Introduction.

The problem of food hunger and shortages has attracted the attention of scholars from a number of different disciplines. Members of the medical profession are interested in the problem largely because of its direct physiological manifestation. A school in anthropology considers food production as a vital determinant of human behaviour. Indirect classical economists Ricardo, Malthus and Adam Smith give food production a critical index in economics. Only a few geographers, however, have made food shortages or hunger their major field of interest.

Despite the paucity of geographers explicitly working on food shortages, a number of geographers with an African interest have drawn attention to the problem. The earliest such attempt is that of Kummer entitled "A famine zone in Africa," and H. R. Jarrett, a much later contributor, has explored the situation in East Africa. The problem has been popularised by the term "hungry season" - most regional texts also make references to food shortages.

Interest in the present project was brought about by a number of factors. The occurrence of disastrous famines in parts of East Africa during the internationally sponsored "Freedom From Hunger Year" in 1963 spotlighted the problem dramatically and visually through posters. Secondly, after scrutinising the literature on food shortages, this writer felt that the gross climatic aspects, especially tropicability, were too readily presented as explanation. This approach tended to make food shortages in the tropics totally an environmental problem. The significant break from the rather similar ideas expressed by many writers was a paper by Miclee entitled "seasonal hunger - a vague concept and an unexplored problem". Miclee's valuable paper concerned itself mainly with a theoretical classification of variations in food supply and the examination of the explanation of "seasonal hunger" as applied to West Africa. No attention, however, was paid to the cultural factor in food shortages.

This paper attempts to study the problem of hunger in Tanganyika. Tanganyika offers the opportunity to study food shortages in a relatively smaller area in a somewhat detailed manner. From the point of view of the problems, availability of information and size of territory, the country affords a good balance.

*Progress Report.*
The purpose of this paper is both substantive and methodological. The substantive aim is to investigate the occurrence of food shortages in Tanganyika in the period 1925-1945. Attempt has been made to investigate the causes and nature of food shortages in a broad physical-cultural basis rather than purely from an environmental point of view. This analysis should be useful in further interpretation and in planning.

The methodological aim was the application of geographical techniques to the problem of food shortages. Most geographical works on the problem have hitherto been macro-studies with a deterministic approach with the overall emphasis being laid on climate.

Sources of Information.

The Colonial Office Reports to the League of Nations between 1924 and 1936 generally gave a picture of the state of agriculture of each district in Tanganyika. Information on famines was scattered in different sections of the reports often under climate or agriculture. A more detailed picture is available from the Annual Provincial Commissioners Reports from 1930 to 1945. A still further source of information would be the District Books. Unfortunately, all these sources mentioned have their limitations.

First-hand reports such as the amount of people affected by the famine or food shortage, the delimitation of the area affected, the duration of the famine or food shortage are all rare. With access to funds, time and a team of field workers it would be possible to get some of the invaluable first-hand additional information. Some of the additional information could be found in the district files of the agriculture department, district books and of course by interviewing persons who experienced the famines.

However, even with the information that was readily available it was possible to transfer the information on to maps. Secondly, it was possible to get out of the groove of studying the environment and analyse famines.

Methodology.

To the writer it seemed that in order to get a clear picture of the trends of the food situation in Tanganyika it was necessary to map the information available. It is obvious that information which was readily available and could be easily mapped were the two extremes of food status: 1. extensive acute food shortages 2. surplus

Between these two discrete points it seemed necessary to introduce at least two other discernible levels: 1. partial food shortage 2. localised food shortages
ANNUAL RAINFALL AT DODOMA

SOURCE: Collected climatological Statistics for East African Stations, East African Meteorological Department, Nairobi (n.d.)
Blank spaces were left on the map when there was no statement made about the food status of the district. In all probability, such areas had adequate food but this provincial or district adequacy is not plotted on the map unless information was expressly available.

For obvious technical reasons, the author regrets that in the papers handed out only a schematic diagram (Fig. 1) showing food shortages and famines could be included.

A re-appraisal of the climatic factor.

In the Great Plains of the United States, great variations in the yield and even absolute failures of grain crop have occurred frequently. Yet this zone is not referred to as "famine belt". In dealing with Africa, however, there is an all too ready acceptance of explaining human problems by environmental factors especially climate. What is therefore being cautioned in this paper is the direct correlation of a generalised climatic type to a human problem, in this case food shortages and hunger. A glance at the schematic diagram or maps reveals that even for a small part of Africa such as Tanganyika climate presents a great deal of variation. It is precisely for this reason that in no one year has famine ever taken place in the whole of Tanganyika - famines have occurred only in parts of Tanganyika.

The foregoing does not deny that crop failures have taken place because of climatic factors. What it is intended to emphasise is that the correlation is complex. The acute famines and rainfall figures (Fig. 2) for Dodoma illustrate this point. There were poor harvests in 1923, 1924 and 1925. Widespread famine relief was undertaken in 1934 and in the following year, despite the lower rainfall there was a good harvest. Another spate of famines hit extensive sections of the area from 1941 and were quelled only after the first few months of 1945.

It is noteworthy that in 1928, despite the great dip in the rainfall figures, no mention is made of any famine and the unfavourable weather only brought a reduction of groundnuts. In 1929 famine was prevented because the sale of grain was prohibited and grain was imported from Kondoa.

Generalizations about climate made in the early years of colonial administration especially on the question of 'seasonality' and typology of climatic regions must be looked at with great scepticism. Instead of stressing macro-climatological aspects there is a real need for micro-climatological generalizations. Some of the pointers in this direction have begun to appear in the post-war period. Thus, Griffith working as a bioclimatologist and producing his rainfall regions, Thompson stressing the importance of the time of the day in which rain falls to agriculture and Brzäell, working on rainfall reliability and showing that great disparity can arise even by an altitudinal variation of 100-200 feet, are a few examples of the new trend.
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**Legend:**
- Route & Extensive Planted
- Localized Planted
- Partly Food Stores
To stress the climatological factor for all famines and food shortages would in fact be saying that the carrying capacity of a given area is determined by climate. Conceptually, such a view would be incorrect. The success story of evolving mankind has been the countless agricultural innovations to increase production in all given climates. Man's role in the production of food represents a synthesis of activities and processes involving not only the environment (land and climate) but also his technological accomplishments, his social organization and attitudes and his choice of decisions. The rest of this paper aims to examine some of the non-climatic factors which cause food shortages.

Limitations Inherent in Traditional Subsistence Agriculture.

The acquisition of food in traditional societies was generally a primary activity. The amount of food available was among other things and a question of technology, labour effort, type of crop. The pursuit for food was not always precarious, neither must one be tempted to think of it as being idyllic. No attempt is being made to reconstruct the precolonial agricultural patterns than to make few general observations which will subsequently aid in the arguments put forward. Briefly, obtaining food, be it as an agricultural pursuit or hunting or gathering must be examined in the following light:

1. For the most part it was the responsibility of the family which was the main unit of labour. The effort expended in agricultural pursuit, however, must not be examined in isolation but in the context of a greater complex of activities that regulate the day to day existence of the tribe. Production in individual cases could be reduced by illness, rituals, etc.

2. The capacity for production was geared to a general self-sufficiency of varying discrete units such as the family, or extended family and even clans. With certain exceptions, there was a fine balance between production and consumption. This balance was not determined in statistical units but by a notion of subsistence requirements. Such a system based on impressionistic judgement is open to a great deal of variation on a tribal and even family basis.

3. The major agricultural activity was the production of crops for subsistence of the group. Acreages given to production were hindered by the unsophisticated technology of traditional agriculture. Therefore, any surplus was incidental and also limited by the period in which the crop would remain without perishing.
The Dilemma of Change.

The imposition of elements of colonial policy vis-a-vis traditional agricultural systems created a situation which inevitably had great impact on food supplies. The end of the colonial status has not resolved tensions and the problems of the past are still present today. Briefly the factors affecting food supplies will be considered under the following headings:

1. Provincial self-sufficiency
2. Repercussion due to the introduction of cash crops
3. Prices and Marketing
4. Communication
5. Other causes.

Provincial Self-sufficiency.

One of the fundamental misconceptions of the early administrators was to regard the whole environment of the country as suitable for the production of food crops. The administrative response to this concept was crystallized in the theory of provincial self-sufficiency in food and was especially stressed during World War II. At times there was merit in this scheme, but often this principle had to be compromised though it was never abandoned. In pursuing this policy there was a complete disregard of basic ecological safety valves especially among groups whose predominant concern was pastoralism. Thus, among the Gogos the keeping of large herds, misguided as the system was, acted as a safety mechanism. Despite the literature stressing the great love that pastoral groups had for their cattle, there are examples when these same groups were prepared to sacrifice their cattle during periods of stress. Cattle were in fact, exchanged for grain in times of hardship, and in the famines which lasted up to the 1920's, cattle were sold at a ridiculously low price of a rupee a head. Hardship, in this case, was a result of World War I. During the thirties and the forties the attempt to persuade the Gogos to grow cassava which was the usual panacea for combating famines was reluctantly adopted by the Gogos. They logically argued that root crops tied them to the land and their precious cattle could not be fed on this root. In a recent study by Rigby there is evidence that the Gogos who had suffered severely from famines seemed in their social sphere to have tried to adjust to the harsh ecological conditions. Thus residential mobility was high because of pastoralism and hoe cultivation of sorghum and bulrush millet in uncontrolled and uninheritcd land. Every Gogo, too, belongs to one of the eighty-five patri-lineal clans, the majority of whom were dispersed.
The preoccupation with provincial self-sufficiency had many elements of contradiction. It ignored among other things the fact that the optimum use of a particular area might not be a food crop but a cash crop. Even worse it relegated food crops to a constant low price and this has been a basic factor why food crops have not been commercialised.

During the worst famines of the 1940's in Ceylon grain eventually had to be imported from the neighbouring areas to fill the silos. The construction of silos was a new conception of relief measure. A department of grain storage was formed but it was found expensive to maintain and in the late fifties the department was abolished.

Repercussion due to Introduction of Cash Crops.

Agriculture for the purpose of cultivating products other than food crops was insignificant in traditional societies. The introduction of cash crops especially non-consumable ones such as cotton, sisal, tea and pyrethrum therefore, in many cases brought disruption in the cultivation of food crops. It was inherent in colonial policies to stress and have a positive approach to the whole question of cash crops. Certainly, the research undertaken, money expended, and the increasing export tonnage all reveal the fact that there was an emphasis on cash crops. Yet, the indigenous cultivators were expected to grow their own food and be self-sufficient. In pursuing this policy, colonial governments, (present national governments have not escaped this either), perpetuated the transition stage in which cultivators are neither commercial nor subsistence farmers. If one accepts the idea that in traditional societies calculations of food requirements were based on empirical notions rather than scientific measurements, one can see that miscalculations could easily be made and adjustment because of the introduction of cash would take time. For obvious reasons examples of food shortages being caused by the growing of cash crops would not be good politics on the part of colonial administrators. However, one does get examples. In 1931 the Provincial Commissioner for the Eastern Province indirectly hits at the pre-occupation with the administration with cash crops when he states:

"It is not out of place to mention here that an increased production campaign is about to be launched, but, one hastens to add, increased production is not synonymous with cotton".

As recently as 1945 the Provincial Commissioner for the same Province remarked:

"Essentially the people of the coast tend to rely upon sale of copra to support their wants and most are reluctant to produce sufficient food even for their needs. If the price of copra shall fall, they will find themselves with insufficient food and no money to purchase it from neighbours".
If the traditional practice of growing food has to be integrated with production of cash crops one has to assume that the cultivators had to:

1. work harder than before
2. sacrifice a great deal of leisure
3. cut down on the acreages given to food crops
4. look for alternatives for obtaining cash

The last assumption best manifests itself on the whole question of labour which will presently be dealt with.

One has to admit that in certain areas it was feasible to have a reliable cash/food crop association especially where the latter demanded little labour. The Chagga and the Haya with the banana/coffee complex are a good example. In many cases, however, the duality could not work. In fact, to the local inhabitants in these areas advice and instruction during the late 20's and 30's must have seemed very contradictory. They were asked to increase the acreage under crops and yet prices paid for crops sold were decreased. They had to grow food stock and yet grow for export; they had to increase acreages and yet keep maintaining the fields to new standards. Some of the cash crops were not food crops and in many ways useless if not sold.

Labour:

An alternative source of obtaining money, apart from cash crops was to enter the labour market and this response had great social effects among groups like the kings and Ha. Obviously, it is easy to see one of the consequences mentioned earlier, namely, since the family was the unit of subsistence economy, disruptions would take if this unit was interfered with. Agrarian systems would immediately be affected especially among groups where menfolk performed the difficult tasks such as clearing the forests or breaking for the first time. In the Wililana chiefdom of Singida, after a series of food shortages, it was realised that the customary practice of the men leaving their homes in the planting season to work for food in the Iramba part of the district meant there was insufficient cultivation in their own area.¹²

The repercussion of the lavish use of labour has yet to be studied in detail and in fact, has been an under-played factor. Specific references can be found both at the source and the receiving end. Best examples of the latter are to be found in the Tanga Region where in 1936 the number of alien Africans was clearly in excess of 50,000 men for whom food had to be procured. It is therefore not surprising that the administrator for Tanga in 1942 categorically stated:

"Any further transfers from native agricultural production to work on estates would have dangerous repercussions on the food supply."¹⁴
In the Southern Highlands where much of the labour originated from the Provincial Commissioner, in 1943, warned that further calls for labour within or without the Province would probably endanger the foodstuff position and locally grain would be insufficient to feed the employed labourers. The administrator had calculated that out of 125,250 tax-payers, 28,050 were employed within the district and 12,626 had 'volunteered' for the army and 10,700 labourers were outside the district.  

Another aspect of the same problem which Major Orde Browne brings out strikingly in his report is the colossal use of labour for unproductive purposes and the very great distances which they had to travel. He also states that along routes frequented by labourers, produce sellers and government employees there were, at times, results approaching famine.

"Owing to the short-sighted sale of too much food or the anxiety of the local authorities to furnish supplies to travelling government servants. These are just a few aspects of the impact of labour on food supplies.  

Prices and Marketing

The dilemma of growing both a cash crop and a subsistence crop not only strained the organization of traditional agriculture but in addition there were a number of economic pitfalls related to marketing and prices. Uncertainty of prices made adjustment difficult. If a farmer emphasised a cash crop and the prices fell he would run the risk of not having enough money to buy food. It is noteworthy that the depression of the 1930's determined for many farmers the course they should follow and despite the great locust invasion the supply of food in most parts of the country was not unduly bad. Conversely, the best years in the country were soon after the recovery of the cash crop prices in the middle 30's. This brief statement only paints the gross picture. The true relation between prices cash crops/subsistence agriculture is a field in itself too large to enter in the existing paper.

Generally marketing was not well developed over most of the country in the 1920's and in many parts of the Southern Province even in 1944 there was no marketing system. When markets were opened in the following year, "they were regarded with suspicion by the Africans and with antagonism by the merchants and missions."

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A. Mascarenhas

* At Kikosa Railway Station in 1924 the government needed 400,000 working days of porterage to supply a small detachment of soldiers in Songea.
Depressed markets also affected sales and production. When prices of rice fell by 50% in 1931 the cultivators in parts of Mahenge area refused to sell, and finding that they had more rice than they could consume, used it for brewing beer. The Administrative Officers seemed to realise that the danger for in their words:

"The danger emanating from all this, which will have to be watched, is that they may become despondent and grow less rice. The marketing arrangements of the rice trade are at the root of the trouble . . . ."

Communication.

Considering that in no one year has the whole of Tanganyika suffered from famine or food shortage, the significance of communications becomes obvious. At a territorial level then, a sound communications system gives a greater latitude for dealing with famines.

In the 1920's head porterage was the only method of transportation in many parts of the country. The position in such areas becomes precarious if they were unfortunate to experience any decline of food supplies. Two decades later the famines of the 1940's could also have been prevented by a good transportation system between the Southern Highlands and the Central Province. Ironically intense wartime drives to produce more food had brought about a surplus in the former area. There was a surplus of several thousand tons of rice, only 300 tons of which eventually could be dispatched via Lake Nyasa to Beira and eventually to Zanzibar.

The lack of understanding between the rulers and the ruled adds a new dimension to the study of communications and response to famines. The following observation of an administrator made after a famine in the Ukaguru area in which 15 people are alleged to have died, reflects the problem.

". . . . it is only the better class of chiefs who fail to do so (report a famine). He only appeals to the administration when affairs go beyond his control. There is, of course, the whining class of chief who immediately upon a partial shortage of food in his area reports a famine".19

In one of the comparatively well documented accounts of famine in Tanganyika which took place at Buguri in 1929, this problem of communication is once again well illustrated. Briefly, the only line of communications in 1929 between Buguri and the administrative station at Biharamulo, 113 miles away was by porter track. When the District Officer received the call for help he could not

"Imagine why they cannot get on and do something for themselves and anything I send must be necessarily very dear"20.
In fact, he did not attach much importance to the appeal. In defence, it must be admitted that when in 1926 a complaint of starvation was received the District Officer found out that only mtama had been exhausted. In the 1929 famine the distress was real; 500 persons perished. Because of administrative rigidity, there was a delay of 25 days between the first reports of death and the first issue of food.

There is still one level of communication that needs examining. At the head of the social stratification of the Bugufi people were the Batusi who claimed that the shortage was normal. The suffering of the lowly peasants upon whom they contemptuously looked down did not directly concern the aristocratic Tusis. In fact, with their great reliance on cattle they were not too inconvenienced by the shortage of grain.

As an epilogue to the Bugufi famine, roughly 2,000 people were affected, and 500 deaths took place. Five tons of rice were needed to tide them over, and the expenditure was approximately £250. In fact by the time relief did come they were beginning to harvest their own crops.

Other Causes of Famines.

There are other causes of famines and food shortages which cannot be dealt with fully in this brief paper. Innumerable examples of very localised food shortages caused by the depredations of wild animals and insect pests is one. Superstition and social disharmony between groups provides yet another category. For example the precursor of the Bugufi famine is to be found in the prophecy of a witch-doctor who claimed that the ruling dynasty would die if cultivation in the swamps was not stopped. The sudden demand for food from areas adjacent to famine areas can cause food shortages in areas asked to provide relief.

The 1929 Bugufi famine was thus part of a large famine in Urundi. Inflated prices in the famine area easily leads to un-inhibited disposal of food. Finally, the absence of certain foods among groups who have strict food preferences can cause an induced type of famine.

Conclusion.

This study of famines in Tanganyika demonstrates the danger of applying a climatic generalization to a human problem. The typology "Tropical climate" which is often associated with famines is such a gross generalization with so many variables that even in a relatively small area like Tanganyika it has severe limitations in its application. This is demonstrated by the localised nature of famines in the country.

* In 1942 the Warangi and Wanyaturu readily disposed their surplus because the prices of grain had risen from 1/50 to 8/- a debe.
While there is no doubt that the immediate cause of famines has often been micro-climatological factors, one cannot even then always conclude that hunger is directly related to the environment. Famine is a human problem. It therefore must have some human causes and solutions. Some of the human factors of famines have their origin in economic, technological, social and even transportational factors. The equation of man's production of food is environment plus culture. Famines and food shortages cannot therefore be rigidly tied to the environment.
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