THOUGHT FOR FOOD : THE SOCIAL AND CULTURAL ASPECTS OF MALNUTRITION

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Derrick B. Jelliffe, a silm Englishman in his fifties, has probably done as much as any person now living to focus attention on practical solutions to the problem of malnutrition among young children in the developing countries.

Jelliffe, formerly UNICEF Professor of Paediatrics at Makerere University in Kampala, Uganda, and presently Director of the Caribbean Food and Nutrition Institute in Kingston, Jamaica, is not a science celebrity. He has never won a Nobel Prize and has no outstanding biochemical research to his credit. He is basically a field worker, a teacher, and an indefatigable polemicist, addressing himself ceaselessly to the medical and nutritional fraternity in language it understands and through its chosen organs of communications.

Where he finds time for all the writing involved in the last of these tasks amazes his colleagues. Since 1955 he has written five books, including the WHO monograph *Infant and Child Nutrition in the Tropics and Sub-tropics*, which is the standard broad spectrum work on the subject, and has coauthored or edited three more. He has published more than 250 articles in scientific and medical journals and is a tireless participant in the nutritional community's ceaseless round of seminars, symposia and conferences. Jelliffe's range is enormous—he seems to have read and assimilated everything remotely connected with community nutrition, and the subjects covered in his publications range from 'Ecologic Malnutrition in the New Guinea Highlands' to 'The Urban Avalanche and Child Nutrition'. Central to his thought is the concept that in practical terms and as it affects hundreds of millions of children and persons of other vulnerable groups today, malnutrition is primarily a cultural, social and economic problem—in fact.

At a distinguished "interdisciplinary symposium" on malnutrition and food habits in Cuernavaca in 1960, Jelliffe referred modestly to the "amateur efforts" of medical men like himself who had adopted an anthropological approach to the study of malnutrition. Margaret Mead, who had listened for several days to Jelliffe's lively interventions and comments, replied that his approach was scarcely an amateur one and that the application of established anthropological principles to other disciplines was to be

welcomed. Jelliffe has the true amateur's contagious enthusiasm, however, which is one of the reasons he is so effective in communicating his ideas.

I first met Jelliffe at the UNICEF offices at United Nations Headquarters, twelve years ago, when he

dropped in to call on Maurice Pate, then UNICEF's Executive Director. He was one of the few nutritionists I had then met who seemed honestly to realise he was dealing with people (most nutritionists I had met by that time were far more at home with rats). Last autumn I took advantage of a visit to Jamaica to interview him again.

I began by asking him just how he had happened to get so involved in nutrition, particularly child nutrition—and in its social and cultural aspects.

The Beginning

"I didn't start out as a nutritionist at all," he recalled. "At the University of London, where I took my M.D. and did most of my initial training, I specialised in internal medicine and paediatrics. Following World War II, I worked for four years in the Sudan Medical Service, then for three or four years at Ibadan University in Nigeria. After an interlude at Tulane University in New Orleans, I spent two years at the All India Institute of Hygiene and Public Health in Calcutta as WHO visiting professor. Then came my assignment in Kampala and finally my assignment here.

"During this whole period of time I found myself working increasingly with children. Now in the socalled 'less-developed' or poor countries, one finds oneself faced with such huge problems of ill health among children that soon it becomes evident that there is no possible way to deal with these problems in the usual clinical way. You see children discharged from the hospital partly cured, because the hospital is too crowded to keep them there till they're completely cured. You see them going back to the same conditions that led to their illnesses. You see the brothers and sisters of these children developing similar illnesses.

"So, logically, one can assume one of two postures. One can retreat to an ivory-tower: 'I am concerned only with my clinical work; what happens outside the hospital has nothing to do with me'. Or, alternatively, one becomes increasingly concerned with the preventive side of the picture in the environment these children live in.

"Once you begin to look into the environmental factors, you realise that the pattern of child disease in less developed countries is not really related to the climate. In fact, the commonly-used term 'tropical pediatrics' is a misnomer. What it is related to are such factors as social patterns, cultural attitudes and economics. After a while, one also comes to realise that the major child health problem in all less-developed areas is, in fact, malnutrition —either malnutrition as such or as a background to the infections which make up the other major component of mass illness among children".

I pointed out that the less-developed areas in which Jelliffe had worked differ considerably. West Bengal, for example, is densely populated, extremely poor in terms of per capita income, but fairly industrialised. Uganda is a low-income, pastoral country, sparsely populated. Jamaica is a small country with great contrasts between rich and poor but with a relatively high per capita income better than US \$600 per year. How could one generalise?

While the problem of these different areas vary in order of magnitude, he said, they show more similarities than might at first be apparent. "This is particularly the case with regard to malnutrition. In the Caribbean, with the possible exception of Haiti, the extent and severity of malnutrition is by no means comparable to what one encounters in some parts of Africa and Asia. Nevertheless, in all these areas, the main type of malnutrition you encounter is the same: proteincalorie malnutrition of early childhood, as we call it—ranging from 'kwashiorkor' when the main deficiency is protein to 'marasmus' when the main deficiency is calories.

"More significant than this, though, is the fact that one can analyse the causes of child malnutrition anywhere in the world—including North America and Europe, I might add—by applying the same principles. We have a useful shorthand method we call the community nutrition-level equation. The community nutrition-level takes into account a number of factors—economic level, educational level, certain health factors, food availability—all divided by the universal denominator of population and its rate of increase. This is a nonmathematical formula—a guide to analysis and all its elements have to be seen in relation to the cultural pattern of the community concerned. The cultural pattern affects every bit of the equation, whether we're talking about Africa, India or America.

Cultural Attitudes Towards Food

"Man does not eat the full range of nutritious foods available to him anywhere in the world. A classic example is the Hadza hunters of northern Tanzania who lived entirely by hunting and food gathering with no agriculture and with no domestic animals. These people who lead as rigorous an existence as any in the world, did not eat everything available to them. They did not eat certain species of fish, for example. They did not eat flying ants, which are eaten by people in outstanding communities. I am sure ants do not sound very appealing to you, but they are really a quite nutritious addition to the diet.

"All of us have our food taboos. Let me give you an example. A friend of mine from Buganda, a part of Uganda, went to the United States to do his training and was disgusted by the objectionable food he had to swallow out of courtesy to his hosts: shrimp. But an American visitor to Uganda would run into a similar problem, for in Uganda green grasshoppers are a prized delicacy. The parallelism is rather striking. One man's food is not necessarily acceptable to people in another community—definitely not.

"So, to begin with, cultural attitudes determine what we regard as food. But it goes farther than that. Cultural attitudes determine who gets what. Something the Women's Lib Movement might like to look into is the fact that food habits almost always seem designed to favour adult males. The more appealing, the more expensive, the tastier items of food—like eggs and chicken in East Africa—which are usually high protein foods, are the very foods that people believe are 'not good' for young children and women, especially when pregnant and lactating. The men get them.

"In most cultures the diet of young children and of pregnant and nursing women—the most vulnerable groups from a nutritional point of view—is largely based on one or two staples. These are often what I call cultural super foods. A cultural super-food is a food that is not only the community's main source of calories but one that has a tremendous emotional, historical, mystical

and religious hold on a community. It is usually a food that is bound up with all sorts of rites and is used in a variety of ceremonies. Different parts of the same plant may be used in other aspects of the community's life. In Central America the cultural superfood is corn, or maize, as it is called in most countries. There are corn dances, there are corn gods. In the mountainous parts of the former Inca Empire, the potato is the cultural superfood. In Europe until quite recently, it was wheat. This is reflected in the Lord's Prayer: 'Give us this day our daily bread. Bread is the 'staff of life'.

"Now the importance of this is that when people think of food as something that is essential to life, rather than a snack or what the French call an *amusegueule—a* palateteaser—they think in terms of their particular super-food. In many languages, as a matter of fact, the word for 'food' is identical with the word for the cultural super-food. In Malaysian, I believe, there is 'rice' and the rest is called 'with rice'. Other foods are just sauces or snacks to eat with rice.

"Now when it comes to feeding young children, people often feel that if the child is receiving this cultural super-food, little else is required. If the cultural super-food happens to be rice, wheat or any other good cereal crop, this may not be so bad. These are not complete foods, but they provide calories in a compact form and they have reasonable protein content. But if the cultural super-food belongs to what we call the TPB group—the tuber, plantain, breadfruit group of staples which are bulky and contain very low percentages of protein—then you are in real trouble.

"Let me give you an example. In Northern Uganda, amongst the Acholi people, millet is staple and the cultural super-food. Millet is a relatively good source of protein—its protein content is seven per cent. It provides calories in a compact form and contains little water or cellulose. Despite the fact that the Acholi are poor, 'kwashiorkor' is uncommon amongst their young children.

"The Baganda people in the south of Uganda are considerably more prosperous than the Acholi. But you find a much higher incidence of proteincalorie malnutrition among their children. This is because their cultural super-food is steamed plantain-matoke. Plantain is the cooking banana. It is low in protein—about one per cent—and it is practically impossible to get sufficient protein and calories into young children by feeding them matoke. Yet, because the plantain is so central to life, religion and everything else among the Baganda, the mothers imagine that nothing could be better for their children."

Misleading Ideas about Food

I asked Jelliffe what his own cultural super-food was.

He laughed. "The potato," he said without hesitation. "I'm definitely hooked on potatoes. If I have a hard day at work and I go home tired, the first thing I want are some potatoes to eat potatoes symbolise security and peace, and especially if mashed, act as a sort of poultice to the bruised psyche. It goes back to my childhood, I suppose. A meal without potatoes just wasn't a meal in my family.

"Now there's a moral to this. All of us base our food preferences on certain irrational factors people in economically developed countries as well as people in underdeveloped countries. The advertisers are well aware of this. Foods are never advertised exclusively as foods. They are advertised as giving status, sex, upward social mobility. People eat not for food values but for symbolic values."

I agreed that there was a large irrational element in Western food habits, but since people in the affluent countries were so well fed to begin with, did this really matter very much?

"It certainly does, in some cases. I think a new form of neo-cultural food confusion is emerging in the United States and in other countries through food fads. People are frightened of foods that are unnecessarily contaminated with insecticides and want to eat foods that are more 'natural'. This is understandable, but many natural-food enthusiasts go to ludicrous extremes. They come up with non-scientific food classifications as absurd as those that can be food amongst the pygmies of the Ituri forest—and they try to convert other people to their way of thinking. This could destroy much of the popular education that nutritionists have been trying to promote for forty years. It's very dangerous.

"Something else that's dangerous—and is not confined to faddists either—is the idea so common in the Western world that a fat baby is a healthy baby. This is an extremely harmful cultural concept. Many baby shows turn out to be a mere judging of fat stock. The notion of 'growth surveillance' of babies is valuable—height and weight curves are useful guides, especially in countries where mothers pay insufficient attention to their children's growth during the early months and years. But obesity in infants is not a sign of health. It has been shown that if a baby puts on too much fat in the early months of life, this may increase the actual number of fat cells he has to carry around with him for the rest of his life. As an adult, he'll be literally saddled with a blanket of unnecessary fat calls which will be his Pilgrim's Progress burden for the rest of his life."

Another cultural problem Jelliffe is much concerned about is the decline in breast feeding in many parts of the world under the impact of modern civilisation, the drift of rural populations to the cities, and the extensive sales promotion campaigns which manufacturers of "bottle formulas" have launched in many countries. (In one of his papers, he speaks of "commerciogenic malnutrition" — meaning malnutrition resulting from too great a reliance on heavily-advertised products).

Breast Feeding: the Best Thing Anywhere

Breast feeding is the best thing anywhere. There is overwhelming evidence of the tremendous advantages of human milk from recent work in biochemistry, immunology and psychology. It's cheap too—it's definitely the cheapest way of feeding babies anywhere in the world—and safe: you don't have to worry about sterilisation. Until recently, there was a steady decline in breast feeding in Europe and North America. In the past decade, there has been a reversal of this trend in certain places, particularly amongst collegeeducated women. But, of course, it's feasible to rear children on a whole variety of cow's milk formulas, so even if many mothers in the affluent countries don't want to breast feed, there is no

critical problem. The advantages alleged by one manufacturer or another of infant formulas are entirely hypothetical, by the way: one can rear children just as well on simple home-made formulas, though there's a convenience factor involved in some of the proprietary products.

"But the question of breast feeding is quite critical in most of the world. If a mother in a poorer urban area in India or in rural Africa cannot breast-feed her child and tries to feed it artificially, the child will die. It will die partly because it will be starved, since the mother will be unable to afford sufficient quantities of milk for adequate bottle feeding. It will die partly on account of associated diarrhoea because the mother won't have any facilities for keeping the formula sterile—a pure water supply, extra bottles, storage (let alone a refrigerator)—and the chances are one will have instructed her on how to prepare bottle feeds properly."

"Could he be exaggerating this danger a bit," I queried? "From what I knew of village India, for example, breast-feeding was taken as a matter of course."

"You are right as far as village India goes. The problem there is to see that this continues in the future. The great present danger is in poorer urban and peri-urban areas which are growing so rapidly in all the developing countries. Some mothers have to work away from their homes for most of the day. They hear about these 'miracle' infant formulas and leave their babies at home in the slums and shanty towns with their grandmother or big sister to bottle feed. And as I just pointed out, this is frequently lethal. Studies from Kampala, Uganda and Singapore show that the pattern of malnutrition is changing—in towns, anyway. The problem period used to be the second year of life. Now malnutrition is striking during the first year of life, which suggests a disastrous decline in breast-feeding in these cities."

I asked Jelliffe about a photograph on his wall showing a woman suckling a child at one breast and a baby pig at the other. Was this a recommended practice?

"No, it certainly isn't—breast milk is for babies but it's not harmful in itself. The photograph comes from New Guinea. I have another one here that shows an American Indian woman in the hinterland of Guyana nursing a pet fawn. These are just curios I have to remind myself and my coworkers that breast-feeding in traditional circumstances is no more difficult than swallowing a glass of water. Lactation is basically a confidence trick. If you have confidence, it works. If you're anxious, if you have doubts, if problems are put in your way—as in many Western maternity units, where breast-feeding violates the whole hospital routine-then you have problems. In bringing better maternity services to the cities of the developing countries, this is a very important thing to keep in mind. Otherwise we might do more harm than good."

And what of the older children, from six months of age on, who need supplementary foods? If for infants, the prime consideration was to retain the traditional practice of breast-feeding, how could one go about improving traditional feeding practices for the older children?

"Here again I think it important not to try to alter traditional practices too sharply. Remember what I just said about cultural super-foods. Well, you shouldn't disparage these to the people who believe in them. In southern Uganda, for example, one would never tell mothers that matokesteamed plantain is not a good food. The message should be that their children need matoke plus skim-milk powder, groundnut or whatever other high-protein food was available. When children begin to put on weight and regain their health, this point is demonstrated by the best possible visual aid—the mother's own child."

The Impact of Food Technology

I asked Jelliffe in this connection if he shared my feeling that all the highly publicised work of the past ten or fifteen years in new high-protein food development seemed to have had fairly little impact on nutritional conditions in the developing countries, at least so far as the rural masses were concerned.

"I think the advances in food technology have been quite extraordinary and almost incredible and have influenced food patterns all over the world. But their impact is going to be largely on the new city dwellers and others who live in a money economy and have no chance of growing their own food. They are not going to affect people living in a subsistence economy very much.

"The backyard approach to nutrition has not received much publicity because it doesn't have anything to do with space-age technology. It's not 'with it'—it doesn't say 'twenty-first century'. But we're realising now that sophisticated processed foods are expensive and that they're hard to distribute in rural areas and that it's just as scientific to think in terms of nutritious mixtures based on foods available in villages themselves we call these 'indigenous multimixes'. There are few if any perfect foods. Most cultures meet their protein and other requirements through certain types of multimixes. Cereal-legume mixtures are the most common, and the cheapest of these multimixes that supply the full range of aminoacids needed for human protein nutrition. In Jamaica the mixture is rice and peas; in Mexico it's jrijoles and tortillas; in Indonesia rice and various soyabean preparations. In Britain, by the way, baked-beans on toast is a popular snack.

"Now, if as scientists, we study the natural foods already available in a community, we usually find that we can work out a formula for a weaning food that is just as complete as anything the most sophisticated food technologists could work out in a laboratory. We can start with the staple—the 'super-food'—preferably a cereal, but not necessarily. Then we add a legume plus if possible, small quantities of foods of animal origin—milk, meat, eggs, etc. We add a dark green leafy vegetable in small quantities as a vitamin and mineral supplement and lastly, and very importantly, compact calories, preferably in the form of fat. You can do this in almost any culture, and there as many possible multimixes as there are cultures and ecological areas."

And what of the problem of persuading mothers to accept these?

"It's not easy—just as it's not easy to get the press to pay attention to this type of backyard science. It seems so trite and fanal to suggest to a mother that her child's poor weight gain can be remedied and other symptoms of malnutrition prevented by such simple means. There's a disappointing lack of glamour to the whole thing. And people expect doctors to provide a good deal of glamour. When they bring their children to a hospital they regard

the taking of X-rays and temperatures as part of the cure. The only solution is to involve the mothers—not just treat the malnourished children and send them home again.

"Dr J. M. Bengoa, now chief of the nutrition division of WHO, worked out a model ten years ago for a nutritional rehabilitation unit that functioned in precisely this way. Different variations have now been developed in different parts of the world and they function quite effectively. Basically, they all embody the same idea. These nutritional rehabilitation units are set up near the villages, away from the central or district hospitals. The mothers are involved from the beginning of treatment. Sometimes they grow the necessary foods, sometimes they purchase them. They always have the job of helping prepare the children's special meals and feeding them to the children. These meals are all based on locally available foodstuffs, and the mothers can see the effect they have on these sick children, so they realise it is good food that makes the difference, and not hospital apparatus or any thing like that. These women tell the new women coming to the clinic with sick children what has happened, and when they return home they communicate their new ideas to other women.

Emphasis on Local Foods

"Dr C. Gopalan, Director of the National Institute of Nutrition in Hyderabad, India has shown that children's nutrition in India could be improved very considerably if mothers were persuaded to feed their young children larger quantities of even the limited range of village foods available to them—especially rice-legume mixtures. Gopalan and his colleagues have developed an uncomplicated 'Hyderabad Mixturei' of wheat, groundnut and other ingredients, all quite cheap, which is used to help children recover from malnutrition. This is given to the mothers of sick children by the health centres. Then, when the child recovers, the nutrition-education people explain to the mother what the ingredients are, how she can prepare similar nutritious multimixes herself. This is a slightly different approach from Bengoa's, but it works, too.

"I want to stress that this work on local multimixes is guite as scientific as any of the more glamorous work in space-age food technology that is going on. Scientifically guided research into various recipes, formulas and mixes is being conducted in many parts of the world. We are trying to determine things like precisely how much rice and how much legume have to be cooked together to get an optimal amino-acid balance for young children. A committee of the FAO / WHO / UNICEF Protein Advisory Group, under the Chairmanship of Professor B. Vahlquist, of the University of Uppsala, Sweden, has developed a manual for village-level multimix weaning foods. I can't think of anything of greater practical import now going on in the whole field of nutrition."

Jelliffe is fond of pointing out that nutrition education based on Western models is not always very effective in developing countries. One of the shibboleths he would like to see nutrition educators get away from is the motion of basic food groups, as presented in those familiar charts which display cereals in one compartment, dairy products in a second, fish and meat in a third, green vegetables in a fourth, and so on, with the injuction "Eat something from each group every day"—advice which is wildly visionary so far as three-quarters of the human race is concerned.

"The idea of the basic food groups—the precise number varies from ministry of agriculture to ministry of agriculture—dates back to the early 1920s, when it was devised in the United States as a means of getting farm families to vary their diet. It was probably a useful innovation at that time. To divide foods into these special groups like this isn't very scientific, however, and it can cause confusion. For example, you can't distinguish as sharply as most food-group charts do between protein foods and carbohydrate-calorie foods. Because of the wide impact of these food-group classifications, educated laymen often don't appreciate the fact that most of the protein eaten by man comes from vegetable sources, and largely from cereals, at that. If you have a properly balanced consumption of vegetable protein, based on several different sources, you can dispense with meat and dairy products altogether."

"A more rational approach to nutrition education, I feel, and one that does less violence to people's cultural concepts, is to start with their staple food and move outwards and upwards from that food in teaching them about good nutrition. If there are two staple foods in a culture, then start with the more nutritious of the two—a good cereal, if possible and show them in very practical terms how they can supplement it. I think this is a more rational procedure and one less likely to confuse mothers. Sometimes the categorisation of products into basic food groups is more appealing from an aesthetic point of view to the nutritionist and the artist than it is useful or understandable to village mothers."

Famines and Families

Lying across the desk from me I saw a reprint of an article on "The Effects of Starvation on the Function of the Family and Society", by Jelliffe and his wife, Patrice. The reprint was illustrated with horrifying photographs of recent famines and equally horrifying line-and-wash drawings of older ones.

"How did you get into this?" I asked. I could not avoid it. You know with the end of the post World-War II emergency period, we hoped we were done with actual famines. FAO, WHO, UNICEF-the UN agencies concerned turned their attention to long-term, chronic food and nutrition problems. They were right to do so. Every day malnutrition in the world's poorer countries kills and damages more children than all the man-made and natural catastrophes combined. But we were wrong in thinking there would be no more famines. There was the Bihar famine of 1967 in India. Then came the Nigerian civil war, when one of the most severe famines in history occurred in the wouldbe breakaway eastern region. We still aren't out of the woods in Bangladesh though major starvation seems to have been averted so far.

In 1970 the Swedish Nutrition Foundation convened an international symposium on starvation to draw up guidelines for a kind of international fire-brigade to deal with future famines. Famines are certainly going to arise in the future, but with the extensive food surpluses on hand in certain parts of the world and with the space-age communications and transport systems we now possess, there is no reason why they have to be as murderous as in the past. I'm

glad to see the UN is already taking up some of the suggestions made at the symposium.

"I was asked to present a paper on the effect of starvation on family and community ties. My wife and I did quite a bit of research into the matter. There's a good deal of information on record about famines going back thousands of years. Many accounts of famines were written under very terrible conditions: often they contain little in the way of precise figures. But the general pattern is clear. "

"The first affected, when famine strikes, are children in their second year-the ones who have been recently weaned or are being weaned, in other words—pregnant and lactating women, and the sick and aged. At first, the infant at the breast is spared. Lactation seems to persist quite well in early starvation, though of course to the great detriment of the mother. As starvation persists, the mother's milk dries up, however, and the infant of nursing age then becomes the most vulnerable member of the community. So basically, the greatest casualties of famine-short of everyone's starving to death-are young children and pregnant and nursing women. Late in the Nigerian war, one observer in the eastern zone noted laconically, 'One hardly sees children aged between six months and five years."

"The psycho-social effects of famine are just as clear from the record. At the beginning, the family, the clan, the community draws closer together. But as the experience continues, normal social ties break down. The sole focus of people's thoughts and activities is food. Ultimately it is every individual for himself. This leads to the wholesale abandonment of children. People leave their homes to search for food and simply leave their children behind."

"So far as international relief efforts go, I think it's clear that there should be the greatest attention given to selective distribution of appropriate food to young children and to pregnant and lactating mothers. Lactating mothers are a priority group not only on their own account but because of the need to enable them to continue the production of the most vital of all emergency foods for young babies—breast milk."

The Future

As a wrap-up question I asked Jelliffe what he thought all the international work in the field of food and nutrition over the past 25 years added up to and what he thought the future prospects were.

He told me it was an impossible question to answer briefly. "We've learned a good deal from the things we've done over the past 25 years. One thing we've learned is that some of the orthodox approaches don't work very well. I'm thinking of conventional hospital treatment, large scale and relatively unsupervised supplementary feeding programmes, stereotyped village applied nutritional programmes. The International Union of Nutrition Sciences had a meeting in Zagreb, Yuqoslavia, in August, 1971. The subject was 'young child nutrition' and the meeting was attended by fifty persons of considerable experience from all over the world. We looked over all these world-wide programmes, some of which represent investments of tens and hundreds of millions of dollars, and we concluded that the future of applied nutrition work lay in

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greater adaptation of programmes to local circumstances, community involvement in fact and not just on paper, the use of greater numbers of auxiliaries and volunteers. In a sense, we've got to get nutrition away from the experts. We need to induce auxiliaries and volunteers to go out into the villages and carry messages of a very simpleseeming nature to the people. "I suppose this is what I've been talking about to you for the past hour or so: that it's the human element that counts. I think the prospects of combating malnutrition among the children of the world's poorer lands are good if we can get through to the people. Which means we have to understand them and that we have to understand just what food means to them."