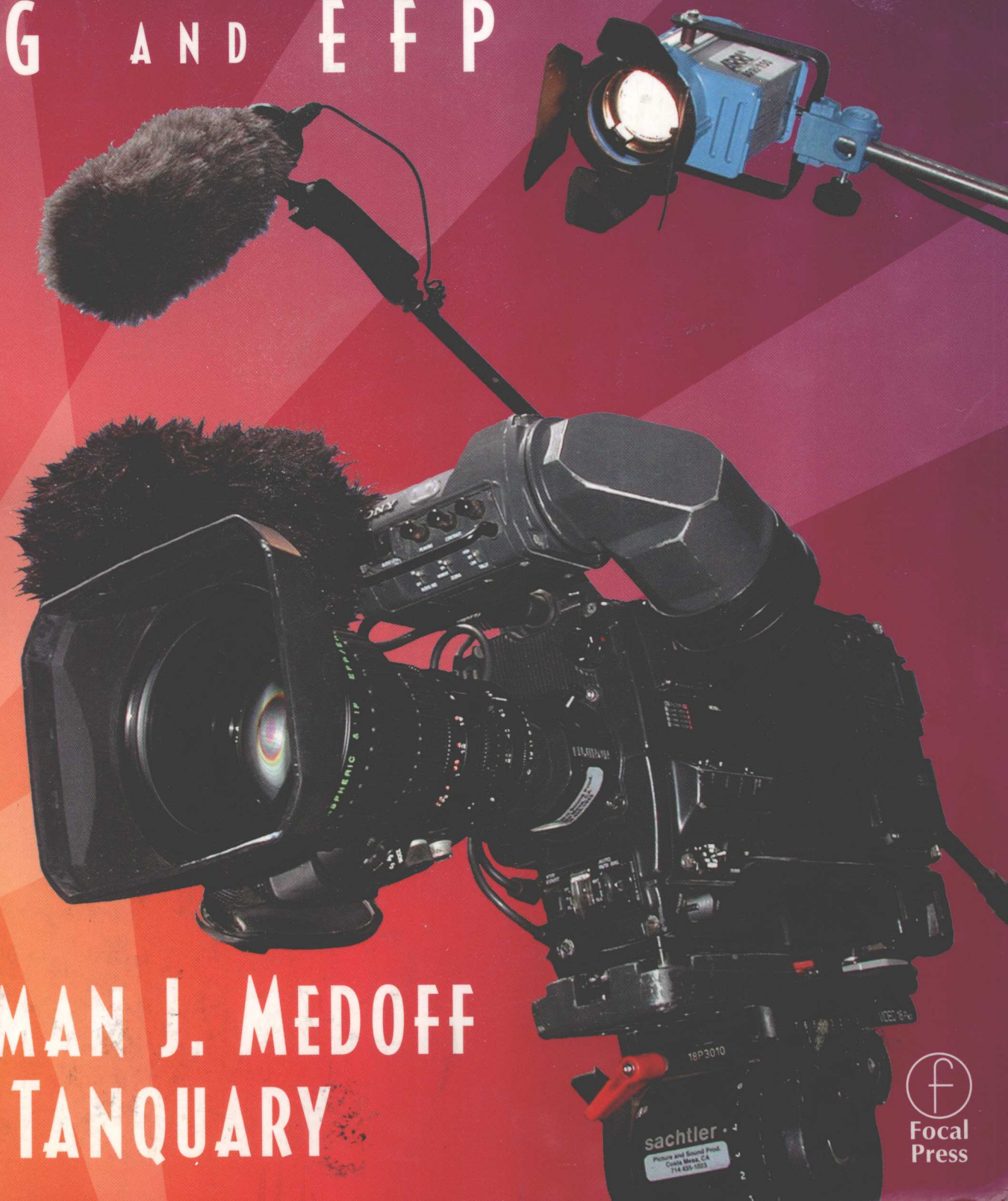


F O U R T H E D I T I O N

# PORTABLE VIDEO

ENG AND EFP



NORMAN J. MEDOFF  
TOM TANQUARY



# **Portable Video:**

ENG and EFP

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**Fourth Edition**


**Norman J. Medoff  
Tom Tanquary**



Boston Oxford Auckland Johannesburg Melbourne New Delhi


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# Preface

The first edition of this book was written more than fifteen years ago. Since that time the number of people who shoot video professionally has grown considerably. There are more television stations, cable operations, and corporate video users. There are even new television networks that have come on the air in that time. Digital satellite services for the consumer and the large number of households having cable TV has allowed news operations to expand beyond the realm of broadcasting. Where CNN once stood alone, now a multitude of news operations can be found on cable and satellite. This growth is a response to needs of the organizations to disseminate information, find new audiences and, perhaps more importantly, it is a response to the growth of the needs of the audience. Viewers want choices.

Television viewers in the 1950s and 1960s often had three or four television viewing choices. In the 1970s, cable television raised the viewing channels to at least 12 and sometimes systems offered 30 channels or more. The number of viewing choices continued to grow, but the growth curve flattened out in the 1980s and 1990s somewhat as the cable industry went through consolidation and shakeout. But the growth curve in demand for video is about to once again become steep. The applications of video are going to dramatically increase once again because of the new technologies that utilize video.

Many computer users have endured the trials and tribulations of the changes that have occurred in the area of information transfer between computers. Eight years ago it was not uncommon to struggle with a 1200 or 2400 baud modem. Connections were often difficult to get and getting “bounced” off the connection occurred all too often. At those low transfer speeds, only text information was practical for transfer. Even the advances to 14.4 or 28.8 Kbps modems

did not change things much. Although audio information transfer is possible at those speeds, it was not easy and the quality was often questionable. Even though most people who go online regularly now have 56.6 Kbps modems, full motion, full frame video still demands more speed than these modems can deliver. Cable modems, DSL, and other broadband connections however, do show the promise of data speeds sufficient to provide quality video in real time. Advances in codecs combined with faster Internet connections will eventually lead to the Internet as a source of video that can rival other delivery systems.

While images on the Web at this point in time are mostly graphic images that originated as still images digitized by a scanner or simply created electronically through software, this may change soon. As the technology to put full frame, full motion video on Web sites becomes more accessible, more sites with video will appear. As it occurred in the 1970s and the 1980s when portable video first became accessible to corporate, educational, and institutional entities, the demand will grow for people who can create professional quality video images and express ideas through those images. It doesn't seem likely that the same people who create the computer programming to create Web sites will automatically become the people who shoot the video for those sites. They don't have the appropriate education and the skills are different. In our optimistic view, this eventual reality will create many opportunities for college-educated people who can shoot professional quality video.

In the fourth edition we again find that although technology has changed (for the better), the basic ingredients for shooting professional quality video are not necessarily technology based. Although a better camera will help a skilled videographer or news photographer get better video across a wider variety of

situations, the real keys to good video are variables like lighting, composition, framing, and exposure. We have noticed that lens technology hasn't changed that much. Also, lighting devices have gotten better and there are a few new designs, but they really aren't very different from what they were in the 1970s. What's more important is what has not changed at all. While cameras and tape machines are creating digital images and editing is being done on computers in a non-linear fashion, it's still the *content* of the pictures that creates the story or product.

Most of the advances in the technology deal with processing video, that is, manipulating the video images *after* the images are shot. The major technological growth area has been in the advent of non-linear, digital editors. There have been some advances in video signal storage, but generally videographers and news photographers are still shooting on some type of videotape. Once stored, the video images can be edited quickly and with tremendous creative flexibil-

ity. The best part of this is that the digital technology is becoming accessible to lower end users.

As the processing of video becomes more and more involved with computers in the digital environment, we recall a saying that was rampant in the early days of computer programming: "Garbage in, garbage out." If your input to the computer was meaningless or low quality, the computer would give you meaningless or low quality output. The same is true in video. The best digital editor in the world can only do so much to improve bad video. The key to good video images lies in the basics that allow the video photographer to capture good images, on any camera, that, when edited together on any system, can tell a good story. Your computer can't do that for you. Your video camera will only be as good as you are. Hopefully, after reading the fourth edition of this book, you will have the skills needed to create video for traditional outlets, the new digital media, and whatever follows.

Norman J. Medoff  
Flagstaff, AZ May 2001

Tom Tanquary  
Costa Mesa, CA May 2001

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# 1

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## Introduction

### ENG AND EFP: THE WORLD OF PROFESSIONAL VIDEO

Portable video systems have been around for a long time. In the 1960s there was a video system called the Porta-pack that recorded fuzzy black-and-white pictures on a reel-to-reel style videotape recorder. The quality was outright bad and the product was almost impossible to edit. Some educational, government, medical, and experimental users found it helpful in conveying ideas where film would be too expensive. Mostly it was thought of as a toy with limited appeal. Even as color was introduced, the idea of using video in any big way in the field wasn't feasible. The equipment was just too big and too cumbersome.

The appearance of the U-Matic videocassette by Sony in 1971, coupled with the introduction of higher resolution color cameras, suddenly gave portable video a new appeal. This self-threading cassette system, in a machine small enough to be carried around and operated by battery, replaced the Porta-pack's reel-to-reel system and greatly improved the quality of the recording. The camera was still in two pieces—the camera head and the camera control unit, or CCU—but it too could be powered by a battery. Two people could easily walk around with the gear in backpack fashion to do taping. With the equipment mounted on a small cart, one person could operate it.

Knowing the power of video cameras in news and sports coverage—even though their use was limited by their size, miles of cables, and often days of setup time—the TV networks began to experiment with this new portable technology. Companies like Sony, Thomson, RCA, and Ikegami worked closely with the networks to deliver a smaller, higher quality camera that could meet their needs. Their primary focus of

use was live TV and, in particular, sports. Having a smaller battery-powered camera could increase the coverage of a sporting event dramatically. One of the earliest uses of portable video in network news was President Nixon's historic visit to China in 1974. CBS decided to use video instead of 16mm film to cover the event. The ENG (electronic news gathering) revolution had begun. The 1976 CBS coverage of the presidential campaign put the video camera in the mainstream of news coverage. Reporters no longer had to wait for the shot film to be developed to air the story. They could now report live from the campaign stop with the use of these new camera units, or shoot tape and have it aired almost immediately. But an even more dramatic change was already under way.

By the second half of the 1970s, the video revolution began sweeping local television stations across the country. Starting with the early experiments at such stations as the CBS-owned and -operated (O&O) KNXT station in Los Angeles in 1974, video slowly began to create a foothold in daily news coverage. By 1976 it was widely recognized that KMOX in St. Louis had become the first all-video, or all ENG, newsroom in the country using the Ikegami two-piece camera, the HL-35. This novel approach to covering local events became an important factor in the competitiveness of the station's news ratings.

Fueled by the new realization that there was money in news—or more accurately, that there was a big and growing audience appetite for news—more and more stations started news shows or began aggressively expanding their current news operations. At the local level, it no longer mattered if a network's programming was the highest rated; what mattered was how big the audience—and therefore the advertising dollars—was for the local news show. The





**Figure 1.1** This early ENG camera, the Thompson MK-II MicroCAM, required two persons to operate it in the field. Courtesy of Larry Greene, KCBS-TV.

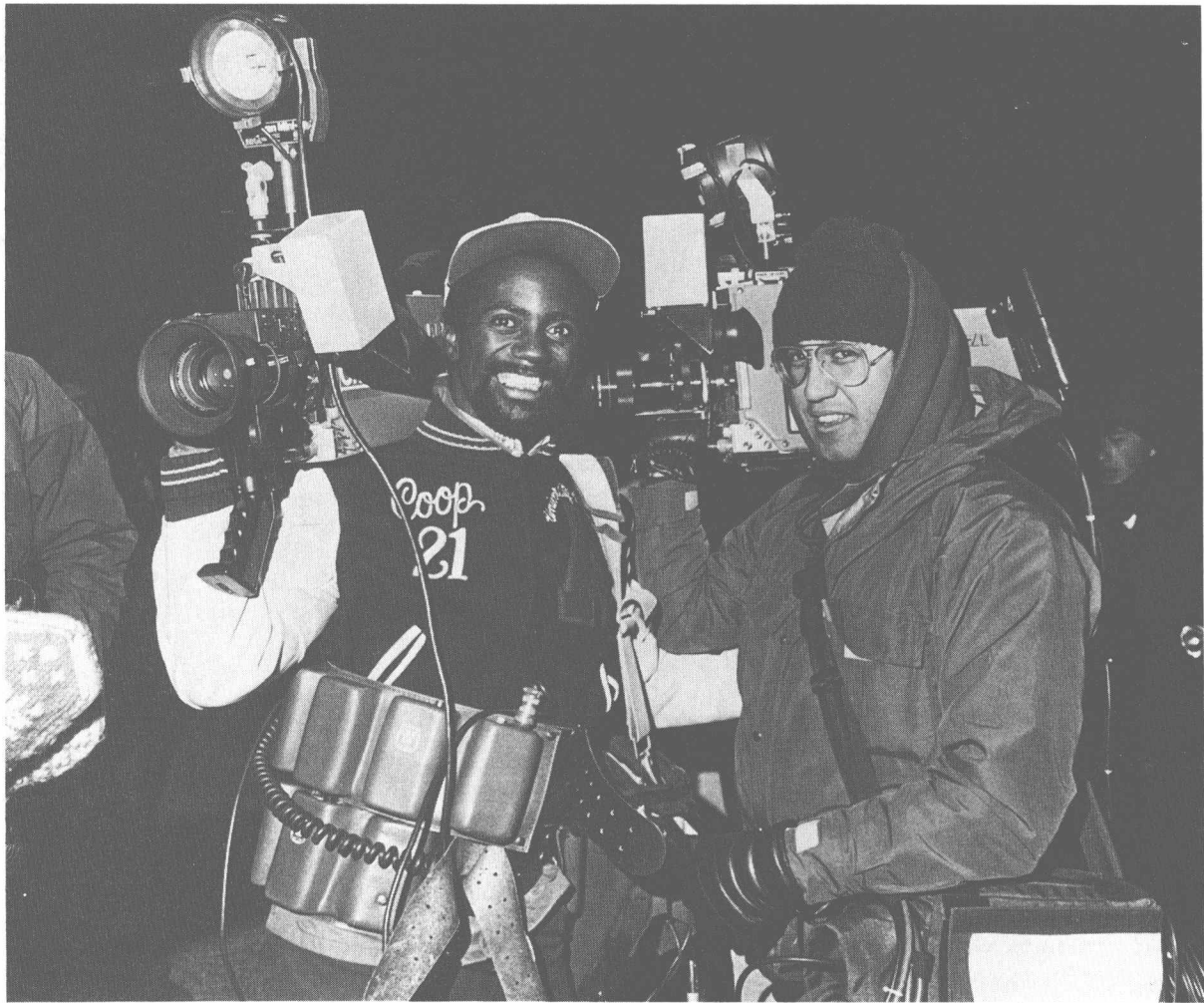
competition became fierce. Station and network management looked to any means to get a leg up on the other guy. The ability to get a breaking story on the air first epitomized the race in every way. Suddenly, that newly down-sized video camera and its videotape recorder were just what the doctor ordered.

The new-found portability of both the video camera and the videotape recorder that was being demonstrated at CBS and local stations like KNXT, KMOX, and WBBM in Chicago was now revolutionizing the film-dominated daily television newscasts in two very important ways. First, it was now possible for a videocassette of a breaking news story to be delivered to the station and, after just a few minutes of editing, be played on the air. Faster yet, the raw or unedited tape—which didn't have to be developed—could be put directly on the air allowing the viewer to see a live-to-tape presentation only minutes after it was shot. Second, because the camera was now electronic instead of mechanical, its video signal could be broadcast live from the field with little setup or fuss, aided by newly developed microwave technology. Live TV news on location was suddenly available to almost any station at a low price. That changed not only the look of the industry, but the various ways in which stories were covered, forever. This new form of acquiring pictures—and consequently the whole

business of television news—became known as electronic news gathering or ENG.

As the news ratings race continued at an ever-increasing pace, the demand for better, lighter, and more reliable camera gear also grew. Companies rushing to supply news departments with the latest advance in equipment began finding new outlets for their products. Mass production, better technology, and competition within their own industry had made video equipment cheaper and therefore more accessible to a wide range of users. Hospitals, government agencies, corporations, educational institutions, and independent production houses began to replace their film cameras with video cameras. The organizations that didn't have any production capabilities suddenly found producing their own projects on video to be cost effective because of the ever-decreasing price of video equipment and its ever-increasing quality. From hospital teaching tapes to TV commercials, any use of a single video camera with a portable videotape recorder that wasn't for a newscast became known as electronic field production or EFP. The similarities between ENG and EFP are many. Generally, the equipment and its operation are the same. Only the style of shooting often separates the two.

By the late 1990s, high-quality video camcorders (camera and videotape recorders in one unit) had not

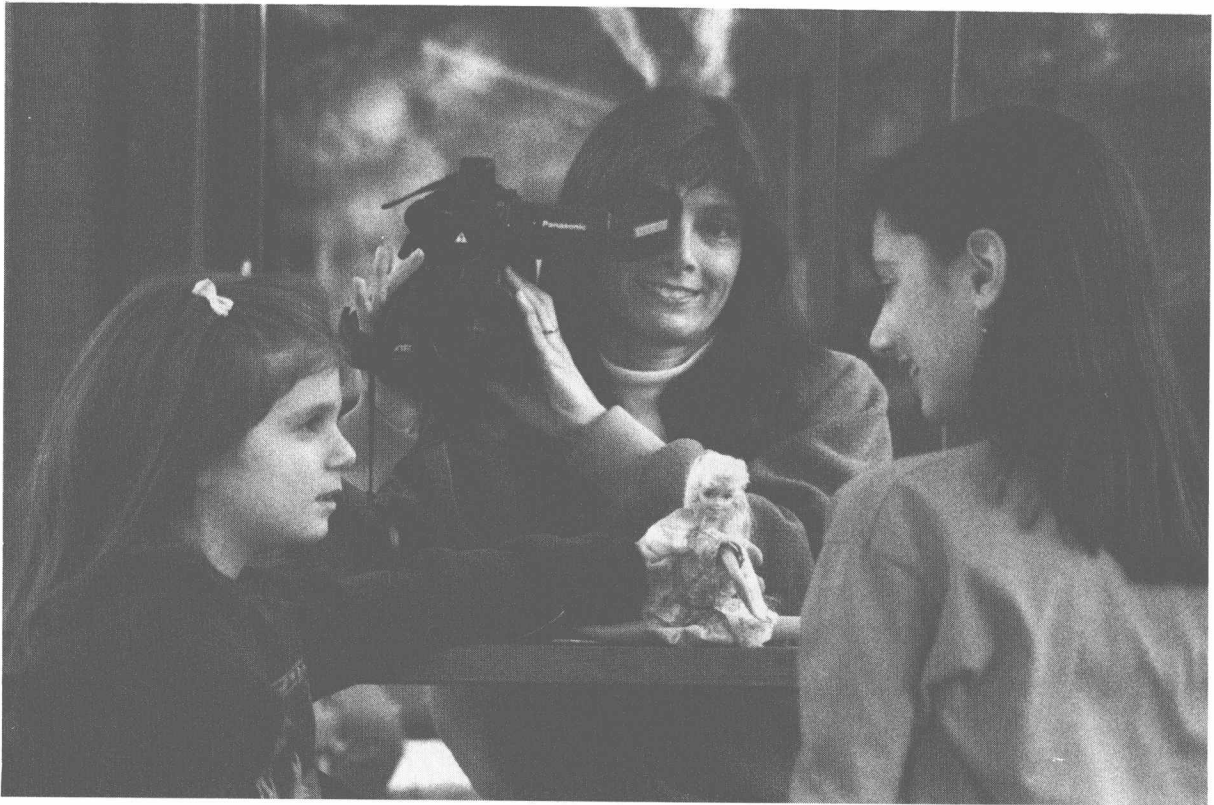


**Figure 1.2** News photographer in 1980. Each full set of gear weighed about 80 pounds. Photo by Joe Vitti.

only become affordable to the general public but had become commonplace. What this did was create a world where almost no event goes uncovered. Whenever something happens anywhere in the world, it is usually captured on video by someone. The most famous—or infamous—event was the police beating of Rodney King captured by an amateur photographer trying out his new camera from the balcony of his apartment. That home video began a chain of events that led to one of the worst civil disturbances in the history of the United States. It also secured the video camera's place as a powerful tool for a free society's ability to communicate. Some might say that that single moment was the culmination of the TV

revolution: the fullest realization of the power of television and its profound effect on society.

It is with this power in mind that the video professional sets about the job of creating both news and commercial product. Used properly and with ethical guidance, video can be the most persuasive means of communication regardless of the delivery system. Video is no longer just for broadcasting and industrial/educational uses but can be used by anyone in society. With broadening opportunities of streaming video on the Internet, anyone can have his or her own TV station. Learning and understanding the tools and techniques of the trade can make the video photographer an integral part of any modern com-



**Figure 1.3** Shooting home videos.

munication medium whether that's the networks or the Internet or an as-yet unimagined delivery system.

## **ELECTRONIC NEWS GATHERING: CAPTURING THE EVENT**

### **A Brief History**

In its purest form, ENG is the art of shooting news—photojournalism for television. It is the descendent of a long tradition of documenting events with moving pictures. Just like the still camera, one of the first uses of the motion picture camera was recording historic events. Cameras rolled as trench warfare consumed the European continent in World War I. Later, a more organized effort by news services would show movie-going audiences World War II via the newsreel. With the advent of television and its growing acceptance in the 1950s, newsreels were replaced by newscasts. The style of shooting had changed little from the fields of

France to Edward R. Murrow's reports beaming into 1950s living rooms. The camera operators were a very select group of people that followed a tradition from generation to generation.

TV news grew as an industry in the 1960s, and the style of shooting began to change. Up until then, the film cameras used were rather large and heavy, so most shooting was done from a tripod in controlled situations. Small hand-held cameras had no audio-recording capabilities and were used mostly in hard-to-get-to places, such as in airplanes or on battlefields. The lighter sound-on-film cameras of the 1960s, like the Cinema Products CP-16, allowed the camera operators greater freedom of movement without having to leave sound or quality behind. The handheld shot became more important. The cameraperson could now be part of the action like never before. The introduction of color-reversal film, which could be developed as fast as black-and-white film, added a new sense of reality to every newscast. But it was video that up-ended decades of tradition.



**Figure 1.4** Home video capturing dramatic scenes can sometimes be sold to local TV stations, network news programs, or other TV production companies.

At the network level and at most of the large local stations, when video cameras came in and film cameras left, so did many of the operators. People who were trained in the art of cinema and experienced in the business of journalism were suddenly replaced by engineers from the studio who knew how the electronics worked in the camera but nothing about “shooting” or journalism. News events couldn’t wait for these people to learn the craft, so stations and networks had to accept the new priority: just get any shot. The video revolution was not only painful to the displaced workers and confused managers but to the viewing public as well. Pictures on the evening news went from sharp clear images in realistic color to dull muddy visions with smears lagging behind moving objects and colors ranging from the garish to bright green. Sometimes it seemed that the operators were trying to master the technology first and find a good shot—or any shot—second. A lot of the respect for the pictures of TV news were lost when the film/video changeover occurred.

### TV News Photography Today

By the late 1980s, after more than a decade of struggling for acceptance, the video photographer had come into his and her own. Most people still believe film looks better than video, but the people shooting the video are finally on the same creative level as their counterparts in film. Tune in any network news magazine show and you will see state-of-the-art creative photography that just happens to be shot on video. There are still plenty of examples of bad photography in daily TV news programs. Their unavoidable inclusion in the newscasts stems more from the changing nature of the news business than anything else. The proliferation of news outlets, the relentless competition, and the almost unrealistic deadline pressures of live TV have allowed quality standards to become a secondary concern at times.

If there is one driving maxim in the ENG world today it is “Any image that can be recorded is better than no image at all.” To understand this statement,