

Notes

(80)

THE EFFECT OF A CHANGE OF DIET ON MASAI SCHOOLBOYS.

By R. H. Gower

(The following notes are recorded as a result of investigations into the health of Masai schoolboys at Monduli School during 1945.)

Monduli boarding school was started in 1937, and until the recent establishment of a number of bush schools of the "mothers and cows"* type,* it was the only school in the whole of Masailand's 23,800 square miles. It is built to house 80 Masai boarders. The children are drawn from every area in Masailand. In 1945, the sons of "aliens" living and working at Monduli began to be admitted as dayboys. Because of transport difficulties in returning these 80 boarders to their homes, often more than 200 miles away, the school has only one long term which lasts from November to August, followed by a long leave.

At school the children are given a normal diet far removed from what they eat at their homes. The milk was obtained from the herd attached to the school. Milking in the morning and evening was done by the boys themselves. At the time of these investigations the diet at school was as follows:—

Maize Meal $\frac{3}{4}$ lb. daily;
Meat $\frac{1}{2}$ lb. daily;
Sugar $\frac{1}{2}$ oz. daily;
Salt $\frac{1}{2}$ oz. daily;
Rice $\frac{1}{4}$ lb. — 3 times a week.
Beans $\frac{1}{4}$ lb. — 4 times a week,
Ghee 1 oz. daily;
Milk — about one bottle per day.

It is surprising how quickly the boys became accustomed to this, which differs so much from their normal diet.

At their homes they ate the traditional Masai food. For children the staple food is milk. When meat is available they will obtain their share, and nowadays universally the diet is supplemented with cooked maize or maize flour served in the form of *uji* or *ugali*. It should be remembered that the time of their leave corresponded with the end of the dry season. At this time, except in a few areas favoured with adequate water and grazing, the milk supply would be at its lowest. As compensation there would probably be more meat available as at this season cattle inevitably die from starvation.

The children were all medically examined by the African Hospital Assistant in August at the end of their 9 months' term and also on their

* "Mothers and Cows" schools are bush schools which Masai children attend. They live in a communal boma near the school but each child stays in a separate hut with his mother and a few milk cows with their calves. These schools were started in an attempt to adapt education to the special Masai conditions.

on a new market scale, and measured in a rather rough and ready fashion against a wall. No great accuracy can therefore be claimed for any of the statistics, but examinations were carried out as carefully as conditions allowed.

The ages of the 60 children investigated varied from 8 to 16 years; their average age was 12 years 9 months. Again it should be remembered that, except in one or two cases, ages were estimated in accordance with physical development.

During the period of leave it was found that on the average the children had grown 7/60 of an inch. Four of them had grown as much as 1½ inches and only two had apparently not grown at all. The average height of the children on their return to school was 4 feet 4/5 inches.

In other respects the poor diet at home was reflected in physical deterioration. Out of the 60 children 4 had gone home with skin diseases; on their return 26 were either suffering from a definite disease or their state of nutrition had so deteriorated as to be remarked on by the Hospital Assistant.

By far the most common diseases were impetigo, ringworm and scabies. Surprisingly enough — in view of the enormous number of flies in Masailand at this time of year — only one child was found to be suffering from conjunctivitis. The prevalence of skin diseases was expected, as Masai living conditions are notoriously filthy, and every child whilst on leave had lived in the traditional Masai "kraal".

If dirty conditions were the chief cause of these complaints, diet deficiency was certainly to blame for the loss of weight recorded. Before going home the average weight of the children was 80.2 pounds. On return to school the average had dropped to 78.6 pounds, a loss of 1.6 pounds. Out of the 60 children 52 had lost weight and only 8 had gained weight. These 52 children had on average lost 2.37 pounds each. Ten of them had lost more than 4½ pounds — the largest loss being 6¼ pounds. Of the 8 who gained weight, four had gained insignificant amounts and the other four had gained 3¼, 7¼, 7½ and 4½ pounds respectively.

In an attempt to find an explanation I interrogated these latter four boys and the ten who had lost a large amount of weight, as to their feeding habits at home. Their replies provided much varied and interesting information but it was difficult to find any single factor which would explain why some had lost weight and others had gained.

Since the staple diet of all the children whilst at home was milk, it can readily be understood that the sons of rich parents would naturally obtain more milk than those who lived in kraals where there were fewer cattle. Only four of the 14 children did not have some maize flour either in the form of *ugali* or *uji*. But this is not significant as, of these four, two gained weight and two lost weight.

Practically all the children spent their time herding even if not every day at least on certain days each week. This means that they would drink milk or *uji* in the morning before setting out and that they would get no food again until the main meal either of milk and maize flour

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or of meat in the evening. It is noticeable that 3 out of the 4 who gained weight did not herd at all. It is certain that the diet eaten by a herdsboy would not be conducive to increasing the weight of a growing boy.

Most of the children attended one or more *olpuls*. At an *olpul* a few *moran* (warriors) will go into the bush and slaughter a bullock or goats. They take with them a few uncircumcised boys and girls. They camp in the bush for any period from 10 to 30 days, depending on how many bullocks they have to slaughter. For the first few days they eat the meat roasted and cooked; thereafter they subsist on soup. The Masai consider that this diet gives considerable strength. When the bullock is slaughtered the blood is also drunk. Even those children who did not attend an *olpul* occasionally had meat at their homes. On such days as they ate meat they would not drink milk or eat *ugali* or *uji* until the evening, as to mix meat and milk is forbidden. From their answers it was, however, clear that the days on which meat is eaten at a Masai kraal are far fewer than is commonly thought.

It was interesting to note how those who had lost weight very rapidly put on weight as soon as they returned to their regular meals and balanced diet at the school. The following table shows the varying changes. The first column shows the amount in pounds lost or gained during the holidays: the second column shows the change two months after their return to school.

1.	...	- 4	+ 3½	8.	...	- 5	+ 8
2.	...	- 5¼	+ 1¼	9.	...	- 5	+ 4½
3.	...	- 6	+ 3½	10.	...	- 6¼	+ 5¼
4.	...	- 5½	+ 9	11.	...	+ 3¼	+ 4½
5.	...	- 5½	+ 3¾	12.	...	+ 7¼	+ 4
6.	...	- 5½	+ 6	13.	...	+ 7½	- 4½
7.	...	- 4½	- ?	14.	...	+ 4½	- 1½

It will be seen that all those who had lost weight regained weight at school, while 2 who had gained weight, lost weight at school. Both the latter two children were special cases; the one was abnormal physically and had a very varied diet even at home as he was the son of the office interpreter who lived at Monduli. Thus the school diet was little different from his home diet. The second boy was recovering from a knife wound received on leave and was not fit during these two months at school.

Conclusion: It is difficult to draw any very definite conclusion from the above notes. It is however clear that the vast majority of the children did not obtain enough meat and milk at home. Eaten in sufficient quantities these two foods are fully adequate dietetically. The few who gained weight were fortunate in that they were probably the sons of fathers with many cattle or that grazing near their homes was better than in other areas. It would, however, be interesting if the school holiday could be fixed during the rainy season instead of during the dry season, as at present. It seems likely that then no such general physical deterioration would occur as the milk available would compensate for other deficiencies in the diet.