La notte dei calcolatori raccontati
1. Il calcolatore percepito

Museo degli Strumenti per il Calcolo
18 maggio 2013, Notte dei Musei

Giovanni A. Cignoni

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prima dei calcolatori

calcolatrici meccaniche (personali)

Giovanni A. Cignoni

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1885, tempi migliori per il lavoro

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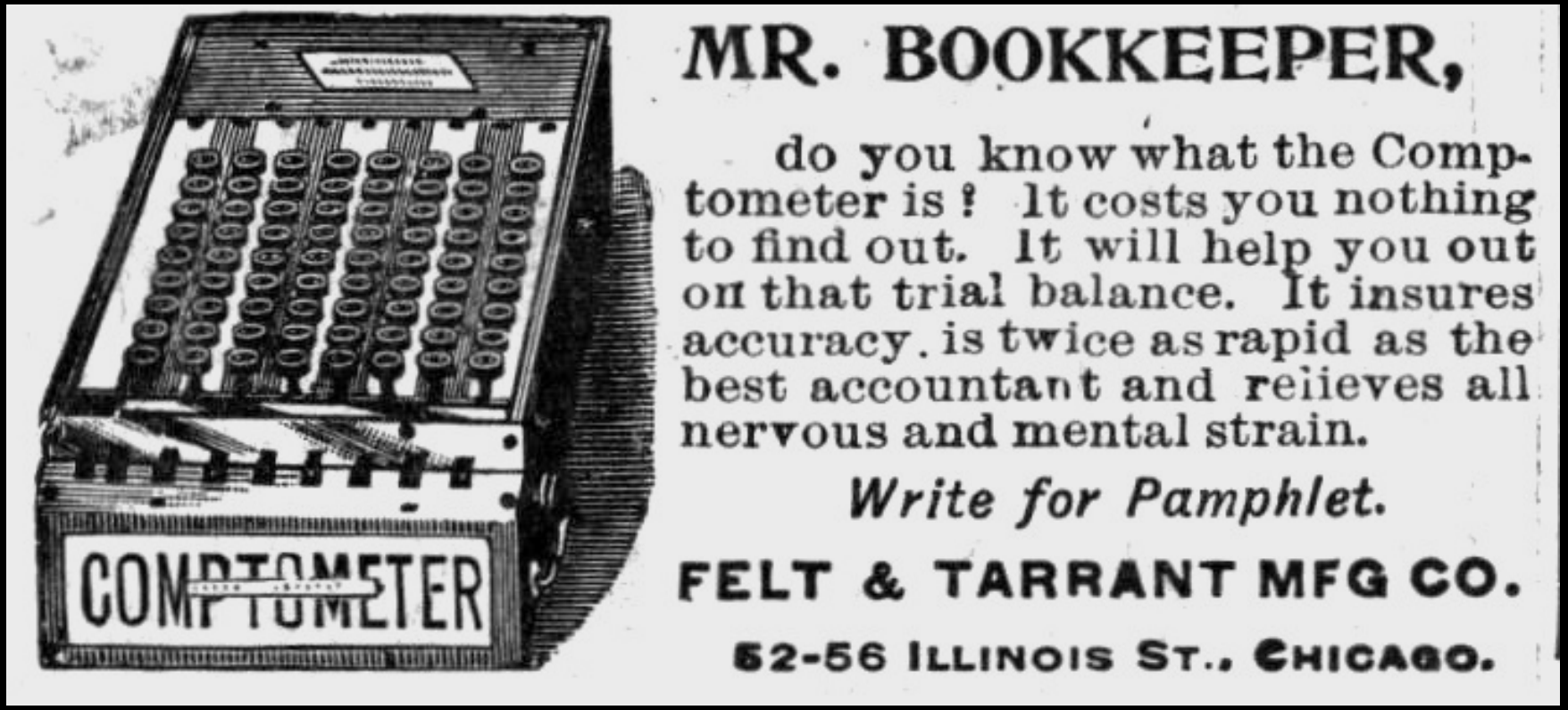
1887, diretto e personale



Giovanni A. Cignoni

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1905, il tocco femminile

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1933/34, stili a confronto

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IN SUPREMÆ DIGNITATIS 1343

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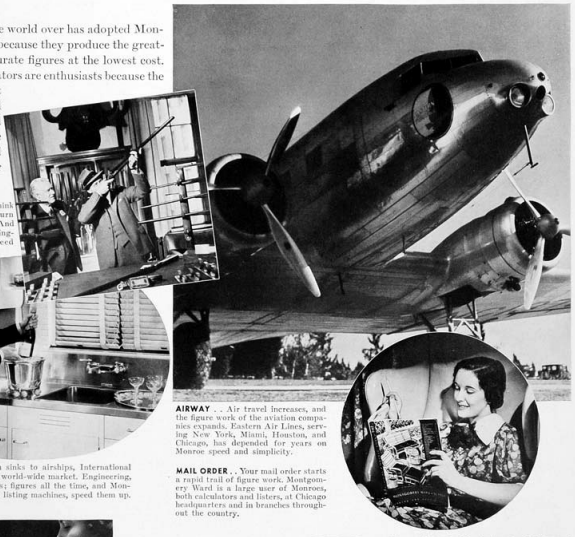
1937, con e senza

Business

DEPENDS ON MONROE FOR FIGURES

BUSINESS the world over has adopted Monroe machines, because they produce the greatest number of accurate figures at the lowest cost. And Monroe operators are enthusiasts because the famous "Velvet Touch" keyboard takes the strain and fatigue out of the day's work. Send coupon for further information.



SPORTS . . When you think of sporting goods, you turn to Abercrombie & Fitch. And they turn to Monroe Adding-Listing machines to speed their figure work.

NICKEL . . From kitchen sinks to airships, International Nickel Co. has created a world-wide market. Engineering, production, research, sales: figures all the time, and Monroes, both calculating and listing machines, speed them up.

AIRWAY . . Air travel increases, and the figure work of the aviation companies expands. Eastern Air Lines, serving New York, Miami, Houston, and Chicago, has depended for years on Monroe speed and simplicity.

MAIL ORDER . . Your mail order starts a rapid trail of figure work. Montgomery Ward is a large user of Monroes, both calculators and listers, at Chicago headquarters and in branches throughout the country.

LISTING . . Monroe adding-listing machine, one of many models. All have "Velvet Touch" keyboard, direct plus and minus bars, live operating keys, Monroe simplicity, speed, and sturdiness. All are desk size.

A MONROE FOR EVERY FIGURE JOB
ADDING-CALCULATORS
LISTING MACHINES
BOOKKEEPING MACHINES
CHECK WRITERS
CHECK SIGNERS

MONROE
CALCULATING MACHINE COMPANY, INC.
GENERAL OFFICES · ORANGE, N.J.

Please send me the free booklet "Give a Thought to Keyboards"

Name .....

Address .....

MORE THAN 150 MONROE-OWNED BRANCHES SERVE AMERICAN BUSINESS

· 193 ·

CLEAR THE WAY !

Choked-up figures slow down a whole business

Figures pour over the desks of every business, every hour of every day. To keep them moving speedily, smoothly, and at low cost, has been Monroe's function for twenty-four years.

Today, Monroe offers 197 different models: calculators, adding-listing machines, bookkeeping machines, check writers and signers. Each Monroe is compact enough to use right on the desk where figures originate. Each one has the famous "Velvet Touch" keyboard to take the strain from figuring.

Whether you use one Monroe or a thousand, your investment is protected by a nation-wide figure service, operating through 150 Monroe-owned branches from coast to coast.

Try a "Velvet Touch" Monroe on your own figures. The nearest Monroe branch will arrange it without obligation. Write to us for a free copy of the booklet, "If Only I Could Work On Your Desk For An Hour." Monroe Calculating Machine Company, Inc., Orange, New Jersey.

MONROE
ADDING-CALCULATOR
Model LA-6. Portable, weighs only 15 pounds. Completely automatic multiplication and division.

· 217 ·

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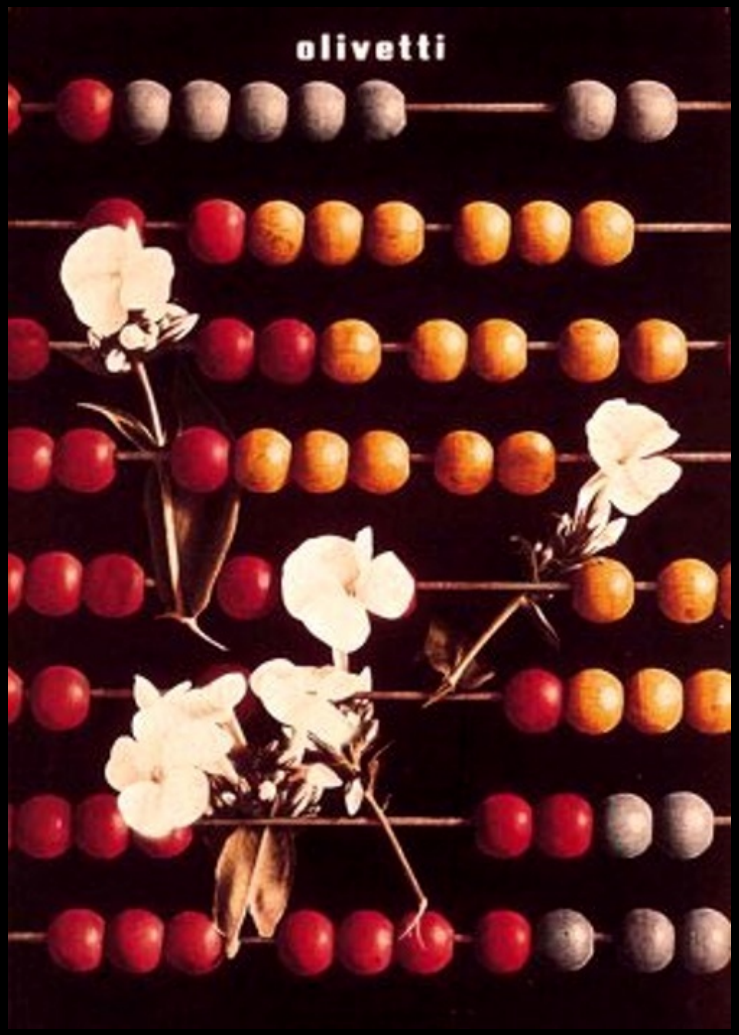
1945/50, diverse leggerezze



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i grandi calcolatori

pubblicità di azienda (e propaganda)

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1951, IBM sulle riviste

Giovanni A. Cignoni

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1952, Univac in TV

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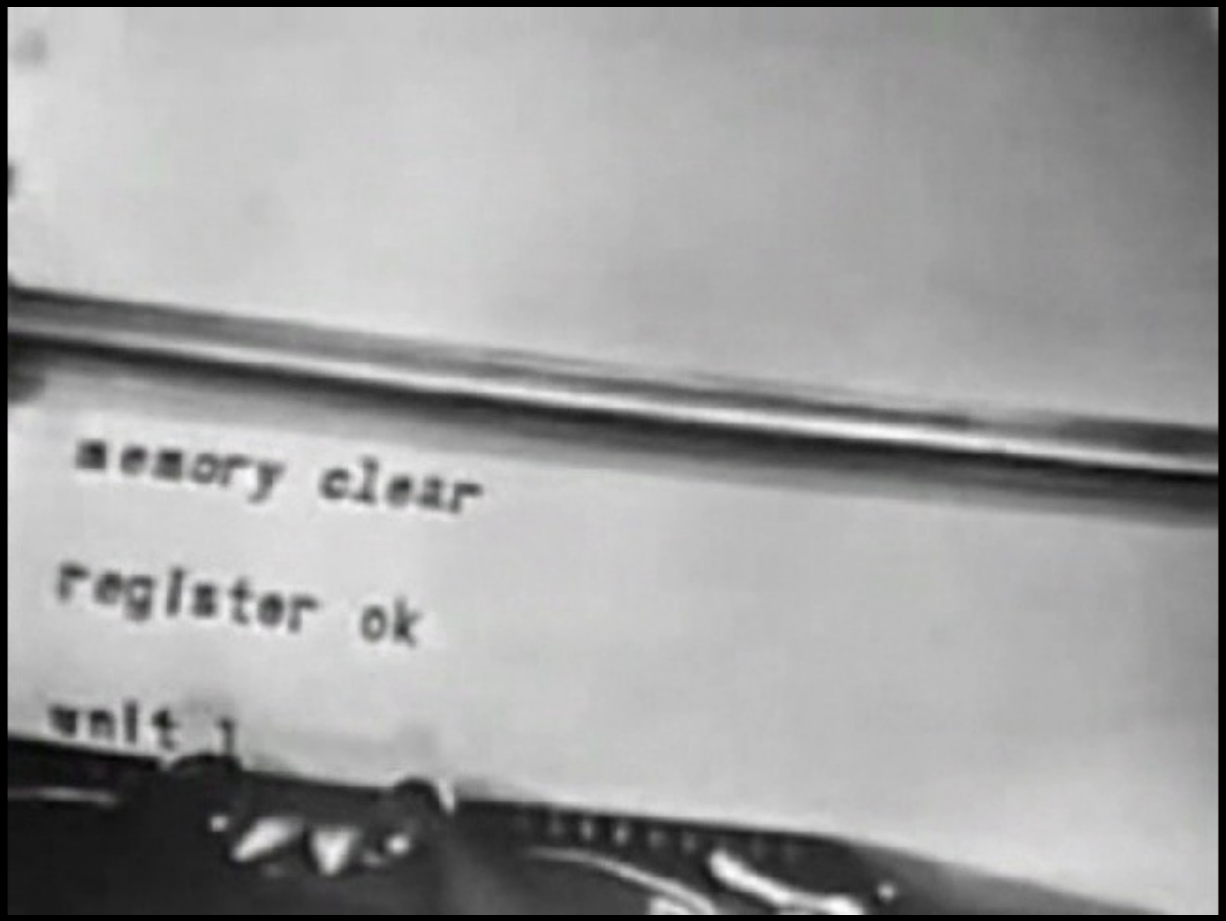
1956, ancora previsioni



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1957, al servizio di un genio

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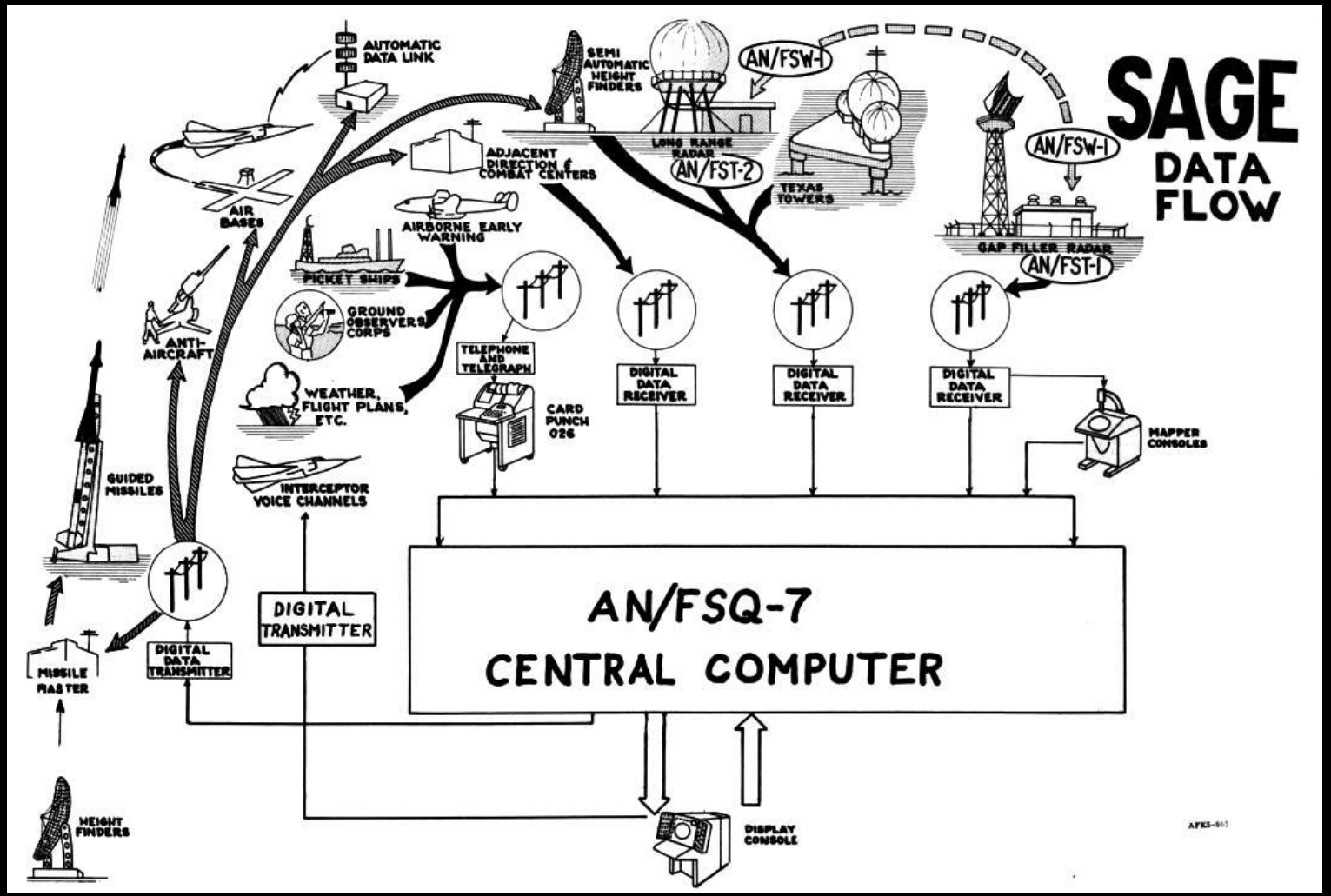
1958, SAGE, operativo e segreto



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1960, SAGE, propaganda e pubblicità

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1959, Olivetti su Epoca

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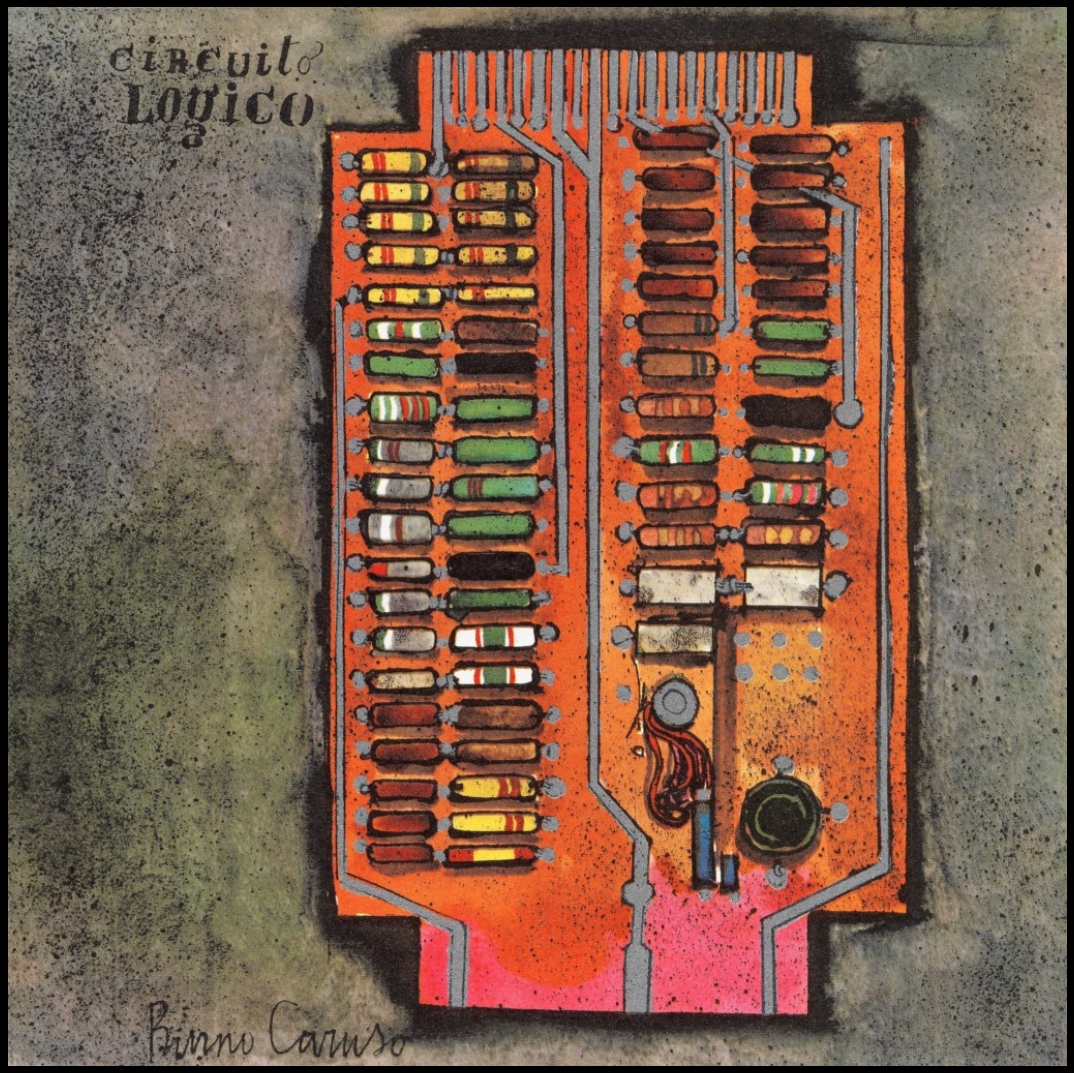
1960, l'agenda di Bruno Caruso



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1960, auguri amari

TELEGRAMMA

N. 222 di recapito. Rimesso al fattorino alle ore .....

MODULARIO Telegr. – 61

MOD. 30 (Ediz. 1960)

INDICAZIONI D'URGENZA

Ricevuto il 23

Per circuito N. 1

Qualifica

DESTINAZIONE

= RETTORE PROF ALESSANDRO

FAEDO UNIVERSITA PISA =

Bollo di Ufficio 23.12.1960

Bollo di ufficio

Via e indicazioni eventuali d'ufficio

Roma - Istituto Poligrafico dello Stato P.V.

DA PISA FN 99 21 23 1330 =

SEZIONE INGEGNERIA AUGURA BUON NATALE COMUNICANDO CEP GIA'

FUNZIONANTE MAGGIORANZA SUE ISTRUZIONI + SEZIONE INGEGNERIA CSCE +

macchine per contabilità e statistica

calcolatori elettronici

olivetti

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verso l'informatica di consumo

calcolatori in ufficio e in casa (di nuovo personali)

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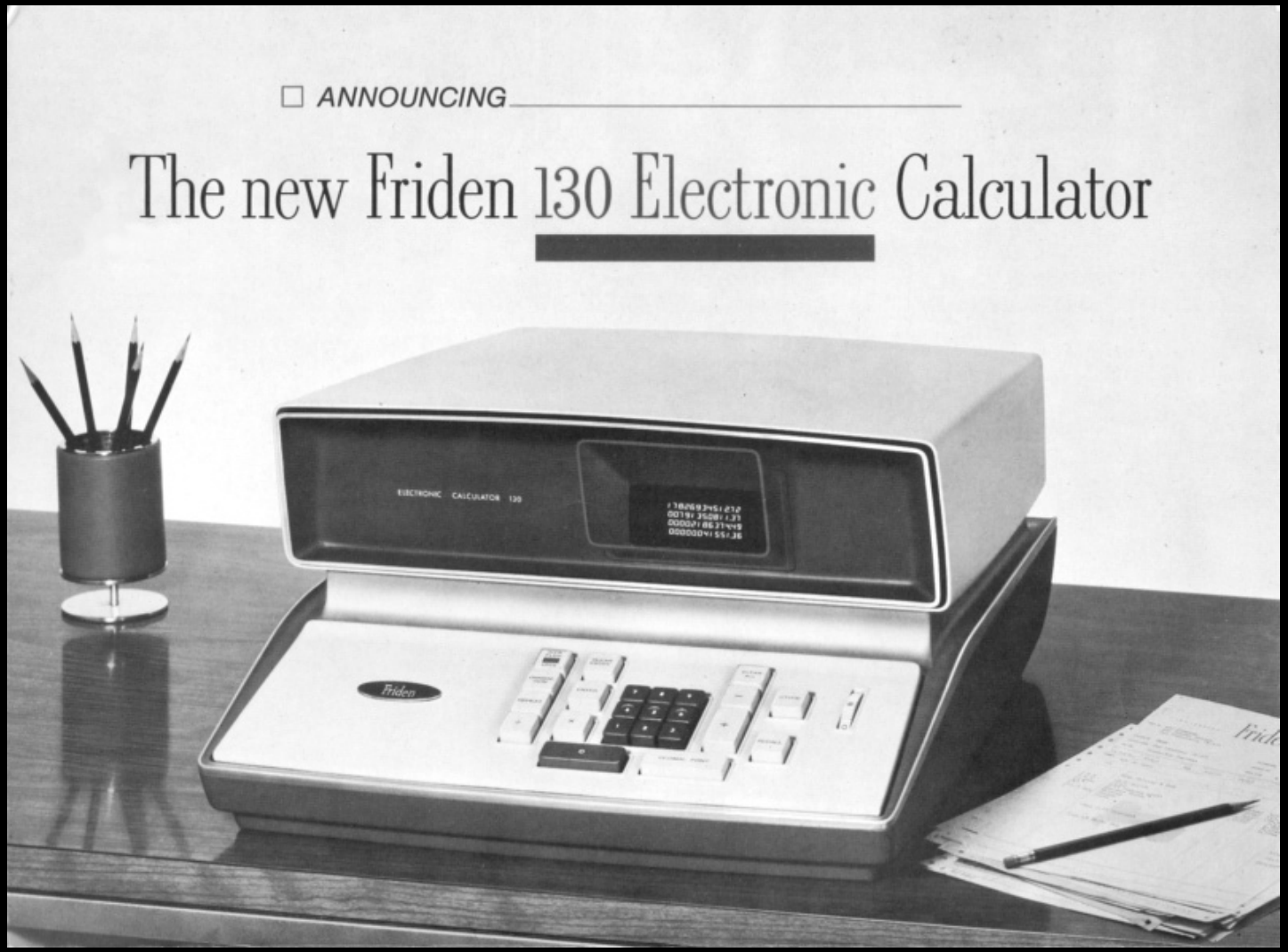
1963, si torna sulle scrivanie...



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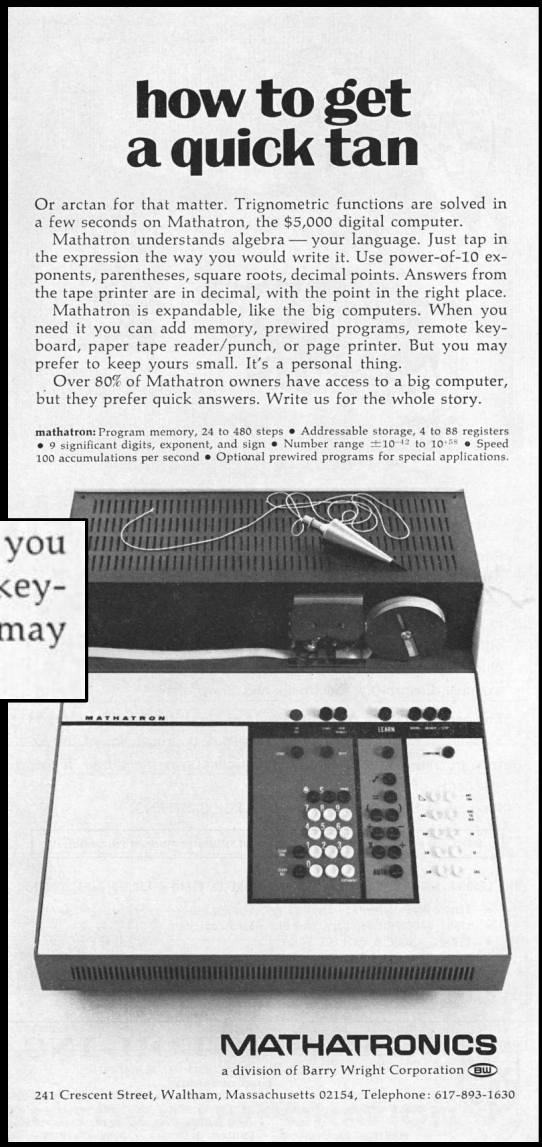
1964, a personal “thing”

Mathatron is expandable, like the big computers. When you need it you can add memory, prewired programs, remote keyboard, paper tape reader/punch, or page printer. But you may prefer to keep yours small. It’s a personal thing.



how to get a quick tan

Or arctan for that matter. Trignometric functions are solved in a few seconds on Mathatron, the $5,000 digital computer.

Mathatron understands algebra — your language. Just tap in the expression the way you would write it. Use power-of-10 exponents, parentheses, square roots, decimal points. Answers from the tape printer are in decimal, with the point in the right place.

Mathatron is expandable, like the big computers. When you need it you can add memory, prewired programs, remote keyboard, paper tape reader/punch, or page printer. But you may prefer to keep yours small. It’s a personal thing.

Over 80% of Mathatron owners have access to a big computer, but they prefer quick answers. Write us for the whole story.

mathatron: Program memory, 24 to 480 steps • Addressable storage, 4 to 88 registers • 9 significant digits, exponent, and sign • Number range $\pm 10^{-42}$ to 10^{+58} • Speed 100 accumulations per second • Optional prewired programs for special applications.

MATHATRONICS

a division of Barry Wright Corporation

241 Crescent Street, Waltham, Massachusetts 02154, Telephone: 617-893-1630

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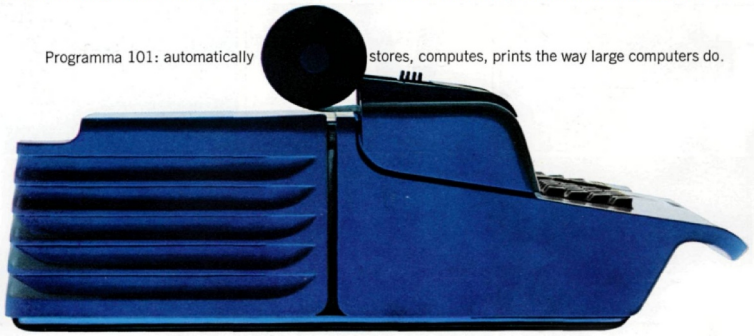
1965, il primo a chiamarsi “desktop”

Olivetti
Underwood
innovates:
the world's
first desk-top
computer,
$3200

This is the world premiere of the Programma 101, the computer that brings a new dimension to business. Now for less than one month's rental of a large computer, businessmen, scientists and technicians can own the Programma 101 outright. Not much bigger than a typewriter, it sits on your desk. Like the large computers, it thinks in milliseconds, makes logical decisions. You can program it to compute logarithms, even print out complex mortgage plans. Automatic printout provides a permanent record. Programs can be stored off the machine on magnetic cards, reentered in seconds. And Olivetti Underwood's program library offers virtually limitless applications. Ask us for a demonstration. Total price, $3200.

Programma 101: automatically stores, computes, prints the way large computers do.



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1965, una campagna rivoluzionaria

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1968, il primo a definirsi “personal”

Powerful Computing Genie: $4900

READY, WILLING AND ABLE.

Ready—to relieve you of waiting to get on the big computer.
Constantly available. At your fingertips whenever you need it.
Ready to abolish tedium from scientific and engineering computation.
Ready to slash through long routines
and come up with answers in milliseconds.
The new Hewlett-Packard 9100A personal computer.

Willing—to perform log and trig functions,
even hyperbolics and coordinate transformations,
at the touch of a key. Willing to work
with extremely large and small numbers simultaneously.
Willing to take your programming commands
in mathematical language.
No computer language or programming specialist required.
Willing to communicate with you on *your* terms.
The new Hewlett-Packard 9100A computing marvel.

Able—to take on the most complex problems:
roots of a fifth-degree polynomial . . .
solutions to three simultaneous equations . . .
Bessel functions . . . Fourier analysis . . . elliptic integrals . . .
real and complex polynomial evaluation . . .
coordinate geometry . . . regression analysis . . .
numerical integration . . . vector analysis . . .
and many, many more!
Able to be your fast, responsive mathematical servant.
The new Hewlett-Packard 9100A electronic genie.

This major computing capability
is compressed into one 40 pound package.
Its only moving parts are the keys, the switches
and one decimal wheel.
No noise.

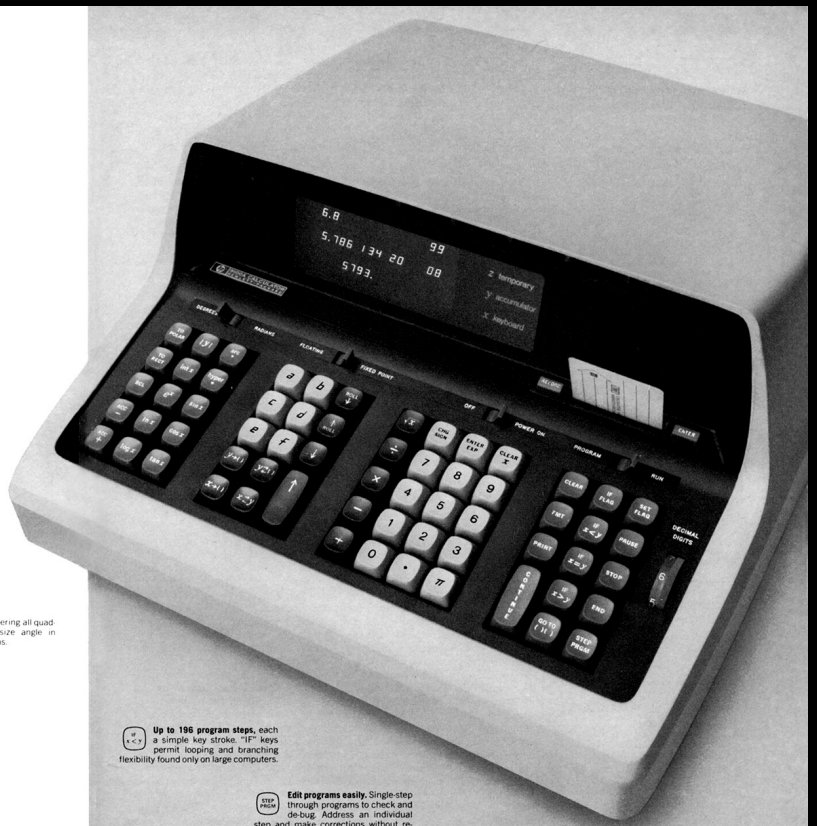
The 9100A computing genie is being delivered *NOW*,
with an extensive—and growing—program library
that puts you in control.

Examine the keyboard, question every key and switch.
Then decide to command the computing genie.
A telephone call or purchase order directed to any
HP Sales and Service Office
(in principal cities throughout the world)
will start the executive process.
If you are still skeptical, or of faint heart
ask for a demonstration.
It will affirm, assure
(and only slightly delay)
your entry into the solid-state
of personal computing power.
Be a Master.
Hewlett-Packard, Box 301,
Loveland, Colorado, 80537;
Europe: 54 Route des Acacias,
Geneva.

Dynamic range 10 $^{-99}$ to 10^{99}, nearly 200 decades. Observation of math operations on 3 displayed registers. Up to 16 more registers for data storage.

Complex and vector arithmetic simplified with coordinate transformation keys, rectangular-to-polar and vice-versa, in milliseconds.

Trig functions covering all quadrants and any size angle in degrees or radians.



Up to 196 program steps, each a simple key stroke. "IF" keys permit looping and branching flexibility found only on large computers.

Edit programs easily. Single-step through programs to check and de-bug. Address an individual step and make corrections without re-entering the entire program.

Designed for expansion. Printer, plotter, electrical data input/output will become available.

Ready—to relieve you of waiting to get on the big computer.
Constantly available. At your fingertips whenever you need it.
Ready to abolish tedium from scientific and engineering computation.
Ready to slash through long routines
and come up with answers in milliseconds.
The new Hewlett-Packard 9100A personal computer.

Giovanni A. Cignoni

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1975, un altro “portable”

IBM announces the new 5100 Portable Computer

A compact problem-solving aid for engineers, statisticians, scientists and financial and business analysts.

Now you can have a computer right on your desk. Exactly where you need it. When you need it.

The new IBM 5100 Portable Computer incorporates the latest in semi-conductor technology. It features a typewriter-like keyboard and numeric key-pad for simplified data entry, a 1024 character display screen, an integrated magnetic tape drive, and 16K characters of memory.

Options available with the 5100 include a bi-directional 80-characters per second printer, a second magnetic tape drive, and additional memory up to a maximum of 64K characters. Also available is a communications feature which allows the 5100 to be used as a terminal.

The IBM 5100 comes with either APL or BASIC language or both.

Over 100 often-used analytical routines in mathematical, statistical and financial calculations are available for such functions as forecasting, modeling, matrix arithmetic, engineering and design calculations, regression and correlation analysis, return on investment and cash flow analysis.

In addition, the 5100 features a self-study training package that makes it easy to learn and easy to use without taking any classes or relying on specially trained experts.

If you'd like to find out more about IBM's new 5100 Portable Computer and arrange for a demonstration right at your desk, call your IBM General Systems Division office or fill out this coupon.

SA

IBM. IBM General Systems Division
P.O. Box 2068, Atlanta, Georgia 30301

☐ I would like more information about IBM's new 5100.
☐ I would like a demonstration of IBM's new 5100.
My major area of interest is:
☐ Engineering/Scientific ☐ Statistical Analysis
☐ Business/Financial Analysis

Name_____
Title_____
Company_____
Address_____
City_____ State_____ Zip_____
Phone_____

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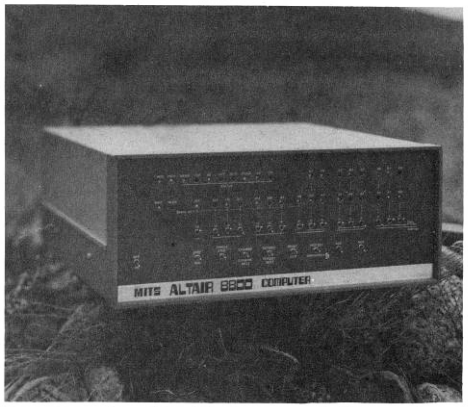
1975, Altair 8800, non solo lavoro

MITS



A COMPUTER CONCEPT BECOMES AN EXCITING REALITY.

Not too long ago, the thought of an honest, full-blown computer that sells for less than $500 would have been considered a mere pipe dream.

Everyone knows that computers are monstrous, box-shaped machines that sell for 10's and 100's of thousands of dollars.

Pipe dream or not, *MITS*, the quality engineering oriented company that pioneered the calculator market, has made the *Altair 8800* a reality. It is the realization of that day when computers are accessible to almost anyone who wants one.

The heart (and the secret) of the *MITS Altair 8800* is the *Intell 8080* processor chip. Thanks to rapid advances in integrated circuit technology, this one IC chip can now do what once took thousands of electronic components (including 100's of IC's) and miles of wire.

Make no mistake about it. The *MITS Altair 8800* is a lot of brain power. Its parallel, 8-bit processor uses a 16-bit address. It has 78 basic machine instructions with variances up to 200 instructions. That's more than enough to program all the street lights in a major city.

And the *MITS Altair 8800 Computer* is fast. Very fast. It's basic instruction cycle time is 2 microseconds.

Combine this speed and power with the *Altair's* flexibility (it can directly address 256 input and 256 output devices) and you have a computer that's competitive with most mini's on the market today. And sells for a fraction of their cost.

The Altair 8800 has been designed to fulfill a wide variety of computer needs. It is ideal for the hobbyist who wants to get involved with computers. Yet, it has the power and versatility for the most advanced data processing requirements.

It's basic memory of 256 words of static RAM memory can be expanded to 65,000 words of directly addressable memory. Static OR dynamic memory. OR PROM or ROM memory. OR a floppy disc system. All supplied by *MITS*.

Using standard *MITS* interface cards, the *Altair 8800* can be connected to *MITS* peripherals (computer terminals, line printers, audio-cassette interface) to form the core of a sophisticated time-share system.

The *Altair 8800* can be a process controller. It can be an educational device. Or it can be expanded to be an advanced, custom intrusion system. A programmable scientific calculator. Automatic IC tester. Automated automobile test analyzer. Complete accounting system. "Smart" computer terminal. Sound and light system controller.

OR it can be all of these things *at the same time*. It could be the beginning of new business opportunities. The list of applications is literally endless.

MITS wants to service your individual computer needs.

You can buy an assembled *Altair 8800*. Or you can start by building the computer yourself. The *MITS Altair 8800* is the ultimate kit. Its assembly isn't much more difficult than assembling a desktop calculator.

OR you can start with an *Altair 8800* complete data processing system. *Altair Systems* come in 4 basic configurations.

For those users who are not familiar with computers, *MITS* offers free consultation service. Just describe your requirements to our engineering staff and we will specify the additional cards and the system configuration you need to do the job.

The MITS Altair 8800 is backed by complete peripheral and software development programs. There is even a high level language available.

Order your Altair 8800 Computer today. As a special introductory offer, *MITS* is offering the *Altair 8800* at a discount of $100. This offer is good on all orders postmarked prior to March 1, 1975.

PRICES:

Altair 8800 Computer (assembled with complete operation instructions) **$750.00**

Altair 8800 Computer (kit form) **$495.00**

Subtract $100.00 from above prices on all orders postmarked prior to March 1, 1975.

MITS® INC.

"Creative Electronics"

Warranty: 90 days on parts and labor for assembled units. 90 days on parts for kits.
Prices, specifications and delivery subject to change without notice.

☐ Enclosed is a Check for $ _____
or ☐ Bank Americard # _____
or ☐ Master Charge # _____
Credit Card Expiration Date _____
Include $8.00 for Postage and Handling ☐ Kit ☐ Assembled
☐ ALTAIR 8800
☐ Please send complete Altair System Catalogue.

NAME _____
ADDRESS _____
City _____
STATE & ZIP _____

MITS / 6328 Linn, N.E., Albuquerque, New Mexico
87108 505/265-7553

CIRCLE NO. 23 ON READER SERVICE CARD

Giovanni A. Cignoni

IN SUPREMÆ DIGNITATIS 1343

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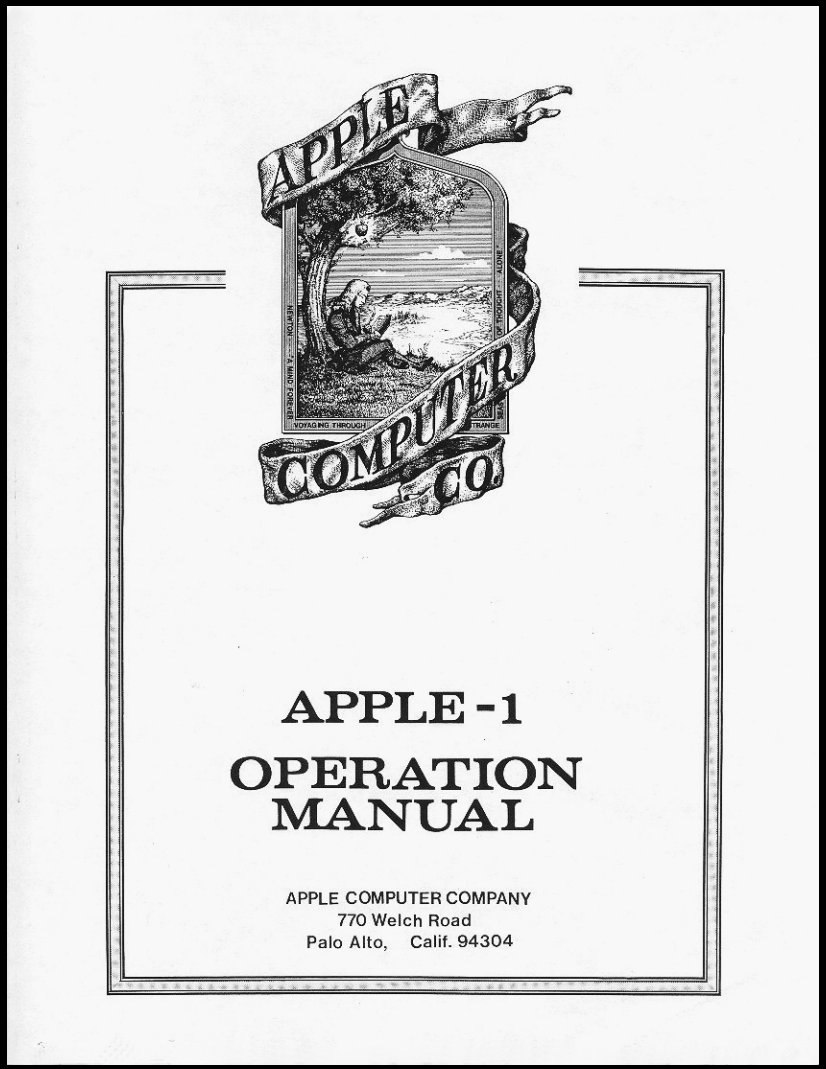
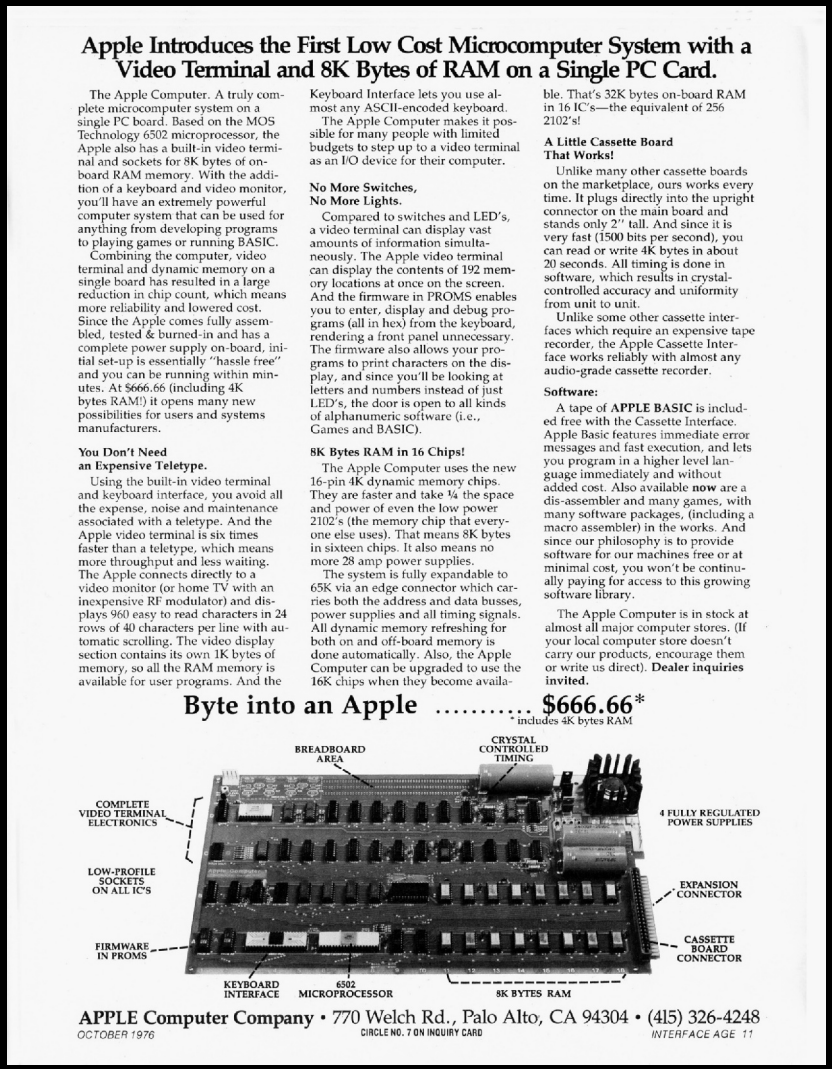
1976, nessuno ricorda Ronald Wayne





Apple Introduces the First Low Cost Microcomputer System with a Video Terminal and 8K Bytes of RAM on a Single PC Card.

The Apple Computer. A truly complete microcomputer system on a single PC board. Based on the MOS Technology 6502 microprocessor, the Apple also has a built-in video terminal and sockets for 8K bytes of on-board RAM memory. With the addition of a keyboard and video monitor, you'll have an extremely powerful computer system that can be used for anything from developing programs to playing games or running BASIC.

Combining the computer, video terminal and dynamic memory on a single board has resulted in a large reduction in chip count, which means more reliability and lowered cost. Since the Apple comes fully assembled, tested & burned-in and has a complete power supply on-board, initial set-up is essentially "hassle free" and you can be running within minutes. At $666.66 (including 4K bytes RAM!) it opens many new possibilities for users and systems manufacturers.

You Don't Need an Expensive Teletype.

Using the built-in video terminal and keyboard interface, you avoid all the expense, noise and maintenance associated with a teletype. And the Apple video terminal is six times faster than a teletype, which means more throughput and less waiting. The Apple connects directly to a video monitor (or home TV with an inexpensive RF modulator) and displays 960 easy to read characters in 24 rows of 40 characters per line with automatic scrolling. The video display section contains its own 1K bytes of memory, so all the RAM memory is available for user programs. And the Keyboard Interface lets you use almost any ASCII-encoded keyboard.

The Apple Computer makes it possible for many people with limited budgets to step up to a video terminal as an I/O device for their computer.

No More Switches, No More Lights.

Compared to switches and LED's, a video terminal can display vast amounts of information simultaneously. The Apple video terminal can display the contents of 192 memory locations at once on the screen. And the firmware in PROMS enables you to enter, display and debug programs (all in hex) from the keyboard, rendering a front panel unnecessary. The firmware also allows your programs to print characters on the display, and since you'll be looking at letters and numbers instead of just LED's, the door is open to all kinds of alphanumeric software (i.e., Games and BASIC).

8K Bytes RAM in 16 Chips!

The Apple Computer uses the new 16-pin 4K dynamic memory chips. They are faster and take ¼ the space and power of even the low power 2102's (the memory chip that everyone else uses). That means 8K bytes in sixteen chips. It also means no more 28 amp power supplies.

The system is fully expandable to 65K via an edge connector which carries both the address and data busses, power supplies and all timing signals. All dynamic memory refreshing for both on and off-board memory is done automatically. Also, the Apple Computer can be upgraded to use the 16K chips when they become available. That's 32K bytes on-board RAM in 16 IC's—the equivalent of 256 2102's!

A Little Cassette Board That Works!

Unlike many other cassette boards on the marketplace, ours works every time. It plugs directly into the upright connector on the main board and stands only 2" tall. And since it is very fast (1500 bits per second), you can read or write 4K bytes in about 20 seconds. All timing is done in software, which results in crystal-controlled accuracy and uniformity from unit to unit.

Unlike some other cassette interfaces which require an expensive tape recorder, the Apple Cassette Interface works reliably with almost any audio-grade cassette recorder.

Software:

A tape of **APPLE BASIC** is included free with the Cassette Interface. Apple Basic features immediate error messages and fast execution, and lets you program in a higher level language immediately and without added cost. Also available **now** are a dis-assembler and many games, with many software packages, (including a macro assembler) in the works. And since our philosophy is to provide software for our machines free or at minimal cost, you won't be continually paying for access to this growing software library.

The Apple Computer is in stock at almost all major computer stores. (If your local computer store doesn't carry our products, encourage them or write us direct). **Dealer inquiries invited.**

Byte into an Apple $666.66*

*includes 4K bytes RAM

BREADBOARD AREA
CRYSTAL CONTROLLED TIMING
COMPLETE VIDEO TERMINAL ELECTRONICS
4 FULLY REGULATED POWER SUPPLIES
LOW-PROFILE SOCKETS ON ALL IC'S
EXPANSION CONNECTOR
FIRMWARE IN PROMS
CASSETTE BOARD CONNECTOR
KEYBOARD INTERFACE
6502 MICROPROCESSOR
8K BYTES RAM

APPLE Computer Company • 770 Welch Rd., Palo Alto, CA 94304 • (415) 326-4248

OCTOBER 1976 CIRCLE NO. 7 ON INQUIRY CARD INTERFACE AGE 11

Giovanni A. Cignoni

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1977, Atari VCS, un nuovo mercato

Giovanni A. Cignoni

IN SUPREMÆ DIGNITATIS 1343

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1981, il VIC 20, una flebile speranza

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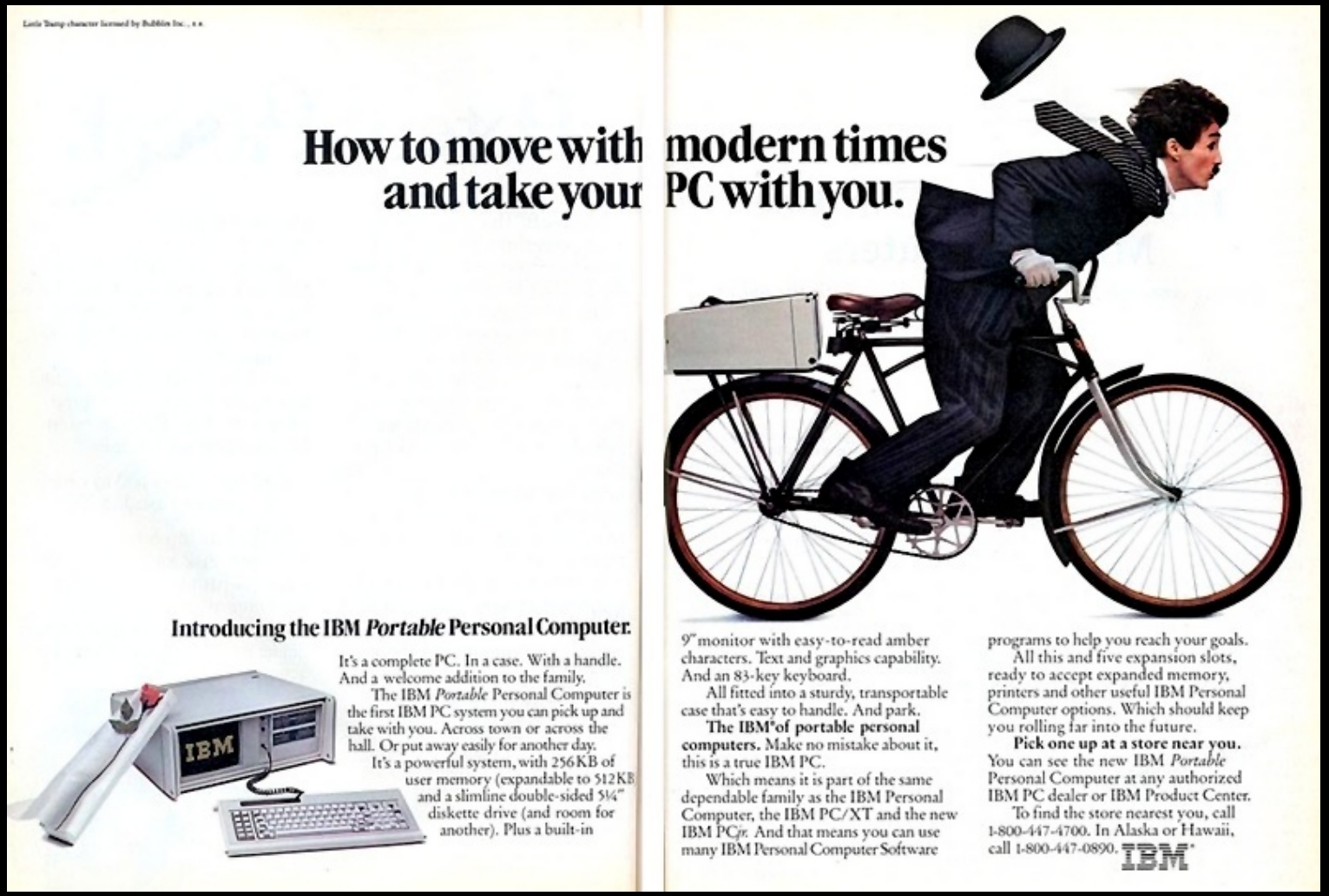
1984, il PC, lo standard per tutti



Little Tramp character licensed by Bubbles Inc., s.a.

How to move with modern times and take your PC with you.

Introducing the IBM *Portable* Personal Computer.

It's a complete PC. In a case. With a handle. And a welcome addition to the family.

The IBM *Portable* Personal Computer is the first IBM PC system you can pick up and take with you. Across town or across the hall. Or put away easily for another day.

It's a powerful system, with 256 KB of user memory (expandable to 512 KB) and a slimline double-sided 5¼" diskette drive (and room for another). Plus a built-in 9" monitor with easy-to-read amber characters. Text and graphics capability. And an 83-key keyboard.

All fitted into a sturdy, transportable case that's easy to handle. And park.

The IBM® of portable personal computers. Make no mistake about it, this is a true IBM PC.

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1984, il Mac, per essere liberi (?)

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un'ultima storia: il tablet

l'idea e le origini
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2010, il rivoluzionario annuncio

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l’antenato, usatissimo

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1966-69, Star Trek TOS

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1987-94, Star Trek TNG

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2006-2012, Eureka

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1958, il touchscreen (poi abbandonato)

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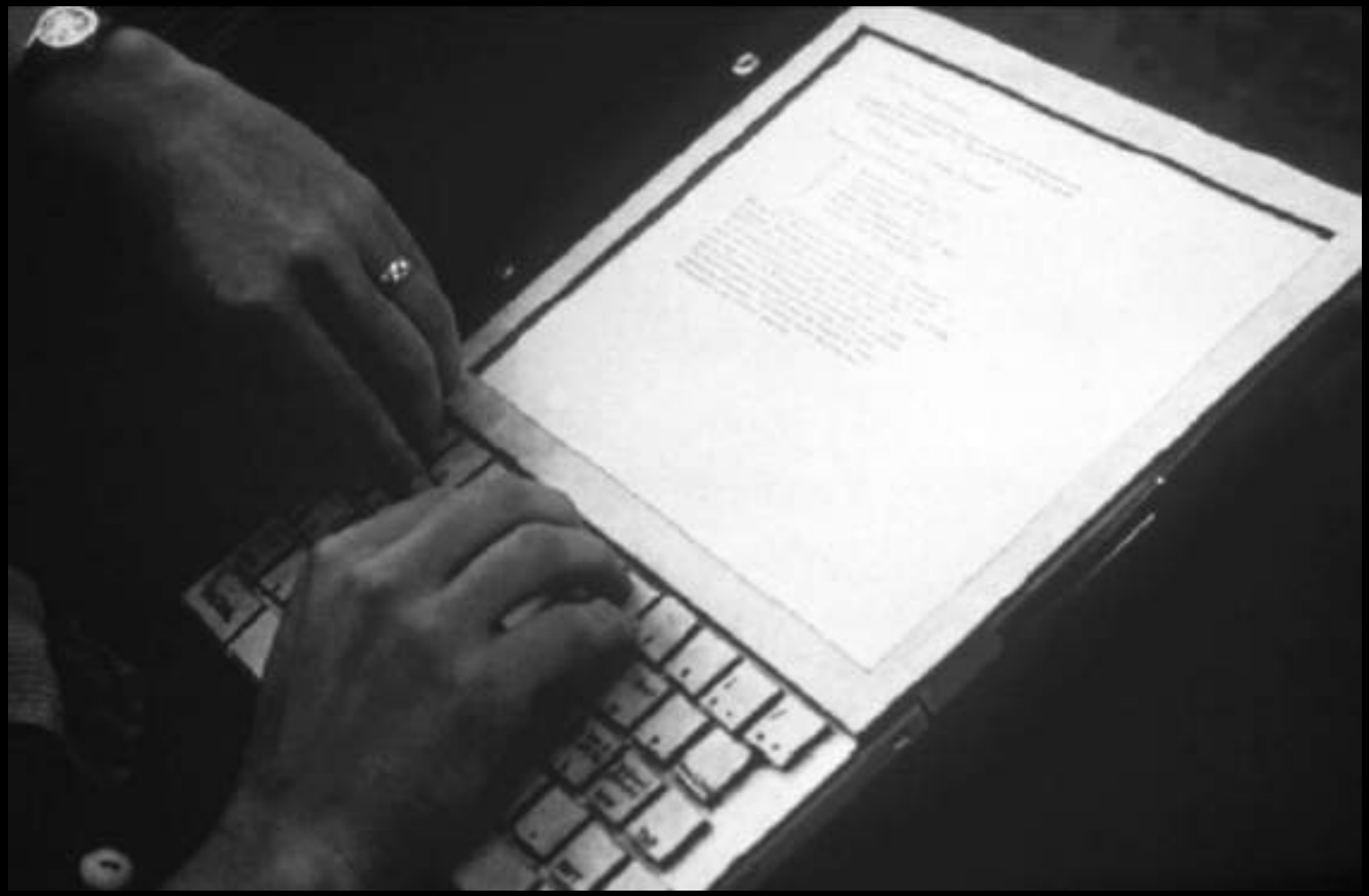
1972, il Dynabook di Alan Kay



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2002, troppo presto Bill

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