

EXPLORE THE COLLECTION

AMSLER
INTEGRATOR MODEL
4282 & ASSOCIATED
GUIDE RAIL

BY JIM MCCLURE

CHM#: B1506.01 and
102630325, respectively
DATE: c.1900
DONOR: Gwen and Gordon Bell

Ship stability was a great concern to shipbuilders in the 1870s and 1880s. Ships frequently capsized during initial sea trials or even upon an initial launch. This happened often with loss of life and goods, so Lloyd's of London insisted new ships be launched and rolled to see if they capsized before it would insure them.

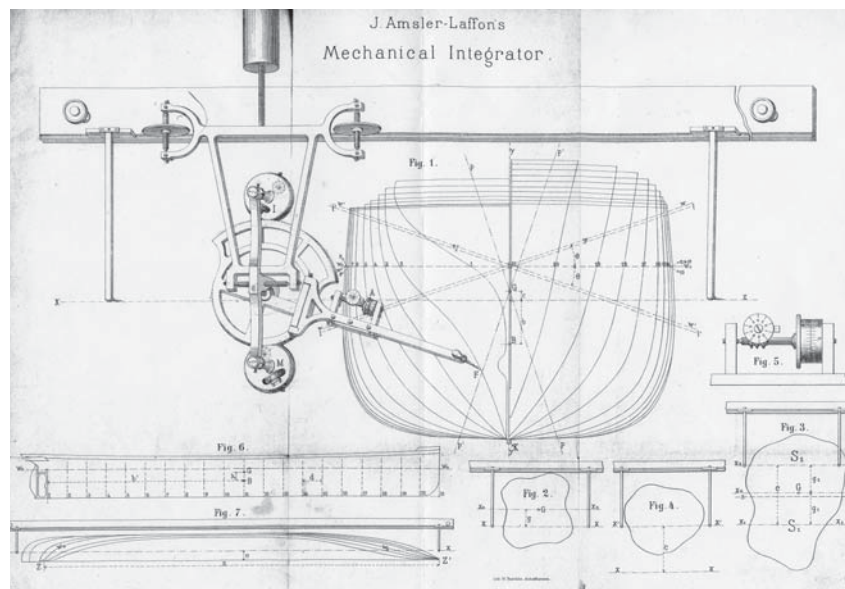
In the 1700s, scientists such as Pierre Bouguer, Daniel Bernoulli and Leonhard Euler, began studying principles of stability—specifically ship stability—

ty—and publishing their research. But the calculations needed to assess stability were so complex that they could take years.

It wasn't until 1855 that Jakob Amsler, a Swiss mathematician, conceived of a device—the Amsler Integrator—that would solve exactly this sort of calculation. It looked deceptively simple yet Amsler worked for years to produce a commercial version of it in 1878.

The Integrator's popularity quickly grew. In 1880, shipbuilder William White declared, "This is a thing for which we have been longing for years because it will save us an immense amount of mere routine work."

The Integrator could determine the area, center of gravity, and static and inertial moments around any axes of the cross section of any ship almost as quickly as the Integrator's operator could trace its outline. A stability analysis that once took a year could now be performed in hours. ○



This training drawing illustrates the measurement of stiffness, displacement, and stability of a complex ship's hull design. A few measurements replaced weeks of hand calculations.



The Integrator quickly calculates the bending properties of any railroad rail design placed under it. The user need only trace the outline. This complex mechanism calculates static and inertial moments as a drawing is traced.



ASCI RED: THE WORLD'S FIRST TERAFLOP COMPUTER

BY DAG SPICER

CHM#: X4603.2008
DATE: 1997–2006
DONOR: Sandia National
Laboratories

In the time it took you to read this sentence, ASCI Red could breeze through five trillion calculations. This pioneer of supercomputers may be retired—with portions resting in the Computer History Museum's permanent collection—but the breakthroughs it made will long be felt.

At ASCI Red's decommissioning ceremony, supercomputing pioneer Justin Rattner observed, "When Chuck Yeager cracked the sound barrier or Armstrong landed on the moon, I wonder if they had the same feeling. It is with great fondness that we say goodbye to ASCI Red. It's been a great run and we'll never forget it."

ASCI Red owes its creation—in December 1996—to a 1992 Federal policy directive to discontinue live nuclear weapons testing. In order to obey this

directive, Intel and Sandia National Laboratories created ASCI Red to simulate those tests. While pursuing this goal, it became the first computer in the world to reach one trillion calculations per second (1 Teraflop or TF). A later CPU upgrade pushed ASCI Red's speed to a stunning 3TF. For much of its amazing run—between the years of 1997 and 2000—ASCI Red was the fastest computer in the world.

Remarkably, ASCI Red's service life was nearly 10 years, unheard of in the field of rapidly-obsolete supercomputers. It owed both its speed and longevity to a "massively-parallel" processing system, using over 9,000 standard Intel CPUs (Pentium Pro). This allowed it to break large calculations down into smaller ones for each CPU to work on—resulting in enormous speed. ○



The ASCI Red supercomputer required 1,600 sq. ft. and was comprised of 85 cabinets, of which CHM has five in its permanent collection.

PRELIMINARY MACINTOSH BUSINESS PLAN

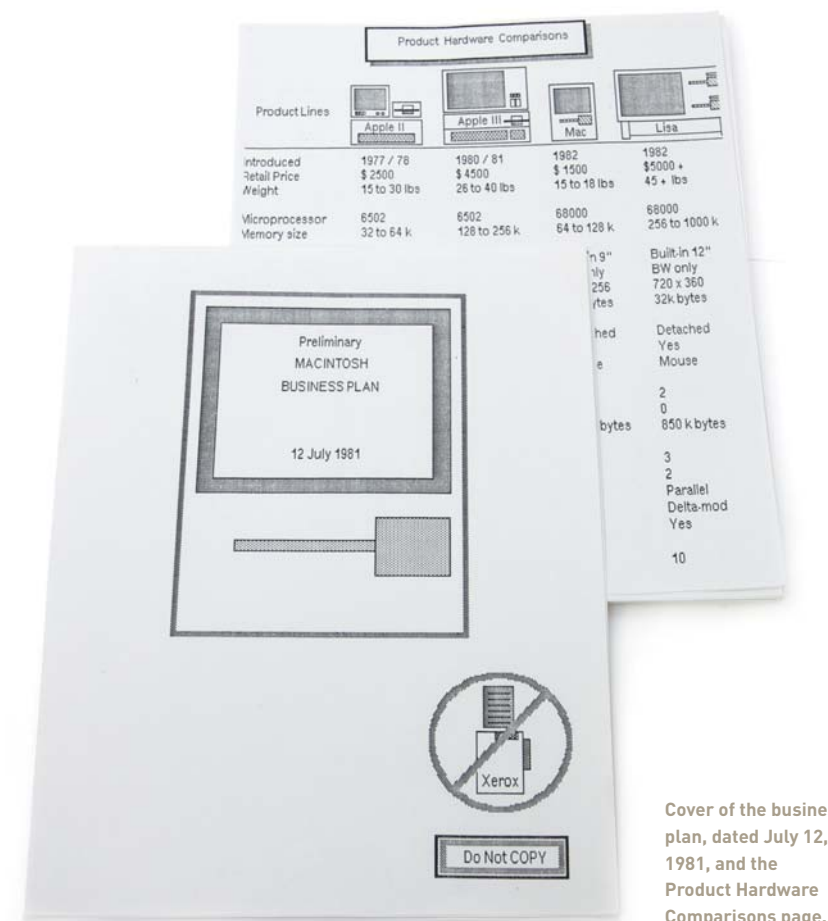
BY PAULA JABLONER

CHM#: X4554.2008
DATE: July 12, 1981
DONOR: Mike Markkula

Super Bowl XVIII was a turning point in the history of personal computers. During that game, the mass-marketing of personal computers kicked off with the phrase, "On January 24, Apple Computer will introduce Macintosh. And you'll see why 1984 won't be like 1984." Not only was this Ridley Scott directed television ad ground-breaking, the Mac it promoted was itself revolutionary. The Mac offered a graphical user interface and mouse at a price that

made the personal computer accessible to the novice computer user.

In July 1981, an internal Apple document outlined the Preliminary Macintosh Business Plan: "Jobs' Product Timeline" stated that Apple aimed to produce the Mac by mid-1982 at a price of \$1,000 to \$1,500 with no mouse. Eighteen months later, for \$2,500, the Mac—with a mouse—launched. The strategy was to offer a computer to an audience of hobbyists (Band 1) who were already using Vic and TRS color computers and small businesses (Band 3) who had been buying the HP-85 or Xerox 820. Apple identified a market where no one else saw one and developed this computer to reach it: "... The job of Macintosh and VLC is to migrate the remaining Band 3 customers down to Band 2, leaving Band 3 manufacturers out in the cold!!" ○



Cover of the business plan, dated July 12, 1981, and the Product Hardware Comparisons page.