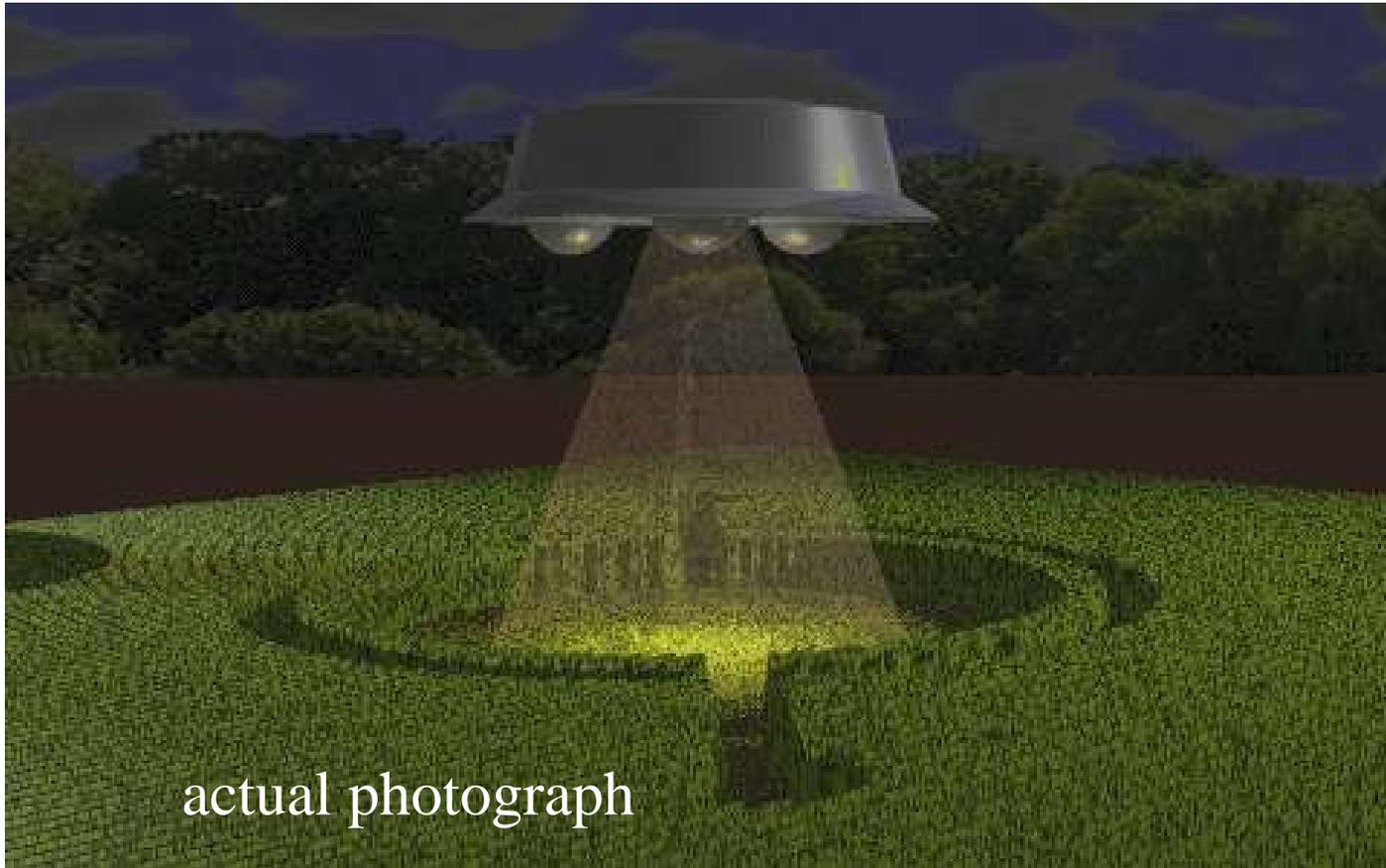


# Crop Circles:

Natural Phenomenon?  
or Product of Excess Free Time?

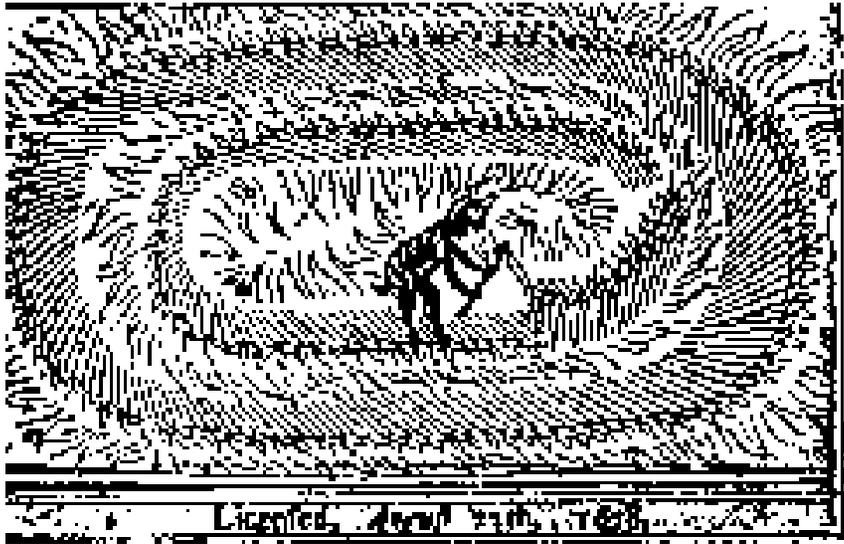


actual photograph

Brian “Your Daddy” Brooks and Mark “The Hoaxer” Curtis

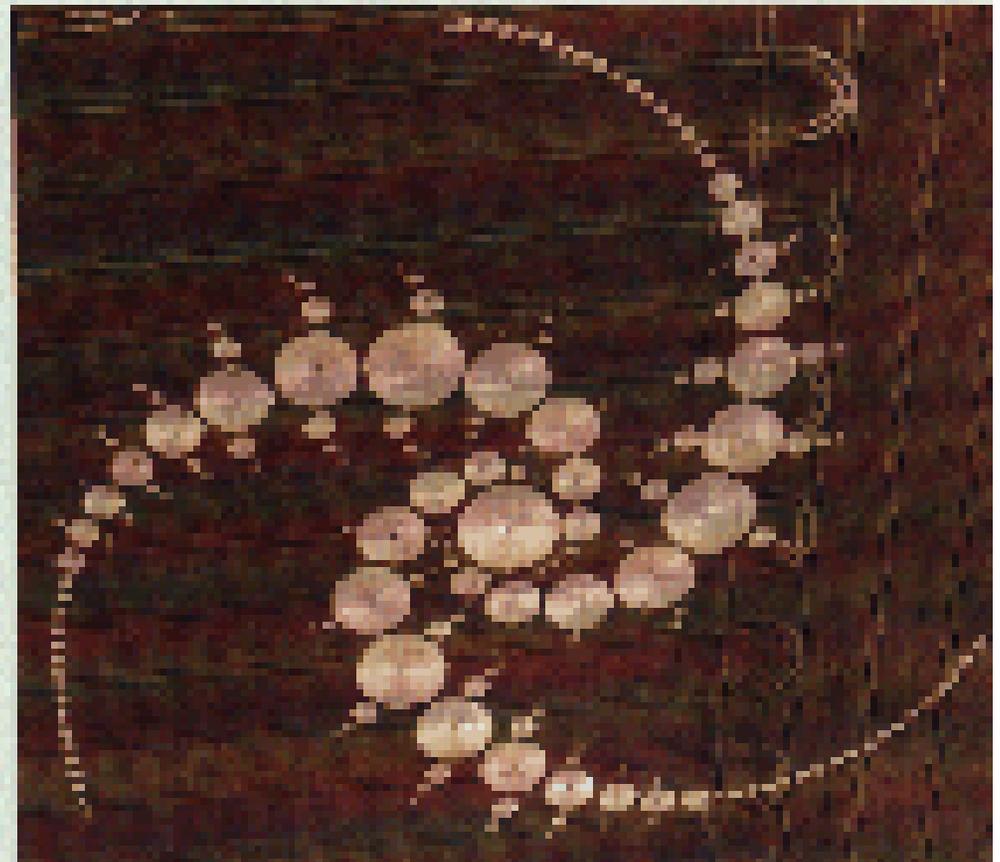
# The History of Crop Circles

- First recorded in 1647 in England
- Reoccurrence in 1970's with increased numbers
- Massive increase in intricacy in 1990's



*Engraving of 1<sup>st</sup> recorded crop circle*

*Complex formation near Stonehenge*



# Formation Theories

- Whirlwind/Plasma Vortex
- Microwave Transient Heating
- UFOs
- Spirit of the Earth
- Hoaxers



# Whirlwind/Plasma Vortex Theory

- First proposed in 1989 by meteorologist George Meaden
- Requires certain weather conditions over undulating land
- Column of ionized wind forms
- Disappears almost as soon as it forms



# Microwave Transient Heating Theory

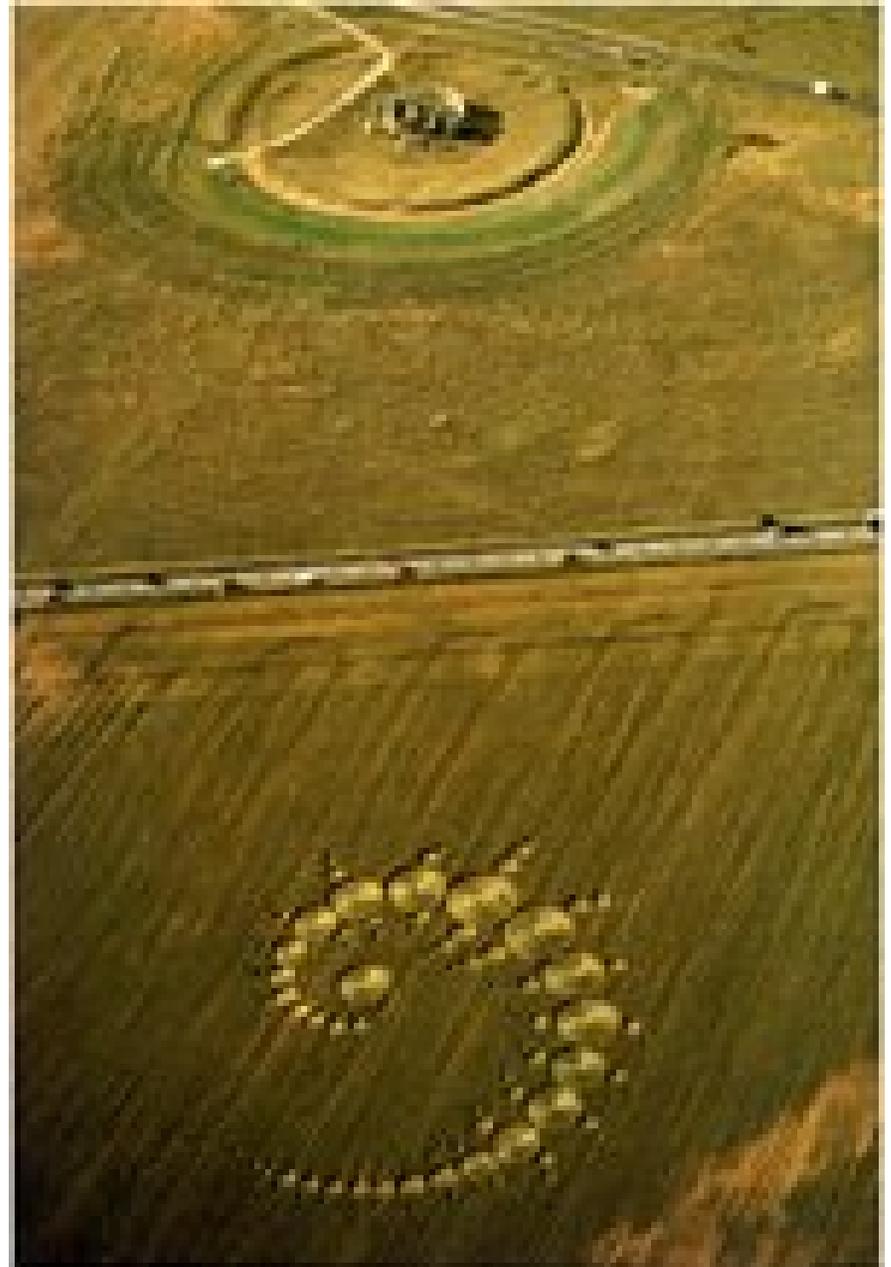
- Enlarged and exploded nodes noticed in crop circle plants
- Heating comes from microwave radiation
- Biophysicist W.C. Levegood placed plants in microwave oven
  - Plants were easy to bend at the nodes
  - Nodes became enlarged
- Theory doesn't really explain the formation of circles, just anomalies in plants



# Hoax Theory

- Media coverage increased
  - Frequency increased
  - Complexity increased
  - Number of locations grew
- Occur mainly at night with no witnesses

*Right: Fractal formation in 1996 near Stonehenge claimed to have been created by three artists called Team Satan*



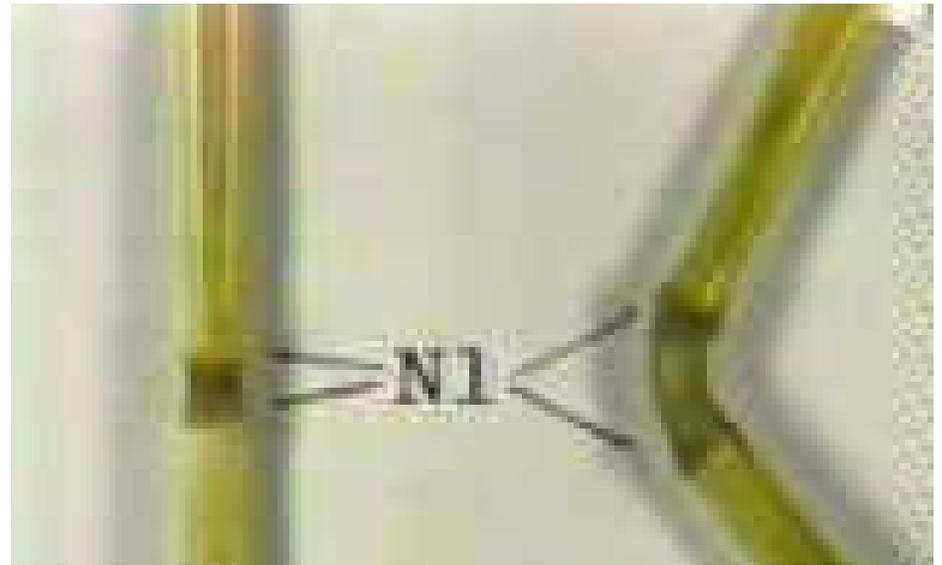
# Hoaxers

- In 1991 Doug Bower and Dave Chorley admitted to creating circles
  - Claimed to have created approximately 250 circles
  - More people subsequently confessed to other circles
- Recreated a pattern previously declared “the sort no human could have made”
- Used simple methods (boards and ropes)
- Skeptics still unconvinced



# Supposed Peculiarities in the Plants

- Stalks bent up to  $90^\circ$  without being broken
  - Most crop circles formed in summer while stalks are still green and pliable
- Some stalks have expanded and ruptured from the inside out
- Stalks left with surface charge that is supposedly proportional to degree to which stalks are bent.
- Tissue surrounding the seeds have an increased conductivity consistent with exposure to electrical charge

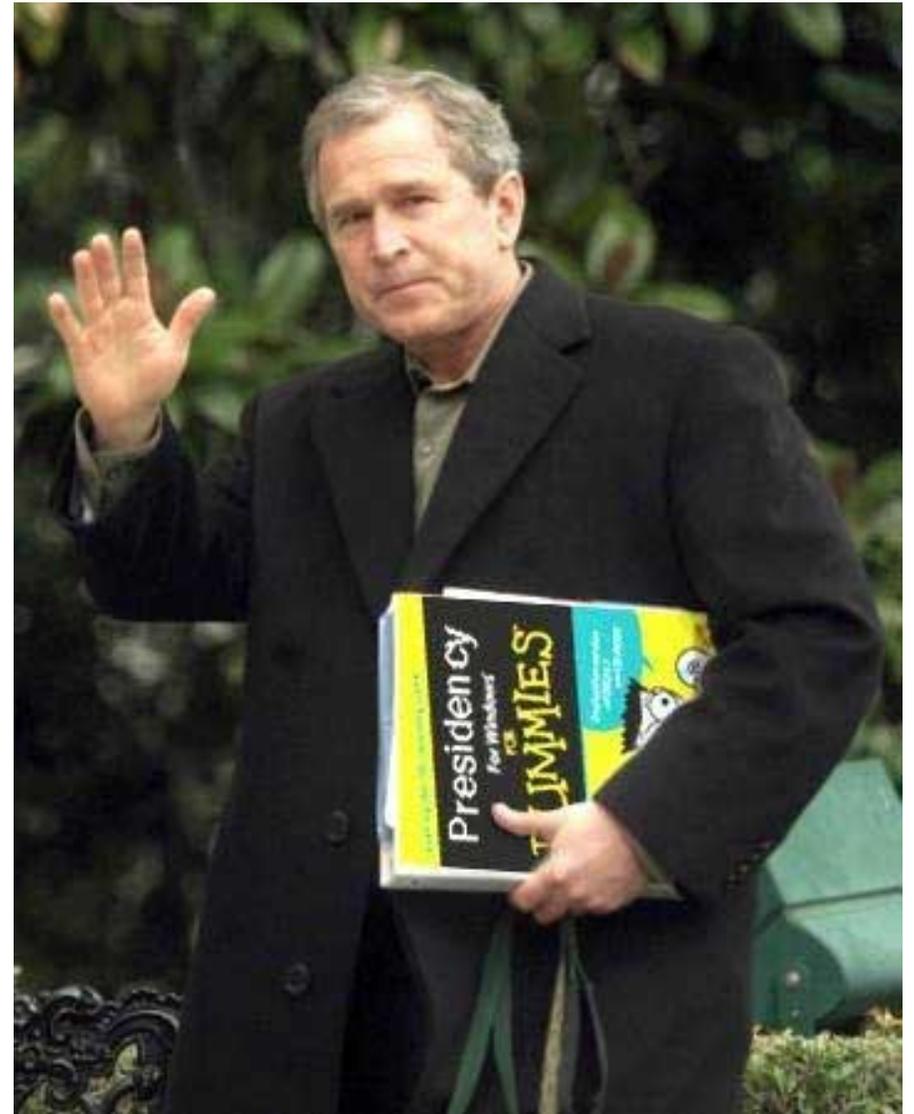


# Problems with Data and Research Methods

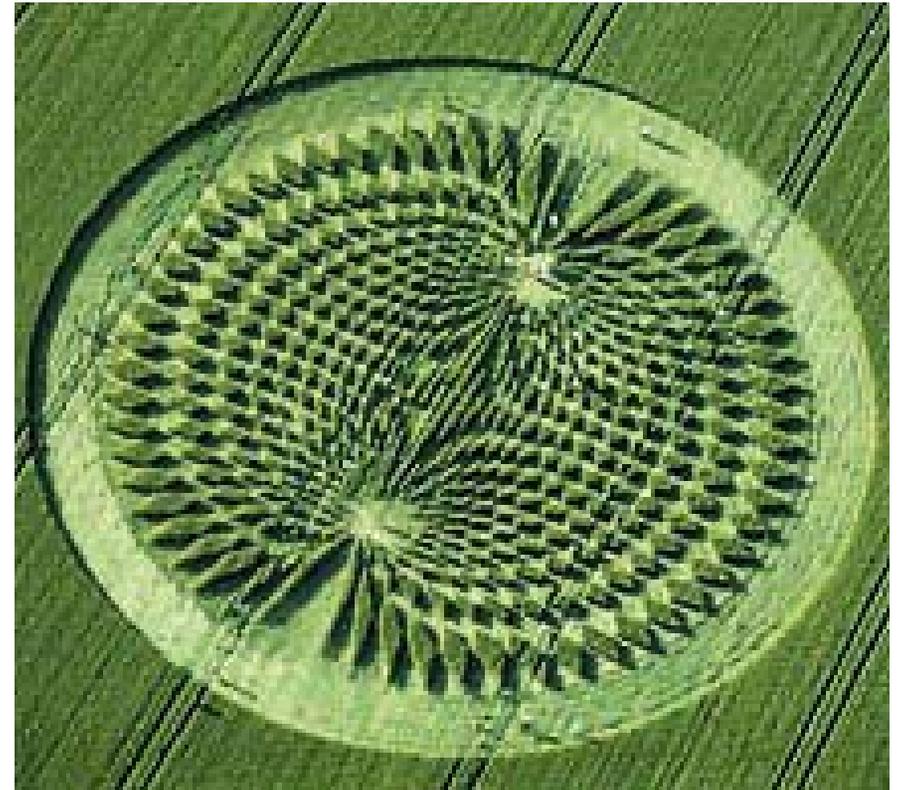
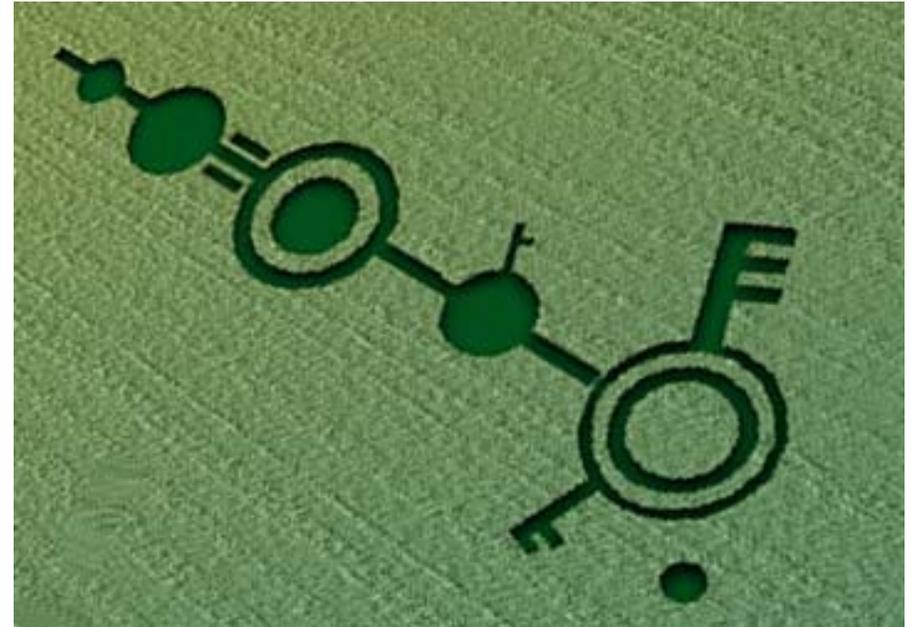
- Claims are made based on experimentation, but often no data or methods are given
- Experimentation by W.C. Levengood
  - Biased against hoax theory
  - Experimented on groups of 6-10 plants with controls
  - Collected 1-5 days after formation
  - Experimentation was not done in a blind manner

# Our Conclusions

- Some people are of substandard intelligence who will believe anything →
- Experimentation should be done in a blind manner
- More data and research methods should be provided
- All possibilities should be exhausted before making conclusions
- Give more credit to human ingenuity



# Purdy Pictures



# Ethics in Nielsen Hall



**B26: Scanning Probe Microscopy Lab...**

# ...or Meth Lab?



# References

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