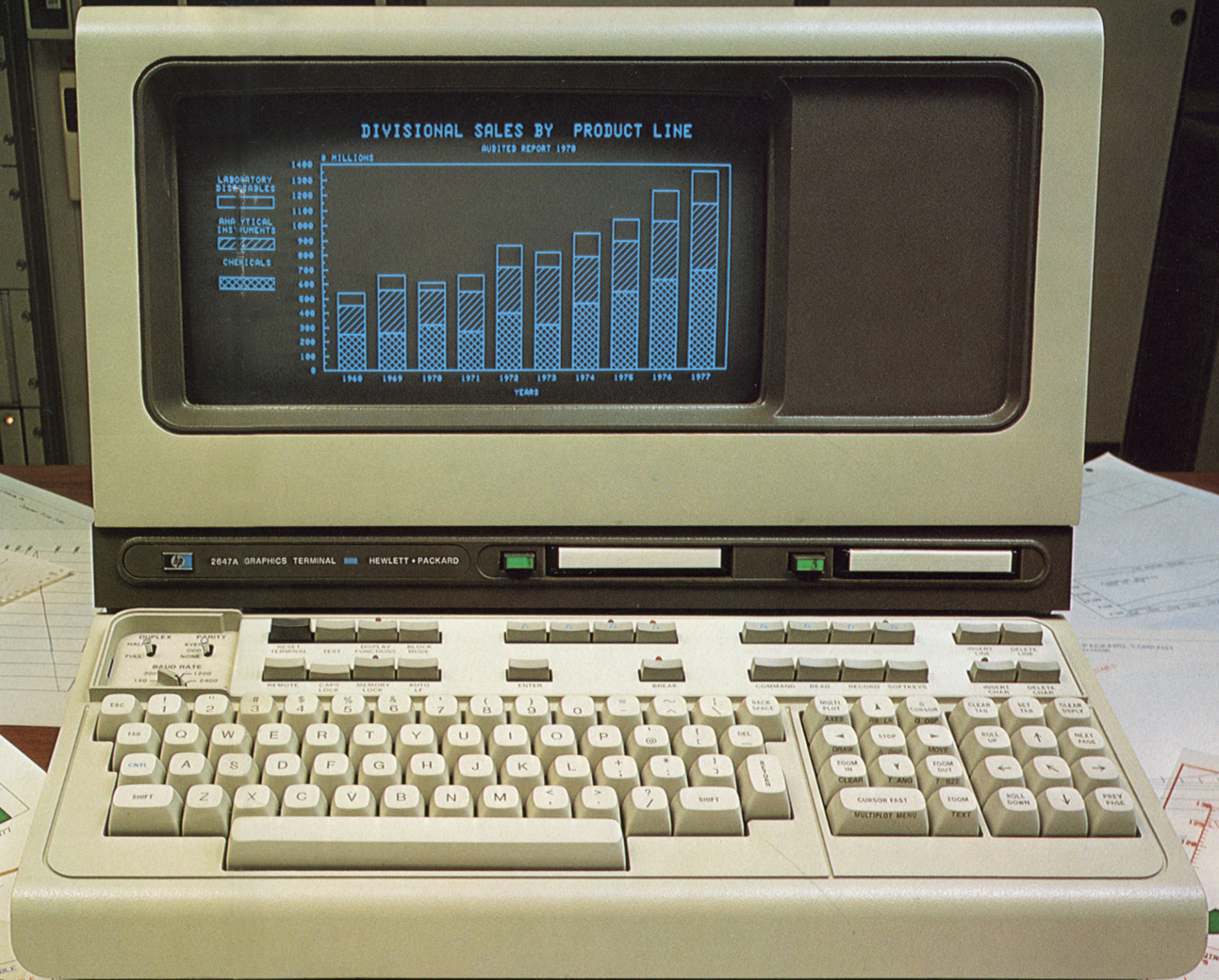


SEE HOW MUCH MORE YOU CAN DRAW FROM YOUR
COMPUTER WITH HEWLETT-PACKARD.



DRAW GRAPHS FOR BUSINESS, SCIENCE AND ENGINEERING WITH A POWERFUL HP GRAPHICS WORKSTATION.

DESIGNED FOR BOTH THE EXPERIENCED AND THE NEW GRAPHICS USER.

Graphics are the best way to discover, understand and communicate the meaningful data hidden in pages of computer tabulations. The problem has been to have a practical way for everyday users to translate their computer data into charts and graphs.

Now Hewlett-Packard has done it. With a customized Graphics Workstation that can transform your tabular data into easy-to-understand graphics for analysis and decision making.

Heart of the workstation is the power of HP's 2648A or 2647A Graphics Terminals. With just a few keystrokes, you can plot tabular data as either a bar graph, a pie chart, a linear or logarithmic line graph.

Analyze and modify your graphs until you get exactly what you're looking for. Zoom in, zoom out. Pan up, pan down. Pan right, pan left. Erase. Shade. Sketch. You really see your data. All without depending on your host computer system.

The other half of your HP Graphics Workstation gives you hard copy graphs in just about any form. Hewlett-Packard has a choice of four different peripherals to do the drawing. So you can have everything from fast working copy to four-color overhead transparencies.

Just imagine what you can draw from your computer. Daily sales graphs in multiple colors. Engineering models in 8-1/2 x 11" (210 x 297 mm) notebook size. Project schedules that can be duplicated, routed, written on and filed. Briefcase sized long-range forecasts that can be studied on airplanes or while commuting to the office. Scientific and business data that can go on continuous charts up to 16 feet (5 metres) long.

On the following pages we'll show you just a few typical HP Graphics Workstations for business, science and engineering. And there's a handy chart that shows you the kinds of terminal/peripheral combinations that can be put together to do your kind of work. Look it over. Then draw your own conclusions.

THE 2648A AND 2647A GRAPHICS TERMINALS.

Both the 2648A and 2647A utilize raster scan technology. They provide a bright, easy-to-read display to minimize eye fatigue during extended sessions at the terminal and allow use in normally lit rooms.

When not serving as a graphics workstation, they pay their way as full capability alphanumeric terminals for data entry, data base management, program preparation and interactive applications. Editing features such as character and line insert/delete and forms for data entry are but a few of their alphanumeric capabilities.

But what makes these terminals special is their graphics power. The 2648A Interactive Graphics Terminal provides graphics capability for a wide range of applications. Features include push-button zoom and pan, automatic plotting, and local picture generation.

The 2647A Intelligent Graphics Terminal is a uniquely flexible unit providing everything from simplified easy-to-read graphics that require no programming to powerful graphics for the most specialized applications. It includes all of the features of the 2648A plus terminal programmability, English-like graphics commands, and multiple automatic plotting.



DRAW GRAPHICS FOR MANAGEMENT, SALES, FINANCE, PRODUCTION, QUALITY CONTROL.



In today's competitive business environment, managers must understand the significance contained within vast amounts of computerized data. Business graphics is management's tool for analyzing and discerning trends in that data.

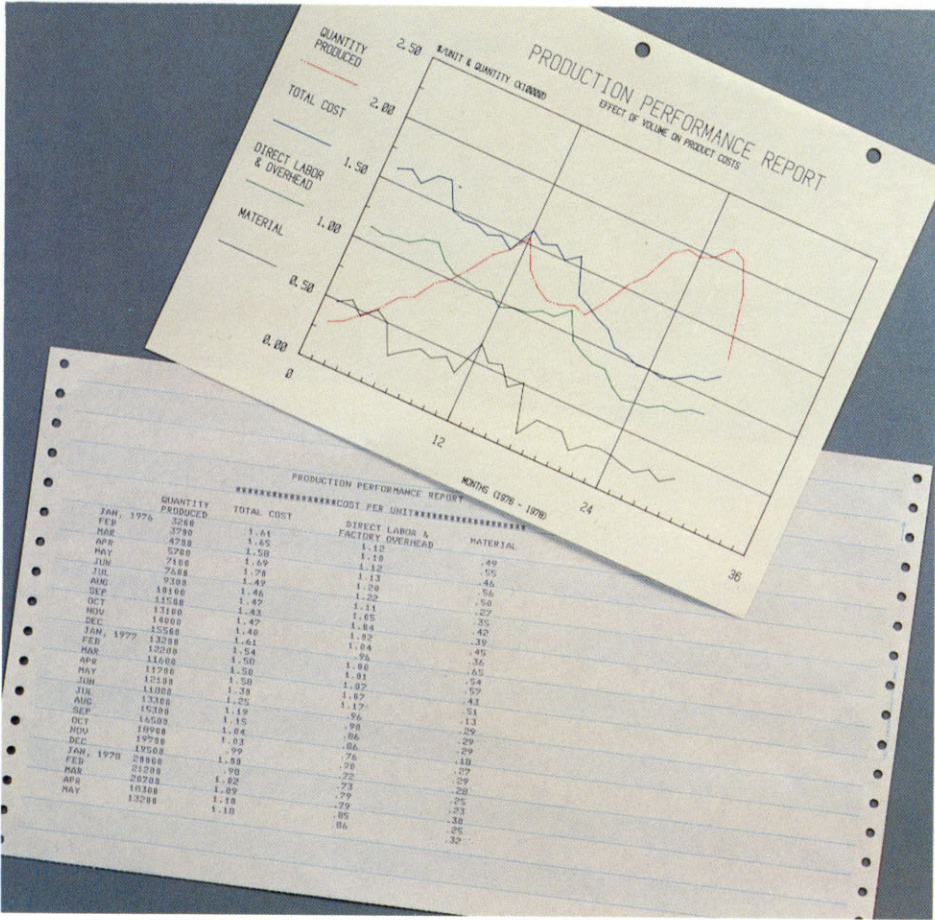
THE 9872A MULTICOLOR GRAPHICS PLOTTER (LEFT). This 11" x 17" (280 x 432 mm) flatbed plotter produces crisp, report-quality, ink-line graphics. The most popular graphics plotter for business, HP's 9872A draws in four colors by mechanically selecting, returning and recapping its pens. Overhead transparencies can be produced in multiple colors because the plotter draws directly on clear film.

To be of value, business graphics must be closely linked to the data gathering process — without interfering with day-to-day data processing department operations. That's why the HP Graphics Workstation is designed to take data direct, as is, from the computer and process it in the terminal for graphic output. This concept of local terminal software means that there is no need to alter your host computer's business applications programs or data base information in order to get meaningful graphics.

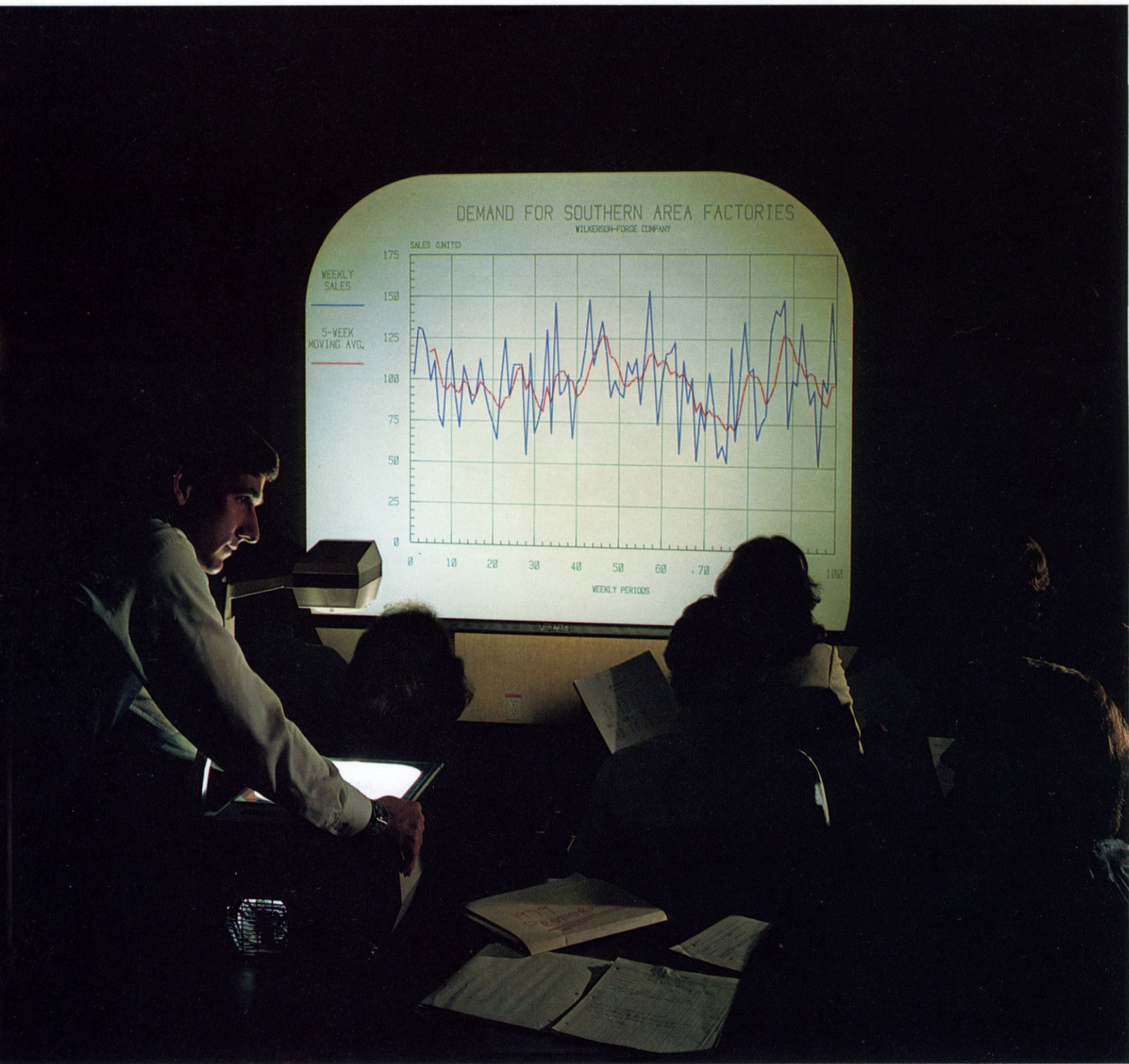
Managers at all levels, charged with the identification and presentation of trends, results and plans, can directly benefit from the simple, quick and easy-to-understand graphics generated by Hewlett-Packard's Graphics Workstations.



THE 2631G GRAPHICS PRINTER (ABOVE). This device provides the Graphics Workstation with the combination of capabilities for high performance serial impact printing and graphics display copying at a low cost per page. It offers enhanced printing versatility through features such as four selectable print widths and subscripting and superscripting. Because it is an impact printer, the 2631G produces up to six crisp copies of both graphics display and alphanumeric data, making it an excellent general purpose printer for many applications.



**DRAW PIE CHARTS, BAR CHARTS, LINE AND LOGARITHMIC CHARTS
AND POINT PLOTS WITH MULTIPLE AUTOMATIC PLOTTING.**



COLOR WHERE COLOR IS IMPORTANT (LEFT). The HP Graphics Workstation produces presentation quality overhead transparencies in seven vivid colors for meetings, seminars, lectures and training sessions.



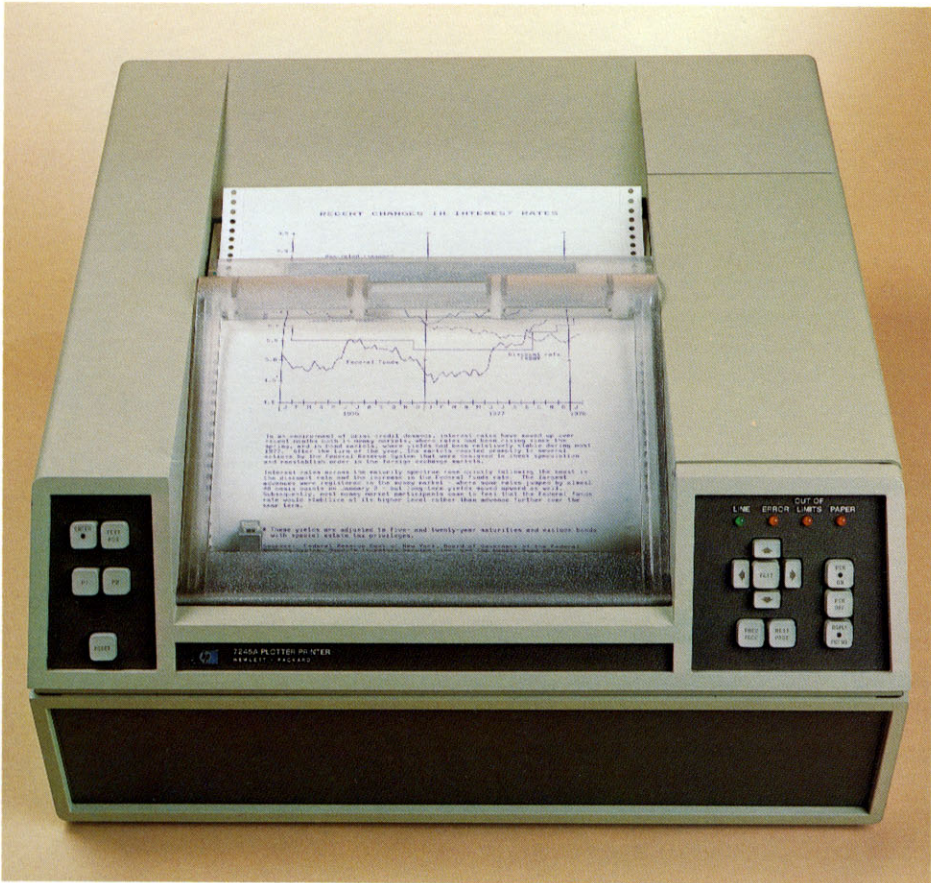
THE 7225A GRAPHICS PLOTTER (ABOVE). This basic unit adds high quality 8-1/2 x 11" (210 x 297 mm) vector plotting to a workstation at the lowest possible cost. With manual pen changing, the plotter offers multicolor hard copy plots.

Thanks to multiple automatic plotting, an HP Graphics Workstation is like having a drafting department at your or your secretary's fingertips. You can produce highly effective graphs with your choice of color, shading patterns, line styles and other important aesthetic considerations.

The simplicity of multiple automatic plotting means that no programming or programming knowledge is required. Just fill out a menu. Draw data from the computer or enter it at the keyboard.

A unique menu gives you a wide choice of plot formats. You can pick from pie charts, pie charts with segment offset, simple bar charts, group or comparative bar charts, layered or segmented bar charts, line charts, and semilogarithmic and logarithmic line charts.

DRAW SIMULATION MODELS, ARCHITECTURAL DESIGNS, STATISTICAL ANALYSIS, MATH VISUALIZATIONS.



THE 7245A PLOTTER / PRINTER (LEFT). Most versatile of the HP hard copy peripherals, this device produces graphics display copies, drafting-quality vector-drawn plots, long length plots up to 16 feet (5 metres), alphanumeric printing and any combination of plotting and printing on the same page. Quiet operation makes it ideal for lab and office situations.

For technical applications, a Hewlett-Packard Graphics Workstation is a powerful tool for both local and on-line use. Locally, the terminal's programmability makes it ideal for simple or routine tasks.

On-line with a host CPU, the terminal is used for post and pre-processing of computer data relieving the computer of repetitive and simple functions. The host CPU is left free to work on more complicated tasks.

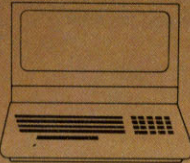
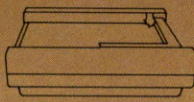
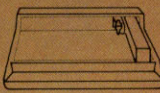
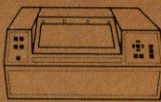

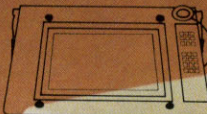
With its BASIC language programmability, the terminal has sufficient power to generate complex and specialized graphics. Special high level commands (PLOT, FRAME, AXES, MOVE, etc.) let you work as you would with any BASIC programming statement to draw and label axes and grids, to control tick mark spacing, character size and line styles, and to plot data.

9874A DIGITIZER.

The often needed feature of graphics input is also available with the HP Graphics Workstation. Many existing sources of data — such as photographs, X-rays, maps, strip charts and engineering drawings — are meaningful to humans but unusable by a computer. HP's 9874A Digitizer (shown in workstation at left) can transform these documents into

X-Y coordinates with ease. The digitizer incorporates many design features to make the digitizing process more comfortable and less prone to operator error. Some examples are tiltable working surface, glass platen for back-lighted projection of projectable media, automatic axis alignment, and many more. In addition, the axis extension feature allows the user to digitize virtually any sized document.

HEWLETT-PACKARD HAS THE WORKSTATION
TO DRAW GRAPHICS FROM YOUR COMPUTER.

												
9872A Multicolor Graphics Plotter		7225A Graphics Plotter		7245A Plotter/Printer		2631G Graphics Printer		9874A Digitizer				
<div>Workstation Peripherals</div> <div>Basic Workstation Capabilities</div>	<ul style="list-style-type: none">Automatic pen selection under terminal control.Report quality ink vector-drawn lines.11 x 17" (280 x 432 mm) plotting area.Multicolor graphs on paper, clear film, and overhead transparencies.Pen-arm digitizing.		<ul style="list-style-type: none">Lowest cost workstation hard copy device.8-1/2 x 11" (210 x 297 mm) plotting area.Multicolor with manual pen changing.Pen-arm digitizing.		<ul style="list-style-type: none">High quality vector-drawn graphs.Long graphs up to 16 feet (5 metres).Raster graphics display copy.Combines printing and graphs on the same page.38 characters-per-second dot matrix printing.Quiet thermal operation.		<ul style="list-style-type: none">High performance serial printing.Raster graphics display copy.Optimized throughput design.Prints up to 6 copies.4 selectable print widths.180 characters-per-second impact dot matrix printing.		<ul style="list-style-type: none">Any size source document.Human engineered for easy use.Manual or stream digitizing mode.Hand-held cursor.Tilttable platen.			
	with 2647A		with 2648A		with 2647A		with 2648A		with 2647A		with 2648A	
	High quality vector-drawn graphics including graph labeling in any size, slant, and direction.		<ul style="list-style-type: none">Locally from multiple automatic plotting (no programming required).Locally from BASIC programs.On line from host computer system.		<ul style="list-style-type: none">On line from host computer system.		<ul style="list-style-type: none">Locally from multiple automatic plotting (no programming required).Locally from BASIC programs.On line from host computer system.		<ul style="list-style-type: none">On line from host computer system.			
	Overhead transparencies for presentations, meetings and seminars.		<ul style="list-style-type: none">Locally from multiple automatic plotting (no programming required).Locally from BASIC programs.On line from host computer system.		<ul style="list-style-type: none">On line from host computer system.							
	Raster graphics display copy.*						<ul style="list-style-type: none">Dot-for-dot graphics display copy.		<ul style="list-style-type: none">Dot-for-dot graphics display copy.		<ul style="list-style-type: none">Dot-for-dot graphics display copy.	
	Fast alphanumeric printing for text and tabular output.						<ul style="list-style-type: none">Locally from terminal.On line from host computer system.		<ul style="list-style-type: none">Locally from terminal.On line from host computer system.		<ul style="list-style-type: none">Locally from terminal.On line from host computer system.	
	Digitizing.		<ul style="list-style-type: none">Locally from BASIC programs.On line from host computer system.		<ul style="list-style-type: none">On line from host computer system.						<ul style="list-style-type: none">Locally from BASIC program.On line from host computer system.	

***VECTOR VS. RASTER HARD COPY.** The two most popular technologies for generating hard copy graphs are vector and raster. Vector plotters draw graphs as you would draw them by hand by connecting graph coordinates with solid straight lines. For example, curves drawn by a vector plotter are a series of small straight lines stepped around a curved path. The high resolution lines produced by HP vector plotters can create curves in steps so small that they are undetectable by the eye.

The HP raster screen (2647A and 2648A) is a grid of 360 x 720 dots. A raster line is represented by illuminating the dots located along the path of the line. Raster hard copy is a dot-for-dot printout of graphics as they appear on the 360 x 720 dot screen. In general, raster hard copy graphs are produced 4 to 5 times faster than the solid line, high-resolution vector graphics.



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