for War on Hunger



Nguyen Tran Thach of Vietnam (left) and Ebenezer S. A. Boateng of Ghana, participants in an agricultural census training course, discuss crop statistics with a Pennsylvania farmer.

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Carol H. Steele, Editor

Readers are invited to submit news items, original manuscripts (including speeches) and photos on any aspect of the War on Hunger. Contents of this publication may be reprinted or excerpted freely.

1970:

A Year That Counts

By Charles B. Lawrence, Jr.

The food-population imbalance touches every part of the earth. It is a topic of concern in most communications media, councils of government, and discussions carried on by public and private world organizations. Despite this universal concern there's an information gap. No one knows precisely how many people there are or what quantities of food are needed or produced.

But the year 1970 holds promise of major increases in the availability of information on both population growth and agricultural production. World Censuses of Population and Agriculture are being promoted by the United Nations and its specialized agency, the Food and Agriculture Organization. Cooperating with the UN in training foreign technicians to plan and direct censuses and surveys in their own countries are three U.S. agencies—the Bureau of the Census, the Department of Agriculture, and the Agency for International Development.

Bridging the Gap

Even before the close of World War II in 1945, positive steps were taken by the United States, joined two years later by the newly organized United Nations, to help bridge the growing gap between the need for and the availability of objective quantitative information. The war years revealed starkly the dependence of the developing nations and the war-torn countries on each other for much of their foodstuffs. At the same time, the developing nations generally lacked the funds, basic data, and techniques needed to make accurate measurements and projections of the nutritional requirements of their populations or of their actual consumption of foods. Neither were they able to make reliable estimates of their capacities to produce for domestic consumption or export. Many of these countries were lacking in statistical traditions. Some had never taken a census nor had a professional statistician.

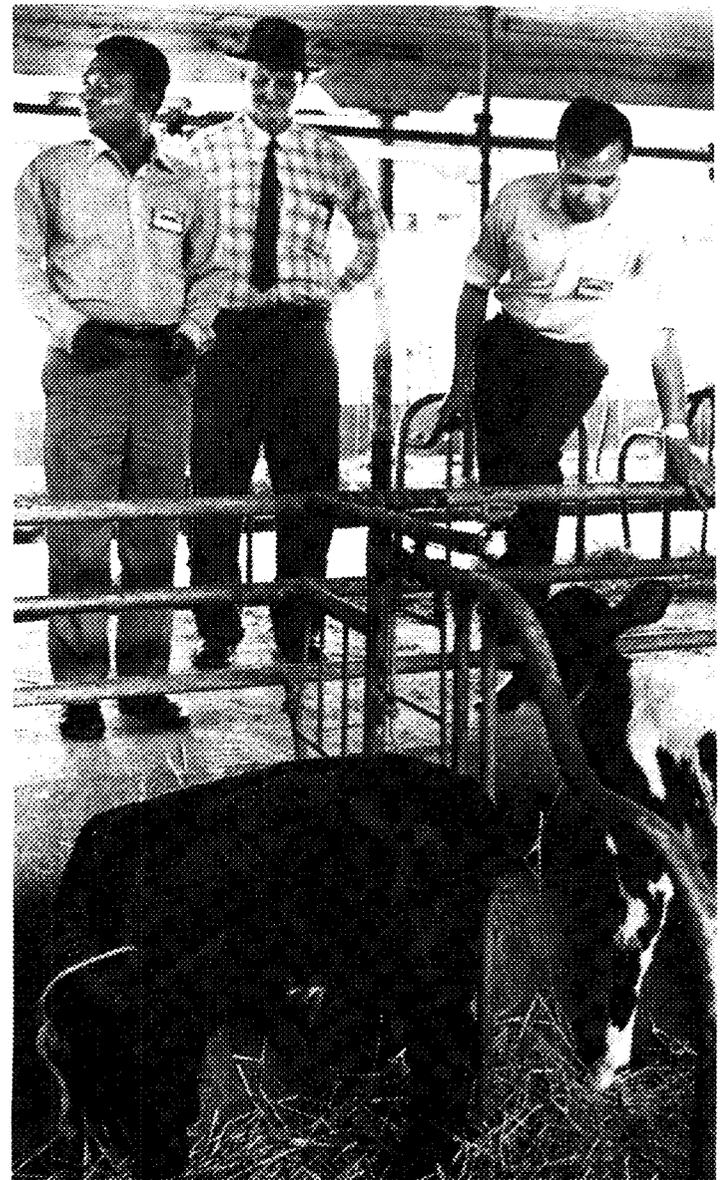
A food-population balance is sensitive to a complex of variables. Even when at peace, both the more developed and the less developed countries have experienced food distribution problems, especially during periods of economic recession or social instability. At

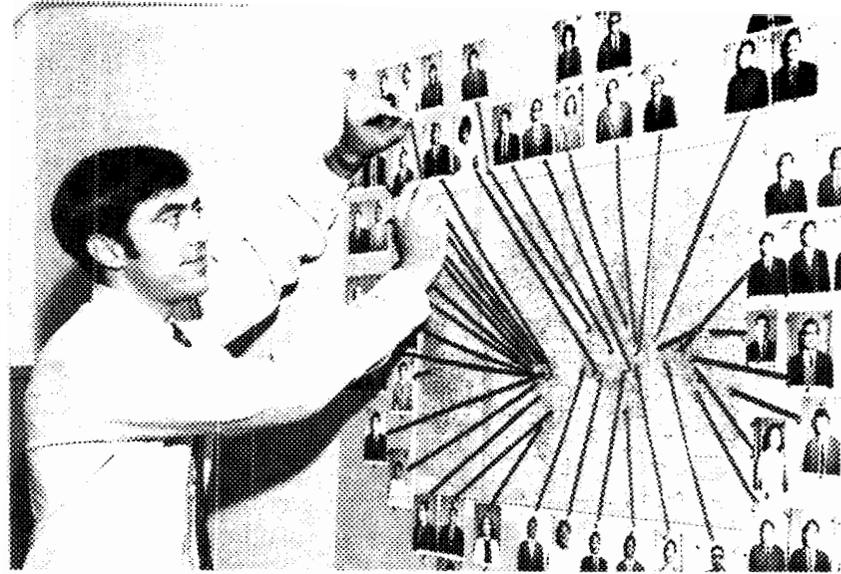
Charles B. Lawrence, Jr., is Assistant Director of the U.S. Bureau of the Census and is responsible for International Statistical Programs. Since joining the Bureau in 1960, he has served as statistical advisor to the governments of Colombia, Ecuador, Cuba, Haiti, and Korea.

certain times, harsh weather changes have reduced crop yields and caused hunger and starvation; at other times, production surpluses have adversely affected agricultural prices, domestic farm income, international trade balances, and government fiscal situations and policies.

Population change and agricultural production are affected by a wide variety of factors that are difficult to measure and must be taken into account when considering the relationship between population and food. Such factors include the presence or absence of war; public and private health practices; changes in occupational, educational, and economic status; the roles of women and children in society; knowledge and attitudes toward family planning practices; family subsidies; availability and use of foods; weather conditions; farm management

Thach and Boateng visit the barns as well as the fields in learning how to take accurate, comprehensive agricultural surveys.





George Gateswood, Bureau of the Census employe, keeps track of the 60 participants attending a recent training course on population and housing censuses.

practices and attitudes toward adoption of new methods; incentive systems operative in society; the general economic situation; local, national, and international marketing practices; availability of farm credit; developments in agricultural technology including tested applications of new high-productive grains; experimentation with quality crops that require labor-intensive cultivation; government policies on land use and agricultural reform; subsidies for fertilizers; price supports; and regulation of foreign labor among others.

Information Is Vital

What is evident in this dynamic world, in which interdependence seems increasingly interpersonal, is that a food-population imbalance is not measurable solely in terms of total population and total food supply. People and food must meet and become one if there is to be any kind of balance, and neither world nor national totals tell the story of disadvantaged people. Information is needed by local area if human needs and agricultural productivity are to be given effective attention.

Obviously, censuses don't supply the answers to all questions. They do, however, supply benchmark data about specific periods in time. They also serve as frames for current sample surveys that can cost less while using better trained enumerators to produce quickly higher quality up-to-date information. Censuses and their counterpart current statistical programs are not a luxury in a developing country; they are a necessity.

Abraham Lincoln once commented that no better means than a census has ever been devised for learning "where we are and whither we are tending." At that time, he was leading a developing nation which, though fraught with trouble, had nevertheless learned from 70 years of experience with regular decennial censuses that good decisions depend on good statistics.

Thousands of essential public and private enterprises rely on facts for their day-to-day work and their advance planning. Statesmen and legislators need facts to plan economic developments, social programs, and national defense. Business and commerce need facts to find markets and areas of labor supply. Health officials need an accurate population base to determine birth

and death rates that underlie most public health measures. School directors must know the size and location of the child population to plan education facilities and programs.

Lack of these basic data leads to government by guesswork. It discourages efforts from within to develop a country, and impedes the flow of capital, goods, ideas, and technical cooperation with other countries.

International Statistical Training

To help bridge the information gap that exists in many developing nations, the U.S. Department of State, working through the Bureau of the Census of the U.S. Department of Commerce and the predecessor agencies of AID, initiated a modest international statistical program in 1946. Its principal aim was to aid developing countries to establish their own statistical capabilities.

The Census Bureau, upon which the main burden of the program fell, was a domestic Federal agency and as such had no funds to carry on international activities. Early funds and the bulk of later finances were provided by AID and its predecessors. In recent years, other agencies and the participating countries themselves have also provided funds for the participation of their technicians in the international statistical training and workshop programs.

From 1946 to the present, more than 2,000 specialists from more than 80 participating nations have come to the United States to study statistical and census techniques. Upon return to their home countries, they have undertaken important statistical assignments to help their national progress. Some of them have organized censuses or exercised leadership in the development of current statistical series; others have become national statistical directors or have moved into international organizations where they have assisted other countries. Still others have gravitated toward administrative or executive roles in government or business.

A second phase of the Census Bureau's International Statistical Programs provides consultation services particularly for countries seeking to develop their statistical systems or take censuses for the first time. Under this phase during the past 23 years, statistical and census specialists have carried out over 400 assignments varying from a few days or weeks to regular terms of two or more years in some 80 nations to help them implement their statistical objectives and develop their statistical capabilities.

Modern Training Program

In 1967 the Census Bureau with AID's support initiated a series of projects to provide a better yardstick for measuring the food-population problem. Nearly 70 developing nations and more than 300 professionals already experienced in their own statistical specialties have participated in this program. A few have returned to the Census Bureau for second study tours.

The main goal of the new program is to establish in each nation a core of specialists capable of designing

and directing the training of the large forces of skilled personnel needed for census and survey programs in the 1970's.

Under joint sponsorship of the FAO and the U.S. Government, a specialized agricultural statistics training program is now entering its third one-year round. Specialists in the first two rounds have returned to their home countries to plan and train for the censuses they will be undertaking in or about 1970. Training in each of the one-year rounds consisted of three principal phases: a nine-month academic synthesis of statistical and census technology; a two-month study of an instructional model or case study of a mythical nation undergoing a census; and a one-month demonstration sample census in a county in the United States chosen to represent the mythical country. Yakima County in the State of Washington served that purpose in 1968, and Berks County, Pennsylvania, in 1969.

In order to provide a realistic setting for case studies in various subject fields, the Census Bureau has constructed a number of mythical nations. *Agrostan*, *New Florencia*, *Atlantida*, and *Providencia*, for example, are used in training for agriculture censuses, population and housing censuses, household sample surveys, and economic censuses respectively. Each model covered the interrelated complex of designs, estimates, and procedures that are necessary for a statistical program; they used conceptual and procedural guidelines adapted from recommendations of international and regional agencies and from the practical experiences of various nations.

Atlantida: A Household Survey

The *Atlantida* model, for example, was developed by the U.S. Bureau of the Census, in collaboration with the Bureau for Latin America of AID. Its purpose was to demonstrate how, and to what extent, a household survey program could provide statistics relevant to the objectives, plans, and programs of the Alliance for Progress. The case study was designed to be presented at workshops for statisticians who would be responsible for initiating and carrying out such surveys.

The original Spanish version of *Atlantida* was presented in Mexico City at a two-month workshop in 1965, and all or parts of the case study have since been translated into several languages, including Spanish, Portuguese, Thai, Farsi, Turkish, and Chinese.

In early societies, periods of relative plenty and famine were accepted as events beyond human control. Modern man has come a long way from that attitude. What generally sets him apart from his predecessors is the conviction that famines, epidemics, and many other disasters can be prevented or alleviated by advance planning. An essential ingredient of sound planning is reliable information.

Progress has been made in improving information sources, with more progress in some countries than in others. However, as economic and social development occurs, the demand for statistics increases and the information gap appears to be widening despite encourag-



At a recent *New Florencia* training program, Miss Janseli Eryoldas of Turkey and Abdulla Ali of Kuwait discuss modern methods for taking population censuses.

ing improvement in the organization and production of statistics. The new needs for statistics grow out of the economic and social development that statistics themselves have helped to support.

As a country develops industrially, it places higher priorities on the collection of such labor force data as information on employment and unemployment, age, sex, and marital status, educational levels and occupational skills, wages and hours of work, days lost because of accidents, etc. Such information is not called for in a traditional subsistence farming society. Similarly, although a price index may not be needed in a barter economy, it is indispensable to the operation of a market in which price is the mediator between supply and demand.

As foreign trade assumes importance in a country, a system of national accounts is needed to relate it to taxation, budgeting, balance of payments, investment, import-export policy, and other policies and actions, all of which require both benchmark and current data plus a variety of special analytical tools or statistical series.

Avoidable Errors

Simple decision errors often result from simple informational gaps. A country without good birth and death registrations has to estimate its growth rate. If it also lacks a current crop reporting system, it may export rice only to discover later that its own nutritional requirements force it to import rice, possibly at a higher price. This simple understandable mistake has been made not in one but in many countries lacking reliable quantitative information on agricultural production, inventories, price trends, and food requirements of the population. In one country a grain subsidy program, combined with the use of new high-yielding seeds and more generous applications of fertilizers, resulted in production considerably higher than estimated. This was hard on the national treasury which, in selling the grain at lower world prices, had to take a much higher loss than anticipated.

Of course, information needed by producing countries is not confined to their own supplies and requirements, but must describe the world situation as well. One

(Continued on p. 17)

AMAZING MAIZE for NIGERIA

By Henry C. Wiggin

At a time when the release of high-lysine maize (corn) varieties by some seed companies in the United States is attracting a great amount of attention among agriculturists, a high-lysine variety adapted to the tropics is being released in Western State, Nigeria.

"High-lysine" is the term used to indicate a maize variety carrying the opaque-2 gene, which changes the amino acid balance in the maize protein so that such a variety becomes approximately equivalent to skim milk in feeding value. High-lysine varieties hold great potential for improving nutrition in areas of the world where people use maize as a basic energy source in their diet and other sources of protein are in limited supply. This would include much of the underdeveloped world, and particularly Africa and parts of Central and South America.

The new varieties also offer amazing benefits for livestock production. Tests made in the United States show that swine have gained up to three times as much when fed rations containing high-lysine maize as when fed those containing ordinary maize. Indications are that when fortified with minerals and vitamins, high-lysine maize may be fed to swine as the only source of protein and energy, eliminating soybean meal from the ration.

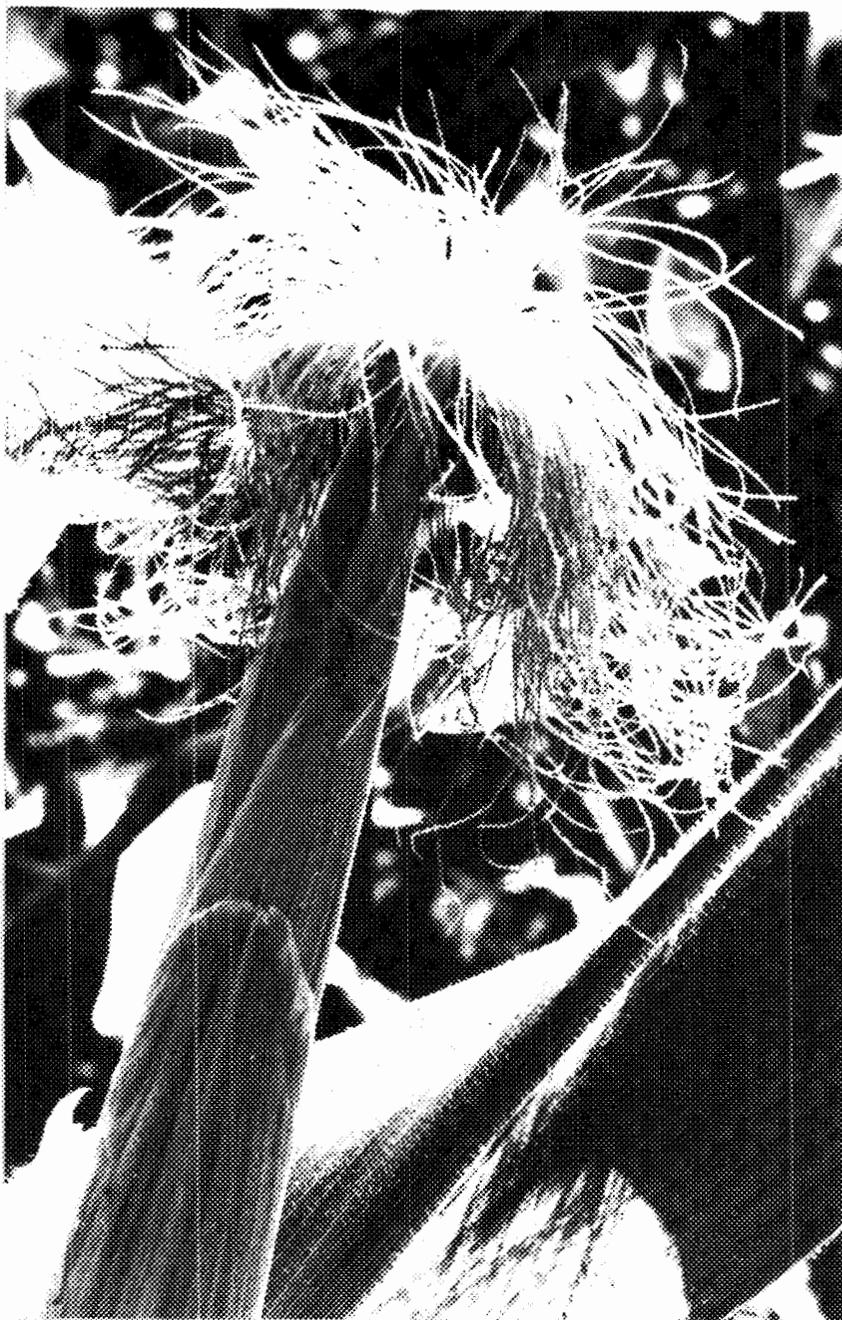
Development of Western White 1

The opaque-2 gene was brought to Nigeria in October, 1965, by E. R. Webb, an Agency for International Development Seed Improvement Specialist. Several ears containing yellow and white kernels, some with normal and some with opaque endosperm, were obtained from a maize plot at the University of Illinois by Mr. Webb while he was on home leave. Upon his return, he gave them to the Maize Breeding Section. With the help of A. O. Obajimi, a Nigerian trainee presently working toward a master's degree at the University of Wisconsin, other Nigerian workers and I started breeding tests on the maize in April, 1966, the beginning of the early season rains.

Although the American maize was totally unadapted to Nigerian or tropical conditions, the group managed to make some crosses with a number of adapted varieties. Using the facilities for irrigation at the Federal Department of Agricultural Research, Ibadan, it was possible to grow three generations a year in 1966 and 1967, so that in April of 1968, the new variety was ready for yield test and multiplication. Unusually heavy rains in Nigeria that year eliminated the yield tests, and almost eradicated the multiplication plot. However, after harvest and selection, approximately 20 pounds of seed were turned over to the Seed Multiplication Section of the Research Division.

The second season maize crop is usually planted the

Dr. Wiggin, an agronomy advisor for the AID Mission in Nigeria, is assigned as Maize Breeder to the Ministry of Agriculture and Natural Resources, Research Division, Moor Plantation, Ibadan. He served with AID and predecessor agencies in Ecuador, Bolivia, Liberia and Tanzania.





Dr. Wiggins (left) and A. C. Obajimi choose corn seed for further testing by selecting opaque kernels. The presence of the high-lysine factor is indicated by the opaque characteristic.

latter part of August in Nigeria and it is thought that planting after the middle of September is of little value because the rains do not normally last long enough to make a crop. It was impossible, however, to plant the multiplication plots until the 29th of September, very late, but the decision was made to go ahead because the need for a locally-available high quality protein source was urgent. Even at the worst, a small amount of fresh seed would be produced which could be further multiplied in the early season of 1969. To the surprise of all, the new variety, Western White 1, yielded almost one ton of seed per acre, a phenomenal yield when the lateness of planting is considered. A related, non-high-lysine variety presently recommended in the Western State yielded only 1,500 pounds of grain per acre, although it was planted in good time.

Based in part on the yield of Western White 1 in the late season last year and in part on calculations from parental performance in previous years, the yield in the major growing season is predicted to be in excess of 3,500 pounds per acre. The kernels are flat, large and well-formed, and are very uniform, although the variety is open-pollinated.

High Acceptability

Many who have been close to the work of developing Western White 1 believe that it will eventually replace all other white varieties in the Western State because of its unique qualities highly suited to traditional methods of maize preparation used by the Yoruba people in the Western State.

Maize is usually consumed in the Western State as green maize (roasting or boiling ears) and as a maize starch product called "ogi." Roasting ears, harvested early in June, are almost the first fresh produce available after the dry season and are very popular, with no preference being shown as to kernel color. However, in the utilization of dry grain, from which ogi is made, white maize is used exclusively.

Ogi is prepared by soaking dry maize in water for several days, grinding or pounding the softened kernels in a mortar, and passing the resulting mash through fine sieves with water to wash out the ground starch grains. Coarse material remaining on top of the sieves is called "chaff" and consists of bran, grits, and pieces of hard or corneous starch that escaped being finely ground. This chaff is discarded. The amount of this material varies with the amount of hard starch in the maize endosperm. A flour maize has a small amount of hard starch and thus has little chaff, while a dent type has a greater amount. Bran and grits remain approximately the same in these two types of maize.

After removing the chaff, the suspension is left for about a day, during which time the starch settles. After this period, excess water is poured off and the mass of starch is placed in cloth so additional water can drain off. The cake of starch then has a consistency similar to that of very soft modeling clay. It has a fermented odor and is sour to the taste. Ogi may be cooked with boiling water to make a thin pap used for feeding weaning children or, with less water, to form a custard-like gel with a prized sour taste.

'Ogi' Dictates Quality

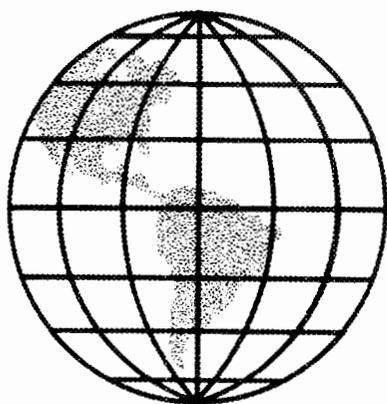
Quality of a maize variety is judged by the farmer according to the amount of ogi obtained from a given volume of dry grain in relation to the amount of chaff. A variety with a relatively great amount of floury starch in its endosperm is highly preferred. The favored local variety and one which is similar to most other local varieties in Western State is Lagos White, a floury variety first brought to the attention of farmers during an Agricultural Fair in Lagos in 1910. In laboratory tests, Western White 1 produced 23 percent more ogi and 7 percent less chaff than Lagos White.

Yields of farmers' maize are about 850 pounds per acre in the first and major season, and about 600 pounds in the second or late season. Low yields are partly due to poor husbandry and partly to unimproved varieties, but the lack of sunlight during much of the growing season is probably the most important limiting factor. In recent years, maize breeders have developed varieties which will yield about four times this average, but these new varieties have not been acceptable to the farmers because they are dent types.

Floury Characteristic

It has been most fortunate for Nigeria that the opaque-2 gene, when homozygous, not only causes a change in the amino acid balance in the endosperm, but also conditions a completely floury endosperm, exactly the type desired by the Yoruba farmer. The new variety thus unites good yield and the floury characteristics needed for farmer acceptance. The greater nutritional value will be an added attraction, although the improved quality alone would not be sufficient to cause widespread acceptance of any variety, due to a general lack of knowledge concerning nutrition.

(Continued on p. 17)



Exploring the Earth— An Unfinished Task

By Simon Baker

By the end of the 19th Century most of the continents and islands of the earth had been discovered and were known, at least in outline. Men had come to the concluding phase of a period of intense exploration which began in the 15th Century. This was a period marked by daring sea voyages and overland journeys which resulted in the discovery of new continents and peoples previously unknown to the explorers. It was during this period that the map of the world gradually took shape and the blanks were filled in with the coastal details, drainage systems, and prominent topographic features which every schoolboy now knows.

Much as we now take all this for granted, we should pause to consider that this great age of exploration was a very recent effort in the long story of man. There is a tendency to think of this period as being far back in history and that it is all over except, perhaps, for the polar regions. After all, we are now looking toward further explorations of the moon and the oceans. These spectacular efforts, as interesting and necessary as they may be, have diverted our attention from an unfinished task. That task is to take a close systematic look at the surface of the earth while keeping the needs of man always in the backs of our minds. The age of land exploration is not over; a new phase has begun. In the words of the late British Geographer, L. Dudley Stamp, "Today exploration has come to mean the more detailed study of what is already known to exist." Such detailed studies are generally lacking in the developing countries.

Systematic Survey Imperative

Not only is the closer examination of the earth's surface a logical next step in the history of man, it is also a necessity. Two circumstances of the modern world make it imperative that we survey the resources of the earth in systematic fashion. On the one hand, the spectacular growth of world population makes it necessary to increase the production of food and other raw materials needed for physical well being. On the other hand,

Mr. Baker is a Geographer with the Economic Research Service of the U.S. Department of Agriculture. This article was written expressly for War on Hunger.

changes in technology are making productive agriculture possible in places where it was previously thought to be impossible, was poor or did not exist.

There is a strong opinion that all the possible areas of good agricultural production have not yet been taken up for that purpose. The extent, nature, and location of such land is the fundamental information which must be obtained before sound economic, social, and political decisions can be made. Until this is done and measures necessary to improve and use the presently undeveloped lands of the world are determined, plans and debates about policy involving these lands will be in the realm of the academic.

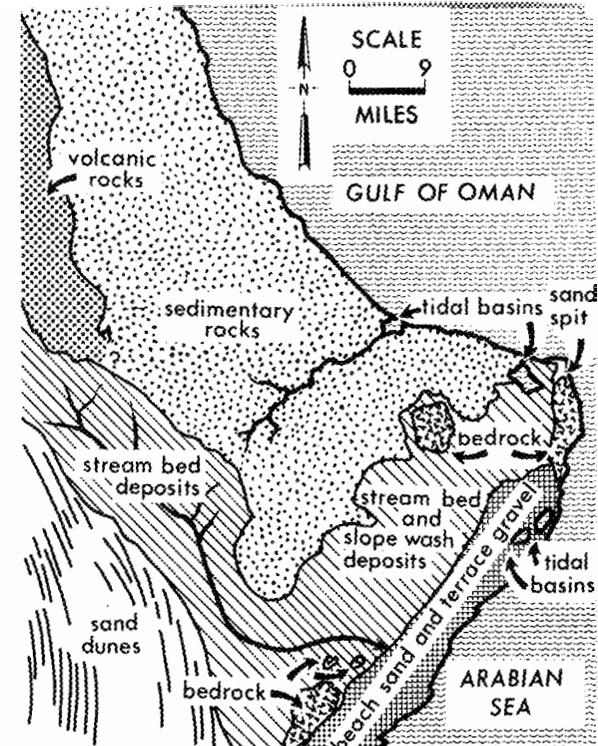
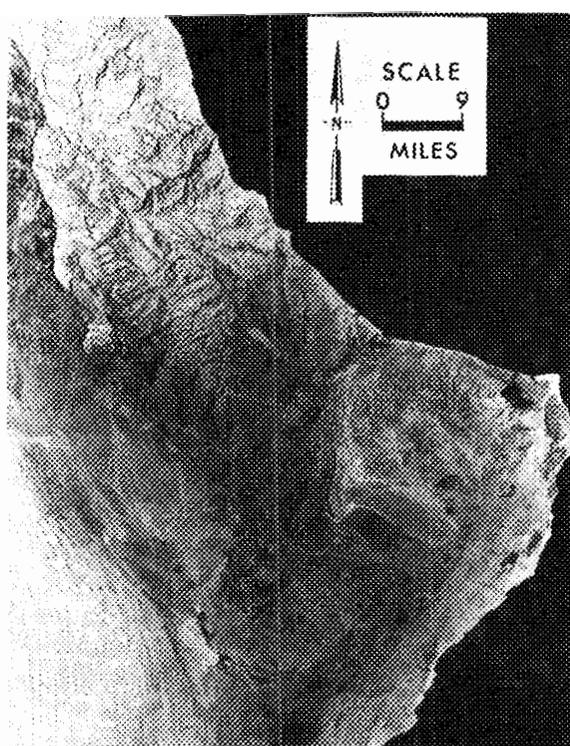
Ideally, all the countries of the world with food problems should have teams of experts working in their unused areas to make the detailed surveys necessary for rational development. This type of situation, for the



Detailed aerial photography, particularly in the developing nations, can locate land suitable for agriculture. A picture such as this offers a variety of information, including type of land, water available, crops grown, and methods of cultivation used.

Space photography is giving a big boost to exploration of the earth. This Gemini IV photo of Oman on the Arabian peninsula was taken at an altitude of 120 miles, and the geologic map interpretation was later made from it.

Photos Courtesy Geological Survey



most part, does not exist and there are two major limiting reasons why this is so. The first is that the large numbers of soils men, agronomists, geologists, geographers, foresters, and hydrologists are not available to intensively perform the necessary field studies on a world wide basis.

The second reason is that the time necessary to organize and conduct the work by traditional means is too long in the light of the urgent situation created by the growing world population. The developing countries of the world must have resources to survey information as rapidly as possible. They do not need it for whole national areas because most of them do not now have the means for simultaneously developing their entire areas. Such countries must identify their most promising and easily developed areas first. They require information to establish priorities and plan in an orderly fashion.

As population pressure and the desire for a better life have mounted in the past two decades, more and more countries have embarked on programs of development. A sense of urgency has forced the pace to the extent that projects have sometimes been undertaken without adequate information about the regions being developed. In some cases, the results have been disastrous while in others there has been something less than an efficient allocation of limited development resources. Economists have been asked to make regional and national development plans on the basis of the most meager information. The need for action is great, but the ability to gather the necessary data by traditional means is not equal to the need.

Aerial Photography

It is obvious that a new approach is essential. Fortunately the use of aerial photography is at a stage where the interpretation of photographs by specialists makes possible fast and accurate resource reconnaissance surveys. The specialists interpreting the photographs must

also conduct field work, but this aspect of the surveying is considerably reduced while the entire process is speeded up.

Except for inclement weather, aerial photography can be flown at will and quickly over large expanses of the earth's surface. From such photography it is possible to extract considerable detail about man-made objects as they are usually shown on topographic maps. It is also possible, with some ground checking of locations and elevations, to produce very accurate topographic contour maps. Drainage systems show up clearly on most photographs. Natural vegetation is clearly visible except for some instances where a tree canopy may obscure an understory of smaller growth. The geomorphology of an area photographed is clearly visible and may often be seen more advantageously on the photographs than on the ground.

Geological Detail Visible

Much purely geological detail is also visible. Hydrologists have an unparalleled view of possible dam sites and locations of channels for the movement of water. Soil scientists have found aerial photography to be very useful in conjunction with ground surveys as an aid in drawing boundaries between kinds of soils. The scale of the photographs and maps produced from them may be easily controlled and fitted to the needs of the survey. In general, the larger the scale the greater the detail possible on the finished survey.

Development workers around the world will appreciate the value of being able to quickly obtain the kinds of information listed above using small numbers of specialists. The fact is that such information has never been collected and mapped over large portions of the earth's land surface. For example, a fundamental project like a 1:1,000,000 International Map of the World, proposed in 1891 and seriously undertaken in 1913, is not yet completed. This is a small scale topographic map at approximately 16 miles to the inch. Larger scale

topographic map coverage of the world is very spotty and even the United States is not yet covered at a scale 1:62,500 (1 inch = approximately 1 mile).

Topographic maps represent basic information necessary to any kind of economic development and are lacking at appropriate scales in many of the world's developing countries. Maps of soils, vegetation, geology, and land use may be available for some of these countries, but they are frequently at small scales and may be based more on conjecture and surmise than on field observations. The identification of the best areas of possible development, the planning, and the operations necessary to bring these areas into production, depend heavily on the availability of such maps at the appropriate scales.

National Indexes

To illustrate what can be done to facilitate the identification and development of lands that are presently unused, here are examples of several recent activities. The Organization of American States of the Pan American Union, through its Department of Economic Affairs, has recognized that an inventory of existing information is an essential start in the development process. This has taken the form of annotated indexes for all of the member OAS countries but Cuba. Each national index is in the form of an atlas showing the extent of coverage of the country at various scales by aerial photographs, topographic maps, geologic maps, soils and land capability maps, and vegetation, ecology, land use, and forest inventory maps. Information about the origins, locations, and availability of the aerial photographs and maps is also included.

The Engineer Agency for Resources Inventories has gone a step further by identifying and assembling source materials and also compiling new maps in atlas form using these materials. The Agency is part of the U.S. Army Corps of Engineers and has been working closely with the U.S. Agency for International Development. A series of atlases of Central American countries has been produced with each bearing the title "National Inventory of Physical Resources." Work is also under

way to produce a "Lower Mekong Basin Resources Atlas."

Both of these types of effort are frequently necessary first steps in resources development work because they later save time and energy while preventing the duplication of information gathering efforts in a given country. Once this type of information is assembled it becomes clearer which parts of a country require further study. These are usually the least used and most thinly populated areas. It is in such areas that the use of aerial photography can be most productive. The examination of aerial photographs by agronomists, geographers, foresters, geologists, and others can lead to the selection of what appear to be the most promising areas for more detailed examination and future development.

An example of this approach is the series of resources surveys of the major river basins of Ceylon, initiated in 1955. This was a joint Canadian-Ceylonese effort carried out under the Colombo Plan Administration. The purpose of each river basin survey was to provide an inventory of land and water resources, to evaluate their potentialities for development, to prepare a tentative plan for their future use, and to indicate the additional surveys and studies that would be required before individual development projects were undertaken. The geology, landforms, soils, land use, forest cover, and hydrology of each river basin were inventoried and mapped by teams of specialists relying on a combination of aerial photographic interpretation and ground survey techniques. As an example, the entire basin of the Mahaweli Ganga river system of 4,023 square miles was surveyed in 1958 by a team of 25 men. A completed report was published in 1962.

Resources Surveys

In Australia, the Commonwealth Scientific and Industrial Research Organization has used aerial photographic interpretation and field reconnaissance to determine the agricultural potential of more than 600,000 square miles of relatively undeveloped area. Specialists have carried out this work since World War II.

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Infrared photography captures details not shown in other photos. This picture shows the extent of salt water intrusion in an estuary.

SHORE LINE

INSTRUMENT EFFECTS

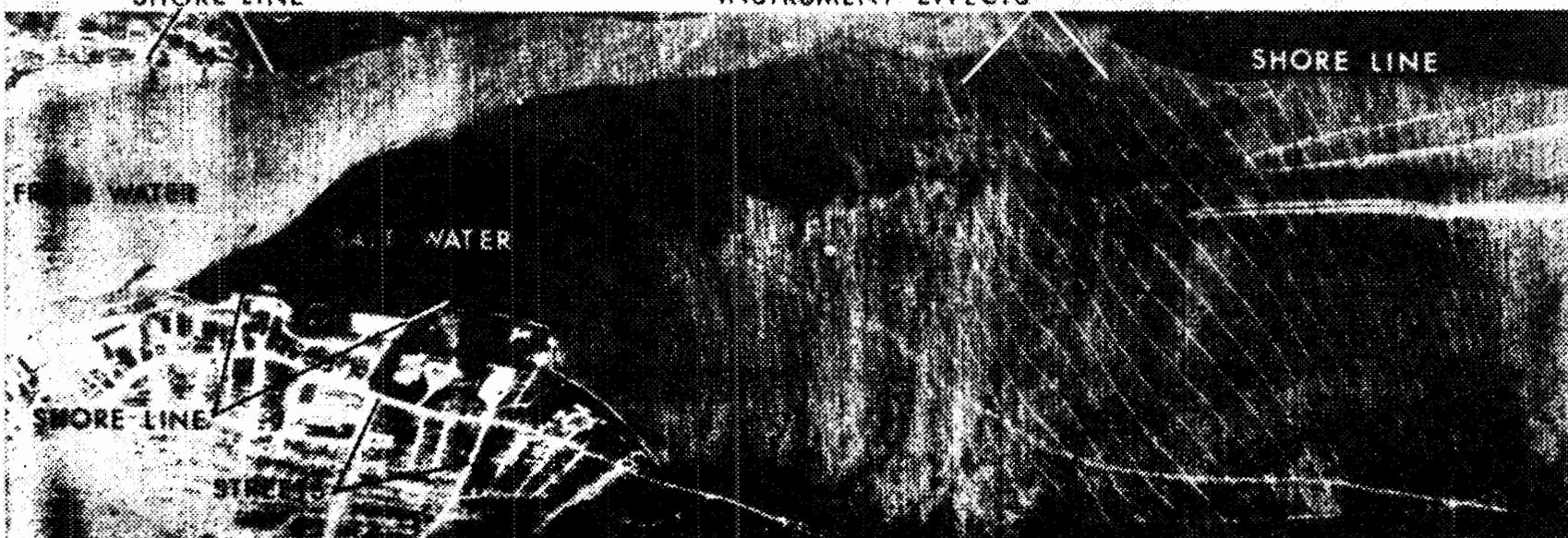
SHORE LINE

FRESH WATER

SALT WATER

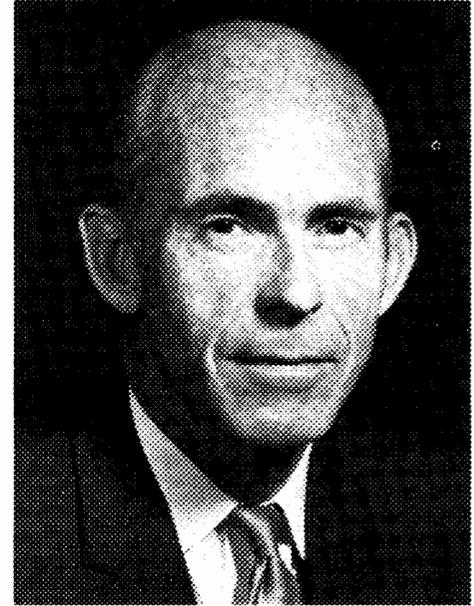
SHORE LINE

STREET

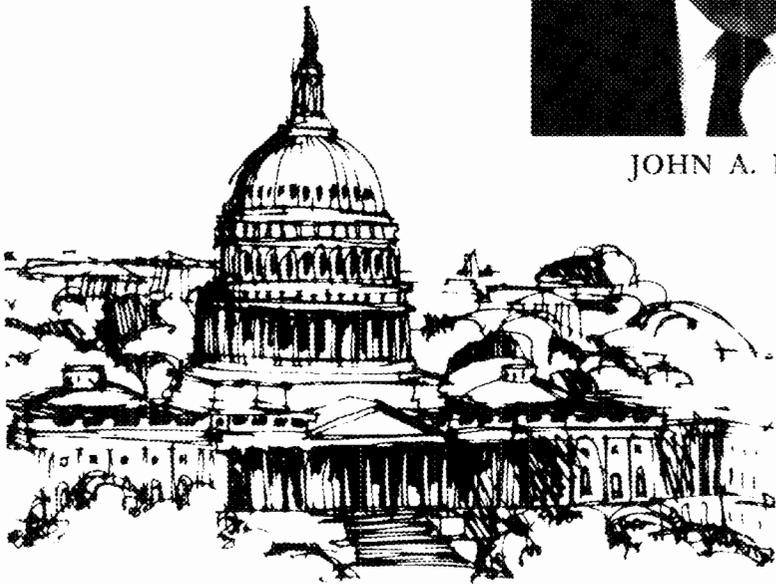




JOHN A. HANNAH



JAMES R. FOWLER JR.



In the past two issues, War on Hunger has published excerpts of testimony presented by AID and State Department officials to Congressional committees. Following are portions of significant statements presented recently by Dr. John A. Hannah and James R. Fowler Jr.

WAR ON HUNGER on the Hill

John A. Hannah, AID Administrator:

Despite the less developed countries' more effective use of development assistance and the successes that have been achieved, development assistance today is not available in the amounts required to seize the opportunities for more rapid progress.

In Fiscal Year 1969, \$765 million for development loans was requested. Only \$300 million was appropriated. Some of the principal effects were these:

- Our India loan program was cut in half—a reduction of over \$200 million. This followed a deep cut the preceding year and was compounded by the shortage of International Development Association loan funds. The Indian Government was forced to restrict imports and cut back its investment program, thereby limiting industrial production and employment. We also were unable to make in FY 1969 a loan to help finance a joint Indian-American Cooperative fertilizer plant.

- AID development loans for Pakistan were cut from \$177 million to \$71 million. Potential project loans of \$37 million were eliminated. Here also, the government imposed rationing on industrial goods imports and cut

(Continued on p. 20)

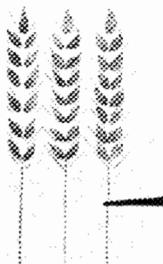
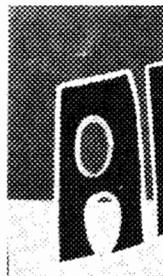
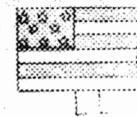
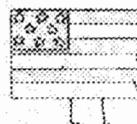


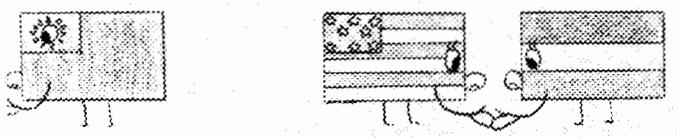
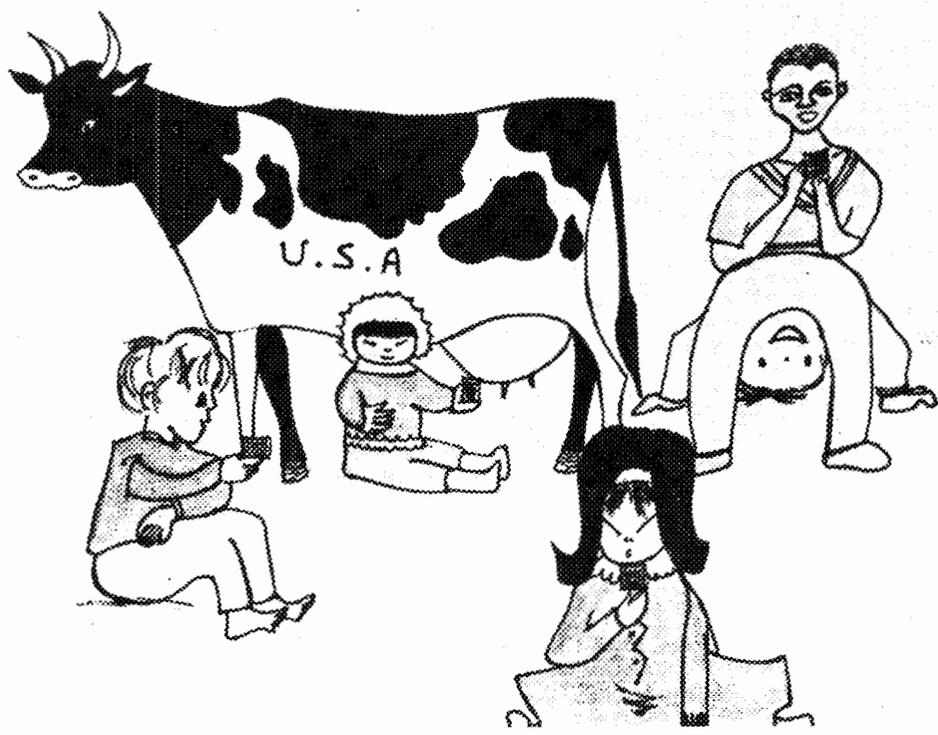
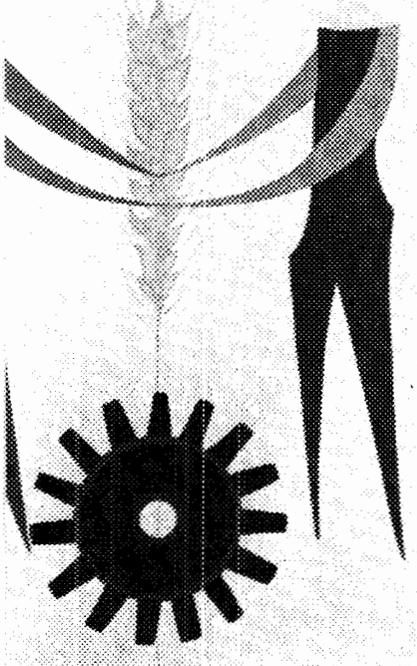
'AMERICA HELPS'

Photos by
Jo Boon

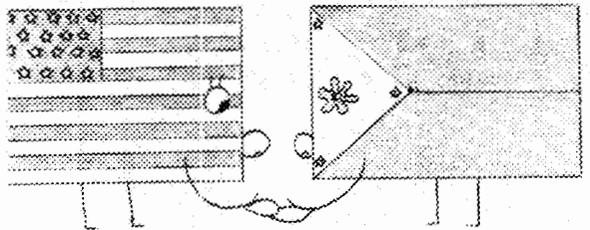
Disgusted by what he considered exaggerated criticism of the United States, a Belgian businessman last year decided to do something "to draw the attention of our young people in Flanders to the help given by America." Pierre Beeckman, owner of an antique shop and art gallery in Ghent, organized a special exhibition of children's drawings on the theme: *America Helps*. Hundreds of drawings came in from children all over the country, and at the request of former Ambassador to Belgium Ridgway B. Knight, Mr. Beeckman sent photographs of some of them to *War on Hunger*.

"The competition itself came into being as a reaction to the mass of criticism being thrust at the United States of America," said Mr. Beeckman in the preface to a booklet about the exhibition. "The man who sits back and does nothing is not likely to meet much opposition; but it is quite normal for a world power like the U.S.A. to evoke a lot of criticism. What seems less normal is the fact that in the midst of all this criticism, it generally seems to be forgotten that not only we but the whole world owe so much to the U.S.A., which is always ready with help when it is needed in every part of the globe and shortly, no doubt, in space as well."

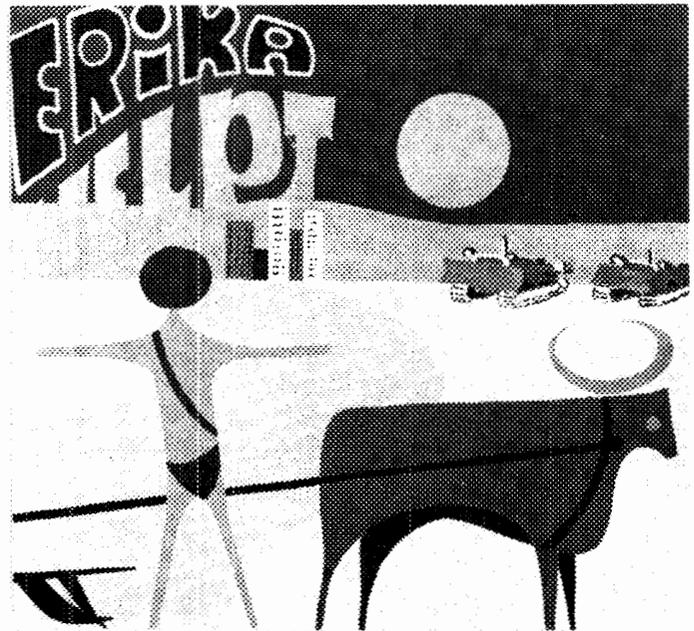
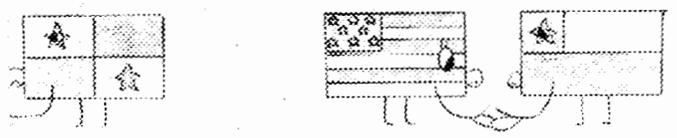




NIKA HEeft VRIENDSCHAPSBETREKKINGEN



MET ONTWIKKELINGSLANDEN





Doctor at a Bangkok hospital discusses family planning with a new mother.

THE TECHNICAL FRONT

Family Planning Via the Postpartum Approach

By Gerald I. Zatuchni, M.D.

Family planning programs are appealing to mass audiences through circulars, group discussion, magazines and radio in many areas of the world. However, the message carried by these general programs usually reaches highly motivated individuals of older age with many children. In any population a substantial number of women—generally characterized as highly fertile, possessing little or no education, under 25 years of age and poor—repeatedly start one pregnancy shortly after completing a previous one. Many of them wish to avoid further child-bearing but do not know how. Since a large proportion of unwanted pregnancy is probably due to these women, a selective family planning program directed to them could bring significant results.

It has been determined that without contraception and without lactation, approximately 80 percent of married fertile women will conceive again within a year following delivery. The action potential becomes obvious. These women must be reached immediately after pregnancy. The more time that elapses following pregnancy termination, the greater the likeli-

hood of subsequent pregnancy and the less the opportunity for contraception.

Concerns During Pregnancy

In the first three months of pregnancy, if the pregnancy is a desired one, the woman is mainly concerned with the early symptoms of pregnancy and with questions relating to whether or not she will be able to carry the pregnancy through the nine months. Her concerns are with the present and her future interest in family planning is minor or nonexistent. If the pregnancy is an undesired one, her thoughts may be about seeking ways and means of terminating the pregnancy.

In the second three months, the woman has become confident that the pregnancy will continue and during this period she is mainly concerned with plans for her child with her own physical complaints, such as backache, headache and fatigue. Here again, she looks little further than the coming delivery. Her interest in family planning at this time is quite naturally minor.

In the last three months of pregnancy, the woman is mostly concerned with the actual delivery procedure itself. Will it be difficult or painful? Will the baby be normal? Will it be a boy or girl? Again, her future considerations are

Dr. Zatuchni, a member of the staff of The Population Council, has been Director of the International Postpartum Program since its inception. He left the program in July for a one-year residency in India, where he will coordinate a considerably expanded Indian postpartum program involving about 50 hospitals throughout the country. He wrote the accompanying article for War on Hunger.

short-run and her interest in family planning not paramount.

However, immediately upon delivery of the baby if one were to ask new mothers the question, "When would you like to get pregnant again?" most would reply "Never again!" Indeed, this point was recognized over 3,000 years ago. The Babylonian Talmud ordained that following childbirth a woman must bring a sacrifice to the Temple in order to absolve herself from the impetuous oath—not to have intercourse with her husband—that she swore while kneeling in labor.

Accordingly, this period following termination of a pregnancy may represent her peak of motivation for family planning. If, as usual, nothing is said to the woman or no advice given, her motivation for family planning begins to decrease as the months pass, and in time pregnancy occurs again.

This peak period of high motivation, termed the postpartum period for the three months following delivery or abortion, constitutes a significant time during which women can be easily approached concerning future childbearing. It also offers unique opportunities for reaching women in a systematic manner. The pregnant woman can be identified by a nurse or midwife or doctor and following delivery, contraceptive education and services can be provided should the woman so desire. This assumes that some supervision of pregnancy and delivery is available.

Most Deliveries Supervised

In how many countries are women seen by physicians, nurses or other health personnel during pregnancy and during the postpartum period? In the developed countries almost all pregnancies and deliveries are supervised. In the developing world, too, at least in the urban centers, maternity care is largely institutionalized or at least supervised at home by trained persons. For example, in Caracas, 99 percent of all deliveries are in hospital; in Hong Kong, 98 percent; in Manila, 78 percent; in Singapore, 78 percent; in Nairobi, 50 percent; and in New Delhi, 35 percent, with an additional 48 percent as supervised home deliveries.

In the developing countries where the care of pregnant women has been somewhat neglected, there are now emerging high priority plans to establish centers for maternal and child health. These centers are being established in rural as well as in urban areas. The already existing obstetrical hospitals and maternity clinics would

seem to be the most likely and pertinent place for the development of an educational and service system concerned with family planning. In a well organized maternity service, patients can be contacted through the ante-partum clinics, while they are in the lying-in period, and when they return for their six-weeks postpartum health visit.

The concept of integrating family planning into the maternity services of a hospital or similar institution is not new, at least not in the private practice of medicine, but this approach to contraception has largely been denied to indigent women. To demonstrate the concept and bring it into focus, the Population Council organized and supported a program now called the International Postpartum Family Planning Program. The first phase, begun in early 1966, aimed to provide family planning information and services to urban women of low socioeconomic status in settings where obstetrical deliveries occur in public hospitals.

The program included 26 hospitals in 19 cities in 15 countries around the world. A wide range of cultures was purposely selected in order to demonstrate the universality of this approach. Several major religious groups are included—Hindu, Buddhist, Moslem, Catholic, Protestant, and others. Four hospitals are located in Latin America—in Puerto Rico, Mexico, Venezuela and Chile; eight hospitals are in the Far East and Southeast Asia—in Japan, Singapore, Hong Kong, the Philippines and Thailand; seven hospitals are in the Middle East—in Turkey, UAR, India, Pakistan and Iran; and seven hospitals are in the United States.

The world's three largest maternity centers are included in this program—the Kandang Kerbau Hospital in Singapore, the Maternidad Concepcion Palacios in Caracas, and the Farah Maternity Hospital in Teheran. Each of the three largest hospitals bring into this world about 100 babies every day of the year!

How the Program Operates

The program operation is simple:

1. The participating hospitals have undertaken to inform each delivery and abortion case, by individual and/or group talks supplemented by visual aids and other means, that family planning is possible, safe and effective; that family planning services are available through the hospitals' postpartum service; and that a range of contraceptive methods is available.

2. Those women who do not return for the postpartum health checkup, particularly those who had expressed an interest in family planning, are followed up by mail, phone, and/or personal visits, as appropriate, by a social worker or equivalent person.

3. The services, including such supplies as pills, IUDs, and other traditional methods, as well as the indicated medical follow-up are provided free of charge.

4. Since any such program would almost surely set up an informal network of word-of-mouth communication that would bring others to the clinics—friends, relatives and neighbors—these people are also accommodated and the women in the delivery wards informed to that effect.

In this program the talks are usually given by a trained nurse or trained social worker and, in some cases, by physicians. Patients are seen at the bedside and, if interested, are invited to attend group talks. In many hospitals educational services are provided on an individual basis. In addition to these talks, group sessions are held at the time of the postpartum health visit.

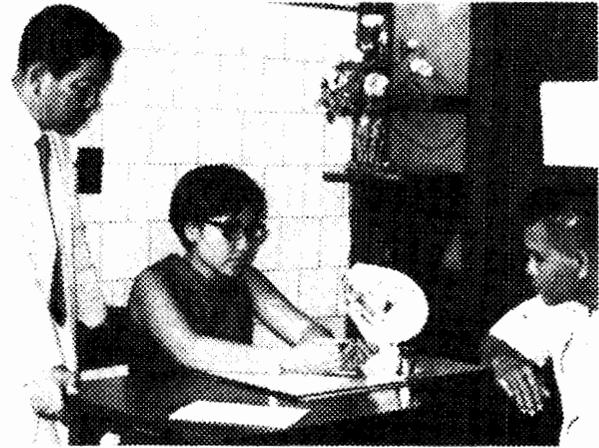
Results

In the first 24 months of operation, more than 236,000 acceptors of family planning have been enrolled. These are women who have actually started to practice contraception, not those who merely intend to do so.

In the non-U.S. hospitals, the estimated community target population is 1,870,000 women. This figure represents the estimate of medically indigent, married women of reproductive age eligible for obstetrical care at the particular hospitals. From this community target population, 509,000 women were admitted to the hospitals for obstetrical delivery or abortion management and 43,748 accepted contraception (mostly IUD) before hospital discharge. Additionally, 60,625 women accepted contraception at the time of the six-weeks postpartum visit. Further, 95,831 women not recently pregnant came to the hospitals from the communities and were started on a contraceptive method. Accordingly, the ratio of total acceptors to hospitalized cases is 1:2.5.

Follow-up surveys through home visits indicated that 82 percent of the acceptors were continuing with either the first method selected or a substitute method at 18 months following initial acceptance.

Analysis of characteristics of acceptors shows that these women are of relatively young age



Husbands pacing the corridors waiting for a new arrival are given family planning counseling in Manila.

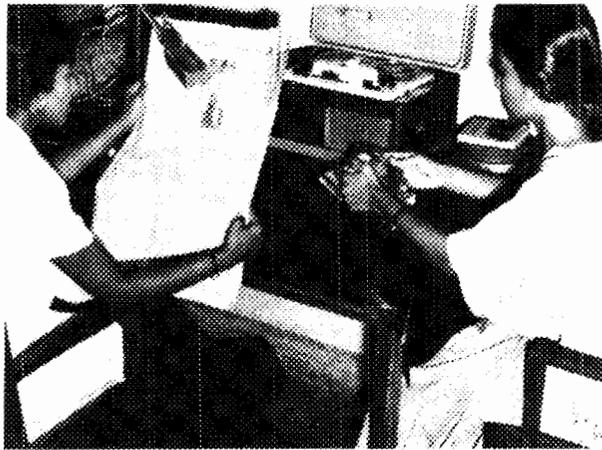
and have few children. Additionally, about one-third of the acceptors still desire more children at some future time, indicating that these women have accepted on a basis of family spacing rather than for family limitation. One-third of the direct acceptors and one-half of the indirect acceptors reported having used some form of contraception in their last year of need, although most methods reported were ineffectual, so that there is a net gain in substituting effective methods for less efficient ones.

Cost analysis indicates that a hospital approach to family planning is at least as efficient, if not more so, than other more general programs. At an approximate direct cost of \$1.25 per hospitalized obstetrical/abortion case in the non-U.S. programs, over 200,000 women have accepted a contraceptive method—a cost per acceptor of \$3.20.

As the postpartum program makes use of already available space, equipment, staff in-training and volunteer personnel, its costs cannot be equally compared with the operating costs of independent family planning clinics. However, the emphasis here is that program planners should consider implementing effective family planning efforts in already existing hospitals or MCH clinics as a first step before proceeding to the more expensive approach of "free-standing" contraceptive clinics.

Pregnancy Complications

It has been demonstrated that there are definite maternal and infant hazards when a woman has too many children too frequently. This is particularly so in the developing areas of the world where maternal nutrition is sub-standard. Many studies have shown that pregnancy com-



Public address system pipes news, music and family planning messages into the hospital wards.

plications occur with greater frequency in women who have more than five children. Hemorrhage, infection, abnormal labors, ruptured uterus and death all increase with each subsequent pregnancy after five. The chronic drain of nutritional elements leads to iron deficiency anemias, protein disturbances and other deficiency states. Infants born too rapidly in succession tend to weigh less and have greater nutritional problems, partly due to the lack of adequate breast feeding.

Medical Care Important

Medical care and physician responsibilities for pregnant women do not cease when the woman leaves the hospital. On the contrary, good medical practice dictates that the woman be seen four to six weeks after the termination of pregnancy to make certain that the pelvic organs have returned to a state of "normalcy," and that the stresses of pregnancy have not caused any abnormalities. Additionally, many disorders are masked by the pregnancy and are only discovered at this postpartum examination. Unfortunately, in most developing countries, women do not return to the hospital to receive this essential health checkup. They too often believe that the termination of pregnancy represents the termination of care and they are not seen again until the next pregnancy.

Postpartum return visits average 15 percent in most countries. Returnees are mostly women with severe complications, such as infection or bleeding. Since the institution of the postpartum program, in which women are told prior to leaving the hospital that they can obtain contraceptive services when they return in four or six weeks, postpartum visits have markedly in-

creased. In 14 hospitals the return rates have doubled. Sixty-five percent of women returning for a postpartum visit accepted contraception. All women returning for contraception also undergo a medical examination. Thus, the "wanted" service of contraception leads to the "needed" service—the postpartum health examination.

Contraceptive Methods

All modern methods of contraception have been used in the program, including some that are still in the research category. Major methods are IUDs (44 percent) and oral contraceptives (31 percent). The use of oral contraceptives has increased during the later months of the program, mainly due to AID assistance and free supplies. Female sterilizations accounted for 9 percent of all methods accepted, both in the United States and in the non-U.S. hospitals.

One interesting approach to contraception has been the immediate postpartum insertion of an IUD—immediate meaning before the patient is discharged from the hospital. Over 26,000 women have had insertions in this manner, and the results are good. The incidence of complications and side effects with this approach have been minimal and the method is being continued at all the member hospitals. The advantage of this technique is that women have a high degree of protection that will continue well past the time when lactation ceases and ovulation returns. Given the low rate of return postpartum visits, the acceptance of contraception prior to discharge becomes even more important.

Recently, some physicians have begun prescribing oral contraceptives for postpartum women prior to discharge from the hospitals. In several hospital studies, we have found some disadvantage to using oral contraceptives during the immediate postpartum period because of suppressive effects on lactation. In those areas of the world where women cannot obtain supplementary feedings, oral contraceptives given too early may prove to be harmful to nursing infants. However, the recent development of low dose oral contraceptives without added estrogen may do away with this disadvantage.

In some hospitals, a program of monthly or three-monthly injections of hormones seems to be an effective contraceptive technique. Of course, this means that the patient must return to the hospital every four to ten weeks for her injection, but certain women are able to do this and the method does have promise.



Interested Indian mothers register for a special family planning clinic in New Delhi.

Several programs do not ignore the husband, but provide information, literature, talks and movies to the men while they are waiting for their wives to deliver. Additionally, during visiting hours in five hospitals, husbands are encouraged to attend male contraceptive classes. Seven hospitals even distribute condoms free or at little cost.

Expanded Postpartum Program

The Population Council, with substantial financial assistance from AID, has begun the second phase of the effort—an expansion to many more hospitals in the same and other countries. To implement this expanded program the Council sent an inquiry on institutionalized maternity care to qualified informants in 50 developing countries. We were interested in determining the approximate number of births, the extent of supervised maternity care and the level of family planning procedures currently in use at these institutions. Thus far, 38 replies have been received and the findings are quite interesting.

In most countries questioned, a surprisingly large percentage of births are supervised—20 to 40 percent and in some, even higher. Of course, there are several areas of the world where as much as 90 percent are unsupervised, but this situation seems to be changing as governments

begin to expand their maternal/child health services. Where supervision of births exists, it occurs primarily in a few hospitals. For example, in Colombia, the total number of annual births is 780,000 and about one-third of them are supervised. About 140,000 births (or 20 percent of total births) occur in only 12 hospitals. Similarly, in Thailand, over 40 percent of all supervised births occur in only 5 hospitals. In Ceylon, 95 percent of all births are supervised, and 65 percent of those occur in 22 hospitals.

An excellent opportunity exists, therefore, to reach a significant proportion of women of reproductive age in many countries through the support of large maternity-family planning services. When this service is provided, women will avail themselves of the offer and inform their friends and neighbors. A large number of women from the community can be expected to appear at the hospital for contraception.

A good example of what can occur is the experience at the Chulalongkorn Hospital in Bangkok, Thailand. This clinic, after only one year of operation and without outside hospital dissemination of information, was able to enroll women from 54 of the 71 provinces in all of Thailand. Some women, hearing of the available service, came from as far away as 300 miles.

Effective Systematic Approach

The second phase of the program is well underway and will soon include about 200 hospitals in 25 countries of the developing world. The expansion has assumed two lines: (1) enlisting the support of single, large maternity hospitals in "new" countries—for example, Ghana, Nigeria and Honduras; and (2) the establishment of multi-hospital programs within a country—for example, 18 hospitals in Colombia, 11 hospitals in Venezuela, 22 hospitals in Pakistan and Ceylon, 10 hospitals in Thailand and 50 hospitals in India.

Although these hospitals are mainly located in urban areas, the postpartum approach to family planning can be established in rural areas as well through the organization of primary health centers, rural sub-stations and maternal/child health clinics. By so doing, we can be assured that a systematic approach to potential acceptors of contraception will exist, and women who wish to have contraceptive advice will find the service available. The integration of family planning with maternity care will probably prove to be one of the most effective long-term approaches to the major problem of excess population growth.



1970: A Year That Counts—from p. 3

major wheat growing country has become keenly aware of the fact that the Green Revolution may not only depress its current prices but may also permanently reduce its export markets. This experience is directing increased attention to the use of wheat for feeding cattle and for industrial purposes. In all such shifts of emphasis, however, the food-population problem may be affected, and judgments made in the absence of good basic and current statistical information may be subject to costly decision errors.

How well does the training program relate to the statistical problems of developing nations? Dr. Salem Emadi of Afghanistan, Technical Director of the Population Census Office, who studied for a year at the U.S. Census Bureau during 1968 and 1969, remarked regretfully that "at present my country does not have a central statistical office, but it is planned that such a department will come into being in Afghanistan in the near future. Our present statistical system is based on our country's administrative system. It has 28 provinces and each province has its own Directorate of Statistics . . . Establishment of a central statistical office will be

very important to Afghanistan because it will bring coordination among the different statistical organizations.

"We have now established in my country basic population data such as identifications, job status, education, immigration, and health status. Agricultural survey data also exist but our plan is to establish the 10-year population census and put the agricultural survey on a two- or three-year basis.

"The application of the standard models—*Atlantida* and *New Florencia*—to Afghanistan will have to be modified, of course, because of the differences in geography, education, and administrative system, but their similarities identify sufficiently and reasonably with the conditions of my country to permit effective use."

The training programs of the Census Bureau, supported by AID and conducted cooperatively with other national and international organizations, seek to equip foreign statisticians and data processing technicians with the most essential practical skills of their profession, and to return them to their countries to organize and carry out the statistical programs which in the course of time may bridge the information gap. 

Amazing Maize for Nigeria—from p. 5

The maize breeding unit has had a number of inquiries concerning availability of this high-lysine variety from agencies involved in refugee relief, and we have been assured that the Ministry of Agriculture and Natural Resources will make a quantity available for planting in war-devastated areas under the control of Federal Nigeria. Although rainfall characteristics are somewhat different from those of Western State, Western White 1 should do well. It will serve as a very valuable source of high quality protein, especially when eaten green, as we expect it will be.

People in the war-affected states are familiar with using maize so there is no barrier to break down to encourage them to eat it, as there is with some foodstuffs imported for relief. As the war areas become more secure, farmers are beginning again to farm their land and are being assisted wherever possible through the distribution of agricultural tools and seed.

With this in mind, suggestions are being made for rapidly increasing the effect of the high-lysine variety even though quantities are limited.

Pollination of a high-lysine variety by pollen from an ordinary maize plant produces an effect visible in the harvested seed. Pollination of an ordinary plant by a high-lysine variety also produces an effect, although not visible, on the amino acid balance of the endosperm protein. These effects are known to scientists as "xenia". Thus, a planting method may be devised to take advantage of this phenomenon and increase the amount of lysine produced per acre. The method involves planting alternative rows with any ordinary maize, provided flowering time is about the same as the high-lysine variety; the effect may be further exploited by planting two rows of normal maize to one of high-lysine.

At flowering time, the one or two rows of normal maize would be detasseled by the farmers, with minimal supervision by agricultural field overseers. These field men are presently available. The high-lysine maize, which is not detasseled, will produce kernels with the maximum amount of lysine, while the detasseled normal plants would be pollinated by the high-lysine plants and their kernels would have the lysine content increased by approximately one-third of the difference between normal and high-lysine varieties.

As an example, if a high-lysine variety will produce 13 pounds of lysine per acre, and a normal variety with the same grain yield, 10 pounds of lysine, the normal pollinated by a high-lysine variety could be expected to produce 11 pounds of lysine. This is known as the dosage effect of a gene, and the method of planting will be familiar to plant breeders as a top cross.

If mistakes happen, and it is almost certain that some will occur, so that not all the normal plants are detasseled, high-lysine plants pollinated by normal pollen will still have two-thirds of the difference between high and normal lysine contents. If the whole system breaks down, the lysine yield for the whole field would still show a net gain.

Research work to further improve high-lysine varieties and thus add protein to the diets of many Nigerians has not ended with the release of the first variety. A second high-lysine variety is expected to be ready in 1970. This new variety will carry more resistance to southern maize rust than Western White 1 and, according to yield prediction tests, will yield at least 20 percent more. Composite varieties with high levels of resistance to rust and blight, and with even greater yield potentials are still about three years off. 

QUOTES

"Essentially, business is business. Its purpose is profit. The largest single deterrent [to investment in developing nations] is the unlikely short term profit potential.

"There are a series of specific deterrents:

"1. The relative instability of government, and particularly the instability of government policy, increases the risk factor and inhibits long-term projections . . .

"2. The free movement of products between countries, even within an economic region, is so restricted as to limit the use of comparative economic advantage in making available low cost nutritive products . . .

"3. The educational level of the people in many of the less developed countries makes more difficult the adoption of modern methods of food production, processing and distribution . . .

"4. A large percentage of people in developing countries live outside a market economy . . .

"5. Less significant as an actual deterrent, but still the element probably most discussed, is the myriad of shortages in the countries of proposed operation."

Richard W. Reuter
Director of Area Development
Kraft Foods
in Ceres, the FAO Review
March-April, 1969

* * *

"Food is only one of the elements in the population problem. Admittedly, at present, it is a major factor in some parts of the world; but there are large areas where the national food supply is a minor factor and others where it is not a factor at all. Furthermore, considering the world as a whole, there is no evidence that the food situation is worsening and there is at least a likelihood that food may at sometime (20 or 30 years

from now) be removed altogether as a limiting factor to population.

"Yet, to deny that the population problem is basically one of food for survival is not to deny that there is a population problem; it is in fact to remove the appearance of a safety valve and also to reveal the problem in its generality.

"There is a strong case to be made for a stringent population policy on exactly the reverse of the basis Malthus expounded. Malthus was concerned with the steadily more widespread poverty that indefinite population growth would inevitably create. I am concerned about the areas

of the globe where people are rapidly becoming richer. For rich people occupy much more space, consume more of each natural resource, disturb the ecology more, and create more land, air, water, chemical, thermal, and radioactive pollution than poor people. So it can be argued that from many viewpoints it is even more urgent to control the numbers of the rich than it is to control the numbers of the poor."

Dr. Jean Mayer
Chairman, President's
Conference on Nutrition
Columbia Forum
Summer, 1969



IN BRIEF

Gift Will Help Indonesians

Who says AID has no friends?

Occasionally, children who want to help children in other countries send small gifts of cash to the Agency for International Development. At other times donations of clothing or equipment are received. But the pale blue, hand-addressed envelope recently delivered to the Office of the War on Hunger contained a real surprise—a personal check for \$500!

A note accompanying the check read:

"I hope this will help in some important way toward your self-help programs in underdeveloped countries."

A call to the Santa Barbara, Calif., home of the donor, who wished to remain anonymous, revealed that the gift was inspired by an article on the self-help Food for Peace program in the June issue of *War on Hunger*.

A wide variety of programs in a number of developing countries were considered in an Agency search for an appropriate self-help project to receive the contribution, and a project for impoverished Indonesian farmers was selected. The money could be used to buy much-needed wheelbarrows and shovels.

There was some red tape.

Could the Agency accept such a gift? It could.

Could the money be earmarked for a special project? It could.

Could the dollars be converted so the tools could be purchased in Indonesia? They could. And they will.

President Richard Nixon told the people of Indonesia during his recent visit to Asia: "The people of the United States wish to share with you in this adventure in progress—share in this way: We know you want to be independent, and we understand that. We know that you wish to be self-reliant, and we understand that."

The \$500 donation from a friend of AID will help to meet that test.

* * *

Corn Protein Fortification

Central America's staple food—the cornmeal tortilla—is quite likely to get a big boost in nutritional value through fortification with amino acids. Methods of adding lysine and tryptophan to the cornmeal "masa" or dough will be studied at four mills in Guatemala under a \$23,130 Agency for International Development research contract with Rutgers University. The contract will also

finance tests of public response to this new technique in combating malnutrition.

Corn protein is not efficiently utilized by the human body, so some method of "enhancing" the protein value would greatly improve the diets of the millions of people whose main food source is corn. Working with lime-cooked corn (as prepared by Central Americans for use in tortillas), researchers have proved that the protein efficiency ratio—weight gained in relation to protein consumed—could be more than doubled with the addition of 0.30 percent L-lysine and 0.05 percent DL-tryptophan.

Rutgers University scientists will now determine the most desirable method of adding the fortifying supplement to the cornmeal dough. The studies will cover four possibilities: a concentrated water solution of the two amino acids; a powder in an appropriate carrying agency added to cooked corn entering the mouth of the grinding plate; pills containing appropriate concentrates of the acids; variations of the others by use of a mechanical mixing device.

* * *

Africa Fights Smallpox

The 19 West and Central African nations participating in a smallpox eradication program reported only 348 cases of the disease during the first five months of 1969, a decrease of 90.1 percent compared with the 3,527 cases reported during the same period in 1968.

The average annual number of cases in the area for the years 1960-67 was 10,813, according to the National Communicable Disease Center (NCDC) of the U.S. Public Health Service.

The massive smallpox campaign is a cooperative effort of the United States and the African countries in concert with the World Health Organization and several African regional health organizations.

The Agency for International Development finances technical assistance provided by the NCDC. AID grants also finance various commodities for the campaign. 

IN PRINT

Recent Publications of Interest

The World Food Problem, A Guardedly Optimistic View, By Willard W. Cochrane. Published by Thomas Y. Crowell Co., Inc. New York; 332 pages, \$7.98.

Dr. Cochrane's scholarly and readable book is an important contribution to an understanding of the food/population problem, and the measures required to assure a rational solution. As such it is a healthy antidote to the journalistic excesses which so frequently characterize writings on the food/population problem, presenting the problem either as insoluble on the one hand or susceptible of solution by some easy method (e.g. "miracle" seeds) on the other.

Dr. Cochrane eschews both positions. A few quotes with slight paraphrasing in some instances indicate the main thrust of his study.

"The technology is known and the resources are available to push food production ahead of population growth in the developing countries."

"The outcome of the race between population growth and agricultural production in the less developed world in the 1970s and 1980s certainly is not settled. It depends on what world leaders, national leaders, the technically skilled, business men, farmers and all the ordinary people do over the next 25 years."

"The food problems of the developing world cannot be solved by tinkering a bit with the food supply. A multiple approach is required consisting of four principal components: foreign food aid, economic and technical assistance, agricultural development and a balanced and growing economy."

"The specific actions required to increase agricultural production (in the developing nations) and distribute the product in a reasonably efficient manner are: (1) establish research stations, acquire new scientific

knowledge, and develop new production procedures and technologies; (2) introduce these new practices and technologies to farmers; (3) produce and distribute the production inputs required by the new practices; (4) make credit available to farmers . . . to acquire the new production inputs; (5) set up a marketing system that can efficiently concentrate, store, move, process and distribute the agricultural production; (6) maintain prices to farmers at incentive levels; (7) ensure a national reserve operation in basic commodities; (8) organize special food programs to reach the poorest and most vulnerable groups."

"If the numerous requisite actions in agriculture and in the general economy are to be undertaken with any hope of success, (1) the required investment funds must be obtained in adequate amounts, either from external or internal sources; (2) manpower must be trained and employed in the work required in the development process; (3) a development strategy . . . as well as pricing, fiscal, and manpower policies . . . are absolutely essential."

While emphasizing that outside aid in the form of scientific, technical and capital assistance is important, indeed essential, Dr. Cochrane concludes that successful development, and hence a solution to the food problem, rests squarely on the political and intellectual leadership of each developing country.

Can the food problems of the developing world be solved? Dr. Cochrane's answer is "yes," a solution is organizationally and technically possible. Will they be solved? "That depends," he says. It depends on whether governments of developing countries will take the organizational and disciplining steps required; on whether crucial help from the developed world is forthcoming.

 — Irwin R. Hedges

War on Hunger on the Hill—from p. 9

back its investment budget, braking Pakistan's economic progress.

• Development loans for Korea were cut from \$40 million . . . Our reduction is in the face of the outstanding development performance by the Koreans and their support in Vietnam, and comes at a time when they face increasing pressure from the North.

Reduction of worldwide technical assistance funds from a request of \$235 million to the appropriation of \$167 million required further postponement of many of the new projects proposed in agriculture, education and health.

The cut in international organizations grant funds from the request of \$142 million to the appropriation of \$126 million reduced the U.S. contribution to the United Nations Development Program to \$71 million, \$5 million less than our contribution in 1968 and well below our 40 percent share. Fortunately, the pledges of other donors continued to increase—at least for 1969 . . .

The funds requested by President Nixon will not prevent a decline in expenditures in FY 1969. Substantial cuts in this year's request will result in a continuation of this decline in expenditures into FY 1971. This downtrend is reducing U.S. official economic aid, counting all forms, including P.L. 480 and contributions to international banks, as well as Export-Import Bank hard term loans, to about four-tenths of one percent of our GNP—among the lowest economic aid efforts of the western nations. Even if all forms of private investment are also counted, the United States now

Exploring the Earth—from p. 8

These are but a few of the scattered resources survey efforts that are now underway around the world. A world survey of this sort of activity, especially when it involves the use of aerial photography, has recently been published as U.S.D.A. Agricultural Handbook No. 344 by Henry W. Dill Jr. and entitled "Worldwide Use of Airphotos in Agriculture." It is clear from this and other sources that the idea of systematic resources surveys is not widespread but is growing.

Combination of Tools

Countries of the world have come to accept planning as a means of coping with the problems of growing populations and general economic development. An appreciation of the need for resources surveys as foundations for sound plans has slowly evolved. In the near future, a combination of ground surveys with aerial photographic interpretation offers an excellent means for making rapid surveys and identifying promising areas to be developed. In the long run a variety of sensing devices like side looking radar or infrared optical mechanical scanners may contribute information. Earth orbiting satellites also show promise as vehicles for cameras and other sensors and may be used alone or in combination with aircraft and ground surveys. 

is devoting less than two-thirds of one percent of our GNP to economic aid, while other countries are moving toward compliance with the one percent of GNP goal set by the United Nations and the Organization for Economic Cooperation and Development . . .

The \$2.2 billion request for economic assistance is barely sufficient to meet the most essential requirements in our programs. Appropriation cuts in FY 1969 have already imposed severe strains on our programs in many key developing countries. A second year of such cuts could mean substantial risks in our relations with the developing world.

James R. Fowler Jr., Deputy United States Coordinator, Alliance for Progress:

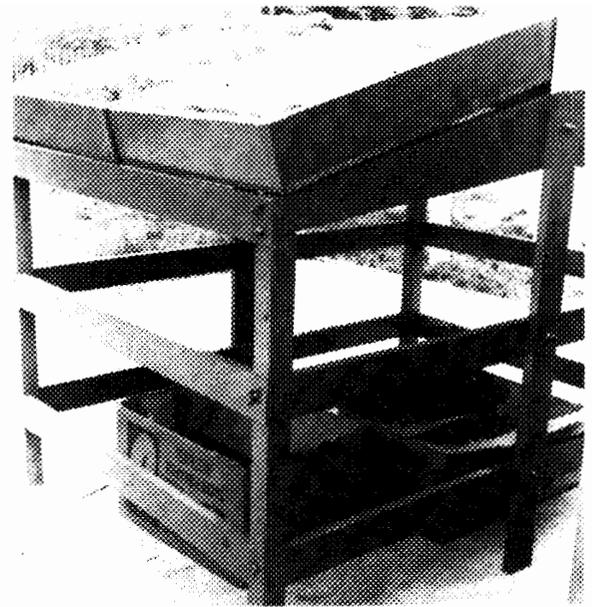
The proposal now before you has been carefully designed to serve as an effective bridge to what we believe will be the future direction of our policies and programs [in Latin America] . . .

The Subcommittee [on Inter-American Affairs] has quite wisely recommended that we: "place increased emphasis on long-term technical assistance and support of education, agriculture, family planning and development of local institutions necessary to assure broader participation of the Latin American people in their development process." Although the proposal before you is for a minimum program, the activities to be financed are heavily concentrated in these priority areas. Forty-six percent of the loan program is proposed for sector and project lending in agriculture and education. Some 38 percent of our grant technical assistance is slated for these sectors, a figure, incidentally, which masks the substantial amount of technical assistance to these sectors already being furnished under existing loans. Also consistent with the Subcommittee proposal, a very small share of our program, roughly \$15 million is addressed to the construction of infrastructure facilities. Financing of infrastructure projects has been left, as the Subcommittee recommends, largely to multilateral agencies, whereas AID continues to take the lead, through sector lending, with heavy technical assistance inputs, into the very difficult priority areas of comprehensive agriculture and education modernization . . .

It has required years of hard and imaginative work by our Latin American colleagues to develop the institutional strength, political consensus and momentum required to meaningfully and broadly attack the great problems of educational and agricultural modernization. The proposal before you reflects our judgement that in many countries this momentum is now very real and that it can be reinforced and very productively built upon. It also reflects our sober judgement that far more than the loss of a single year's time would ensue if we were unable to support this momentum . . . Failure to support this program would clearly be a first step down that crossroad marked: "withdrawal from a productive and reliable partnership in the Americas." 

A Better Way

By Ivan R. Martin



Derek Oudit's stand features wing-nuts for easy assembly, storage space, and divided bins.

"We need to do better than this," read the sign over a display of photographs showing unattractive and unsanitary conditions in village produce markets in Trinidad. And Derek Oudit, a young instructor at the Eastern Caribbean Farm and Forestry Institute, (ECFFI) proceeded to show his countrymen how.

Traditionally, the farmer brings his produce to a market area such as Tunapuna or Curepe on Saturday and Sunday mornings, spreads a jute bag on the ground or sidewalk, puts the produce on it, and he's in business. Nearby gutters are strewn with wet garbage from containers turned over by ever-present stray dogs and goats, banana and orange peels, and, if there's a coconut vendor with his usual donkey-power cart, refuse from both the coconuts and the donkey.

What could be done to convince farmer-vendors there was a better way? The most obvious idea was to get the vendor to erect an attractive stand. It would have to be portable to be taken home at night, or it would disappear before the farmer returned the next day. It must have storage space under the display trays. It must be at-

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New stand has an adjustable top which can be flat or pitched as needed to ward off sun or rain.



tractive. It should have a colorful cover to keep rain and sun off the produce. Most important of all, it must be cheap.

Derek set to work, picking up a few boards here, a few bolts there and devised an attractive, very inexpensive stand. The day before the ECFFI Field Day, where he planned to introduce the stand, Derek posted his pictures of the market and urged interested vendors to come to the Field Day and find out how to "do better."

Derek Oudit's section was the hit of the show. His model stands were filled with colorful produce from a well-kept and well-labeled garden nearby. His students kept sprinkling the produce to keep it fresh. They were continuously available to discuss construction details of the two models of Derek's stand: the single and the back-to-back double. The single can be paired with another to make a two-faced stand, or several can be backed up to a wall or fence. The doubles can be lined up with produce visible from all directions. The number of units can grow as the vendor prospers.

It's a simple idea, but so was the wheel. If it spreads, local markets in Trinidad will offer cleaner produce in more sanitary surroundings. The vendors will like that, and West Indian housewives will too.

In many local markets throughout the world, fresh fruits and vegetables await purchasers alongside refuse-filled gutters.





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A young artist in Belgium thinks of Uncle Sam as a provider of food to hungry children all over the world. (See page 10.)