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Interview with Ron Hill

by

Judith Spiegelman

Spiegelman: Your recollection of how India contributed to the dairy industry in India and Israel I think will be very fascinating to two very important audiences for us. You were saying that the two successors of the MCH, milk conservation programmes....

Hill: MCP.

Spiegelman: MCP...were India and Israel and that in India the dairy industry helped from UNICEF started in 1953 and there was very little, next to nothing, at that time in the way of dairy farming, that prior to the independence and partition of India there were military dairy farms under British rule where the soldiers followed modern methods and everything else was man-in-the-street and that there were animal stables in the major cities, Bombay, Calcutta, etc., because that was their main way.

Hill: There are always exceptions, of course, to every rule. There was a Swedish Company called Keventer's in India who did run...

Spiegelman: Keventer's?



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Hill, Yes, K-e-v-e-n-t-e-r, they ran a series of very good farms with outlet shops in Delhi, Bombay, Calcutta, I think, maybe, Madras, but were well, a closely-knit organization. They produced on their farms and they marketed their products, I think I can say you could compare that with what I call the dairy products over here. They were good, they were expensive, but people wanted them, the upper class wanted them and it was a very good business.

Spiegelman: But it was not Indian?

Hill, No, it was like the military dairy farms, operated you see by Europeans who were used, of course, to their traditions of dairy work in Europe. Now, the Bombay Government was very concerned about the serious hygienic problems in the city because of these animals that they had. They called in the help of the British Milk Marketing Board, naturally, they called the British because it was their ....

Spiegelman: This was in '53?

Hill, I would probably say, '49, I would think, I am not absolutely sure of the dates, but anyway they got a man to go out from the Milk Marketing Board and he did a survey for them and made recommendations, and as a result of that, the Bombay Government took over the importation of - they controlled the importation of - skim milk powder.

Spiegelman: Through UNICEF?

Hill: No, no UNICEF at all yet. They did that in I think 1950, they controlled the powder coming in, they were the sole importers and they were the sole sellers and they sold to the hotels and the teashops in Bombay and they used the proceeds from that business to start a fund going for promoting a big dairy venture where they would move all the animals out of Bombay and they would have a dairy outside Bombay to process the milk and to cool it so that they could then transport it back into the city and distribute it without it going sour. Now that programme which is known as the Aarey Colony programme was started before UNICEF came in, in fact, it was an operating dairy when Don Sabin and I were in India in June 1953.

Spiegelman: Could you spell that "Aarey"?

Hill: A-a-r-e-y. Now, however, because that was going, the Government could see benefits and they wanted further things. They wanted some additional equipment for their Bombay dairy and they wanted some assistance for a co-operative which was the Annan Co-operative.

Spiegelman: Is that also in Bombay?

Hill: No, that was 260 miles to the north, and that had started during ...it wasn't a military dairy, it was a government dairy and I can't remember its background. They wanted to develop that as a rural milk supply. Annan was sending milk to Bombay and they wanted to extend it. Annan Co-operative and Curian was then

starting as manager with his colleague DeLier - they were very keen to develop the Co-operative and what they wanted was a drying plant so that when there was a fast or a feast or a school holiday or whatever in Bombay and the Government suddenly said we want a little less milk today they still could take the milk from the farmers - all of it - and if they had an excess they didn't want to send to Bombay they could dry it there and make use of it for butter and skim milk powder. This was very important. Prior to having that drying plant what they had to do was they had, say, five milk groups with the lorries, if they knew Bombay was going to take less milk they just didn't send the lorry down, milk ???one..

Spiegelman: Milk was??? they called it that?

Hill: Well, they had them as milk groups and they rotated. They said we can't collect from yours..the farmers then ...nothing you see.

Spiegelman: How was the milk collected?

Hill: By lorries.

Spiegelman: By lorries? Not ???

Hill: They went to little collecting centres...

Spiegelman: With trucks?

Hill: No, no, they had lorries. When the Annan plant got their drying plant from UNICEF that was the beginning of an operation that enabled Curian to be at peace with all its farmers because he could say to them, you, produce what you can, there is going to be no more days when I don't send the lorry. I am going to have a lorry down every day, I am going to collect all the milk, we are going to process it.

Spiegelman: Before that there was difficulty?

Hill: Yes, for the simple reason that he couldn't collect the milk if Bombay wasn't going to take it.

Spiegelman: He was the manager of the Annan Co-operative?

Hill: He was the manager of the Annan Co-operative. This then provided him with the possibility of saying to the farmers, you have produced the milk and collected it and then there was peace between Curian and all the farmers. And then this is the story: 1948-1949 the dairy co-operatives, the little societies that were scattered down the various routes, there were 13, the value of the milk in that year was 790,000 rupees.

Spiegelman: Which is roughly in dollars?

Hill: Leave it in rupees for the moment, 790,000. In 1980/1981 there were not 13 but 895 dairy co-operative societies. They produced

752,000,000 rupees worth of milk. 790,000 to 752,000,000. Now even allowing for the fact that money values change by say 5 times divide 752,000,000 x 5, its 150,000,000, so from 1 million - call 790,000 one million if you like, 150 times that ...

Spiegelman: Increase, in the value of the milk.

Hill: Here is the table. Here is the UNICEF book, here is the table of their work.

Spiegelman: And it takes someone like yourself to interpret it for us.

Hill: This is what I have been trying to do in the paper, you can take the paper.

Spiegelman: May I ask you, I know that Curian got a UNICEF grant or fellowship for something - do you know what it was - what he achieved and how much UNICEF gave him? What was his research?

Hill: You mean a personal grant?

Spiegelman: Well, he was doing something in connection with the dairy field early in his career, and Mr. Grant when he was in India reminded him that UNICEF had given him a grant for something. Now whether it was him in his capacity at the Annan dairy or whether it was a personal research capacity having to do with dry buffalo milk was something which was very rich and Mr. Grant reminded him, and what he did, he took the Picasso advocacy

card as his company's official..I guess it is the Dairy Board now, he is the head of? The National Dairy Board or the Regional Dairy Board, I don't know the details.

Hill: Well I don't know them.

Spiegelman: The first order of the advocacy card, Mother and Child by Picasso, at the end of last year, before anyone else used it.

Hill: Judy, that I don't know. What I can tell you is this, that the Annan Farm, to the best of my knowledge was the first drying plant in the world commercially to dry, spray-dry, a bottle of milk.

Spiegelman: And it was perfected in India?

Hill: Well, the question was, could it be done? And what we did in India was this, Curian found that there was a pharmaceutical company in Bombay, I'm talking about July 1953, who had a very small spray-dryer from the Nero Company in Denmark. Curian found out that he had a contact to get to know .... the contact was one of the people in this pharmaceutical company, and with that contact he made arrangements to get some skim milk separated from buffalo milk, separated in Annan, put in cans, put ice around it, sent 270 miles, 260 miles down to Bombay, the lorry was there to take it to the pharmaceutical company, and one afternoon, and I have a photo of this, we dried it. I said to Curian, if you, Varghese can give me one or two pounds of

dried buffalo milk to take to New York then there isn't any question of the Board about whether it is possible or not - I can just hold it up and say, yes, it's possible. Now that was necessary for me if I was going to say ??? defending the paper in the end, we must do this, if there are any questions we've got to study it. It went in, it was a very successful drying plant. In fact within, I think, two years, they got another one, but they got that through Danish assistance. But they've gone by leaps and bounds, not only at Annan, but with further drying plants and a good ????

Spiegelman, Now, what has this meant for Port????

Hill: What has this meant for Port???? I would say it ?????t. The Indian Government, to the best of my knowledge, was scrupulously fair and exact in relation to plans of operations made by UNICEF. In fact, they were hesitant to the point of signing those agreements to have this equipment until they really felt they were in a position to totally honour them. First of all, you had a feeding programme organised very much in relation to the assistance that UNICEF gave. You then having got that started, there were usually some government funds, some state funds, maybe ??? some town city funds, municipal funds available for continuing the programme that UNICEF had started which was related, of course, to the value of the equipment they put in. Then, Judy, there was the other thing. You've brought into the Annan circle between 1948 and 1980, the number of members in the societies from 924 to 327,000. Those are farmers. They have



families, they have children, they have a daily payout of money, there is a daily cash flow of money to those farmers. They are all able, and you can see it in the area. They are all better able to take care of their families. This is another. Then you start to go from Annan to the all-India packet that Curian is masterminding. He is chairman of the National Dairy Board, he's got this tremendous milk grid throughout India which, they even sent milk down from Annan to Calcutta when there was a shortage. You're doing the kind of thing that England did with its Milk Marketing Board in the '29 and '30's. No more isolated farmers. A farmer produces milk, he puts it into the milk grid, it might go to Birmingham, it might go to London, it might go to Edinburgh, that's not his concern. The payments are based on of course where the farmer is located, but instead of having a sort of industry that is disconnected and disunited you bring everything together. England stepped up its milk production in wartime. In 1939 it was about 11,000 million gallons, it went up by 50% by 1944 in wartime when you are replacing plant, the men on the plant with women. Now this is the thing that Curian is now doing in India . You've got a tremendous increase in local milk production, you've got a tremendous benefit to all the farmers that are supplying the milk, this is the other area, Judy, which I think is important vis-a-vis children, plus what the dairies are doing in providing a safe milk to families, not all of them poor, but..

Spiegelman: But is there a free milk distribution under the terms of UNICEF assistance?

Hill: Well, that goes for 7 years.

Spiegelman: That's not on any more?

Hill: Well, I don't know, the hope was although UNICEF could never say look it's going to go on for ever, you stir up local pressures, don't you. That then is a continuing thing. The biggest outlet, Judy, for what I call free milk, if you look at the western world, is the pressure of the dairy industry itself. I know it would perhaps be a nice thing to say about England, but you know you have a lot of very good people who have organised things for children, but you know, the dairy industry has been a lobby. If they got milk they want to sell, you think of all the avenues - milk for children in schools, milk for people in factories. My first job was with ICI Livestock Corporation Industries. We had to have even in the drawing office, we were all asked to take a pint of milk a day. We paid for it but the management of ICI felt it was a good thing to have that milk and be good for everybody to get it but, to people in a lot of the parts of the factory the acids and ???section where we were producing sulfuric acid, nitric acid and all those things, there was free milk to all that staff, for health reasons. So you create a dairy industry and at the same time you create the kind of internal pressures which start to look away from the needs and if they can continue these feeding programmes by any of their own lobbying, they will do it.

Spiegelman: So really, the question is we should clarify whether there is still any free or low cost milk distribution from the dairies assisted by UNICEF. That is really what we should clarify.

Hill: Very good idea, and you could do that in both India and Israel. In fact you could do it in the European countries as well.

Spiegelman: Well, it's really the developing countries that we're most interested in.

Hill: Israel, Turkey. Turkey had a plant in Ankara at the ??? Farm. Egypt had a plant in the Nile Delta.

Spiegelman: Was that a milk plant?

Hill: Yes, Baghdad had a very nice city dairy that enabled them to pull all the cattle out of the city.

Spiegelman: But basically, the original term was for the first seven years after the furnishing of the plant?

Hill: It varied a little, sometimes it was seven years, sometimes it was ten. You're always allowed a little bit of time for the dairy itself to get organized, and to get price structure established and everything like that and then to go in with that.

Spiegelman: Ron, could you speak to the sacred cow and how that helped and/or hindered the dairy aid in India and particularly the cow vs the buffalo. What about their milk?

Hill: Well, I think you're dealing with a very tenuous sort of religious position as far as India is concerned. The handicap, really, is that you must, I am an engineer not a veterinary man, but I know that, take for example, New Zealand where I worked for several years, you have in New Zealand a very viable milk industry which was a tremendous supply certainly in the years that I was there - '46 - '52 - tremendous supply to the UK Government. I think I am right in saying that figures were about 1,000 tons of butter and 1,000 tons of cheese a day. That was the production from New Zealand that was being shipped to Britain. Now, when you look around New Zealand, you have the butter factories, you have the cheese factories, but you had another factory and that was your meat works. The meat works was where you dealt with the sheep and the mutton, of course that again went from New Zealand to UK and of course dealt with your animal - you took your animals which were getting old, tailing off as being producers of milk - those animals you took for slaughter, you took for various things done with the meat, bones of course for bone meal, skins for leather, that was a very necessary part as far as New Zealand operations were concerned that you had ever so often for??? dairy parts you had to meet them. Now what's your problem in India? The problem is that you can't in certain areas without very serious problems you cannot slaughter animals. Therefore, they drag on and you have a problem there. You don't have it with the buffalo. You can in many places now, I believe, well you might have some sensitivity but I think I am right in saying that generally speaking, buffalo slaughter was possible. That was a meat

source, and one of the problems you see with the split in India....

Spiegelman: The partition, you mean?

Hill: Yes, you had your Hindu who wanted the milk but not the meat, and you had the Moslems who wanted the meat, and there was no rule for them about the animal slaughter, so there was some balance, but you see when you separate out your Moslems into Pakistan and your Hindus into India, then the problem was aggravated. Now, one way was to start thinking more and more of course about having the buffalo as a producer for milk and incidentally, a very good producer, but a lot of people favour cow's milk for religious reasons so you're still tied to the cow. Many of the dairies were handling both cow's milk and buffalo milk. They are in the Bombay area, chiefly buffalo milk but there is some cow's milk.

Spiegelman: Is the idea of the sacred cow - is there any prohibition against milking cows and the good care of cows would be consonant with good nutrition.

Hill: No, no. The thing is, Judy, that you really at a certain point of time, the benefit of feed to the animals, you want to ...you just isolate those that are beginning to tail off in their milk production. You just...there is a technical word but I can't remember...there are ways but it is difficult and you can create problems. I can illustrate the point in this way. I did a

survey with a very clever Dane on one occasion. His name was Gates. He ran a very efficient farming business in Denmark and in going over with the Indians some of the price structures for milk and his operations as well, making all their notes on paper they said to him that from what you said to us you are not making any profit out of this at all. He said, that's right, where the profit comes is what I do with the animals when I isolate them from the herds at the end of their useful milk life. So he just put his prices in so that on the milk operation alone he balanced his budget, but when he reckoned what he was able to get for those animals that he was sorting out every year from the herd - after all, you don't get milk, Judy, unless you put the cow to the bull and you start the whole of your milk lactation again. Your lactation is nine, seven, eight months then the cow gets dry and you don't get more milk until you've had another calf, so you're producing more animals and you've got to take animals out of the herd, the old milk producers have to be just weeded out.

Spiegelman: You mean, this sounds like a very naive question, you mean cows only produce milk after ???? mammals and when they calve, they don't produce milk otherwise? They have to foal or whatever it is? I see.

Hill: You've got a continuing number of animals that are coming into the world and you want the animals, you want the young cows but you have to take out the old animals. As they have done in India, they may just go some place like one of the nurseries for

old animals. But it wouldn't be fair, they've all got to be cared for and they do nothing.

Spiegelman: I see, I see.

Hill: Now, you talk with the son of what I call western-trained Indians, even Indian-trained Indians, they can look down the road and they see this as a great ???

Spiegelman: But the effort to have that buffalo milk, to dry buffalo milk, I thought there was some question as to whether it was too fat for children.

1. Buffalo milk is high fat milk, Judy, and in many instances now what they are doing is they even standardize it to say it comes out at about 7% fat, they standardize it to 3-1/2% fat which is about the level of ordinary cow's milk, take an Ayshire or a Holstein herd - 3 - 3-1/2% fat is your average. They bring that fat down, then you've got to of course make butter out of that, and you have to have marketing arrangements for selling it. If you want a figure, Judy, that I can remember very well that illustrates, I mean, I am not saying this in any unkind fashion, but will illustrate very pointedly that the development which has taken place in India since I was there, in 1953 I made calculations with Curian about the price of milk, what we could charge for skim milk powder, I wanted the price of that because I had to say how much it would be a pound, how much money UNICEF was putting in, how many pounds of skim milk powder we could

get, how many children we could feed with it, that's the plan of operations, right, then what about the cost of the butter? We estimated the cost of marketing it and we made a booboo. We didn't put in enough money. It cost more to do it than we thought. We found out, or I did, that on the whole of the Indian Railway system there was one 5-ton shop with a refrigeration compressor, a railway truck with a refrigeration compressor that could distribute butter and that belonged to Spinney in Madras and was used for... again, they were a firm like Keventer's, they brought butter in, they were importers of butter from New Zealand and Australia, and they had a distribution patent in India, just for the benefit of course of a lot of western people. Now, I said to Maurice Pate, I said, "Maurice, as far as I have been checking into this story I can guarantee that 10 trucks have gone up First Avenue that have got more refrigeration on them than one truck, that's the problem," but today Curian has organized a network of refrigeration centres, butter stores, butter trucks for the railways, this has all come in in these years.

Spiegelman: Now, in the years before 1953 when evidently the refrigeration of milk was very important so that it didn't spoil and the safety of milk so that you didn't get cholera or typhoid, why are you shaking your head?

Hill, It wasn't there, you had to take the milk from the animals. The men brought the animal round to your door and milked it in front of you. You watched him, then you boiled the milk.



Spiegelman: You had to boil the milk?

Hill: Everybody boiled milk.

Spiegelman: A man took a cow door-to-door in India and sold in the city and in the countryside as well, from farm to farm and from house to house in the big cities of India?

Hill: Judy, one of the most interesting discussions ...

Spiegelman: My God, Ron, this is priceless.

Hill: One of the most interesting discussions I had was with Glan Davies in Calcutta. Glan can corroborate this story. Glan, as you may know, was with the Indian Government prior to the time that he was recruited by Maurice to head up the UNICEF operation in Delhi, and given the charge of the Delhi office. Glan had friends, he was in the Bangol Government, he had friends in the Bangol Government and I went with Glan and sat down with one of those fellows who was then one of the principal government secretaries and we discussed a project for Calcutta in the very early stages. This man was an economist, he was a quiet man but a brilliant man. We discussed the whole of the sort of UNICEF operation and the possibilities and everything else. He said, look, Glan, it is wonderful, we take the cattle out of the city, we go out as an extension of this scheme that Casey, the Minister from Australia had started immediately after the war when he saw the position in Calcutta, Australia went in with an

effort to build a small area outside Calcutta, he said, we follow up on that, we move the cattle out, he said, we have a dairy there, we process the milk right away, we cool it, we bottle it and we bring it into Calcutta, but, he said, there are people who by tradition, family tradition, have for maybe centuries, they have collected hay in the Delta and they have put it on their barges or their boats or whatever and they have come along these sort of canals and down the Ganges, he said now, they are not going to have any business, what do I do with them? He said, I agree, you've solved one problem, but then how am I going to rehabilitate these people? I take the cattle out, the only work in the world that they can do is to ferry this hay into Calcutta to feed to the cattle and if you take the cattle out I don't know what to do. Here's the problem.

Spiegelman: Ron, I wanted to clarify one thing, before 1953 there was virtually no bottled milk in India?

Hill: That's right.

Spiegelman: Almost everybody drank milk that was collected....

Hill: You had it delivered to your door and milked in front of you.

Spiegelman: You saw the animal or from a milk can. How was it kept unspoiled?

Hill: You had your milk from those people morning and evening and you boiled it.

Spiegelman: Fresh, and you boiled it. How long is it good after you've boiled it? You ice it?

Hill: No, No. Most people haven't got that. Just about a day. The other thing is that if you thought that milk might go off, then possibly you might add a little bit of sour milk to it and produce your curds. In other words, deliberately sour it and make yoghurt. So the yoghurt masks what you call fresh milk.

Spiegelman: Was the milk prior to '53 a source of disease? Diarrhoea disease, infection?

Hill: Yes, it would be, because I think, Judy, you see you've got always the people who wouldn't boil milk because they hadn't perhaps got enough fuel to do it. They thought they boiled it, they saw steam come off, but I think that generally, speaking, the people got very much accustomed to the fact that in India you boil milk, and I think this was true of the Indians and also true of the western people. Most westerners relied on Nestlé, very sweet condensed milk or Pet evaporated milk. Those products came in...

Spiegelman: We're talking about millions of Indians. Of course, the foreigners had a problem. Well, that's very, very fascinating. Do you think that that is a very sensitive area for this Indian Government to speak about conditions? Well, they can always blame the British, that is at the partitioning or right after

the partition that they hadn't developed a powerful industry or...

Hill: I don't think they would blame the British. What you find the real Indian would say is this, "Yes, the British made plenty of mistakes in India, but they gave us some roads, they gave us some railways, they gave us some ports, they gave us some good industries. There was an infrastructure of government that, look, Judy, some of the things in the government they overthrew for a time, the British, for instance, the first and second and third class on the railways, they reduced it to first and second, but they had to go back to three classes. The Government went to Simmler in the hills in the heat of summer, it was only the room airconditioner that gave the Indian Government the possibility of holding their staff in Delhi and not continuing this wonderful...they filled those railway trains and took the whole government up the hills for the summer.

Spiegelman: Because our time is so short I would like to kind of drop this and I don't know about you but I am also going to ??? party. Would you give me a half hour on Israel and we will go at 4.15?

Hill: I have a tremendous interest in Israel, a spiritual interest and Barbara Tuckman wrote this book called The Bible and the Sword in 1956 ??? very fascinating book. The British in Israel. This might give you a little bit of background of ????? about Israel. Barbara Tuckman, I wondered when I read the book, it was a friend in England who pointed it out to me that it was

available, and I ordered a couple of copies only to find out it was available over here - it doesn't matter - what I noticed about it it finished in 1918 and I wondered why. She does a magnificent work of tracing the whole sort of impetus, no, that's not the right word, the sort of effect of Christianity in Britain and the way it affected society, particularly in the Victorian period when you had someone like Shaw ???? organizing the factory, against children in the mines and things of that kind, wearing a ring on his hand with "Pray for the peace of Jerusalem" - an evangelical who was totally an evangelical but who had the wisdom to know that he couldn't influence his government to do anything for Palestine through evangelism but he could influence them through saying, look, if we're going to keep our way to India open, then we should be in Palestine. We should have a base there because in Alaska when of course the Suez Canal came up and Disraeli bought the shares then there was even more pressure. She's got all this in and brings it down to Britain and the mandate, but then 1918 finishes and I wondered why. She says in her practising history, I was asked by my publishers to finish The Bible and the Sword - bring it up to date to 1956 - the Suez crisis, and she said I tried to do it. I wrote and wrote and found myself totally unable to cover that period because of disgust that a country that had done so much and then put its cruisers in to ram the Exodus and sink it and things like that, she says, I tore it up and said now 1918, I can't write it. Now, I went in 1944 and one of the things that I had by virtue of the fact that war wasn't over was the counsel, the guidance of a liaison officer in my work, Colonel

Crawford. His opening words to me when I met him the first time to talk about the business of what I had come out to do, we had gone over that and he said to me from the over side of his desk, he looked very strange, and said to me, "Hill, we keep Sunday, the Jewish keep Saturday, he said the Moslems keep Friday", so he said, "that gives you 4 days to do your work". Now he said, this is the way we organize it....

Spiegelman: He was a British Army man?

Hill: Yes, stunning, absolutely, just absolutely superb. He said, the first question I want to ask you is this, how the hell did you get into the King David Hotel? I said, very easy, I have always had an interest in Israel I said the National Geographic magazine had some wonderful articles in the 1930's. I just went to the King David Hotel and pink stone and how they were building the YMCA building you see and Ronald Stalls had issued that all new buildings in Jerusalem were to be done with this pink stone and we were to destroy the facade the ?? we went to destroy the local colour and I said, what did I do, I just sent a cable saying ?? "Thanks" he said, "I will have to tell my ??? to ". You couldn't get in, Judy, well I sent a cable on the arrival desk, I said, my name's Hill, I sent you a cable, you've probably a room for me. Yes. Once we were in??, but if I had come there cold, not a hope, but I followed up, his side of the thing was, that you know there was what he called a wealth of technical ??? he said, you will see that everywhere, it's a Father Christmas country, the capital all come from all sides

and he said I don't know how long this sort of thing could last, that's my problem in relation to your staying and what the British Government wants to ??? But he said, I am right behind you, I have the greatest admiration to see more and

Spiegelman: What I am really interested in is not really the citrus, I am really interested in the milk.

Hill: Well, this was the first thing I had to ask him, can I on the side take up some interest in the milk and he gave me some connections there with the Teneuva Company, the big milk cooperative and they...

Spiegelman: What was the industry like at that time?

Hill: Well, they had a dairy in Jerusalem, they had a dairy in Haifa which was the best and the biggest and they had one in Tel Aviv.

Spiegelman: This was February 1945?

Hill: 1944.

Spiegelman: 1944?

Hill: Sorry, 1945.

Spiegelman: Before the war ended.

Hill, Yes, the other thing I was able to do is to form a very close, for my company, form a close relationship with a firm which we later appointed as agents, The ??? Brothers, and we moved ahead from that date with equipment for extending the Teneuva operations in the milk area but it was slow. There were import difficulties, there were manufacturing difficulties as far as that was concerned, but what I want to emphasize, they were trained people, highly trained.

Spiegelman, Where did they come from?

Hill, Holland, they had a wonderful herd of animals, Holsteins. They had acclimatized in Ashdod ???? the Jordan Valley just below the Sea of Galilee, they acclimatized unto that, that's a fairly warm climate down there, that's not to Holland.

Spiegelman, Where did the Holsteins come from?

Hill, They came from Holland.

Spiegelman, Did they come before the War?

Hill, Before the War. I forgot what the number of them was that they had in that kibbutz, but I would say they probably had a couple hundred animals, and they produced milk and they put it in tanks and they iced it and it went up to Jerusalem and it went into the little Teneuva plant in Jerusalem.



Spiegelman: Was it a bottling plant? Were there bottles at that time?

Hill: Yes. I think there was a little, but they were very restricted. A lot more had to go out in cans and a bulk distribution.

Spiegelman: In other words, it was labeled, house to house.

Hill: When you do that, that's when you get possibility of infection from handlers and dust and what you will. Then of course, people again if they weren't boiling just as we did in England in the early years...

Spiegelman: Was the milk pasteurized? You were saying about pasteurization, Ron.

Hill: Pasteurization is ??? One is, it gives you safety. Two, it increases the life of the milk enables you to distribute it over a wider area. In other words, it slows down the rate of bacterial development in the milk so that you get as it were an extended length of time during which you can process it. If you can keep it refrigerated you get an even longer period, and that is very important from the point of view of the distribution. If you just take milk from the cow at 90F and you start to distribute that uncooled, and you start to do it in a hot climate, you haven't got very long, Judy,

Spiegelman: Before the milk goes bad. Could you characterize the milk industry as you knew it before UNICEF in Israel. You were there when it was still Palestine before Israel was created but what you saw in '45 - I don't know when UNICEF aid went in, it was probably '50, '48, '49.

Hill: I think it was about '49, '50 it started.

Spiegelman: You think you can speak to what it was like at that time?

Hill: I would say that probably it was very much the same as '44. You just had the limitations of physically being able to get hold of equipment, that was one of the difficulties that UNICEF had.

Spiegelman: Not so much that - that the milk was not bottled, it was distributed - that's what I mean. Could you go through how it was being done.

Hill: I would say that probably in the fifties it was just the same. They had

Spiegelman: No bottles, right?

Hill: Judy, I can't say...there was a little bottled milk in Haifa, I know that. Jerusalem, as far as I remember, I think that was a bulk distribution. They were waiting for bottling and filling equipment because their equipment ...they had had some that had worn out in the war years. That is what they were waiting for.

They knew what they wanted, they knew what they had to get, the War stopped it, they were waiting for the re-establishment of normal trading then they could start to import the things they needed and as soon as they could do that then the Teneuva development started in Israel.

Spiegelman: So let me just recapitulate. Until the UNICEF aid started, milk was being distributed to the majority of families in bulk, that means that they either went to a store and it was given out in a ladle ....

Hill: In their own jugs, or whatever.

Spiegelman: In their own jugs, increasing the contamination possibilities, and it was basically the sanitary aspect, that it was less controllable and also the quantity of milk being produced was limited.

Hill: Yes, because as soon as you start to improve the product, Judy, then you start to improve the sales of it and of course, in addition there were after 1948 large numbers of people coming in. The ban on immigrants was down, there were more people coming in and so you had an expanding quantity of milk being produced. If you could....I am sure that nobody can give you figures of just what....in fact, there is a wonderful book on Israel called Facts and Figures and that gives you just how the milk production and distribution has gone up in Israel over the years. I don't know - I might even have one of those at home

because I have written some articles for other journals on that aspect - and that has gone up and also with the supply plant some went to the Teneuva and some went to private operators who were licensed by the government to operate the dairies on behalf of government. That applied to I think one or two milk sterilizing plants. We put the milk into a bottle and then you could produce it in Tel Aviv, you could send it then without refrigeration to ???? and up into the ??? the northern parts of Israel. As soon as people opened the crown cork, the closure on top of that like a beer bottle closure, then you got to refrigerate the milk at that point if you wanted to keep it.

Spiegelman: Was UNICEF involved in giving the equipment, providing the equipment to make this very strong closure? Yes?

Hill: Yes, we had a whole milk sterilizing line, I just can't remember the place where it was but that was done in the late '50's.

Spiegelman: Do you have copies of those articles that you have written on the aid to Israel and what it meant?

Hill: No, I was writing on the citrus side more than anything, but what I know I wrote down to the Jewish, the Israelite Consulate here, and I got what they call Facts and Figures and that was very interesting. It not only gives you just facts and figures for 1970, we'll say, but it had tables that took you right back like this one in the Bombay book does, to 1948/49 which is like the Annan one, and there you get an idea of the sort of growth. Israel has become totally independent of any outside ....

Spiegelman: Self-sufficient.

Hill: Totally self-sufficient.

Spiegelman: And at that time it was in '44, do you know, or again in ...that is when Israel was born, or was in '48, what the situation was vis-a-vis its milk sufficiency?

Hill: I would say that we're talking about self-sufficiency at the point where you've got what I call an adequate amount of milk for every head of population. I don't think you got that in 1948. There were people who had milk, there there those who didn't have it because .... they didn't have an adequate ration of it, I will put it that way. Now, it's not ??? sufficient, but your daily consumption perhaps after ??? thirst is taken care of with the production they have now. That's the real agricultural development and they're processing them.

Spiegelman: What you characterized, Ron, that of all the milk conservation programmes, India and Israel were the two success stories. What made the Israeli programme a success?

Hill: Well, I think that the government wanted to do it, they are trained people and they had the beginnings of both what I call the agricultural knowledge and the herds and they had the beginnings of dairies in Jerusalem, Haifa and Tel Aviv.

Spiegelman: Is the equipment that UNICEF provided at that time in '50 and '53, I think, is it still being used?

Hill: That I don't know.

Spiegelman: I see.

Hill: I would think by now probably that that had to be superseded but I have no question in my mind about just where the dairy industry is. I know that when I was writing those articles on the citrus juice and about, I suppose if I sent you 2 or 3, those facts and figures booklets that I have from the Consulate gave me an indication of just where the milk had gone and it was a remarkable story.

Spiegelman: You mean how the production has gone on, the production and the distribution, right.

Hill: Yes, yes.

Spiegelman: In writing about this period I did some research myself and in the article we made the statement, and I just want to check with you that it is not an overstatement, to say that UNICEF aid to the dairy industry and to the bringing in of bottling, modernizing the dairy processing aspect, helped Israel to develop it to the Beersheva south area and to the remote areas where it helped to induce families to settle in those parts of the country, in other words, that it enabled them to take care

of the immigration of families with young babies. Would you say that is not an overstatement of what happened at that time?

Hill: No, I don't think it would be an overstatement, Judy, because they had their milk sterilizing plant or plants, I think it was more than one, and that enabled you to distribute milk over wide areas unrefrigerated.

Spiegelman: Over what period of time?

Hill: Well, you've got,...sterilized milk on ice...I suppose, at least...you wouldn't stick it out in bright sunlight, but you know the sort of ordinary 70F would keep a month. Then you would find at the end of that time you could open...

Spiegelman: You could keep it for a month, bottled, without refrigeration, really? Yes, out of the sun.

Hill: Yes, it's like evaporated milk in the cans. That's a sterilized milk. That's evaporated, of course let's get an additional benefit and it's slightly concentrated so that you know your evaporated milk, your Carnation evaporated milk and milk like that you can add a certain amount of water to that to make it the same strength as the cow's milk, I don't know whether it is 2 to 1, or just what it is, but the sterilized milk they had in Israel was natural strength. You had a bottle of milk....

Spiegelman: A glass bottle, right?

Hill: Yes.

Spiegelman: I see. Now did India have sterilized milk?

Hill: They do, they have a small amount in Bombay. Sterilized milk requires a very good quality milk to start with. That's why from the kibbutz in Israel that quality is there and they can sterilize it and they have very little problems.

Spiegelman: And was most of the milk in Israel sterilized?

Hill: No, no. Teneuva was all the pasteurizing operation. But gradually the sterilizing picked up and as I say, enabled this very big, from Inac to Kadogli(?) was the kibbutz right in the north you could go between those two places, the distance was 400 miles maybe, and we did get some sterilized milk and a small part went into Bombay but it was very much the idea that before India does anything with this we've got to ascertain that it's the right thing for Indian conditions. Now what they started to do when they got it was they produced their sterilized milk, they produced some flavoured milk and those were very, very popular. Now where it's gone from that point, I don't know. What they've done afterwards, you see. If you're looking for a way of selling milk, ice-cream is a very good way to sell milk, obviously. And flavoured milk is another good way, and once it caught on in India, you see, they couldn't make enough in the little plant they had, but then, you see, they told UNICEF we've got to take this very slowly, we tried to, I've tried to tell



Carogian in Bombay that you'll find that you've probably, you've a single snowball. You had to talk and let something germinate then wait for them to sort of come back with the ideas.

Spiegelman: I would just like to clarify whether in Israel the milk had been pasteurized prior to UNICEF or was that ...

Hill: Yes, pasteurized prior to UNICEF's coming. It was pasteurized in Haifa, pasteurized in Tel Aviv, pasteurized in Jerusalem.

Spiegelman: So almost all the milk was pasteurized but not bottled? Then afterwards it was bottled and sterilized.

Hill: Far more bottling than there was sterilized milk produced. I don't know where, I would suspect today that probably you've got places in Israel that are producing their own sweetened condensed milk and probably a type of Carnation evaporated milk that you have over here.

Spiegelman: I wonder if Israel is exporting any milk?

Hill: Quite possibly.

Spiegelman: And back to the flavoured milk. What were the flavours that the Indians had?

Hill: Well, they liked what they call rose. Cinnamon, they've got all kinds of flavours that they like, Judy, I can't ...chocolate of course. That's always a favourite wherever you go.

Spiegelman: Chocolate yes? And is there a tradition of drinking milk in India among children of the poor and poorest classes?

Hill: Oh, sure.

Spiegelman: They had to have it?

Hill: Yes, because you see there again it happens that the Hindu and the cow and milk, yes. But of course, like everything else, you must have money to ??? that's the necessary thing, and the youth I've no doubt, you can see from the increase in consumption and the increase in production that there has been some increase in what I call the per capita consumption of milk. When you look at the population expansion in India, and you start to take that into account, I don't know in what proportion today increase in production has kept pace with increase in population. That's another thing.

Spiegelman: I just want to ask you one thing more about the Indian thing, before UNICEF started its aid to the dairy industry it was true that most of these farmers sold the milk and their own children never drank it, who was in a position to comment, that with the expansion of the dairy industry and with 300,000 or more farmers, who knows how many more of those children, if there is now enough for their own children to drink milk and not watch it being sold as happens so many times?

You simply have to rely, Judy, on the Indians themselves to tell you this. I have gone over this with Curian and I have gone over it with the engineer at VHR who was very much what I would call a socially-minded engineer, Charles ? it was that as soon as the farmer starts to make a regular delivery of milk, they got a regular cash flow for the milk they sold and they were able to increase the amount because the dairy would take the increased amount that they produced. There then was consideration given to increasing the amount they kept back for their own particular family. In other words, if you are very poor, the tendency is to sell everything, as your status improves you keep back more for yourself.

Spiegelman, And did UNICEF also, or was someone involved in helping them improve the health of the animals? Was that part of UNICEF help?

Hill, No, no, we did not do that. That comes under the Colombo plan from New Zealand, from Australia, from Point ??? I don't know where. Curian's work with veterinary officers you get in this book here. What they've done in the way of artificial insemination that you could write a book on.

Spiegelman, You know this Australian who wanted to send Australian bulls to India to replenish the stock, you know who I mean, something about want, the war against want, who wanted to walk across the ? in Australia and got people to walk to raise money to send bulls to India? He never did it but it was a famous cause.

Hill: They have received bulls, but you see now you can refrigerate semen and you can send it from Switzerland for Brown Swiss cattle, you can send it from Biddenfield Herefords or for your Ayrshires or the Red Polls and this is a technology that has improved these vacuum service containers and all these things. India now has got all of that and there is a wonderful story in here about what has happened on the animal husbandry side. This is FAO's contribution, of course, and that in itself is tremendous.

Spiegelman: Ron, I don't want to keep us from the party. One thing I would like to at some point get to you or speak to you by phone and that is about the habit that in Eastern Europe where UNICEF distributed a lot of milk after the War that there was no tradition of drinking milk and the children had to first learn it. I'm talking about Poland and Hungary and areas where they had to learn to drink milk.

Hill: Well, I think they were getting milk, but they were getting yoghurt, they were getting the sour milk which makes a difference, you see. Bulgaria, for one, is soured milk country, ??? off the Bulgarian coast, this is your culture that makes the yoghurt came from that area and you know one of the most interesting things that I imagine in Bulgaria, just about the last job in UNICEF I went there in '71 I believe and I met a woman who was an MCH lady, she was with the government and she told us about a children's food that they make in Bulgaria. They produce, Judy, they take milk and they separate out most of

the fat, not all, but they lower the fat, they make a flaky sort of, you might compare it a little bit with cottage cheese but it is a dry cheese, they dry it out, it then has a long keeping quality. It's a bit acid, they take that, they take butter, they take some bread and they don't toast it but they dry it, they then crumble it, then they take a little honey or a little sugar and they make their gruel for the children: the protein from the cheese, the fat from the butter, the calories from their dry bread, the sugar from either sugar or better still a little honey, and there's a big industry for honey for there are a lot of vineyards, there's a lot of beekeeping, that's their gruel, and that baby food is something that they were instructing all the mothers in sort of producing that as a weaning food when mother's milk is off and there ???

Spiegelman: That you Ron, we'll talk again.

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