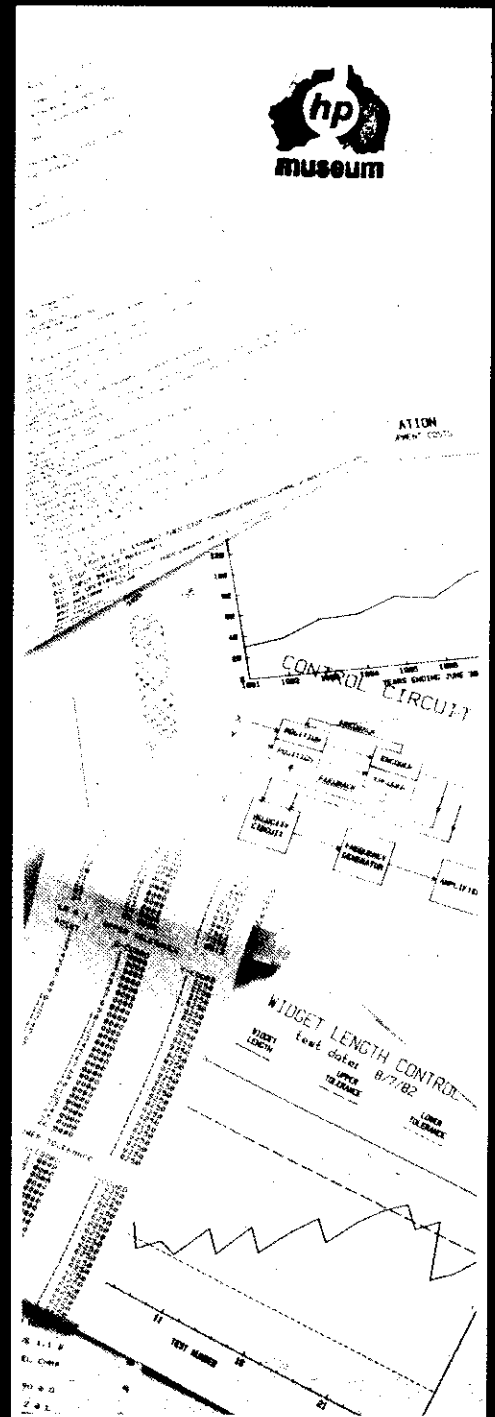
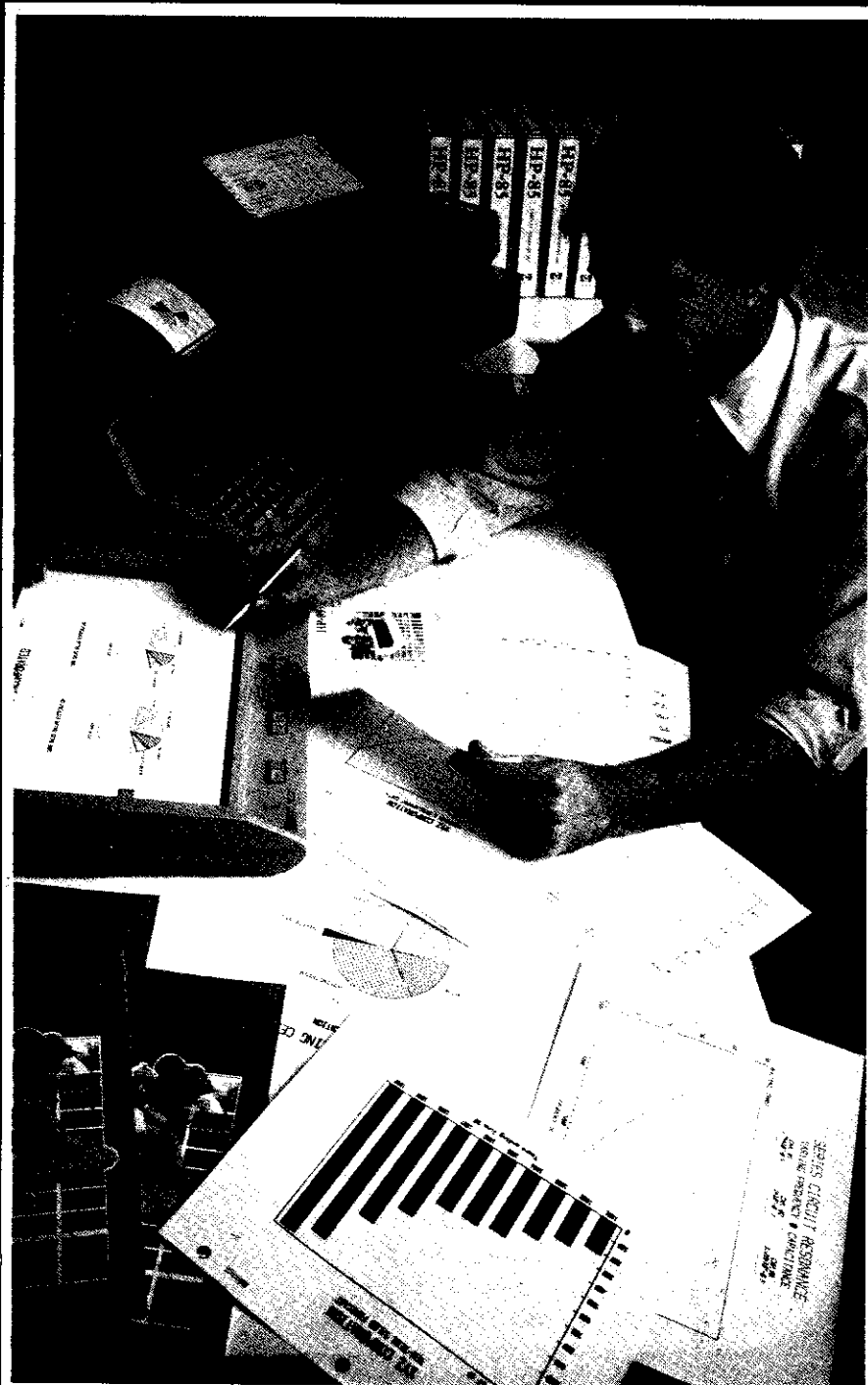
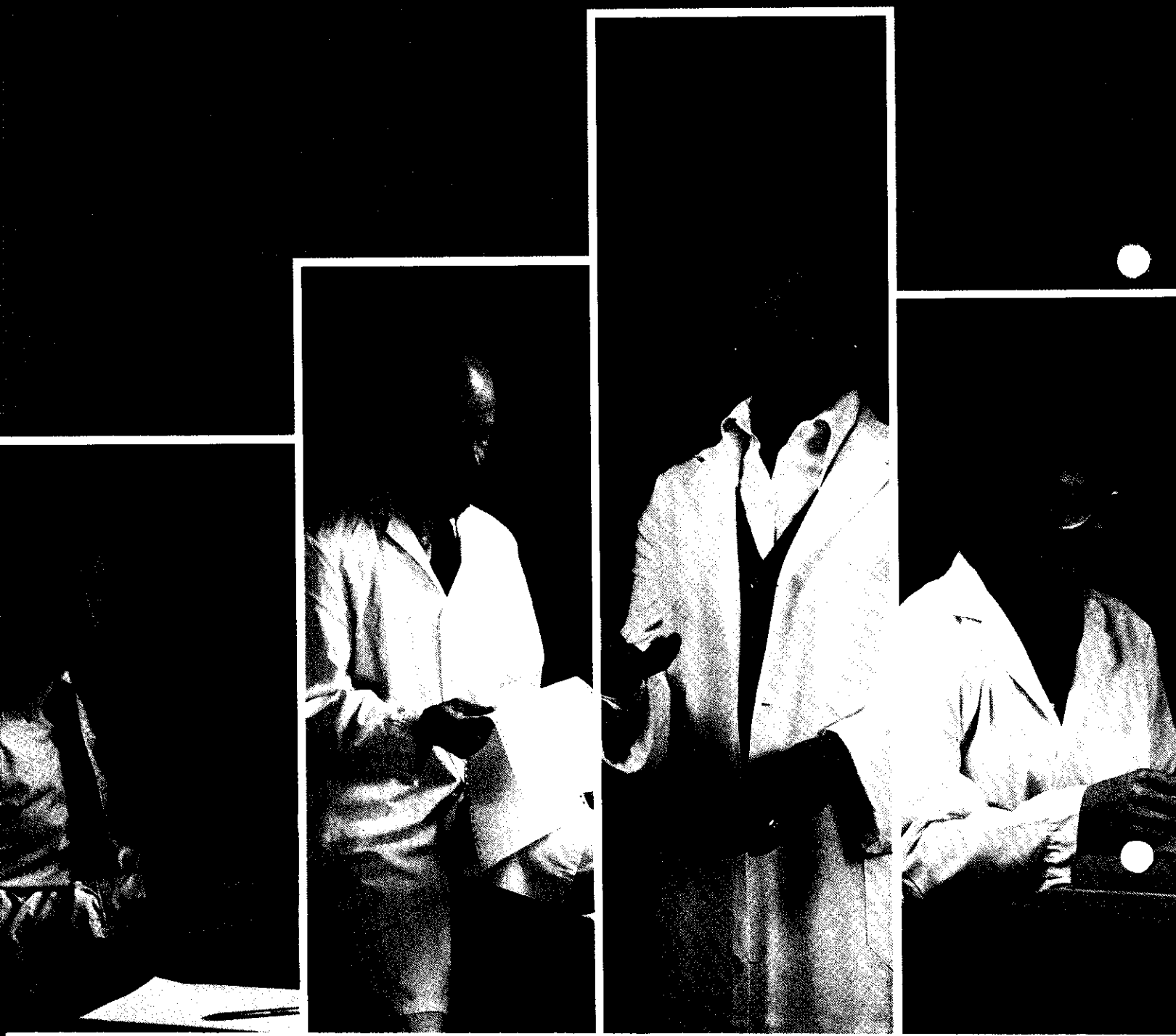


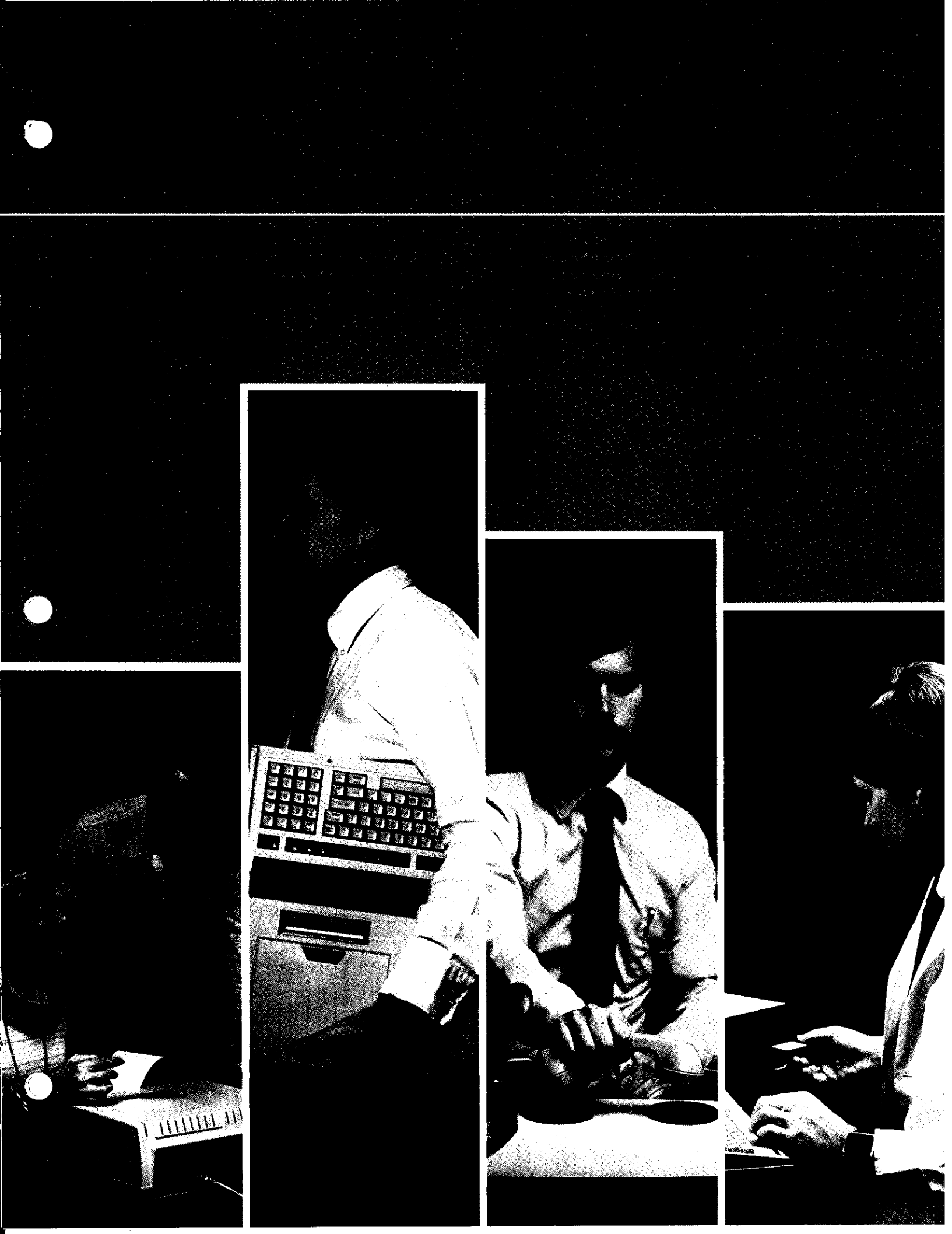
Hewlett-Packard

Series 80 Personal Computers



SERIES 80 PERSONAL COMPUTING SYSTEMS.





HP SERIES 80 ONE-ON-ONE COMPUTING SYSTEMS FOR ENGINEERS AND SCIENTISTS

SOLUTIONS ORIENTED

EASY TO USE

**FRIENDLY (AND FORGIVING IF YOU
MAKE A MISTAKE)**

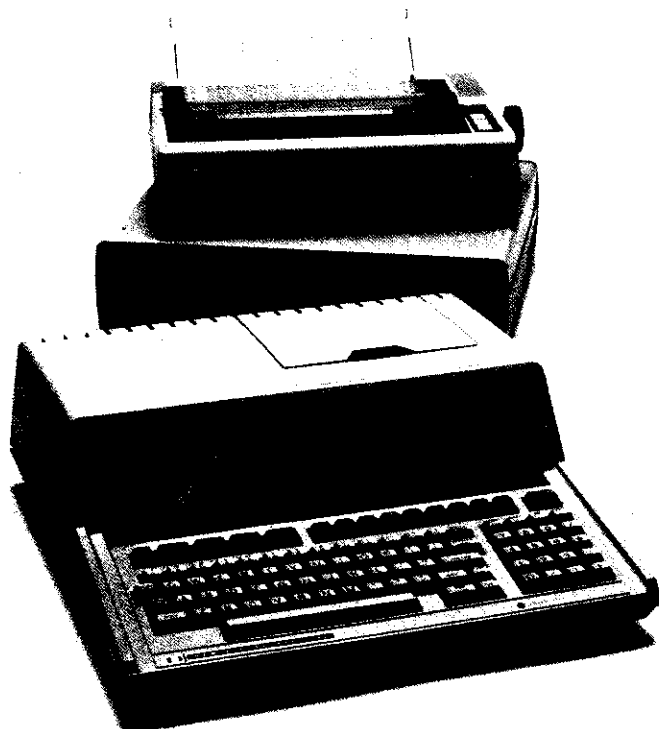
FLEXIBLE

TIMESAVING

RELIABLE

STATE-OF-THE-ART TECHNOLOGY

LASTING VALUE



THE BASIC ANALYST

- **Computational Power**
- **Improved Data Handling**
- **Quick-and-Easy File Access**
- **Fast Problem Solving**
- **Friendly and Easy to Use**

Your Basic Analyst is here, a Hewlett-Packard personal desktop computer system. The HP-83, coupled with a disc drive gives you computational power and flexible mass storage. With built-in read/write memory and ROM of 48K bytes, the HP-83 can expand to 112K bytes, offering plenty of computational power.

Its typewriter-like keyboard makes entering programs and data easy. Its numeric keypad makes rapid calculations a snap. Assign whole subroutines to one of eight user-definable keys. Program your most complex formula, from linear regression to a Fourier transform, and put answers at your fingertips.

For additional on-line memory, plug in multiple disc drives. The HP-83 and flexible mass storage save you time, make computation effortless and offer a storehouse of memory.

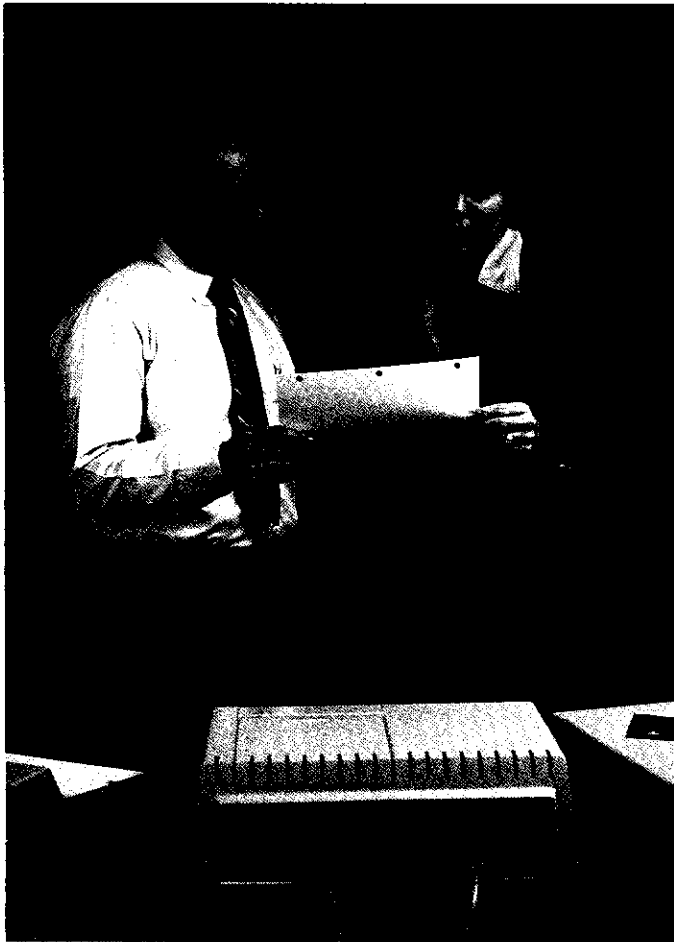
But there's another choice for the heart of your Basic Analyst.

The HP-85 features the same worksaving power as HP-83 plus two built-in additions: a quiet, thermal printer and a data storage unit. No other personal computer system offers the portability and total capability of the HP-85.

It's a *complete* computing system all in one lightweight 20-pound package. Lab, home or office ... the HP-85 goes anywhere.

Both mainframes employ HP's extended BASIC which can be made even more powerful with the addition of several available enhancement ROM's. In fact, you can





add up to 48K of ROM to boost your professional problem-solving capability.

For instance, the Matrix ROM greatly extends your math capabilities; the I/O ROM turns your HP-85 or HP-83 into a full-featured I/O controller; the Plotter/Printer ROM allows you to add an HP printer for hard-copy output or an HP plotter for colorful, high-quality graphics.

Add to this the wide assortment of Series 80 software solutions designed to fit your specific needs: Application Pacs, Solution Books, Users' Library programs and programs from software suppliers.

With all its problem-solving power, why not put a Basic Analyst to work for you today?

System Hardware:

- HP-83 or HP-85 Personal Computer
- Memory Module (required for certain software applications)
- HP 82900-Series Flexible Disc Memory or HP 9895A Flexible Disc Memory
- HP 2631B Printer (for commercial applications)
See your HP dealer for other printing options.
- ROM Drawer
- Mass Storage ROM
- Plotter/Printer ROM
- HP-IB Interface
- Interconnect Cable

THE GRAPHICS ANALYST

- **Power, Storage and Friendliness of the Basic Analyst**
- **Impact of High-Quality Graphics**
- **Quick, Easy Report Preparation**

For the modern technical professional, reaching answers is only part of solving problems. The answers must be analyzed, interpreted and understood. If you're faced with a huge set of data, you can simplify your analysis with a graphic plot.

For instance, you can show in graphic detail the slew rate and rise time of an audio amplifier. Your plot helps you visually assess the amplifier's sonic performance. Or, you can plot the probabilities of earthquakes occurring in various world areas. Your extensive geologic data is swiftly transformed into a meaningful, visual analysis.

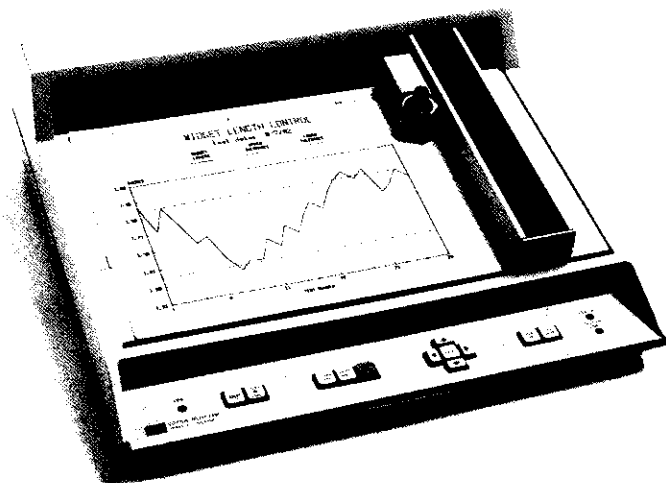
The HP 7225 Graphics Plotter produces the type of plots and graphs you desire, and it assures you of accuracy. It will actually move to any specified point within a range of ± 0.025 mm. Because each programmed point is reached with pinpoint precision, you always receive a true representation of data.

By adding the Graphics Presentations Pac or VisiCalc™ PLUS, producing your desired graphs becomes even easier. You can enter data and generate a professional-looking plot in just minutes. And the computer prompts you each step of the way—in English.

When you need high-quality graphics on short notice for that important presentation ... when you must visually analyze large sets of data ... when you need illustrations for your technical reports ... the Series 80 Graphics Analyst does the job.

The Graphics Analyst ... perfect for:

**Presentations
Documentation
Reports
Measurement Analysis**



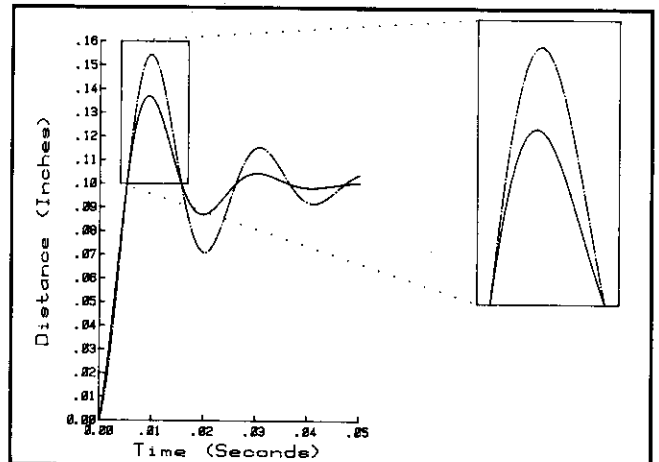
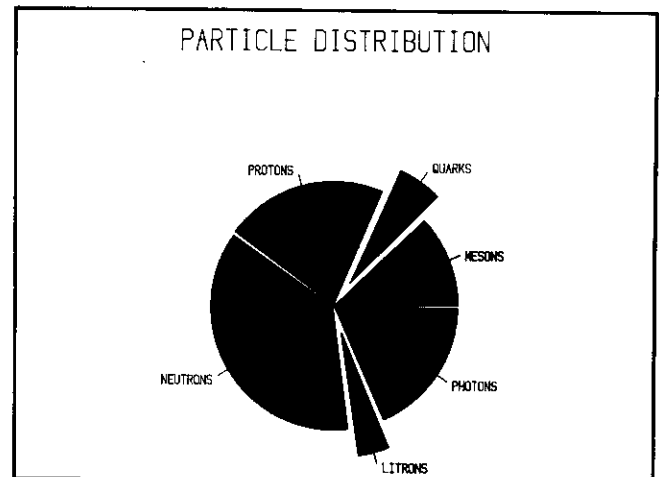
System Hardware:

- HP-83 or HP-85 Personal Computer
- Memory Module
- HP 82900-Series Flexible Disc Memory or HP 9895A Flexible Disc Memory
- HP 2631B Printer (for commercial applications)
See your HP dealer for other printing options.
- HP 7225 Graphics Plotter
- ROM Drawer
- Mass Storage ROM
- Plotter/Printer ROM
- HP-IB Interface
- Interconnect Cable

Recommended Software:

- Graphics Presentations Pac, or
- VisiCalc™ PLUS

Choose the graphic output that suits your needs. Create plots like these. Make multicolor drawings with quick and easy pen changes on $8\frac{1}{2} \times 11$ " paper or on overhead transparencies.



You've seen the power of the Basic Analyst and the Graphics Analyst. Now take a look at ways these Series 80 systems can save you time, deliver solutions and enhance your professional performance.

* VisiCalc is a registered trademark of Personal Software Inc.

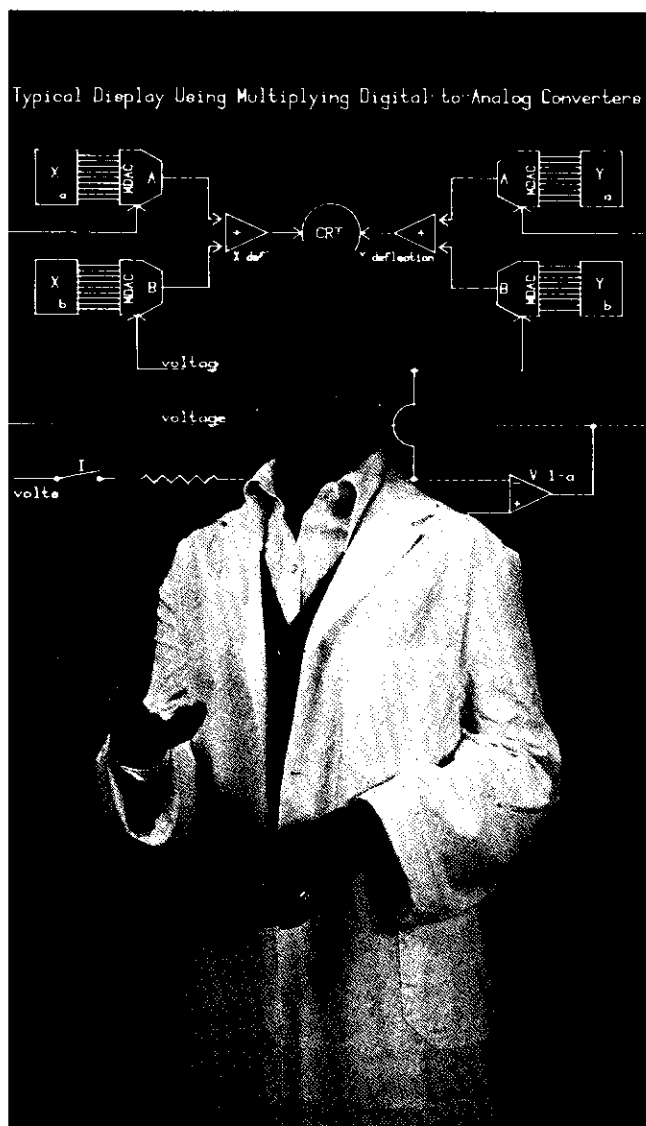


THE WIZARDRY OF VISICALC PLUS

Introduce yourself to an amazing electronic time saver ... VisiCalc PLUS. With VisiCalc PLUS those dreaded, laborious paper and pencil calculations become a thing of the past.

What's the secret? Take a problem with a large set of data. You want to know what changes occur in your analysis as you alter one or more of its variables. You could calculate all the changing relationships individually. Slowly. Painstakingly. And hopefully, without errors.

Or you can let VisiCalc PLUS compute and display the entire set ... in seconds. Just pose your question, *what if*, and VisiCalc PLUS goes to work for you. Instantly, you're shown the corresponding results. You can also do statistical analysis with built-in functions like standard deviation and variance and then plot the outcome.



How simple is it to use? VisiCalc PLUS is actually an electronic worksheet of rows and columns. Label each cell using either words or numbers. Then, to perform a calculation, type in your formula. VisiCalc PLUS computes it instantly and displays the answer in the appropriate cell.

Just to demonstrate how easy it is for even the most complex problems, imagine yourself as a quality control engineer for the Widget Mfg. Co., Inc. You're assigned the task of making a production process check, ensuring that widget length consistently meets the necessary requirements. Acceptable rejection rate is 10.3%. Based on your analysis, you must advise management on their current production process. Here's how VisiCalc PLUS helps.

First, type in and label what you know. Next type and label what you need to know: average length, standard deviation, percent rejected, number of bad units ...

In column A, starting in cell A12, label and list the number of test samples you'll be using. In column B label and list the individual lengths of your samples. Your worksheet is now set up and looks like this:

```

      A      B      C      D
1  PROCESS MONITORING EXAMPLE
2  widget length
3  test date: 8/7/82
4
5  UPPER TOLERANCE (cm) 1.825
6  LOWER TOLERANCE (cm) 1.625
7
8  AVERAGE LENGTH:
9  STANDARD DEVIATION:
10 PERCENT REJECTED:
11
12 TEST# LENGTH

```

```

      B      C      D
=====
1  1.832
2  1.757
3  1.831
4  1.756
5  1.785
6  1.721
7  1.855
8  1.812
9  1.837
10 1.820
11 1.884
12 1.857

```

Now you can use the built-in VisiCalc PLUS formulas to calculate the mean and standard deviation of your samples. Type in both commands, the first in D8:

```
+MEAN(B14,B25)
```

The second in D9:

```
+STDEV(B14,B25)
```

Your results appear instantly.

```

A      B      C      D
-----
1  PROCESS MONITORING EXAMPLE
2      widget length
3      test date: 8/7/82
4
5  UPPER TOLERANCE (cm)  1.825
6  LOWER TOLERANCE (cm)  1.625
7
8  AVERAGE LENGTH:      1.7059
9  STANDARD DEVIATION:  .07451
10 PERCENT REJECTED:    16.667
11
12 TEST# LENGTH

```

```

A      B      C      D
-----
1  1  1.832  0
2  2  1.757  0
3  3  1.821  0
4  4  1.766  0
5  5  1.705  0
6  6  1.721  0
7  7  1.65  0
8  8  1.612  0
9  9  1.637  0
10 10 1.629  0
11 11 1.684  0
12 12 1.657  0

```

Next comes some magic. Type in the formula determining which widgets fall outside accepted tolerance levels. This formula is placed in C14, and using a replicate command column C cells will then designate acceptable units as 0's and rejected units as 1's.

+B14>D5 OR B14<D6

Now type the formula computing that result as a percentage of total widgets. In the blink of an eye, the entire column is computed and percentage of rejections is displayed.

100*SUM(C14,C25)/12

```

A      B      C      D
-----
1  PROCESS MONITORING EXAMPLE
2      widget length
3      test date: 8/7/82
4
5  UPPER TOLERANCE (cm)  1.825
6  LOWER TOLERANCE (cm)  1.625
7
8  AVERAGE LENGTH:      1.7059
9  STANDARD DEVIATION:  .07451
10 PERCENT REJECTED:    16.667
11
12 TEST# LENGTH      BAD?

```

```

A      B      C      D
-----
1  1  1.832  1
2  2  1.757  0
3  3  1.821  0
4  4  1.766  0
5  5  1.705  0
6  6  1.721  0
7  7  1.65  0
8  8  1.612  1
9  9  1.637  0
10 10 1.629  0
11 11 1.684  0
12 12 1.657  0

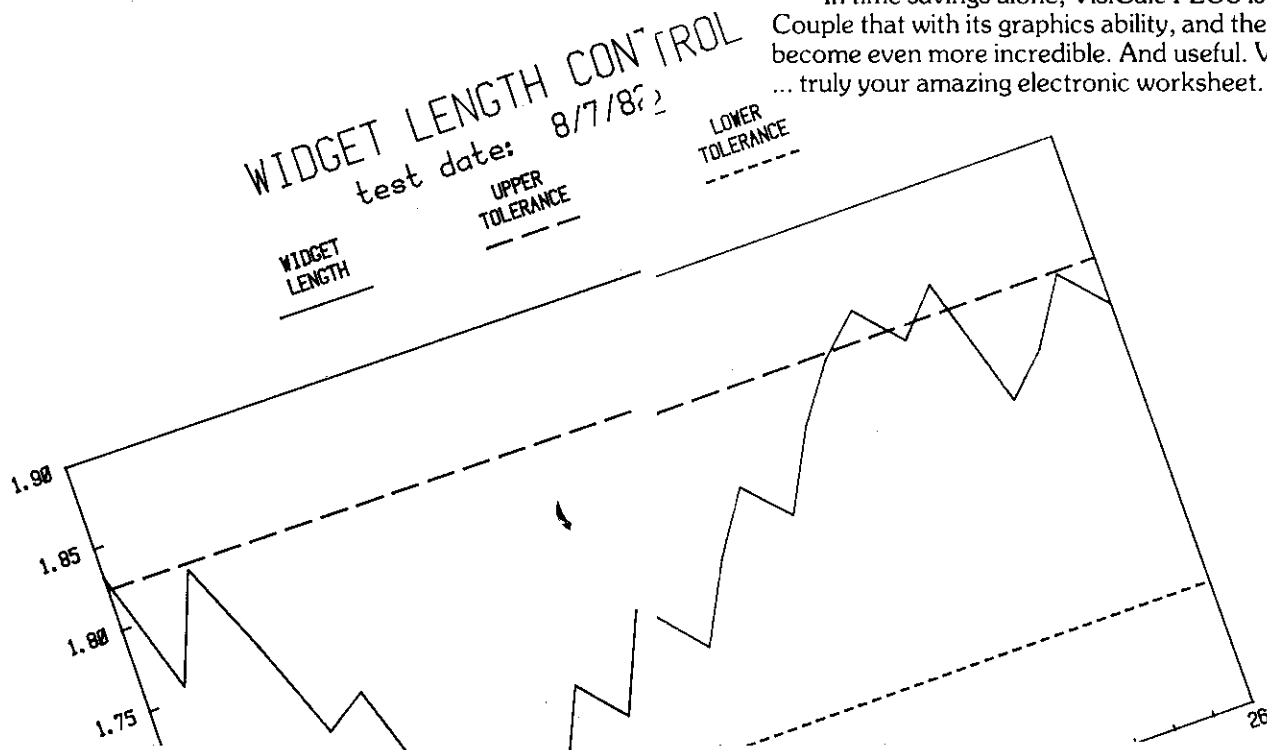
```

There you have it. A complete production check on a sample control group. And if you change the formula in a cell or alter other variables, VisiCalc PLUS recomputes the results ... instantly. VisiCalc PLUS saves you hours of calculation time.

And it gets even better. Want to show a graphic representation of your results? Add the HP 7225 Plotter. Now the unique PLUS of VisiCalc PLUS really shines. In just a short time, you can produce a crisp, multicolor chart for graphic comparison.

With hard-copy calculations and graphics in hand, you can now make your quality control recommendation: VisiCalc PLUS indicates a high rejection rate of 16.66% with your present tolerances. The production process should be reexamined and modified. VisiCalc PLUS assures you of the right decision.

In time savings alone, VisiCalc PLUS is impressive! Couple that with its graphics ability, and the results become even more incredible. And useful. VisiCalc PLUS ... truly your amazing electronic worksheet.



THE PORTABLE ANALYST

- **Computational Power**
- **One Integrated Unit with:**
 - Keyboard**
 - Printer**
 - Tape Unit**
 - CRT**
 - 16K Read/Write Memory**
 - 32K ROM Operating System**
- **Portability**
- **Expansion Options:**
 - Enhancements**
 - Plug-in Peripherals**
- **Applications Software**

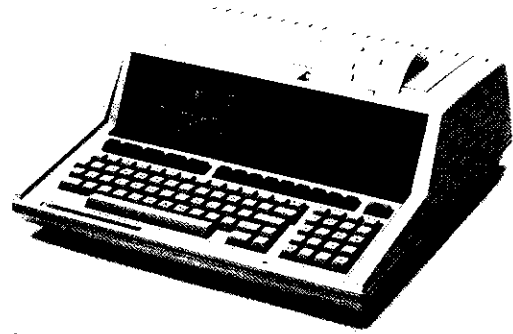


Welcome to the power of portability. Now you can solve problems and access data files away from your lab or office. The HP-85 is lightweight and portable, a 20-pound package of analytical power capable of traveling anywhere.

You have the same friendly keyboard, the same power as the HP-83, plus a quiet thermal printer and 210K-byte, high performance tape drive unit ... all in one integrated package.

If you need to solve a problem or perform computations away from the office, simply take your HP-85 with you. It has everything you need. It operates *anywhere* there is a standard 60 Hz 115 Vac outlet. Simply take it under your arm or use the handy carrying case. Just plug it in. It's ready to use.

For instance, you are a service technician diagnosing an equipment failure in the field. Take your HP-85 and enter the known symptoms and possible causes. Cross check this information with all available service data and then identify the probable failure. You find the problem and



make the correction on the spot ... thanks to your HP-85. Having the tape unit means your data and Series 80 software can travel with you, too.

And as your needs grow, the HP-85 expands with you. Four ports on the back of the unit accept a variety of Series 80 plug-in modules including a 16K read/write memory addition, various interfaces, and a ROM drawer which has slots for up to six 8K ROM's.

Expandable power. Portable power. Yours in the HP-85 ... your Portable Analyst.

System Hardware:

- HP-85
- Memory Module (required for certain software applications)



THE COMMUNICATING ANALYST

- **Power, Memory and Friendliness of the Basic Analyst**
- **Speed of Telecommunications**
- **Increased Access to Large Amounts of Data**



Expand your problem-solving power! Put yourself in touch with a huge reservoir of information and put yourself in touch with solutions. Through the speed of telecommunications, your computer can now *talk* to other computers to give you the information you need.

Just think about it. To solve problems, you need information. And the Communicating Analyst gives you access to all the changing conditions of your growing scientific world.

Couple this information-gathering ability with the on-the-spot computing power of the mainframe. Your result: more answers in less time.

Transform your Series 80 system into a *smart* terminal. All you need is an interface, a ROM, a modem and the Data Communications Pac (available Spring 1981). Either the HP-85 or the HP-83 can be the heart of your communicating system. The HP-85 gives you an extra benefit: portability.

What do you want to access? Tie into a data network to find what you need. From listings of DC motor specifications to filter capacitor values to price quotes on necessary lab instruments, this Series 80 system puts you in touch with a wealth of information.

Time-sharing can be a cinch. Run a long program on a time-share computer, obtain the results with your Communicating Analyst and manipulate the data ... right at your desk.

Take a communicating HP-85 to your construction site and run your calculations on the spot. Then send your information back to the central office computer. From the field, you can access inventory levels, check costs of various building materials, and analyze different architectural designs.



Let communication solve your problems. The Communicating Analyst ... opening the door to:

Time-Sharing Applications

Access to larger programs
Access to other languages
Common data bases

Field-Office Communication

Series 80 to Series 80
Series 80 to larger mainframes
Message transfer

Data Base Access

- HP-85 or HP-83 Personal Computer
- Memory Module
- ROM Drawer
- I/O ROM
- Serial Interface (RS-232C)
- Modem (any manufacturer's)

If using the HP-83, also add:

- HP 82900-Series Flexible Disc Memory or HP 9895A Flexible Disc Memory
- HP 2631B Printer (for commercial applications)
See your HP dealer for other printing options.
- Mass Storage ROM
- Plotter/Printer ROM
- HP-IB Interface
- Interconnect Cable

Required System Software:

- Data Communications Pac

The HP Series 80 one-on-one computing systems. Now you've met them in print. They look even better in action. Request a complete demonstration from your local HP dealer. You'll quickly see how Hewlett-Packard can help you expand your professional effectiveness.

SOFTWARE SOLUTIONS FOR ENGINEERING AND SCIENTIFIC PROFESSIONALS

All Series 80 Application Pacs and Users' Library programs are available on both disc and tape except the Information Management Pac which comes on disc only.

Series 80 Application Pacs

VisiCalc™ PLUS
Graphics Presentations
BASIC Training
Surveying
Math
Linear Programming
General Statistics
Statistics and Data Manipulation
Regression Analysis
Waveform Analysis
AC Circuit Analysis
Data Communications (available Spring 1981)
Information Management (available Spring 1981)



Series 80 Solution Books

Electrical Engineering
Math
Numerical Analysis
General Probability
Decision Analysis
Math Learning
Science Learning I
Science Learning II
Electrical Engineering Learning

Users' Library Programs

For technical applications from the HP Users' Library, see the Series 80 Software Catalog at your HP dealer.

Supplier Software

Also, check the Series 80 Software Catalog for a growing number of technical software products from third party suppliers.



THE HP SERVICE COMMITMENT

HP makes this commitment: to stand behind your valuable investment with unparalleled service support. Hewlett-Packard offers not only the protection of a 90-day warranty, but extends a choice of two maintenance agreements to every HP personal computer owner.

The *On Site Product Maintenance Agreement* guarantees you'll receive prompt service right at your location from personnel at one of HP's sales and service offices. These offices number over 100 worldwide in 36 countries. An even more economical *Field Service Agreement* is available, ensuring prompt service at the nearest HP Field Repair Center. This comprehensive service coverage reflects HP's dedication to Series 80 and to your continued satisfaction.

FOR MORE INFORMATION

Contact your local HP dealer, nearest HP office or call toll free 800-547-3400 in the U.S. (except Alaska and Hawaii). In Oregon, call 758-1010.



HEWLETT
PACKARD