Silicon Valley Adventures

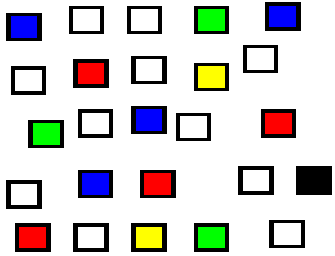## Life in the Valley
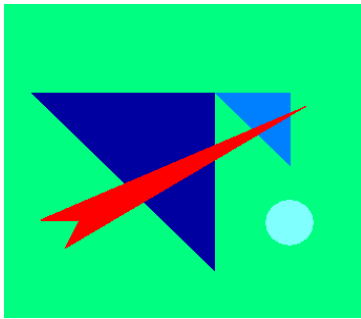
The Illiac IV

- Institute for Advanced Computation
- Predecessor Kim Harris – wire wrap term.
- Wind tunnel humidity/temp control
- Epoxy A TI ECL devices whisker growth
- Looked like a freight train with organ keyboard & large CRT built-in at one end

Illiac IV Cont'd

- Control Unit 200 cards ~2x2' 12 layers
- 64 Processing elements
- Each Processing element 300 4x4" cards in wire-wrap backplane.
- 13MHz (supposed to have been 25MHz)
- ~84MFlop 32-bit floating point
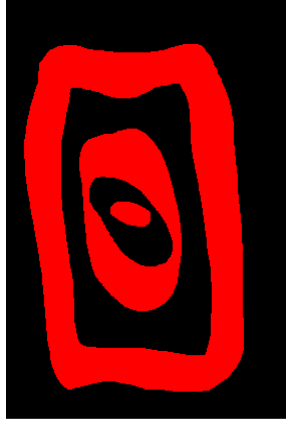- ~42MFlop 64-bit floating point
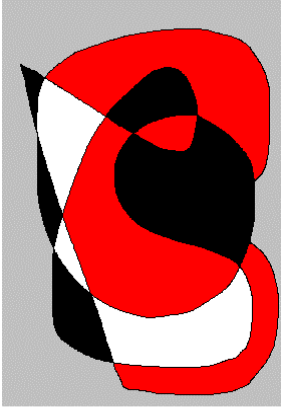
Illiac IV Cont'd

Yin Yang in Poland

Kal Deil

- DZ at helm "finessing machine"
- Large rollup garage door on CU
- IBM cards/belted cable with terminators on PC boards.
- Large insertion levers –major force
- Misalignment causes card align pin to bend or break off
- Saturday removed connector shells used scotch bright. Illiac up for 15 minutes!
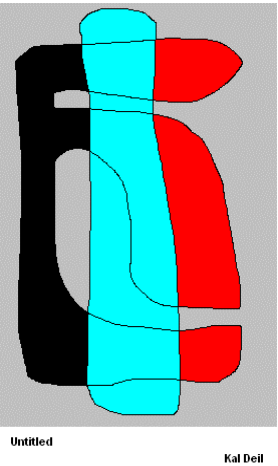
Illiac IV Cont'd

Moon Carpet

Kal Deil

- CU boards covered with wire changes. Tiny coax

- Held down with bathtub caulk, band aids, glue gun, airplane glue, epoxy

- Solder joints were all cold

- 2 months to resolder/ use cyanoacrylate

- Illiac up for 1 hour!

Illiac IV Cont'd

Untitled
Kal Deil

- Since low integration ECL and wire-lists on line could compute curves at each point.

- Grease penciled numbered curves on curve tracer scope

- 15 to 25 anomalies on each board

- 2 to 5 real errors

- 200 CU boards

- After corrected Illiac up for 8 hours
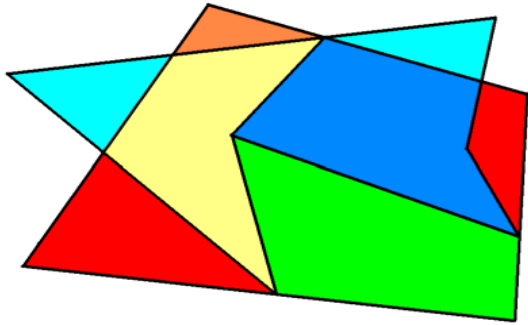
The Phoenix

- Dave Stevenson and I assigned to design a replacement for the Illiac IV.
- 740 processing elements (7600 class)
- Each size of small breadbox
- Planar Coax – mostly copper (Bunker Ramo)
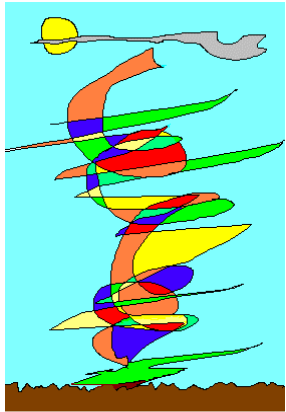- Congress didn't want to spend $50M
- Good thing!

Intergraph and Forth

- Intergraph, Sun and Apple using open firmware (Forth)

- I managed Systems Engineering all diags and test programs in C and assembler.

- I had great idea, improve productivity with Forth.

- Programmer ran to Software VP in panic

Intergraph Cont'd

Isodore Duncan's Scarf

Kal Deil

- I had a great demo ready but VP poisoned water and no one dared look at the demo including the VP

- VP later canned

- Shortly after Intergraph APD sold to SUN.

Forth – Right or Wrong
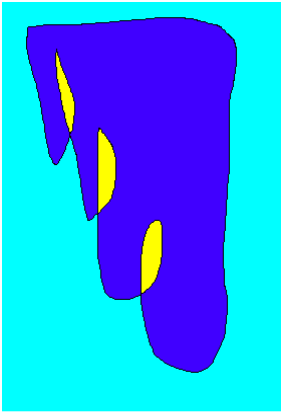
Waterfall by Ikea

Kal Deil

- Common impression –write only
  What about C -- www.ioccc.org

int v,i,j,k,l,s,a[99];

main(){for(scanf("%d",&s);

a-s;v=a[j=v]-a[i],k=i<s,j+=

 (v=j<s&&(!k&&!!printf(2+"\n\n%c"-(!l<<!j),"
   #Q"[l^v?(l^j)&1:2])&&++ l||a[i]<s&&v&&v-
   i+j&&v+i-
   j))&&!(l%=s),v||(i==j?a[i+=k]=0:++a[i])>=
   s*k&& ++a[--i]);printf("\n\n");}

Forth Cont'd

- Flexibility greatest defect

- Cobol vs APL example (Alan Perlis at Yale)

- Easy Writer – major disaster for Forth – never really recovered

- Anarchists love Forth – not best people to show how Forth can be used in a disciplined manner.
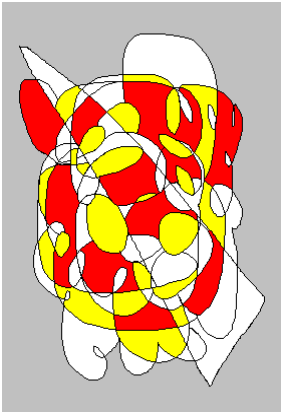
Forth Cont'd

- Very little university support

- Other languages have evolved with large libraries of web and commerce stuff.

- Forth has niche in Open Firmware, some hardware bringup, robotics, and a variety of embedded applications. At Apple new hardware checked out with Forth based tools.
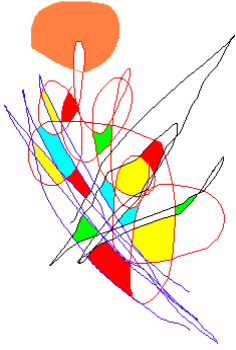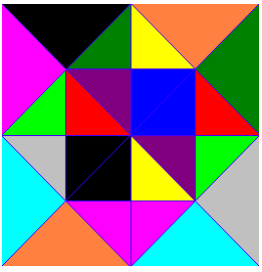
Projects in Forth

- NBS search for mass spectrometer on 286 (faster then DG Nova)
- Zilog Super8
- Database system for magazine subscription service on Altos S100. Had tape backup system they didn't use. Wouldn't pay final $200. Tsk, tsk…

Lady in a Chair   Kal Deil

Forther's endangered species?

Inner Access Corporation

- Went to Intergraph because Inner Access imploded 16 years ago.

- Alpha Micro Injunction

- Zilog Super8 lost recipe

- Exabyte Tape backup – Consumer Sony deck

- Now resurrected as Inner Access LLC
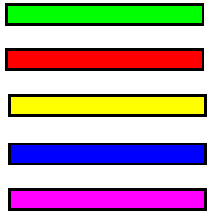
- Involved in 3 startups

Startups

- Telecom Medical Inc.
  Calorie measurement using accelerometers and other devices
- Alpha Cryogenics
  storage of white blood cells at LN temperatures
- A dotcom with a secret name
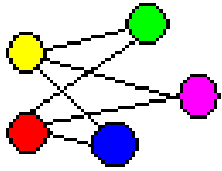
Networking Resources

- **LinkedIn**
- **Ecademy**
- **Ryze**
- **OpenBC**

Entrepreneur Resources

- **Craig's List**
- **Local2Me**
- **SVASE**
- **SBA**
- **Local Chamber of Commerce**

The Grandson Clock