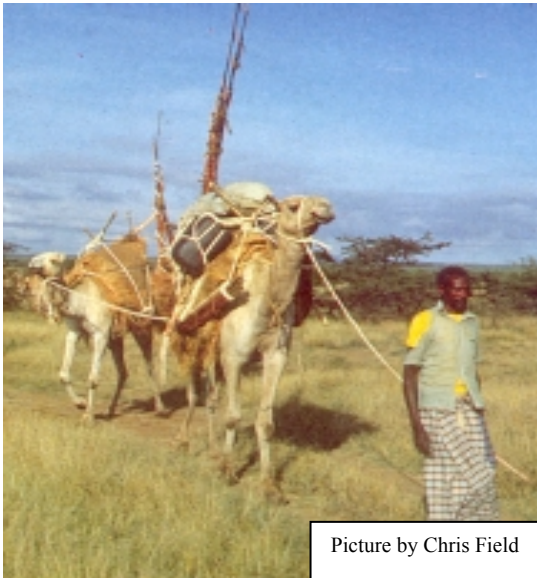


sufficient food to ensure they remain healthy. Harnesses must not rub or chafe or else they will cause wounds. In order to benefit most from animals they should not be overworked or mistreated.

Short sturdy camels are better for traction than tall thin camels.

### **Baggage or load carrying**

Camels in Kenya generally carry up to 80 litres (or 80 kg) of water when saddled traditionally. They are of course capable of carrying heavier loads but the load depends on the distance to water, the frequency of fetching water and the age and size of the camel. When moving camp loads of 100-150kg are often encountered. For short distances loads up to 350kg can be carried and some have carried as much as 500kg.



The heaviest recorded load was 865kg but the camel died whilst carrying it. For large camels in India the standard work is 19-24km /day or 6-8 hours per day at 4km per hour with a load of 200kg. When carrying light loads camels can cover as much as 50km per day but it is advisable

to ensure camels get at least 6 hours per day for grazing/feeding.

### **Cart pulling**

The advantages of using a cart are that a heavier load can be pulled than can be carried. In India one camel can pull 1200kg on a two-wheeled cart at a speed of 2.5 - 4km/hour for 8-10 hours per day (Bergin, 1995). These animals do however receive supplementary feeding. In Australia a team of 16 camels pulled a wagon weighing 20 tonnes.



A cart, based on the Indian design, has been made in Kenya by TripleW Engineering and FARM-Africa. The cart has been designed to carry 3 drums (200 litres) and is pulled by one camel. To date the heaviest load put on this cart and pulled by one camel was 675 kg over rough ground. On a flat smooth surface it could carry a much heavier cargo.

Good carts has the following special features:

- 1) Puncture proof tyres - made from second-hand *matatu* tyres filled with rubber filings on a metal rim. They do not need inflation or repairs.
- 2) Wooden bearings - easily replaceable in the bush.
- 3) Adjustable shafts to fit all camel sizes
- 4) Detachable body - to enable transport of many different commodities of various shapes and sizes

- 5) Made from locally available materials
- 6) Relatively maintenance free
- 7) Easily assembled
- 8) Strong and sturdy

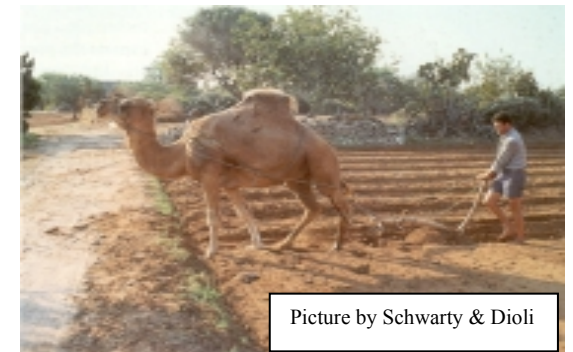
FARM-Africa has trained 8 "Jua kalis" in the manufacture of these carts. They should cost less than KShs 20000/-.

Carts need to be loaded evenly so that the weight is carried by the wheels and there is very little weight on the camel. The weight of the cart should be carried in front of the hump of the camel and the pulling force is from the chest using a collar.

### **Ploughing**

Camels are thought to produce the same ploughing power as a pair of donkeys or oxen and

One camel is reported to plough as much as 2 oxen in one day. Although no trials with camels have been carried out in Kenya they may be able to plough as much as 0.5ha per day. It is estimated they produce 1 hp compared to 0.75 hp for cattle.



The camel pulls the plough with a collar attached to a swingle tree. For breaking new ground two camels can pull one plough using a double swingle tree. The same ploughs used for cattle can be used by camels (e.g. Rumpstad plough). In Ethiopia Traditional maresha ploughs are used.

A well-trained camel can learn to follow commands and walk in a straight line. Generally two people are required when ploughing, but with experience a single person can both command the camel and guide the plough.

### ***Dam-scooping***

Camels can desilt dams using a dam-scoop. The scoop resembles a large metal basin, which scoops out silt or soft sand. The camel pulls from a collar or from the chest and in front of the hump. Ropes or poles are attached to a swingle tree then to the scoop. If the silt is hard, it needs to be broken up by using jembes before the camel can scoop it up. The scoop can be used for clearing dung out of bomas.



Picture by Debbie Atkins

### ***Riding***

Camels can be ridden for pleasure or for transportation. Normally one person rides a camel and sits either on top, in front or behind the hump depending on the type of saddle. Camel racing is also becoming popular. Camels walk at 4km per hour, trot at 16km per hour, canter at 27km per hour and gallop at 35km per hour. Trotting or jogging (16km/hour) is the easiest pace for both camel and rider and they can cover 80km per day at this pace.



Picture by Chris Field

### ***Future potential***

With its greater strength and ability to utilise poor quality forage in dry regions the camel has a huge potential as a working animal. It is likely that many people will start using working camels for generating income in the near future. Soon we may start to see donkey and oxen being replaced by camels especially for pulling carts, dam-scoops and ploughing in marginal areas.

### **Contacts regarding camel traction:**

For further information on camel traction contact:

**FARM-Africa, P.O. Box 795, Nanyuki, Kenya. Tel: 0176 32352, Fax: 0176 32883.**

**TripleW Engineering, P.O. Box 176, Naro Moru, Tel 0176 62255. Fax c/o 62272**

**KENDAT, P.O. Box 61441, Nairobi. Kenya. Tel./Fax: 766939.**

**OI Maisor Ranch, P.O. Box 9, Rumuruti.**

# **Using Camel Power**

Camel power has largely been ignored in Kenya where the camel is mainly used for its milk and meat. All of the people in northern Kenya except the Turkana use camels for carrying loads. Elsewhere in the world camels are used for many purposes including ploughing, harrowing, dredging ditches, dam-scooping, pulling artillery, lifting water from wells, ore-crushing, grinding oilseed, cart pulling, dancing, fighting and riding.

Camels have evolved to migrate long distances and are energy efficient in terms of walking. They may be more cost efficient to keep in terms of maintenance or nutritional requirements than a pair of oxen or donkeys. They start working at maturity at 6 years of age and are probably most productive up to 15 years although some reports from around the world have found camels working up to 30 years old. They can start to be trained at 2-3 years old but should not be heavily laden until mature.

### ***Ensuring good performance***

To ensure good performance the camel needs to be well trained and well cared for. Training can start at 2-3 years but heavy work should not be attempted until 5 years old. Training should be gentle without using too much force or inflicting pain. Camels do respond to spoken commands. Camels can be trained to do simple draft work after 2-3 days, but are better behaved and more controllable after training for 4-5 weeks.

Camels need to be fit. They need to train like athletes to build up strength and stamina. They require good veterinary care and must receive