

Crop Formation: Childs, Maryland 1995

Laboratory Code: KS-02-160

Material: Barley, *Hordeum vulgare*.

Formation: June 1-5, 1995 at Childs, Maryland

Sampled: by Linda Moulton Howe et al., on June 5, 1995

Comment: Linda submitted a detailed report including photographic records of this formation and surroundings. This report provides excellent information concerning the crop lay in each sampling site as well as aerial shots of this complex array.

SUMMARY OF RESEARCH FINDINGS:

- a)- Fig's. 1, 2 and 3 (attached) are diagrams of the three primary sites from which node length data were obtained
- b)- N1-lengths determined at both the A-apical and P-penultimate nodes on each of about 8-10 plants per sampling site.
- c)- the mean and sd values were determined for each sample group as well as in seven control groups.
- d)- the mean node length in each sample group was compared with the mean value from all of the control plants (189 total) and are listed below as percent change.
- e)- because of the complex nature of these formations the node length data are listed below along with the sampling location information and are grouped according to the designated sampling site.
- f)- node length data exceeding about a 20% change relative to the controls were in most cases statistically significant.

I.) Formation "A Grapeshot" (Fig. 1) approx 9 1/2 ft. circle.

<u>Samp.</u>	<u>Location & Comments on Labels</u>	<u>A-%</u>	<u>P-%</u>	<u>Expulsion Cavities-%</u>
#1	"From center of circular paw"	+27	+30	40
#3	"Re-oriented nodes-far eastern edge"	+30	+30	17
#5	"From southern edge-unusual bends"	+38	+54	25
#7	"From center with re-oriented nodes"	+30	+30	60
#8	"From far western edge"	+24	+5	35

II Controls Taken from normal appearing, upright plants; 189 nodes examined, all from same field.

#1C	-----Control-1C-----	-8	-5	0
#2C	-----Control-2C-----	+5	-2	0
#3C	-----Control-3C-----	-2	+2	0
#4C	-----Control-4C-----	+9	-2	0
#5C	-----Control-5C-----	+12	+3	0
#6C	-----Control-6C-----	-9	+4	0
#21C	-----Control-21C-----	-7	-8	0

III Formation "B"-large irregular (Fig. 2) about 100 X 20 ft.

#10 "Southern edge-standing cluster"	+36	+36	13
#14 "Standing stalks-center S-N downed"	+2	-5	0
#15 "Standing 3 ft. circle at E-edge"	+24	+4	13
#17 "Down 3 ft. circle at E-edge"	+28	+20	6
#18 "E-edge where the E-W plants were laid over the S-N plants.	+51	+49	38

IV Other Locations "Explosive appearance" (Fig. 3) etc.

#22 "From one of three rectangles"	+10	+7	0
#27 "Explosive region where plants bend radially out from 12" clear area"	+41	+67	38
#31 "Explosive area at E-edge"	+40	+38	43
#33 "Explosive-counterclockwise line"	+33	+30	10
#35 "Square from SE-corner"	+27	+28	15

In addition were two samples designated #24 with 16 plants and #26 with 11 plants containing what was defined as "kinks" in the stems. These anomalous kinks were on average about 25 cm above the apical node and 15 cm below the seed head. The effect appears to be new with these samples.

A red-brown stain around each crimped region was the result of microorganism attack on the exudate released from the damaged area. These stains were much more pronounced within the tissue inside the stem. This is not unexpected, the inner parenchyma tissue would be more readily expanded and ruptured during the rapid heat expansion than the tough fibers on the outer epidermis. This effect appears to be caused by a well defined region of heat input, combined with a wind shearing action. In this early growth stage the upper stem would be fully hydrated and as a result very susceptible to microwave heating and mechanical crimping.

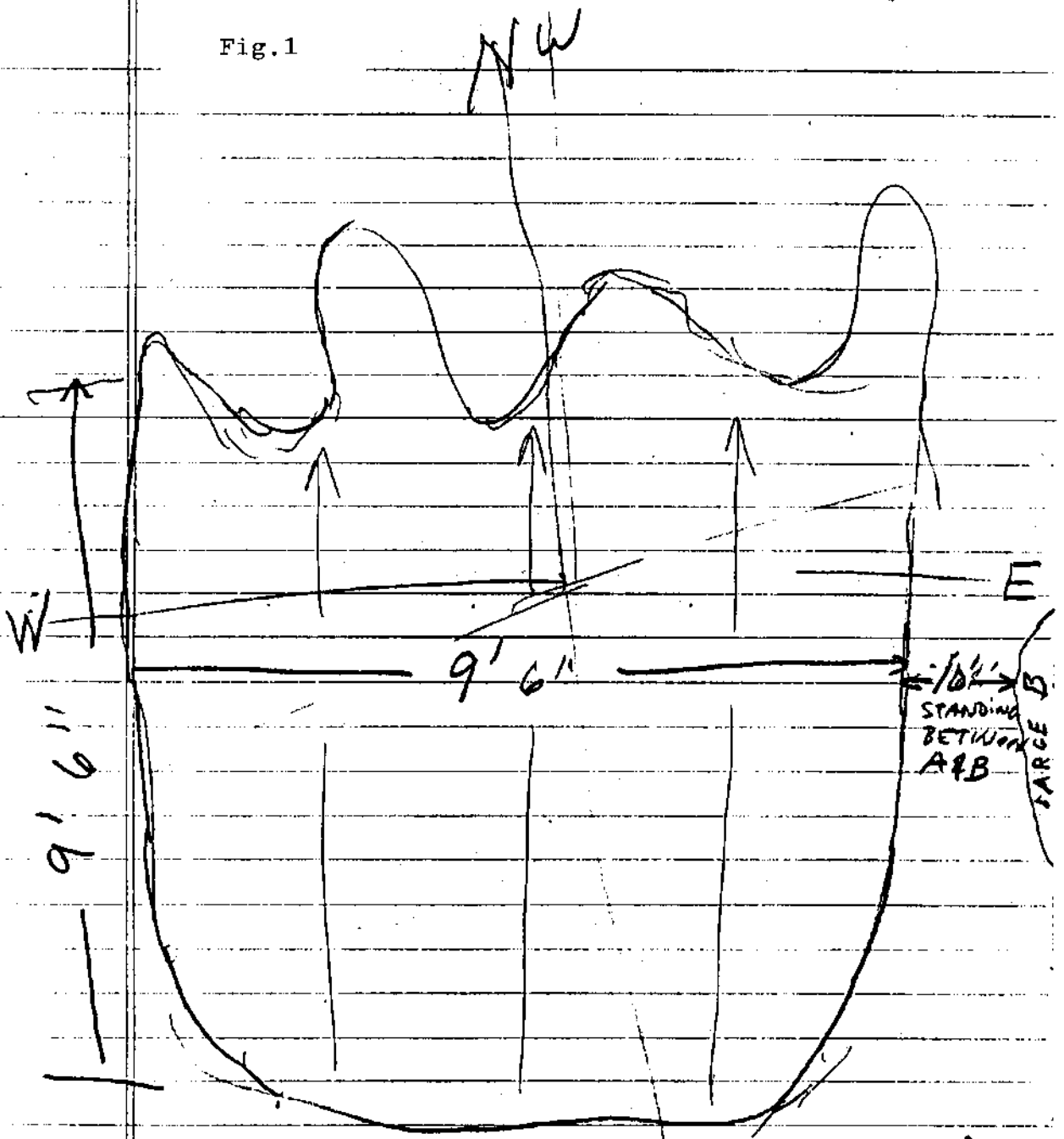
CONCLUSIONS

It is quite apparent from these data that very localized and highly turbulent heat energies were involved in these formations and the resulting alterations within the plant tissues.

W.C. Levensgood
Pinelandia Biophysical Lab.

John A. Burke
Am-Tech. Laboratory

Fig. 1



GRAPE SHOT A (Barley)
6/5/95

SE

Samples taken LARGE B formed between 4 pm on 6/3 (X)
 and 3 pm on 6/4/95
 on 6/5 by 3/4" dia. machine.
 drawing by Greg M. Raymond & A.

Was a small lightning storm
 Saturday night (6/5) but no rain
 or heavy wind.

Fig. 2

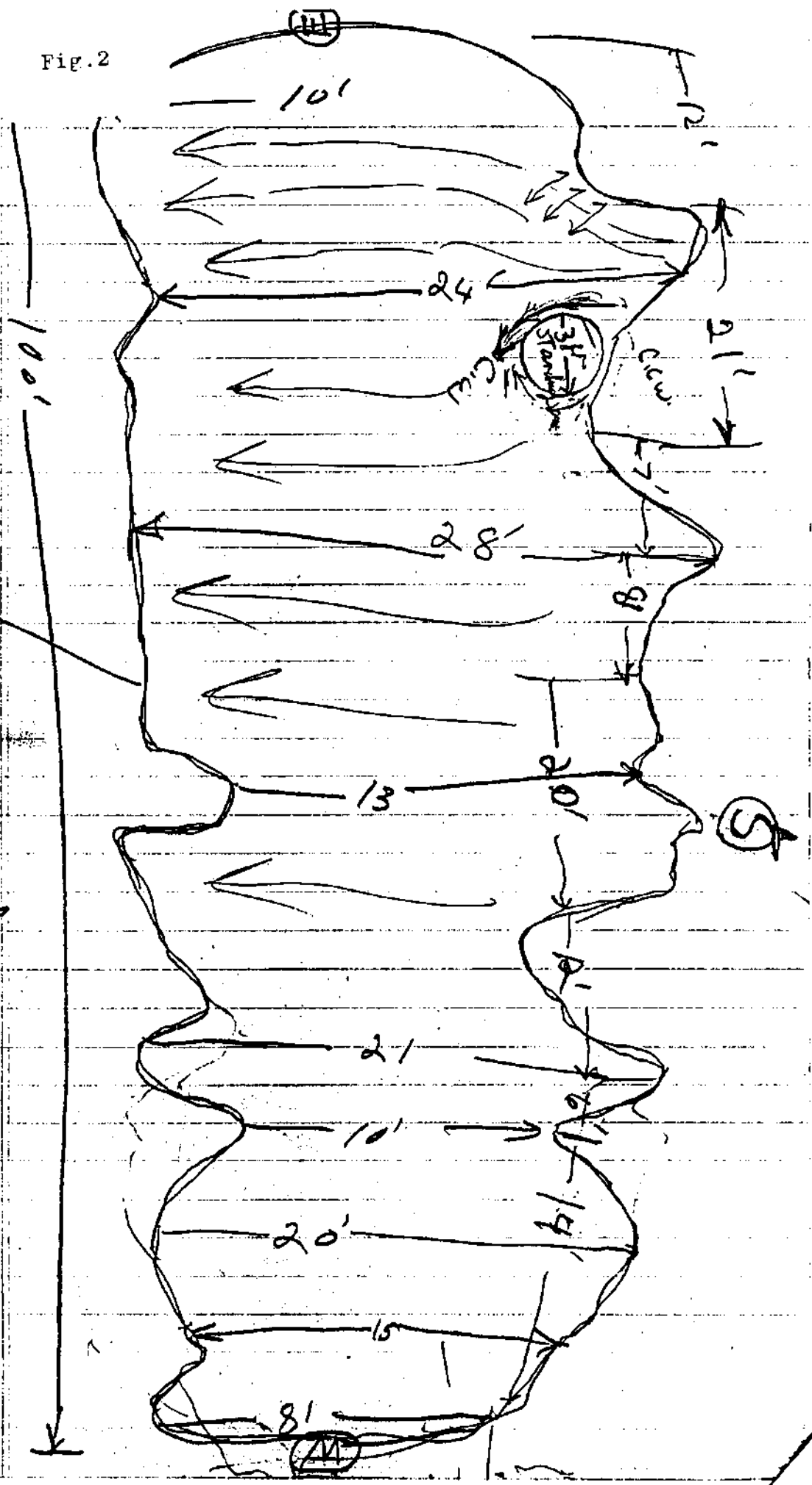


Fig. 3

"Explosion" and "Square"
Barley field in Childs, Md.

