

■ KENYA

An archaeological reconnaissance of the Marakwet irrigation furrows: A case study from the Embobut and Arror Rivers, Kerio Valley, Kenya

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Introduction

The objectives of this project entailed extensive archaeological study of the Marakwet irrigation furrows along the Embobut and Arror Rivers in the Kerio Valley, Kenya (Map 1). The study included a survey of the area and settlements associated with furrows, as well as description of selected water furrows. Generally, the Marakwet occupy the fertile but drier parts of the Kerio Valley. Thus their land needs adequate rainwater to do well agriculturally. Due to lack of water, the Marakwet had to rely on irrigation using the different perennial rivers fed from the Cherang'any Hills. The art of using water furrows is an old one for the Marakwet, dating to their initial occupation of the area. Methods employed in this project include interviews with Marakwet elders to record accounts of the furrows and possible age estimates, survey and mapping of the settlements and the description of the technology employed to construct selected furrows.

Oral traditions

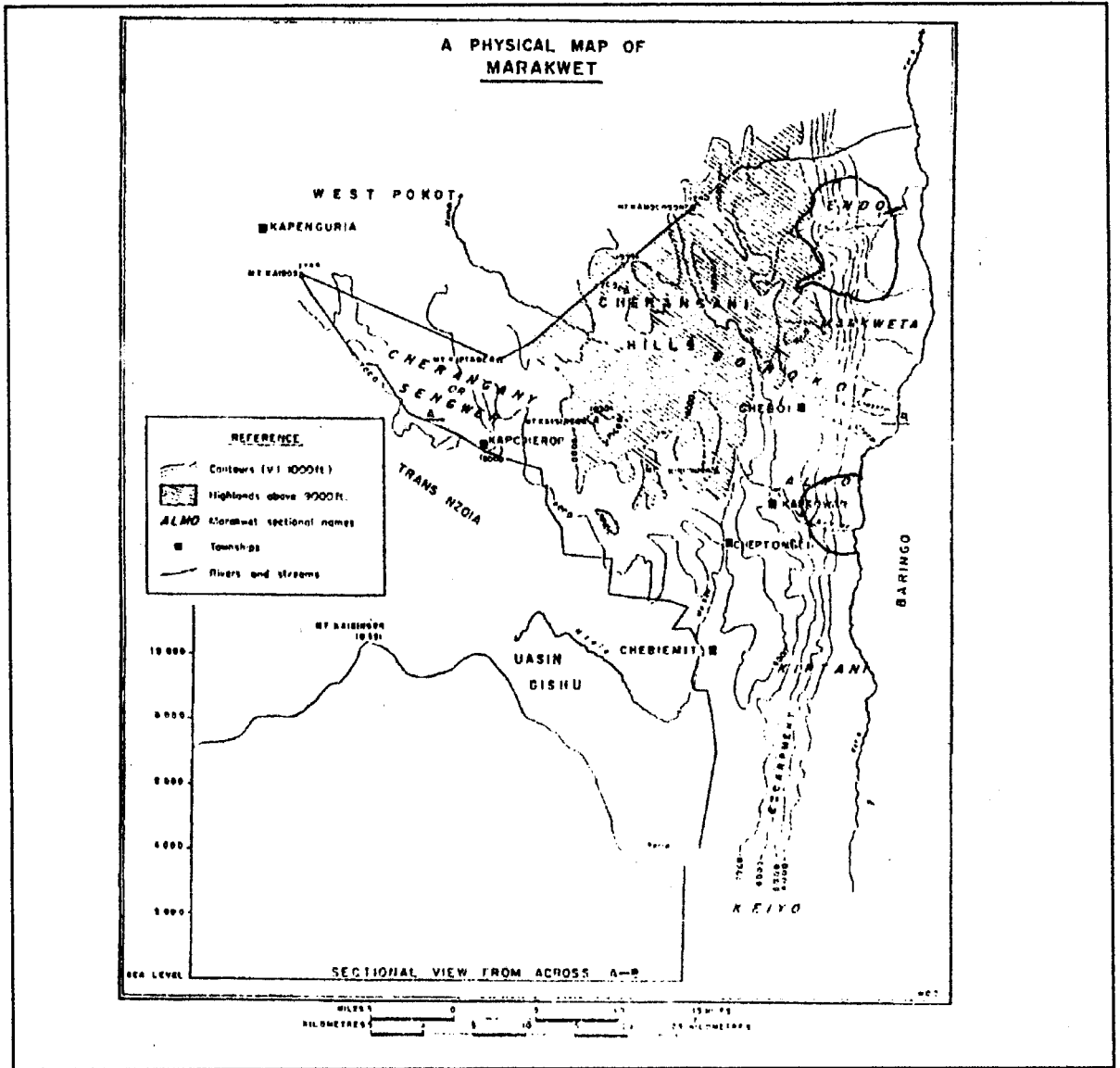
Elders (Tables 1 and 2) from different clans who were interviewed prefer giving information on their own specific clan furrows. However, in some cases, especially on settlement dates, the clan elders compared themselves with other clans. Since some of the furrows are shared, there were problems when some elders emphasized their clan supremacy over others in the ownership and administration of such furrows.

The Marakwet of the area of study are divided into two groups. Those of Tot area are known as Endo while those of Arror are referred to as the Almo. The Endo clans are Marich, Kapterik, Shaban, Kasugut, Kamariny, Karamwar, Kasige, Kapsogom, Kaptoboko, Kapsiren, Kapsyoi and Kabarsumba. The Almo clans are Kaporit, Samar, Kapchemutta, Kapchepei, Chemenengir, Kapterik, Lukuk, Kapchebar, Kaapoon and Kapkamak. According to their traditions, both the Endo and Almo Marakwet trace their origins to Misri, Egypt. They migrated for different reasons including adventure, looking for greener pastures, security against enemies, diseases, calamities, and epidemics. The clans could not date the time they left Misri. However, using the age set system, some could relatively date their settlements. Their age set generation ranges from 15 to 30 years. The earliest settlements associated with the furrows are found on the *lagam*, hilly settlements, of the different continuous hills. According to the traditions, the clans prefer the hilly settlements for their security against rustling, epidemics, malaria and tsetse fly. For example, the settlements of the Kamariny and Karamwar people are on the highest point of the Kipchubai hills near the Kipchubai escarpment. The Kapterik, Shaban and Kasugut settlements are found within the vicinity of each other at the Skup hills. Kapsogom settlements are in the Malkich hills while the Kapsyoi settlements are in the Sibou hills near Tot Divisional headquarters. The Kaporit, Samar and Kapchemutta settlements are in Kiptalieny hills.

Endo traditions state that the individual furrows of the Embobut River are clan owned while some like Kamariny/Karaniwar and Kapterik/Shaban are co-owned by the respective clans. Some clans share and borrow water from others. For instance, the Kasige share water with the Kabarsumba. In addition, the Kasige borrow water from Kapsogom furrow and the Kamanny/Karamwar furrow during needy times like during drought. Shaban, Kachepson, and Kapsiren share the Shaban furrows among themselves. Though the Shaban of Sibou claim ownership of the Kapsiren furrow, the traditions states that both the Kachepson and Shaban of Sibou do not have furrows of their own.

The Embobut furrows were either built when the clan settled, inherited or bought. Several groups

Map 1. Area of study (after Kipkorir and Welbourn 1973).



settled at the same time and thus most of the furrows are of relatively the same age. Oral traditions date the furrows using the age set system. The oldest clans are stated to have rotated four times, others have rotated three times while Kapsiren has rotated once. Thus, the oldest furrows are Kapterik/Shaban, Kamanny/Karamwar and Kasugut that were founded by their first Nyongi age sets and have rotated four times, and are possibly over 400 years old. Other furrows like Kabarsumba, Kapsyoi, and Kaptoboko are probably of the same age as they have undergone

age set rotation three times. Therefore the Kapsiren furrow is the youngest on the Embobut river.

The Almo tradition states that Arror furrows were either built when the different clans were settling or were acquired from the founders. In some cases, as in Kaapoon/Kapkamak, Chemenengir and Lukuk furrows, force was used by some clans to get control over them. However, this led to disagreements between the affected clans. The general maintenance and distribution of furrow water is similar among the Endo and Almo people. The only difference is on the punishment meted on the

Table 1: Elders interviewed about Embobut furrows (* guides)

| Elders | Age | Clan | Date |
|------------------------------|-----|------------|--------|
| Raphael Kilimo* | 48 | Kapterik | 3/6/99 |
| Suter Longonlenyag Cheboit | 104 | Kamariny | 3/6/99 |
| Kamonjong Ngoleyen | 95 | Kamariny | 3/6/99 |
| Suter Mojorkina | 85 | Kamariny | 3/6/99 |
| Willim Kiptoo (Asst. Chief)* | 49 | Kamariny | 4/6/99 |
| Samuel Kerotich | 50 | Kamariny | 4/6/99 |
| Chebet Lamery | 90 | Kamariny | 4/6/99 |
| Abeyo David | 80 | Kamariny | 4/6/99 |
| Thomas Lobulumoi* | 60 | Kapterik | 4/6/99 |
| Kapel Kisang | 70 | Kamariny | 4/6/99 |
| Anyango Limanyang | 100 | Kasugut | 5/6/99 |
| Lingakira Cheptongen | 95 | Kasugut | 5/6/99 |
| Mukengura Rwatum | 80 | Shaban | 5/6/99 |
| Kipkeu Ouko Godfrey* | 50 | Kasugut | 5/6/99 |
| Ritejulia Wero Lopelez | 70 | Kaptrik | 5/6/99 |
| Chelang'a cheboi Kibelgen | 99 | Kapsyoi | 6/6/99 |
| Bernard kitoom Yego | 80 | Kapsyoi | 6/6/99 |
| William Suter* | 50 | Kasugut | 6/6/99 |
| Jacob Sang Yego* | 45 | Kapsyoi | 6/6/99 |
| Domnic Kipkiror* | 57 | Karamwar | 6/6/99 |
| Julius Kirotych* | 48 | Karamwar | 6/6/99 |
| Cheptons Chepkonga | 80 | Kabarsumba | 8/6/99 |
| Chelang'a changwony | 78 | Kabarsumba | 8/6/99 |
| Daniel Ruto* | 50 | Kaptoboko | 8/6/99 |
| Pius Chebet (Chief)* | 45 | Kaptoboko | 8/6/99 |
| Benjamin Biwot* | 43 | Kaptoboko | 8/6/99 |
| Joseph Lokunda (Chief)* | 40 | Marich | 9/6/99 |
| Cherenget kipkorir | 100 | Marich | 9/6/99 |
| Loboreng Lokodongole | 90 | Marich | 9/6/99 |
| Adomoki Longor | 70 | Marich | 9/6/99 |
| Taalam Willy* | 40 | Marich | 9/6/99 |
| Wilson Talai* | 40 | Marich | 9/6/99 |

Table 1: Elders interviewed about Embobut furrows (* guides) (continued from previous page)

| | | | |
|---------------------------------|----|--------------------|---------|
| Antony Romagima | 90 | Kapsogom | 9/6/99 |
| Antony Lomakina | 80 | Kapsogom | 9/6/99 |
| Domoki Kisang* | 65 | Kapsogom | 9/6/99 |
| Chepkos Emmanuel* | 65 | Kapsogom | 9/6/99 |
| Chelang'a John* | 65 | Kapsogom | 9/6/99 |
| Keromboi Michael* | 63 | Kapsogom | 9/6/99 |
| Lokipuna Barsitit | 80 | Kasige | 9/6/99 |
| Romatiny Lokikoi Kisumoi | 70 | Kasige | 9/6/99 |
| Chelang Kibiwott* | 45 | Kasige | 9/6/99 |
| Biwot Jeremiah (HM Kabaldamet)* | 36 | Kasige | 9/6/99 |
| Albumang Joseph* | 40 | Kapsiren | 9/6/99 |
| Mania Stephen* | 38 | Kapsiren | 9/6/99 |
| Robert Betosia | 67 | Karamwar | 14/6/99 |
| Gichow Komen | 75 | Kamariny | 14/6/99 |
| Tubo Yapatum | 66 | Kabarkech (Shaban) | 14/6/99 |
| Paulo Kilimo* | 33 | Kabarkech (Shaban) | 14/6/99 |
| Arimawi Chepusiemet | 72 | Kasugut | 14/6/99 |

offenders. In both cases, furrow work is done by men. They do the channeling and repairs on daily basis. In most cases, committees oversee works and discipline on their respective furrows.

According to the traditions, furrow works are communal. In case of shared furrows like Karnanny/Karamwar and Samar/Kapchemutta, there are guidelines for sharing. The Kamariny and Karamwar clans share their furrow on an annual basis. For instance, the Kanianny have it this year while the Karamwar have it next year. During a clan's tenure, their members do virtually all the work on the maintenance, unless an emergency occur that needed the other clan's attention. In the case of the Samar and Kapchemutta, they have a point, Sochobei, which marks their boundaries. Thus the Samar will use and maintain their part from Sochobei while the Kapchemutta will do likewise.

Within a clan, furrows are shared between sub clans or families. Wherever a family is using it, they have to make sure that it is in order and that they

should discourage the wastage of water. However, since furrows are for all, it is one's responsibility to act wherever a leakage is noted. Individuals within a family that are assigned furrow within a specified time, such as from 4 p.m. to 4, have to follow a furrow to its source to make sure that it is in order.

If one violates his furrow responsibilities, different punishments are called for by the respective committee. In most cases, an individual is fined a goat or grain depending on the nature of the problem. Among the Endo, if a person has refused to pay he is barred from using the furrow until he pays plus interests as per the recommendations of the concerned committee. However, the Almo will bar the offender but his family is allocated water as per the terms of the committee.

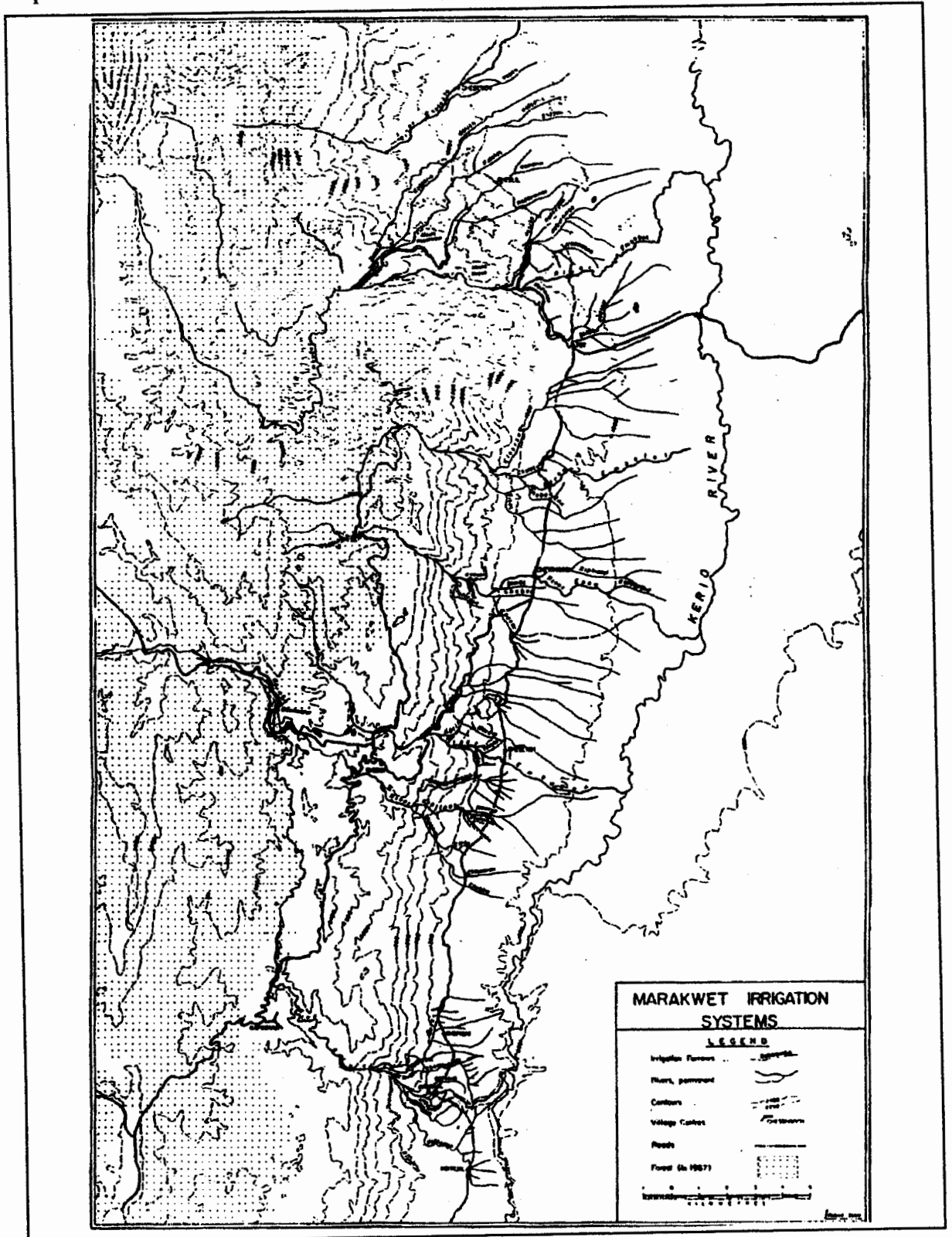
Survey

The furrows were surveyed along their courses to document building technology and

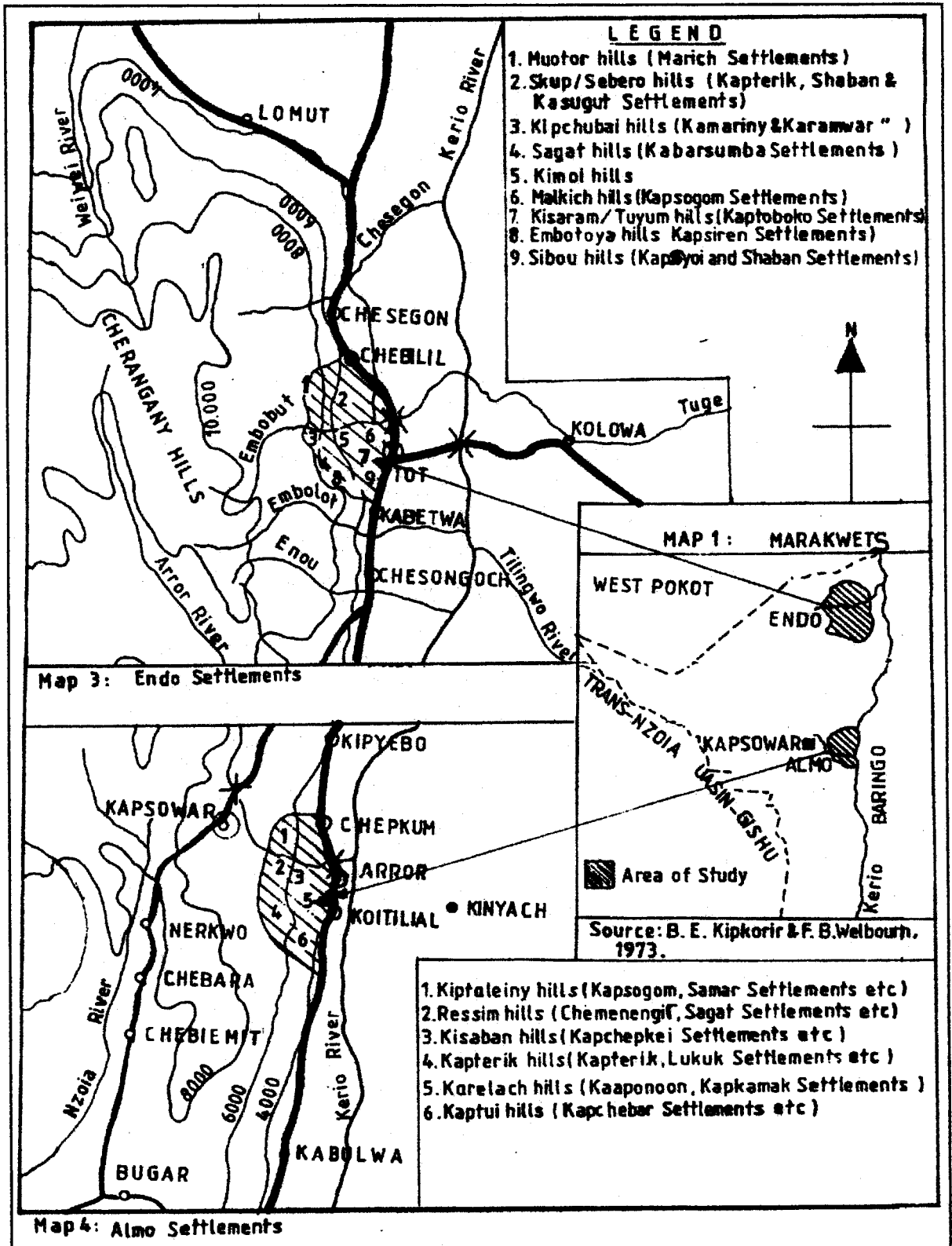
Table 2: Elders interviewed about Aror furrows. (*guides)

| Elders | Age | Clan | Date |
|---|-----|----------------------|---------|
| Chelimo Cheptoo | 89 | Kapchebar | 10/6/99 |
| John Cheruwon* | 50 | Kaapoonoon | 10/6/99 |
| Simatoi Keino | 92 | Kaapoonoon | 10/6/99 |
| John Rotich Chelimo | 62 | Kaapoonoon | 10/6/99 |
| Chepto Cheboi | 75 | Kaapoonoon | 10/6/99 |
| Christopher Siran Kiptoo (Asst. Chief)* | 42 | Kaapoonoon | 10/6/99 |
| Lelmengit | 70 | Kapkamak | 10/6/99 |
| Kiptoi Benjamin | 85 | Kapkamak | 10/6/99 |
| Cheptoo | 67 | Kapkamak | 10/6/99 |
| Raphael Pseswa | 66 | Kaptung | 11/6/99 |
| Kaino Chemweno | 80 | Kapcheressim | 12/6/99 |
| Chepto Kibiwott | 64 | Kapcheressim | 12/6/99 |
| Chebii Kiptelin | 74 | Kapchepke | 12/6/99 |
| Kiptoo Kipkech | 75 | Kapchepke | 12/6/99 |
| Tirop Rotich | 70 | Kapsogom | 12/6/99 |
| Chelang'a Chemutta | 88 | Kapsogom | 12/6/99 |
| Kore Chernalbut | 60 | Kapcheressim | 12/6/99 |
| Mathew Rono (Asst. chief) | 39 | Kapcheressim | 12/6/99 |
| Samuel Cherop | 63 | Samar | 12/6/99 |
| Suter Cheboi | 62 | Kapakanim (Kapmanam) | 12/6/99 |
| Cherop Chemweno* | 59 | Kapterik | 12/6/99 |
| John Kipkeu* | 57 | Kaptung | 12/6/99 |
| Abraham Suter | 40 | Kapterik | 12/6/99 |

Map 2. Furrows of Embobut and Arror Rivers (after Kipkorir, Sennyonga and Soper 1983).



Map 3 and 4. Endo and Almo settlements.



associated archaeological features. Furrows surveyed along the Embobut River are Marich, Kapterik/Shaban, Kasugut, Kamanny, Karamwar, Karnanny/Karamwar, Kasige, Kapsogom, Kabarumba, Kaptoboko, Kapsiren, Kapsyoi and Shaban respectively from the highest to the lowest point. On the Arror River, the furrows are Kapont, Samar/Kapchemutta, Kachepkei, Chemenengir, Kermet, Chemwaror, Kapterik, Lukuk, Kapchebar, Karelach, Kaapoon/Kapkamak and Kipkat respectively. The survey was conducted with the assistance of different clan elders and guides who gave us details and demonstrations requested.

The survey revealed that furrows were channeled from convenient points of the rivers, such as natural outlets made of rocks. Such points have cataracts or waterfalls, *Muyen*. Furrow builders took advantage of these points by reinforcing the channels using huge tree trunks, stone, earth or soil mortars, and/or trees or banana leaves. Thus, water was successfully diverted to a specific furrow. Several furrows were channeled from such sources near each other. For example, Kapterik/Shaban, Karamwar/Kamariny, and Kasugut furrows are channeled from the Embobut River and not far away from each other at Kimala hills. From the Arror, furrows such as Samar/Kapchemutta, Kaporit, and Kapchepkei are channeled from near sources of the upper *Muyen* while Kapchebar, Karelach, and Kaapoon/Kapkamak furrows are from near each other at the lower *Muyen*.

The technology of furrow construction was complex; trunks, wood and stones were laid on top of each other and with the support of mortar and leaves. From their sources, furrows follow weak or lower points passing through hills and valleys. Some, like Kapsyoi and Shaban, pass through holed or dug-through huge stones. At the Maron junction, Kamanny/Karamwar and Kasugut furrows meet in an intersection. They are well channeled that they do not collide with each other. The technology of building that intersection is complex as the Kasugut furrow is sustained above the Kamariny/Karamwar furrow. However, at a nearby point within the Maron hills, the furrows are channeled that the Kamariny furrow is 10 to 15 meters directly below the Kamariny/Karamwar one.

The problematic parts of the Embobut furrows include Tuyapyap, Leleya, Motpo, Solomoke,

Kiptali, Chemewit, and Boroiti Kulon. These points are so steep that a lot of water is wasted and furrows maintenance is poor due to the risks involved. Steep parts like Hilwo, Embomir, Embotuyo, Silot and Choke, followed by the Kapsogom furrow, were cemented through clan efforts and assistance of some Non-Governmental Organizations like World Vision, Asal and Catholic Church. The Maron point of intersection is also cemented. Parts that are problematic on the Arror river include Muyen, Kipkat, Chepyomat, Sitot, Tot, Chepsolo, Chepkokel, Embosan, Karandile, and Kaptorit amongst others. Sections like Toroch and Muyen the intakes have been cemented through combined efforts of the clans and some of the already cited Non-Governmental Organizations.

Conclusions

In comparison, clans of the Endo and Almo people have some relationship amongst themselves as they both trace their origins to Misri. The Kapterik, Kapsogom and Kapsiren of Endo and Almo are related in that they came from the same place. The Kapterik separated at Sagatia hills where a group went northwards becoming the Endo Kapterik while others went southwards, to Arror, becoming part of the Almo. The Kapterik of Endo are relatively older than those of Almo, because they left their Sagatia dispersal point earliest and also settled in their current settlements earlier. Accordingly, the Kapsogom and Kapsiren of Endo are relatively older than those of Almo.

According to oral tradition, Embobut furrows are generally older than the Arror furrows. This is because the oldest settlements of the Endo people have undergone four age set circles while those of the Almo people have undergone one rotation. The oldest Embobut furrows are Kapterik/Shaban, Kamariny/Karamwar and Kasugut and are traditionally dated to over 400 years. On the other hand, the oldest Arror furrows are Samar/Kapchemutta and Kaapoon/Kapkamak, over 200 years old. As for the general north-south origin theory of the Marakwet, it can be argued that the Endo, in the north, settled earlier than the Almo in the south of the Marakwet district. This argument can also be extended to relatively date the furrows in the two areas. This is also supported by the stated age set rotation dates. Archaeologically, this can be tested

by excavating and dating the oldest settlements in both areas.

The study of Marakwet irrigation techniques is an important step in the understanding of the different prehistoric agricultural production techniques among the pre-colonial communities of Kenya. Little has been done on the different prehistoric agricultural aspects of the people. Thus it is my recommendation that more research should be done on the prehistoric Marakwet and their agricultural practices, and the inter-relationships between different groups. The furrows should also be dated archaeologically. There is need for archaeological excavation and dating of the oldest stated settlements associated with the furrows.

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