The workstation decision at SEP

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ABSTRACT

A network of seven Sun workstations was installed at SEP last month. The goal is to enhance human interaction with reflection data.

INTRODUCTION

My long-range goal for the SEP hardware environment is that it should gracefully pass large volumes of raw data under the noses of the researchers and drop it in their hands so they will touch it, squeeze it, and smell it. What Bally's AAPG books have done for education of petroleum geologists, I'd like our machinery to do for us.

In the past and even today, most of our projects have been inspired by theory. This is not especially bad. But we need more "data motivated" projects, that is, projects where the applicability of the theoretical concept is evident from the beginning.

Laser WORM disks

For some time I have been anticipating that we would purchase a large laser WORM disk drive or jukebox. A WORM disk is a disk on which you can Write Once and then Read as Many times as you like. Today such disks are roughly five times as capacious as a 6250 BPI tape, and they are randomly accessible. So to store all SEP's data tapes, would require a hundred disks or more, and to service fifteen researchers, we would need at least two to three drives. (All but one drive could be read only).

Reading the trade press and tramping the floor of the SEG exhibition I did find WORMs, but none in a configuration that we could hook up directly to our Convex-Sun-Microvax-ethernet system in a way that users could regard the WORM as an extension of the UNIX file system. What we want does not seem to be a standard product. Excluding the option of doing system work ourselves, what we want apparently isn't available.

Sun's offering

At the 1986 SEP spring meeting we used a Sun workstation in our presentations (along with a TV camera and large screen TV). Anthony West, representing Sun Microsystems, gave a talk promoting the use of desktop Sun computers, one for each researcher. One of his reasons was the MIPS/dollar ratio comparing a workstation to larger computers. While this reasoning seems valid, the MFLOP/dollar ratio is not nearly so impressive when workstations are compared to an array processor or to our vectorizing Convex computer. Also, workstations lack many of the facilities of the larger computer.

Another reason Mr. West gave for a work station on every desk is higher human productivity. This is harder to quantify, but it would have to be our reason, should we go this route.

Our previous sun experience

Rick had converted his Movie program to the Sun, but it did not get as much use as the version on the RasterTech raster display that is attached directly to our Convex supermini. The RasterTech gets almost continuous use, and we could use two. We believe the reason for the lesser Sun usage is that the data must be copied across the ethernet to the Sun (an additional step), and until March, there was a disk space problem on the Sun. Also the Network File System (NFS) should eliminate the copy step, when it is installed on the supermini in the autumn.

Through the summer I developed an "Overlay" program (see SEP 50) for a Sun workstation that enables the operator to bring up raw data and interactively change the scale, clipping threshold, vertical exaggeration, overlay hyperbolas and other templates, do normal moveout, and interactively build a velocity/depth profile. Overall, I am pleased with the Overlay program.

Others use the Overlay program mainly for finding interval velocities. It isn't used much in the way it was intended–for browsing through data. There are two problems. First, we can't keep much data on line. Second, about 30-60 minutes of training is required to learn all the features of the program. I found the Sunview software toolbox did not help make software as friendly as the income tax software (MacInTax) that I used personally this year. With that tax software, touching the text on a line of a tax form brings up a window of IRS instructions for that line. On the other hand, I'm not willing to devote the resources to my task as did the commercial writers of tax software.

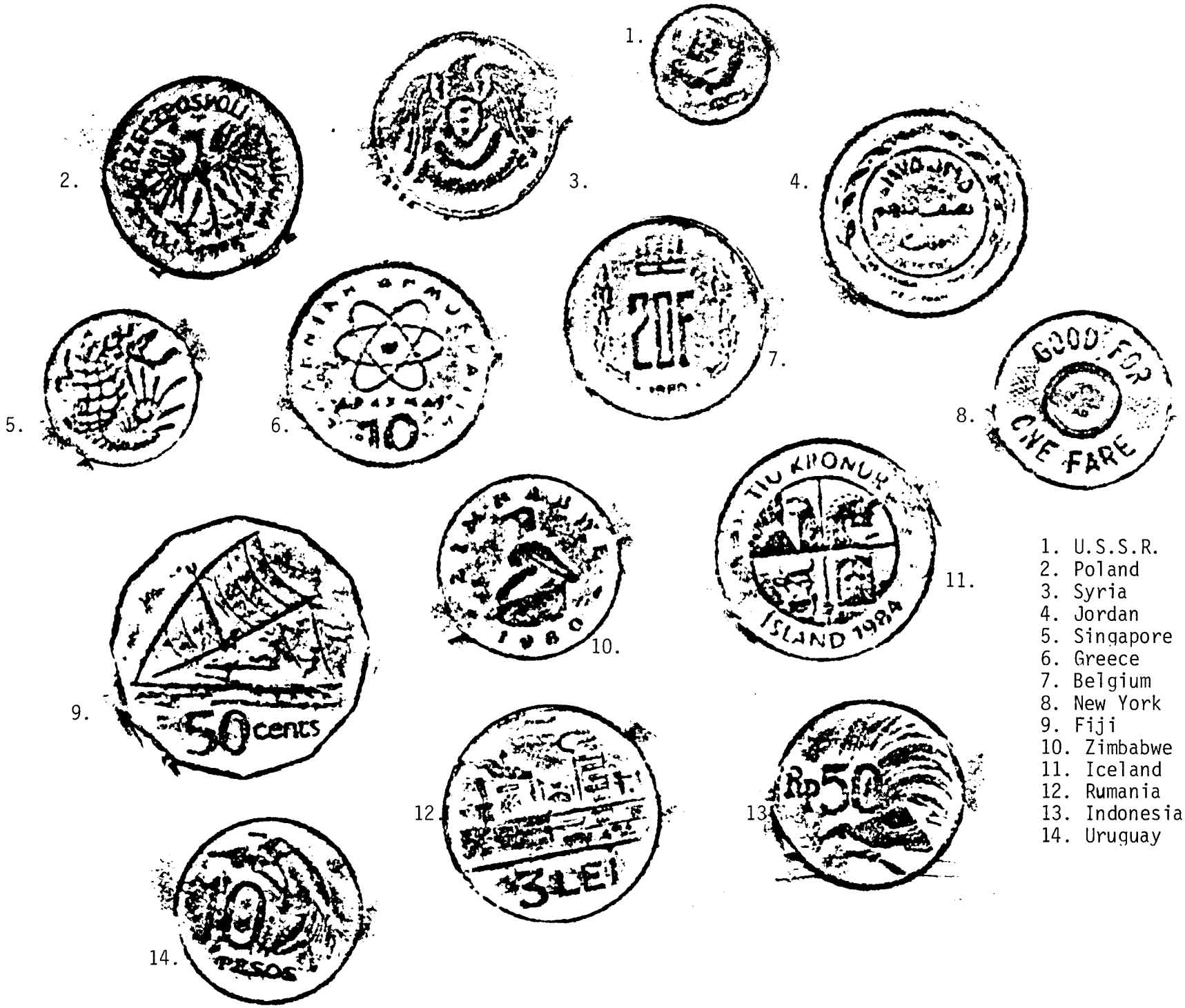
The Overlay program was our first program to make extensive use of the mouse pointing device. We don't know how much "pointing" really is needed, but we suspect it has many uses not available at present. Several areas suggested themselves as things we would like to do, but really cannot do with our existing programs.

- manually pick statics
- manipulate 3-D data as we have seen GSI do it
- interactively place labels on plots

- interpret (mark with colored lines) seismic data, and then be able to blink the interpretation on and off

The final decision

So, with a budget of about 100K for capital, and being frustrated at our attempt to put all our data in an on-line jukebox, we decided to try out a network of seven Sun workstations, one for each of about half of us. Excluding individuals nearing thesis completion, individuals were selected as follows: Rick was chosen because he led the way, Kamal because he installed a TeX previewer on the Sun, Joe because he is in charge of the device independent vector graphics programs, Steve because he wrote "dither" programs for intensity displays, Clement because he installed a water pegleg overlay in the Overlay program, and Jos because he expressed interest. The seventh Sun is in a commons area. I use it. Network installation was completed in early March. By the time of the meeting we should see several small-scale interactive programs.



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8. New York
9. Fiji
10. Zimbabwe
11. Iceland
12. Rumania
13. Indonesia
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