electric alarm system which will give an automatic alarm in case any one attempts to cross it. This particular fence surrounds the Du Toit's Pan mine.

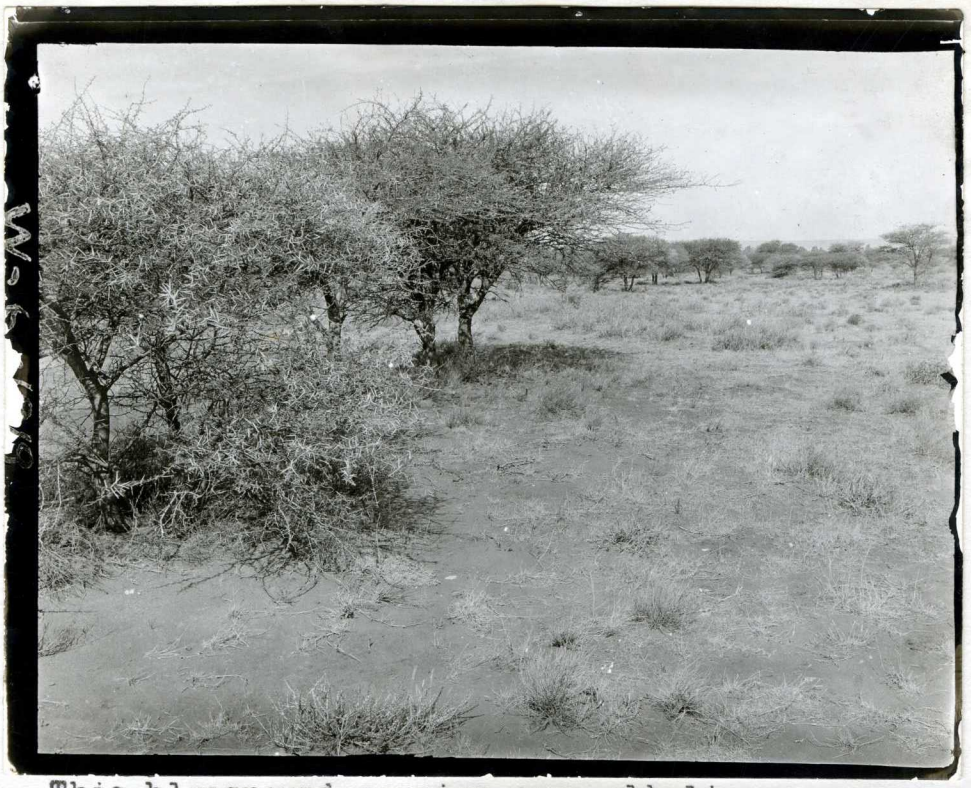
September 25, 1919. Out on the Bultfontein floor.

W-3. The type of engine used in cultivating the blue ground. A harrow is shown in the background and a similar engine in the distance.

They use entirely the cable system. The averageyield of this soil is about 1/4 karat to 1600 pounds. Mr. Austin Knight, who has been manager for this floor during 25 years, states that during that time he has picked up three diamonds(I have found none during my two days).

W-4: A view of the harrow used in the diamond field.

W-5. A detail of the blueground which has been harrowed twice.



W 6

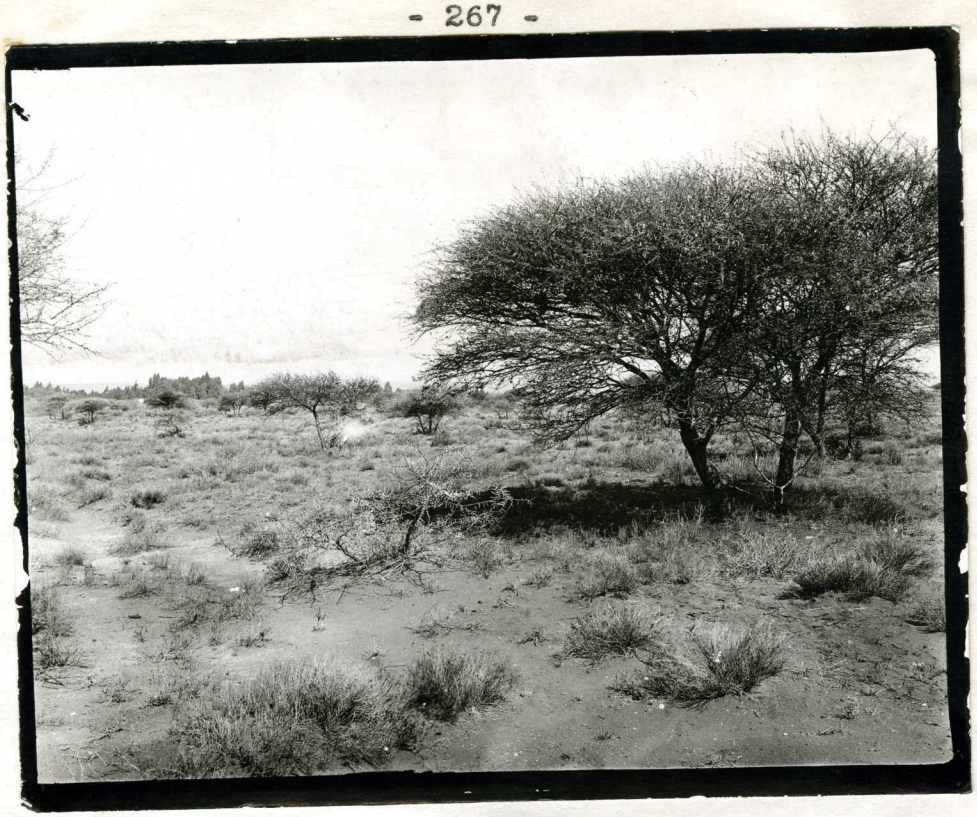
This blueground carries some alkali.

(Note--Themining of diamonds is carried on in very much the same way as the mining of coal. The object is to remove as much of this soft blue ground as possible. It is of about the consistency of coal. It is dug out in underground tunnels and carried to hoists by electric trolley. The loads are lifted in these hoists to the surface and are then carried away in small trolleys to the dumping floor.The best record for a single hour atthe Du Toit's Pan Mine on May 7, 1912, forexample, was 1290 loads. Mr. Keough is mine manager at this place. The returns in diamonds are not at all equal, as the stones range from very small to relatively large.)

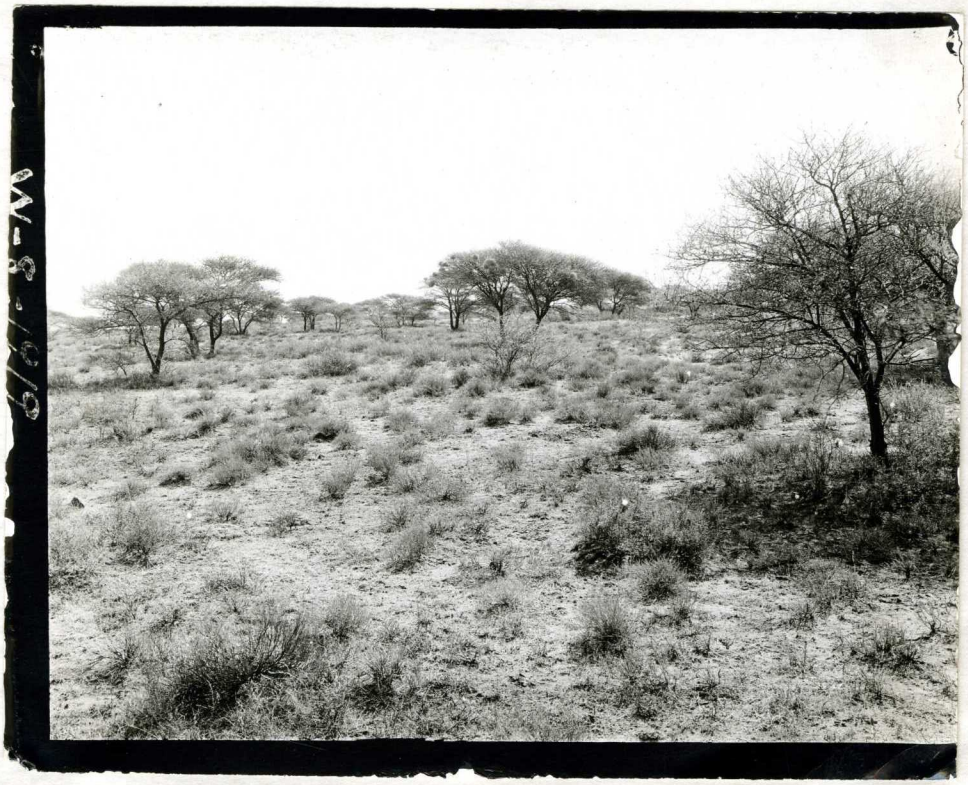
Alexandersfontein. A few miles from Kimberly. On the hills are scattered growths of acacia, cat's claw, Diospyrus and Ziziphus, also desert grass cover of bush and mat grasses and annuals, also Pentzia and the Gutierrezia-like plant, and Herb. 213. Here were collected herbarium specimens 209-214, among which the following grasses are recorded: Aristida rangii, Eragrostis _____ Hack, Eragrostis _____ Monroe, and Enneapogon _____ Staph. Below the shrub zone there is a shrub area consisting chiefly of shrubs Herb. Nos. 213,214

and 207, which occur on the lower slopes and on a heavier soil. Below this there is a suadea zone and below this again an open clay flat with a yellow composite, Herb. 204 along the edge, and an Atriplex or tumble weed in the center. Deep cracks occur in the clay. The soil is a red sand in the acacia zone, clay or adobe in the shrub and on the submerged flat. On the far side of this flat found large areas of shrub Herb. 214, and here were large numbers of springbuck and other game animals, as well as goats and horses, also a red buck with a white rump, and the steinbuck. On the whole, around where the trees are growing, there shows a very marked hardpan at a depth of about one foot. Apparently this lime rock is deeper in places.

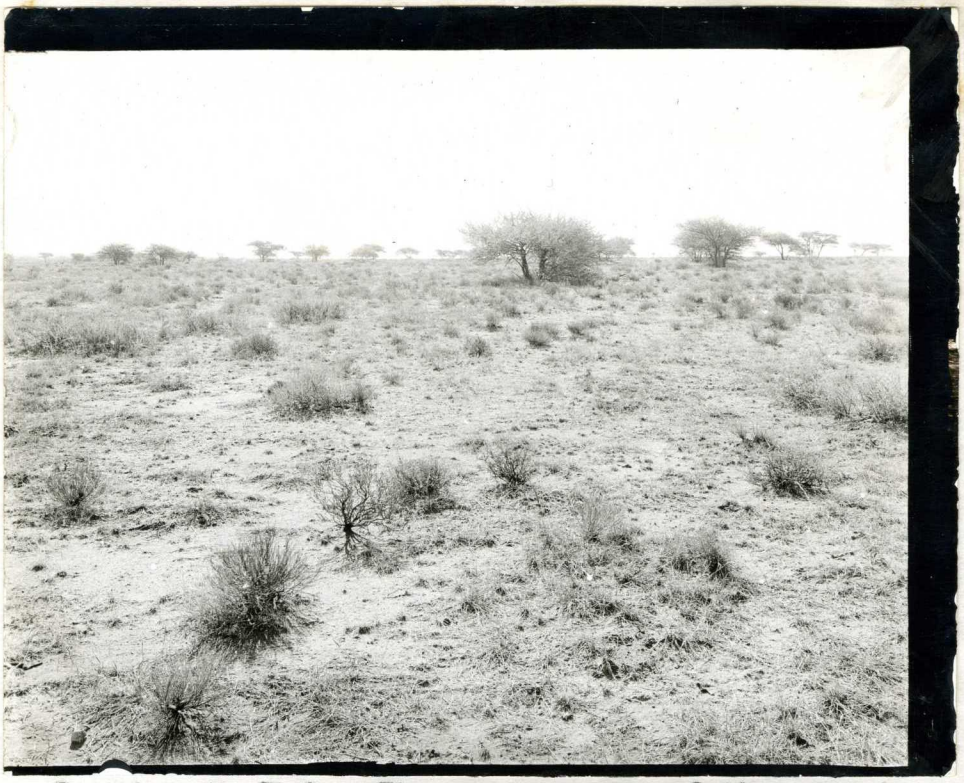
W-6. A typical view, shows acacia, asparagus, karroo bush and desert grass.



W-7. Similar to W-6, but with more of the Gutierrezia-like plant in the foreground and weavers' nests in the acacia trees.



W-8. Similar to W-7.



W-9. Similar to W-7. The appearance of the acacia on the horizon.

W-10/ Shows the soil bank on the lower zone, reddish-brown to a depth of 14 inches, chocolate color for about 4 inches and light-colored, apparently alluvium, below. The shrub at the left is Herb. 213.

W-11. A typical view of the shrub zone. The semi-succulent Herb. 213 is here shown in practically a pure stand.

W-12. The Suada zone with the bottom of the pan in the background.

X-1. The bottom of the valley, a pure stand of Herb. 214. These zones present a fair view of the whole region, except that rock and red sand are more abundant in many otherplaces than here at Alexandersfontein.

Acacia desert grass is dominant type, but desert shrub also occurs in many places.

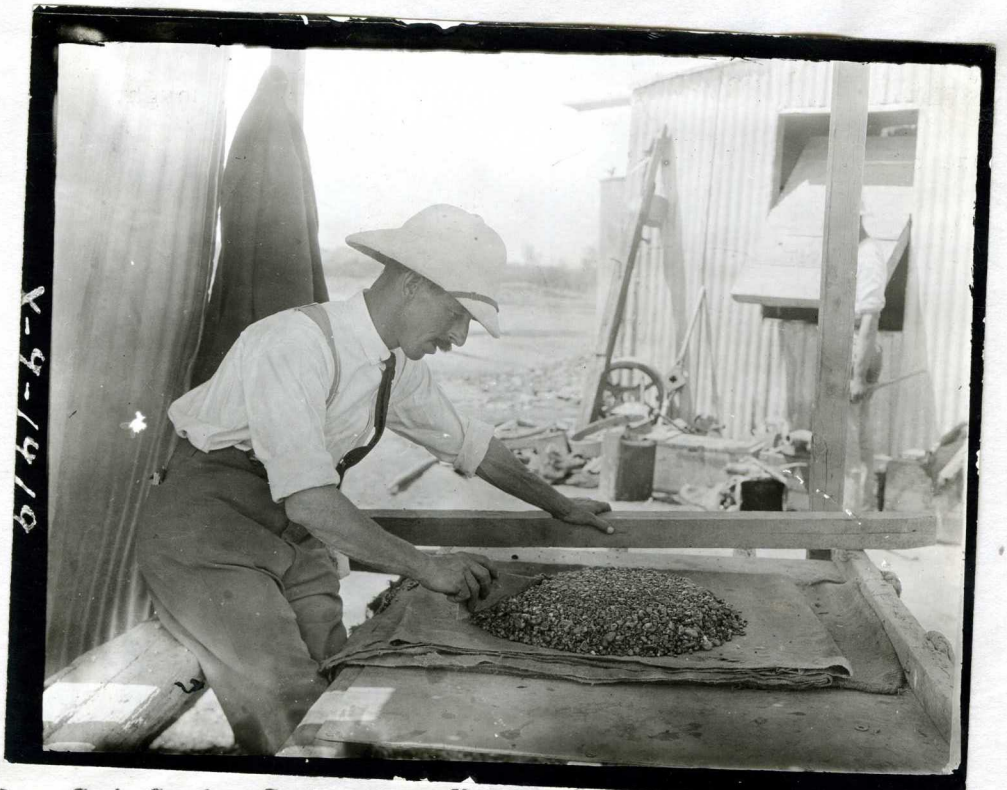
September 26, 1919. Off early for the river diggings in the Vaal river. Passed out northwest through Kimberly through desert grass and acacia and then to desert grass and desert shrub. On the rock kopies the grass is more abundant, also Themeda, Aristida and a broad-spiked grass. The ant hills here are 4-5 feet high and red.

X-2. Shows the type of vegetation just described. Where the soil is grey or shale the ant hills take on this color.

We passed over a wide plain, past the Bend Hotel, crossing the Vaal river, a fairly good stream with a lot of red game along the bank. Beyond this there is an acacia rock country with a few low acacias and smilax trees attacked by mistletoe. On the whole this region is acacia desert grass.

At Longlands a dam deflects the river and diamond digging is done on a large scale in the old river bed.

X-3. Is a panoram of the Vaal river diggings. A large washer is shown at the left, owned by S.A. Cook, Sydney-on-Vaal. At the first high water this dam will be swept out and the diggings stopped.



X-9. S.A.Cook, Sydney-on-Vaal, Cape Provence, sorting diamonds from a mass of gravel.

X-10. The Diversion Canal, also red gums on the bank looking up the Vaal river. It appears to be Combretum salicifolia.

At present there is no farming and very poor grazing in this section. Most of the veld is overgrazed. Only rarely and when protected do the grasses predominate. They are chiefly Aristidas and on the lighter soils Themeda. A large shrub similar to an Atriplex, see Herb. 215, is important in places, as is also a mimosa-like shrub now in full flower, probably one of the acacias. This plant is very fragrant. It is doubtful if this country can ever be dryfarmed successfully.

At Kuruman, which lies to the west of this point and toward the Kalahari desert the country is said to be much better, excellent grass, a great cattle and game country. This change occurs about 10-15 miles out of Kimberly.

At Longlands I collected a Moraea, S.P.I. 48798, which looks like a very delicate iris, blue in color and with true

bulbs located very deep in the soil. S.P.I. 48754 is the common acacia of the Kimberly region, see Herb. 191, Acacia dentinens. It has both curved and recurved spines and is of no use except for fire wood. S.P.I. 48784, Salvia, Herb. 192, a small Hedimoa-like sage, very frequent and apparently a biennial. S.P.I. 48791, Vigna sinensis, beans bought in the market at Kimberly, mostly black. These are known as Kafir or native beans and are probably grown in the Orange Free State. S.P.I. 48779, Phaseolis vulgaris, Kafir bean, probably grown in Natal by the natives. A striped but purer type than in the previous number. Sold in bulk in the market. S.P.I. 48780, Phaseolis vulgaris, a sugar bean or butter bean sold in the Cape region and sold throughout the Cape Province. It is consumed by the whites. S.P.I. 48774, Lathyrus sativus, garden pea, grown in the Cape Province. S.P.I. 48781, Pisum sativum, a very badly mixed sample. S.P.I. 48782, looks very much like a field pea, Pisum sativum. This is probably a variety known as stratagem. S.P.I. 48785, Secale cereale, a winter rye grown in Orange Free State near Kimberly. S.P.I. 48758, Avana sativa, from Orange Free State. S.P.I. 48759, Avana sativa, from Cape Province. S.P.I. 48776, Medicago sativa, probably ofa variety known as Province, and grown throughout South Africa. S.P.I. 48792, Vigna sinensis, a Kafir bean, grown by the natives from Natal to the Zambezi, one of the principal foods of the natives. Mixed seed. S.P.I. 48788, Triticum aestivum, from the Douglas District. S.P.I. 48789, near Kimberly, on the Modder river. Mixed seed, Triticum aestivum. S.P.I. 48773, Hordium vulgare palidum, grown in Orange Free State, a hulled awned barley. S.P.I. 48794, Zea mays, corn, yellow flint from Orange Free State. Shantz 110,