Fig. 1. Onchocercal Tumours over Ribs.

Note especially the skin, giving the appearance of great age, in a Jhr man about 35 years old.
Fig. 2. Same patient as in Fig. 1, showing the very wrinkled skin of the thigh.
Fig. 3. Onchocercal Tumours at the angle of the jaw in a Jur youth.
Fig. 4. Onchocercal Keratitis. Copies of water-colour sketches (originals in text).
Fig. 5. Differential Diagnosis of Onchoercal Tumours.
This patient shows multiple neurofibromata, which do not contain microfilaria.
O. volvulus tumour on frontal bone of an Agar Dinka from Rumbek District, with bi-lateral keratitis and total blindness. Here, the nodule was "dead" and calcifying. It was subperiosteal, lying in a deep hollow in the bone.
Fig. 8. Onchocercal Nodules on the mastoid process of an old Fur woman.
Fig. 9. Acute Onchocercal Keratitis in a Jur woman. Note typical attitude.
Fig. 10. "Elephant scabies". Filarial Craw-Craw, with thickened skin. Microfilariae were very numerous in the skin. An Agar Dinka from Rumbek District, living on the boundary of the Fur Country.
Fig. 11. Elephantiasis of penis and scrotum, in a boy of 16 years. It is believed to be due to O. Volvulus.
Fig. 12. Same patient as in fig. 11, ten days after operation using Bryant and Malhamme’s method of skin grafting. The oedema of the remains of the prepuce will subside when the new venous and lymphatic returns are established. The penis will be completely covered by skin in less than 3 weeks from date of operation.
Fig. 13. *Mvolo, Rumbeek District, Equatorial Province—late Bahr el Ghazal Province. Breeding place of *Simulium damnosum.*
Fig. 14. River Naam during a small spate. Simuliidae make fishing here in the afternoon almost impossible.
Fig. 15. Heavy forest on the rocky banks of the River Naam. It is in the deep shadow that the simuliidae like during the heat of the day.
Fig. 16. Deep pool where fish poisons are used at Mvolo. The baskets of crushed Randia Nilotica berries are sunk in the narrow entrances (three here) seen in the mid distance. The fish gradually become blind and intoxicated and run ashore, when they are seized and cleaned immediately.
Fig. 17. Photograph of coloured sketch of a case of Onchodercal Keratitis.
Fig. 18. Dr. A.R. Mackenzie and the writer removing onchocercal nodules from a white-eared colt (Cobus leucotis) shot on the Lau River by Dr. A. Cruickshank.

Fig. 19. Onchocercal tumours (species unknown) beneath skin of animal shown above.
Fig. 20. Onchocercal embryo from tumours shown in fig. 19 (by courtesy of Dr. A. Cruickshank). X 500.

Fig. 21. Fish said to cause blindness. A Nile perch of 60 lbs. and “abu nokes” caught in the battu seen in fig. 22.
Fig. 22. Fishing vattu of the Jir in a pool of the River Naam at Mvolo. The man on left of central rock has his spear into an 100 W. perch. 30% of the people in this pool are suffering from some form of eye trouble attributable to *O. volv.* Many nearly, yet nobody was speared during this day's fishing.

Fig. 23. *Randia nilotica,* the ripe crushed seeds of which are widely used as a fish poison. It was thought at one time that this poison caused blindness.
Fig. 24. Three water-colour field sketches, showing various stages of Onchodercal Keratitis.
Figs. 25-29, The Progressive Stages of Onchocercal Keratitis. (Water colour field sketches by the writer).

Fig. 25. Field sketch of Early Onchocercal Keratitis.
From a Jr. girl at Mvolo, with a history of two months of very acute pain, like "thorns piercing the eye".

Note:
1. Pink colour of conjunctiva;
2. Early vascularisation of cornea;
3. Pterygium-like growth of conjunctiva at equator;
4. Punctate keratitis at bottom of cornea;
5. Deposits of pigment.

Mvolo, April, 1936.
Fig. 26. **Onchocercal Keratitis.** Sketch made at Billing, from a Jur boy aged 15.

**Note:**
1. Irregular deposit at bottom of cornea;
2. Commencing atrophy at lower edge of pupil, with a posterior senechial;
3. Thickening of conjunctiva at equator;
4. The pupil has not yet started to become elongated.

History of 3 months very severe pain and photophobia, with lachrymation.

O.V. tumours on occiput and iliac crests; M.F.+++ in aqueous. Fundus normal; optic disc normal. Tumours present for 3 years. Father suffering from Sudan Blindness.

Billing, April 1935.
Fig. 27. **Onchocercal Keratitis. Second Stage.**

Field sketch from a Tur man with a two years' history.

**Note:**

1. The pink colour of the conjunctiva, the "rougatre livide" of Hissette;
2. The irregular density of the deposit;
3. The dead white areas which will later become calcified;
4. The atrophy of the iris round the pupil, which is adherent to the lens capsule posteriorly;
5. The commencing atrophy round the crypts of the iris;
6. The elongated pupil which will later become slit-like and finally totally obliterated.

Mvolo, April, 1936.
Fig. 28. **Onchocercal Keratitis.** A common type of opacity. (Rough field sketch)

**Note:**
1. The great density of the opacity at the equator and the comparatively clear area in the centre of the cornea;
2. The brown, branching streaks on the opacity so frequently observed. These probably represent blood vessels in the substance of the cornea;
3. The deep anterior chamber;
4. The commencing downdrawing of the pupil;
5. "Rougeatre livide"

From a Fur woman with a year's history.

Mvolo, 1936.
Fig. 29. **Onchocercal Keratitis.** Last stage but one before *phthisis bulbi* completely destroys eye.

**Note:**
1. Ocelusio pupilli;
2. Flattening of cornea;
3. Pigmentation of the bottom of the leucoma;
4. The yellow areas of calcareous deposit.

In this case, the iris was adherent to the back of the cornea.

Field sketch from a Sur woman with a history of 3 years poor vision and a year's total blindness.

Muolo, April, 1936.
Fig. 30. Field sketch in water colour of the fundus in a case of Sudan Blindness, in a Jur boy aged 16, with a year's history. To show—

1. Irregular atrophy of retina;
2. Brilliant illumination of the choroidal vessels shining through the retina;
3. Optic atrophy;

Mvolo, April 1936.
Fig. 31. Sketch in oils to show sclerosis of vessels and the exposure of the sclera. Note the dirty green oedematous retina around the white patches.
Figures 32 and 33 in Text.
Fig. 34. Water-colour sketch to show cuticular thickenings, which are the distinguishing feature of the genus *Onchocerca*. 
Fig. 35. Microfilariae. Water-colour sketches of two specimens, to show what the writer believes to be merely a short form of the fully developed larva, and (left hand one), an immature type. (Diagramatic)

Note the segmentation of the body often observed in well-stained specimens. Stained with Giemsa.
PHOTOMICROGRAPHS ILLUSTRATING TEXT

I VII.
Fig. I. Microfilariae of Onchocerca volvulus in a section of skin.
s.e. surface epithelium,
m.o.v. microfilariae O. volv.
Haem. & Eos. X 750

Fig. II. Section of skin, showing
s.e. surface epithelium;
sub.t. subcutaneous tissues;
n part of a nodule due to
Onchocerca volvulus.
H. & E.
x 25
Fig. III. Microfilaria of Onchocerca volvulus (m.o.v.) in skin. Note small vessel showing some perivascular infiltration (p.v.i). s.e._ surface epithelium. 
H.₅E. x 750.

Fig. IV. Section of skin showing microfilariae (m.o.v) s.e._ surface epithelium. p.v.i._ perivascular infiltration (or "cuffing"). 
H.₅E. x 250.
Fig. V. Section of Onchocercal nodule showing fibrous tissue wall (f.t.), and microfilariae (m.o.v.) in the uterine cavity of the female filariae. H&E. x 80.

Fig. VI. Section of nodule, showing cuticular thickenings (c), the distinctive feature of the genus Onchocerca. u. uterine cavity of filariae. H&E. x 250.
Fig. VII. Smear from the cut surface of a nodule, to show immature microfilariae (m.o.v.) and eggs (e).
× 400.