

Crop Formation: Klein-Kedingshagen, Germany 2000
Report No. 127

Laboratory Code: KS-05- 58

Date: August 4, 2001

Location: Klein-Kedingshagen, Germany

Material: Barley (*Hordeum vulgare*) stems with heads and soil.

Formed: May 21, 2000

Sampled: May 27, 2000 by Raphael Maercker, Hagenow, Germany

Formation Characteristics: A large, 38 m circle with extending paths and smaller circles outside (see Mr. Maercker's sampling diagram: Fig. 1 attached).

Summary of Findings:

1) Node Length Analysis

An examination of 26 sets of formation samples and 13 sets of controls, containing about 10 plants each, revealed very high, statistically significant, node length increases both within the large formation and the smaller circles outside. In all formation samples the node length changes were positive relative to the controls, with an overall expansion level of 95.8%. This very high node expansion is in agreement with the finding that about 25% of the formation sample sets contain expulsion cavities (none found in the controls). Their presence indicates a very high, rapid application of microwave energy within the formation areas. These high heating rates also explains the report of stalks with "blackened nodes". In many previously examined formations, the black material at the nodes is due to the local growth of the smut fungus *Ustilago tritici*. This fungus feeds on the cytoplasmic media forced out of the nodes during the rapid heating phase.

In Fig. 2 is a "penciled in" listing of node expansion levels in each of the sample sets, shown as positive (+-signs) percent increases on the Maercker diagram. Along the diameter they are arranged along the left side. within the large circle, revealed revealed no consistent variation with distance along the diameter. It is interesting to note that the two samples taken at the N and S edges of the formation disclosed a 26% and 21% expansion, whereas the 17 sample sets along the interior diameter contained node expansion levels in the range of +84% to +137%. This very pronounced drop in node expansion at the extreme edges of the formation indicates a sharp energy gradient at the outer boundary, a condition observed in many other formations.

The high expansion levels in the plants taken from the small circles outside the larger area, is consistent with the production of higher vortex energies (conservation of angular momentum) in the small crop formations. In fact, circle-D has the highest node expansion level in the entire formation.

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2) Magnetic Drag Material

Significant deposits of magnetic material were found in most of the soil samples. The values are listed in Fig. 2, beside the sample designations. The H-drag levels are expressed as mg/g-soil; the upper limit in normal soil is 0.4 mg/g-soil. The highest level was found in sample S-20 at the North edge of the large circle, the value of 4.574 mg/g-soil is over four times the normal level. The trend within the large circle is toward larger amounts of H-drag material at the outer edges. In many, simple circular formations the distribution of magnetic material is linear with distance from the epicenter and this is readily explained by considering the forces on magnetic particles suspended within a rotating vortex system. When there are interacting vortices, as is the case here, the situation becomes more complicated (see ref. #1) and the physical model predicting a linear distribution is no longer applicable.

Reference

1) W. C. Levengood & N. P. Talbott, "Dispersion of energies in worldwide crop formations", *Physiologia Plantarum* 105, pp 615-624 (1999).

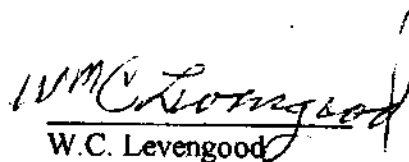

W.C. Levengood

Fig. 1

Fig. : Field diagram (based on drawings by Raphael Maercker) showing dimensions, crop lay & tram-line placement in the field relative to the formation.

LOCATION: Klein-Kedingshagen, N. Germany

DATE FORMED: May 21-22, 2000

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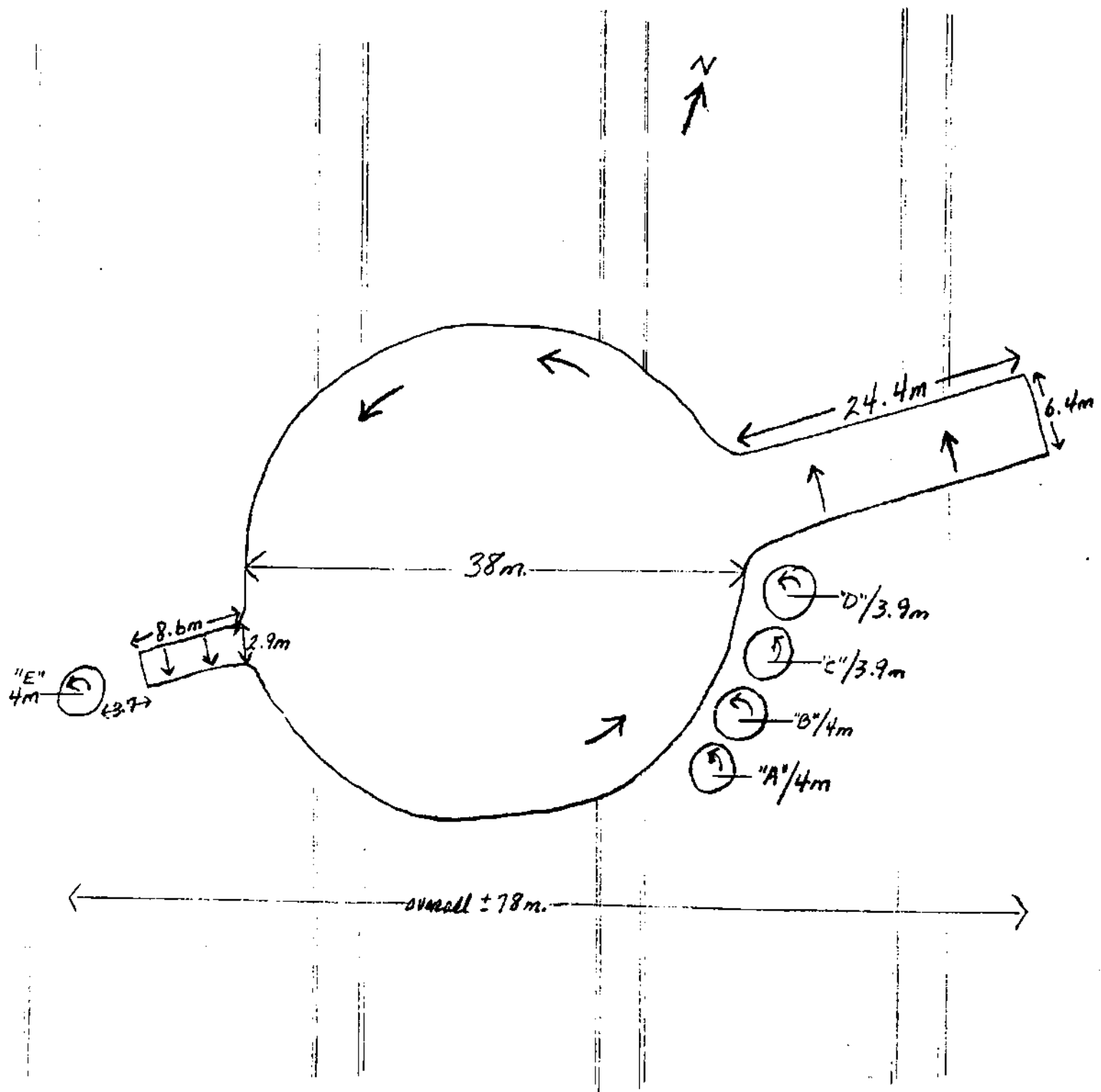


Fig. 2

LOCATION: Klein-Kedingshagen, N.Germany

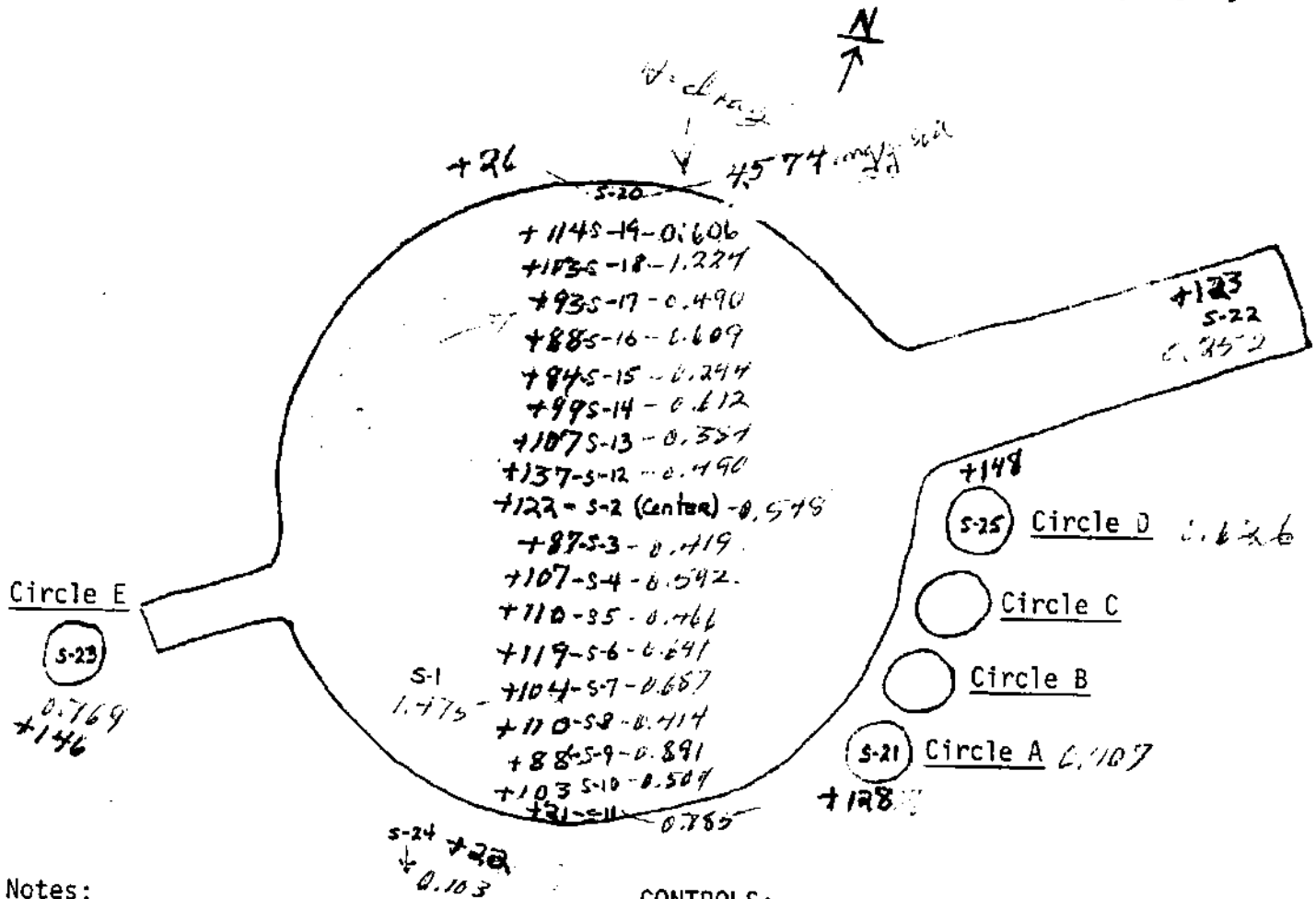
DATE OCCURRED: May 21-22, '00 FOUND: 5/22/00

DATE SAMPLED: May 27 & June 1, 2000

MATERIALS SAMPLED: plants, soils CROP: barley

SAMPLED BY: Raphael Maercker

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Notes:

- S-1: taken where barley plants were observed w/missing seed-heads;
- S-24: taken from edge of tramline, about 65 m. South of formation where blackened nodes seen on sides of plants facing tramline.
- E-1: Standing stalks w/blackened nodes from large circle.

(Blackened stem nodes were observed in standing plants inside the main circle, in perimeter plants standing on the edges of the main circle, and along the edges of tramlines running through the main circle up to 150m outside; all other plant nodes were green.)

CONTROLS:

C-1: .5m SOUTH	0.469	C-5: 50m NORTH	0.462
C-2: 5m "	0.511	C-9: 200m "	1.204
C-3: 10m "	0.218	C-10: 15m EAST	0.452
C-4: 20m "	0.321	C-11: 350m "	0.561
C-6: 220m "	0.751	C-12: 400m "	0.753
C-7: 100m WEST	0.350	C-13: 450m "	1.105
C-8: 200m "	0.156		

Farmer: Jorg Pommerening

Sample No.	Node Length Increase	Magnetic Drag Material
S-1		1.775
S-2 (Center)	+ 122	0.548
S-3	+87	0.419
S-4	+107	0.592
S-5	+110	0.466
S-6	+119	0.691
S-7	+104	0.687
S-8	+110	0.414
S-9	+88	0.891
S-10	+103	0.504
S-11	+21	0.785
S-12	+137	0.490
S-13	+107	0.384
S-14	+99	0.612
S-15	+84	0.794
S-16	+88	0.609
S-17	+93	0.490
S-18	+103	1.224
S-19	+114	0.606
S-20	+26	4.574
S-21 (Circle A)	+128	0.407
S-22	+123	0.252
S-23 (Circle E)	+146	0.769
S-24 (Tramline)	+22	0.103
S-25 (Circle D)	+148	
Control No.	Mean Node Length? = *	Magnetic Drag Material
C-1	-	0.496
C-2	-	0.341
C-3	-	0.318
C-4	-	0.224
C-5	-	0.462
C-6	-	1.751
C-7	-	0.300
C-8	-	0.456
C-9	-	1.209
C-10	-	0.482
C-11	-	0.561
C-12	-	0.753
C-13	-	1.123

* N_L Controls 2.532 ± 0.271 N_{EDS} = 13
 N_L Formation 4.958 ± 0.963 N_{EDS} = 26

Overall Node Expansion +95.8%