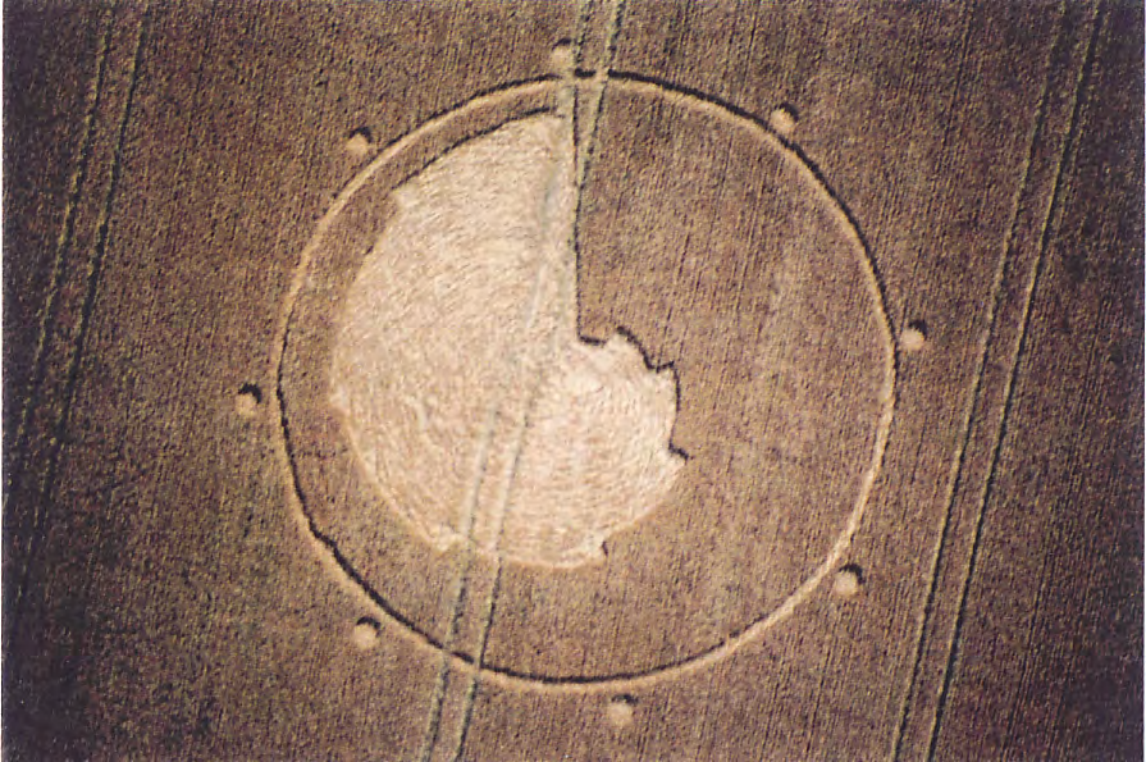


Crop Formation: Whitchurch, U.K. 1995

(LECKFORD ESTATE)

Laboratory Code: KS-03-78 & KS-03-80

Material: Barley (KS-03-78) and wheat (KS-03-80); heads and stems. *Hordeum vulgare and Triticum aestivum*

Formation: barley- precise spiral outline with "notched" edges; wheat- one 4 ft. diameter circle and a rectangular "wind damage" area. Formation date not provided; within 3-4 days prior to sampling?

Sampled: by Ms. Shelly Keel on August 3,1995

SUMMARY OF RESEARCH FINDINGS:

I) Barley (KS-03-78)

a)- the apical node length changes were inserted in Ms. Keel's sampling diagram (Fig.1). The percent figures are relative to the mean node length from all six control samples.

b)- due to the low variance within the control samples any node length change at 14% or greater is statistically significant at the P<0.05 level.

c)- the control samples C1 to C4, taken at 2 ft. outside the formation, show no significant change in node lengths. This demonstrates that the energies were confined within the formation; that is, no spill-over effect.

d)- the lack of spill-over was also indicated by the fact that the standing plants between the ring and inner downed material disclosed no significant node length changes.

II) Wheat (KS-03-80)

a)- the node length changes in the wheat samples are shown in the Fig.2, Keel-sampling-diagram, with the length changes determined as in the barley data.

b)- node length changes at 19% or greater are significant at the P<0.05 level of significance.

c)- in every case the apical nodes within the so-called "wind damage" area are significantly expanded. This clearly demonstrates that this is not a simple wind damage, but rather an area which received transient energy of even higher degree than the small 4 ft. circle nearby.

d)- no spill-over effect noted in controls taken outside the small circle or in the controls taken from the wind damage area.

COMMENTS

In the barley formation shown in Fig.3 we are provided with a geometric outline which mathematically follows a model of non-linear ion acoustic shock-wave collisions in an ion-electron plasma (see: "Non linear waves, solitons and chaos" E. Infeld and G. Reynolds, Cambridge University Press, pp. 155, 1990). This means that, from theoretical formulations, we are not only able to

define the geometric outline of this formation, but we can also account for the organized energetics within. For the past several years we have been pointing out that organized plasma interactions can very satisfactorily account for the shapes of crop formations. Even seemingly minor details, as for example the "notches" on the outer edge of the barley formation (see Fig.1 and Fig.3 where they can be faintly seen), are indicative of unstable shear forces, typically observed within plasma systems. This notch or ratchet effect has appeared in many crop formations. Probably the best known was the Barbury Castle formation, which made the cover of the Feb.1, 1992 issue of Science News.

All our experimental findings involving the transformations in plant cell morphology and in the external characteristics, such as node swelling and expulsion cavity formation, have supported an ion plasma model. There have been no anomalies which would have invalidated this hypothesis; in fact our concept was accepted in the peer-reviewed scientific journals Physiologis Planterum and the Journal of Scientific Exploration. We admit that chaos theory is not simple and straightforward to understand; but it is scientifically sound. In conducting scientific investigations one quickly realizes that nature does not always provide simple answers. Being able to unravel the complexities within these special formations will ultimately lead to a working model for describing all formations.

W.C. Levengood
Pinelandia Biophysical Lab.

John A. Burke
An-Tech Laboratory

FIELD DRAWING

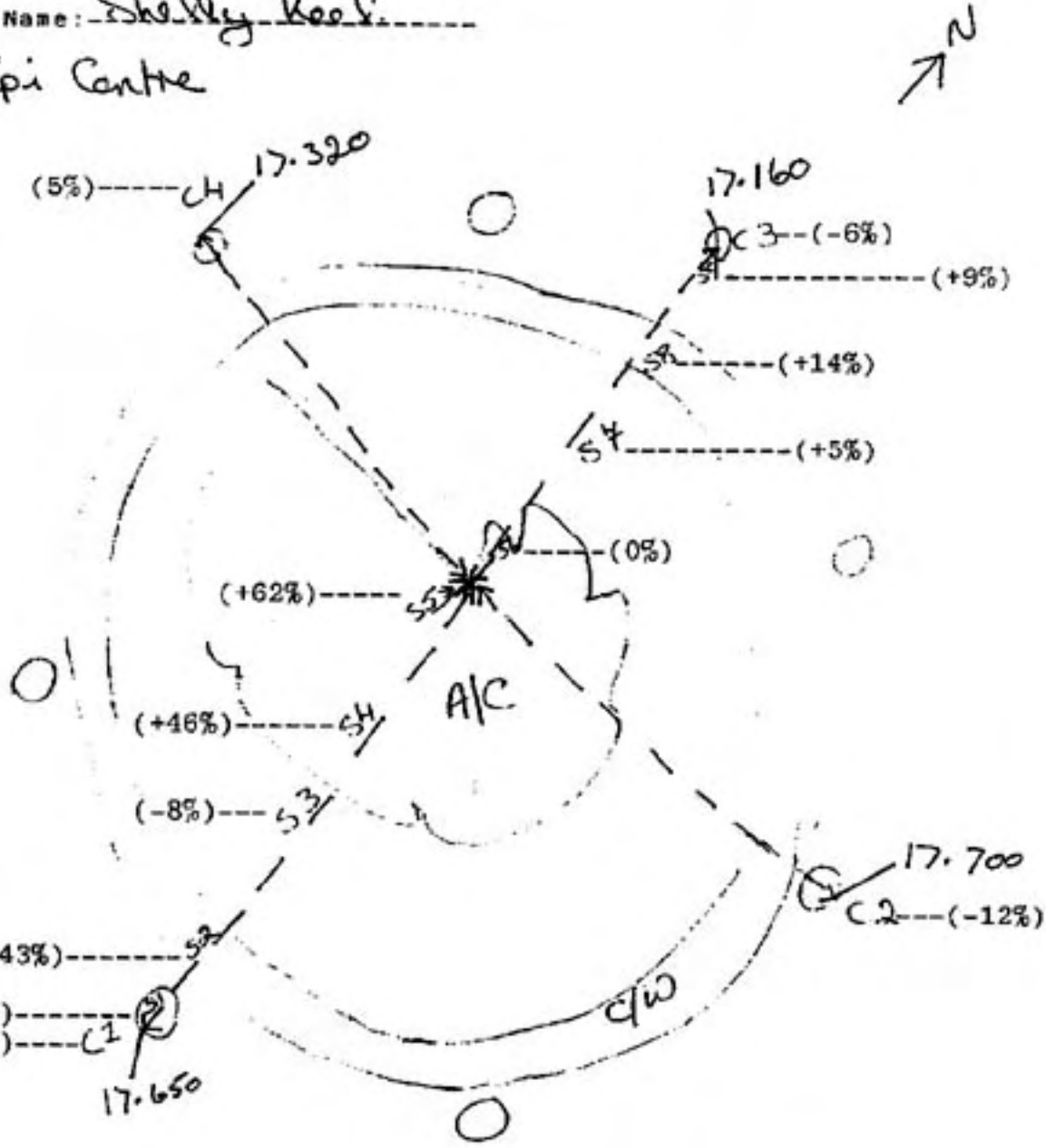
Fig.1: Node length change relative to mean of controls (KS-03-78)

Formation Location: Lockford Estate (3)

Date Sampled: 3 August 1995

Your Name: Shelly Koof

* = Epi Centre



C1, C2, C3, C4 — Each taken 2' into field.

(+11%) — 50' — C5 — Eastern Direction

(0%) — 100' — C6

NOTE: DO NOT FORGET COMPASS BEARING

Measurements taken from Epi Centre to outer edge of [illegible]

FIELD DRAWING

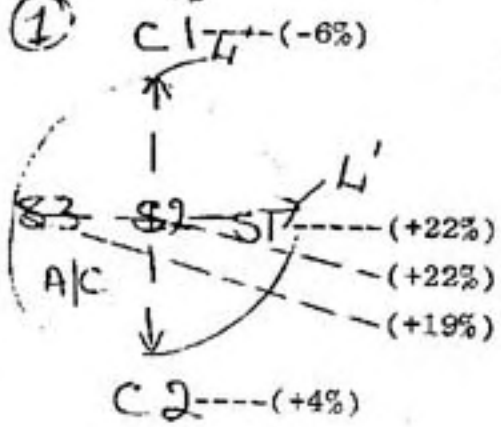
Fig.2 Node length change relative to mean of controls (KS-03-80)

Formation Location: Beckford Estate (1+2)

Date Sampled: 3 August 1995

Your Name: Shelly Keel

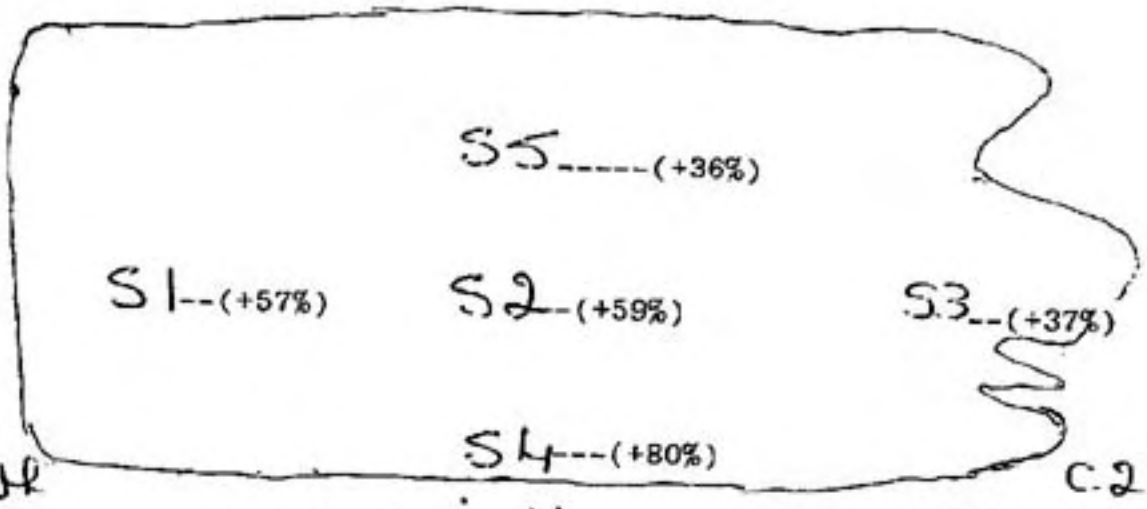
Grapeshot (1)



C1, C2 > taken 2' into field

N →

Wind Damage (2)



C1 South
50' --(-7%)

Laid N direction.

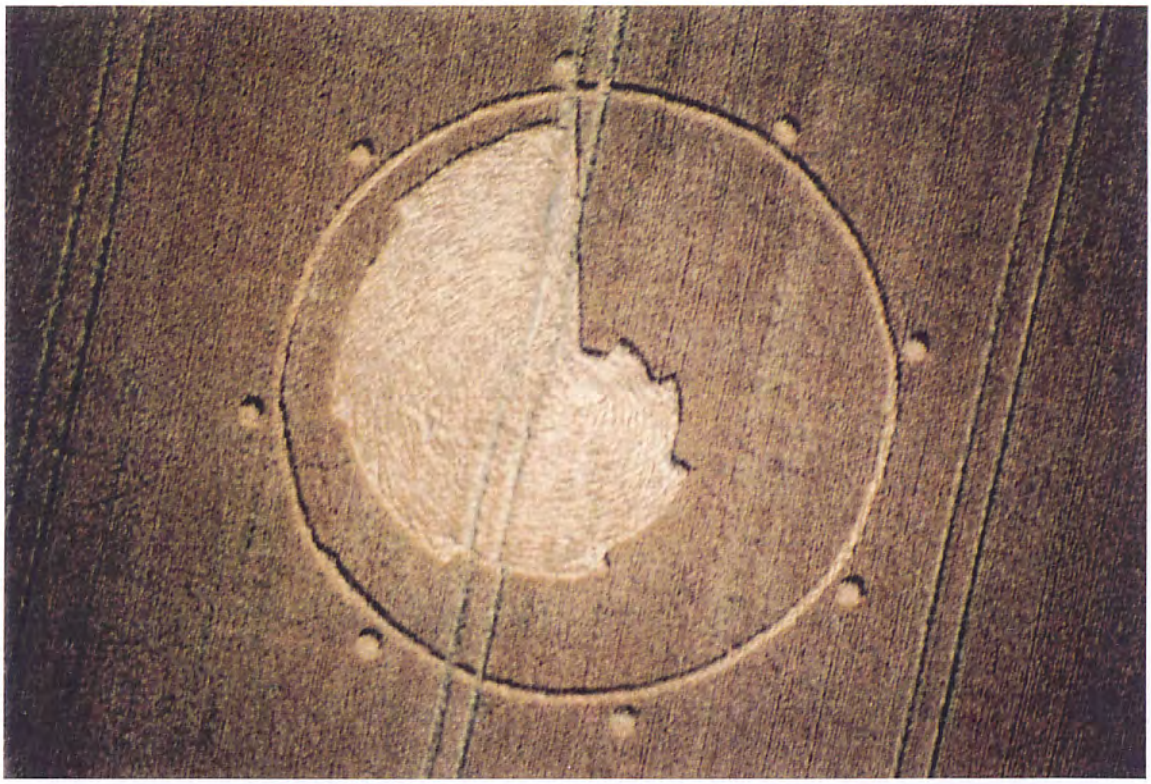
C2 North
(+11%) --- 50'

N →

NOTE: DO NOT FORGET COMPASS BEARING

Grapeshot was 100' away from wind

Fig. 3: A mathematically elegant crop formation in barley, at Leckford Estate, Whitchurch, Hants., England - August, 1995. (KS-03-78)



NOTE: This is an illustration of a precise formation which follows the mathematics of non-linear shock wave interactions in an ion-electron plasma. [see text of Lab Report #75]