

55,730,250 is *201 times* the number of U.S. external decoders sold in captioning's first decade. Again assuming that each decoder-equipped TV is watched by one person, and assuming that 90% of those people are hearing, the total hearing audience capable of watching captioned TV is 50,157,225 – that is, *181 times* the number of set-top decoders.

Hence, if slightly more than $\frac{1}{181}$, or 0.552%, of those hearing people watch TV with captions on, hearing people become the majority audience of captioning. And as successive years come and go, a lower and lower proportion of hearing people will need to turn their decoders on in order for hearing people to become the majority audience of captioning.

In Canada, the working assumption is that 90% of TVs 13" or larger do contain decoder chips even without a legal requirement. Using Canadian figures provided by the Consumer Electronics Marketers of Canada –

- 1993 TV sales of 1,511,000
- 1994 sales of 1,545,000
- Projected 1995 sales of 1,540,000

the number of decoder-equipped TVs in Canada adds up to:

$$0.9 \times (0.5 \times 1,511,000 + 1,545,000 + 1,540,000) \\ = 3,456,450$$

A somewhat optimistic estimate of the number of set-top decoders sold in Canada during captioning's first decade is 24,000. Thus by the end of 1995, using the same assumption as above (that 90% of decoder-equipped TV owners, or 3,110,805, are hearing), *129 times* as many decoders will be found in Canadian homes than accumulated in the first ten years of captioning. Hence if slightly more than $\frac{1}{129}$, or 0.775%, of those TVs have their decoders turned on, hearing people become by far the majority audience of captioning in Canada.

Remarks delivered at the Deaf Way
conference, Washington, D.C., July 1989

Joe C A P T I O N I N G T Y P O G R A P H Y
Clark Y e s t e r d a y , T o d a y & T o m o r r o w
 or, A Manifesto for High-Definition Captioning

§0 I N T R O D U C T I O N

Let us consider the phenomenon of captioning typography. Why? Because it is fundamentally true that captioning is a typographic medium. It takes the form of written words displayed on a screen, and for that reason, we should take typographic principles into account in all our discussions of captioning form.

But we cannot arbitrarily import the typographic conventions which are otherwise valid in different typographic contexts to the specialized milieu of captioning. As I have described previously in articles on captioning typography (Clark, 1989a,b), captioners must mix and match older typographic idioms from print with freshly-minted techniques created especially for captioning. The resulting amalgams vary in their levels of æsthetic and communicative success, but they illustrate exactly how important typographic techniques can be in differentiating captioning styles and ensuring the clear communication of a television soundtrack.

This paper offers a typographic manifesto for an enlightened captioning system – one designed for the high-definition television of the near future.

§1 T H E P R E S E N T D A Y

The captioning technology predominant in Canada and the United States is the Line 21 system, developed from the late '70s to the early '80s and a fixture of modern television since 1981. For all its utility as a basic captioning system, in the latter '80s the Line 21 approach has begun to show its age. Please understand that I do not mean the following remarks as criticism of the worth of Line 21 captioning as a means of making TV accessible to deaf persons and others. Rather, I hope to show that the more we put into a captioning system, the more we'll get out of it.

In fact, the appearance of contemporary captions has come to be determined as much by the limitations of the Line 21 technology itself as by the artistic choices of individual captioners. Let me show you some examples. Line 21 has obliged captioners to caption all but exclusively in uppercase (Figure 1) since the lowercase is illegible at prolonged reading (Figure 2). That illegibility is due largely to the lack of descenders on the lowercase letters (Overhead 1). Research has verified the obvious fact that reading extended text in all-captials is more taxing and invites more errors than upper- and lowercase text (Cf. Taylor and Martin, 1983).

Moreover, the colour choices of Line 21 are at best suspect, forcing viewers to read so-called "reverse" text – that is, text written in a light colour, usually white, on a black background. Yet it is a fact that a more commonplace dark-on-light arrangement makes for easier and more nearly error-

free reading, as attested by previous research in captioning (Harrison & Braverman, 1978) and simple common sense.

Line 21 places more subtle obstacles in the path to good typography. Italics are a significant problem in Line 21 captioning, since activating italics guarantees a blank space on either side of the italicized text. What sort of problems can result? Punctuation become italicized if it follows an italic string (Figure 3); it is impossible to italicize just part of a word without italicizing all of it or leaving a space; and successive caption lines have to be *manually* aligned on the left side, or “left-justified,” if one line begins with an italic word and the others don’t. This mandatory space around italics is a serious failing of Line 21 – not only because developers of closed-captioning were advised early on to avoid such a limitation (Blatt, Rosch, and Osterer, 1980), but because italics are used more often in captioning than in print.

From a Canadian standpoint, Line 21 typography is too underpowered to deal with the linguistic reality of television. Line 21 captions contain essentially no accented characters. Here are the accented characters included in first- and second-generation decoder fonts (Overhead 2); many characters are missing, and even with this range of characters, captioners cannot set either French or Spanish properly. Note that most of the accents are in lowercase, and consider the irony that captioners must set captions in *uppercase* most of the time. These facts conspire to make it effectively impossible to caption French and Spanish properly, either in upper- or lowercase. Proper captioning of other accented languages is just as difficult. As it is, French- and Spanish-speaking captioning viewers typically have to put up with unaccented captions set entirely in uppercase; Figure 4 shows what this looks like. (Take note of the ambiguities in this one caption alone – the words *sucre* and *aimé* have unaccented forms [Overhead 2] which are potentially ambiguous.)

There are other problems: National Captioning Institute (NCI) standards require the use of *italics* for embedded quotations instead of, say, single quotation marks, since the single-quotation-mark character is shaped like an apostrophe, as you can see in this text (Figure 5), and is deemed unsuitable for use as a single quotation mark. (Interestingly, the Caption Center at WGBH does not make that sort of exception.) Line 21 caption lines have a fixed border of black on all four sides, with the largest black spaces at the left and right ends. Captioners have little means of altering this background (as recommended by Verlinde and Schragle, 1986) – for example, when it is imperative to obscure as little of the screen as possible, or when the video image is extremely bright, calling for a more assertive background.

Captioners are severely limited in positioning of captions, the limits being four lines each at the top and bottom of the screen and at effective horizontal increments of four characters (Overhead 3). In other words, captioners cannot place captions just anywhere regardless of the demands of the program. The slow data-transfer rate of captions (at most two characters per frame) impedes captioning of music and other rapid text and makes bilingual captioning difficult. Finally, captioners must clear previous captions to add a new one.

§2 WHAT THIS MEANS

Regrettably, we must admit that Line 21 has serious design flaws which have interfered with the quest for typographic excellence in captioning. Knowing the problem is half the battle. Now we must consider ways to guarantee more exhaustive capabilities for future captioning systems.

By now everyone knows that high-definition television (HDTV) is forthcoming – in the next several years if not imminently. Regardless of the transmission standard(s) on which the authorities decide, HD transceivers and receivers and everything in-between will be densely computerized devices. As such, closed-captioning and closed-subtitling have a natural ally in HDTV.

From both political and technical standpoints, it is important that persons interested in captioning and subtitling worldwide *unite* to propose a standard for closed-captioning of high-definition TV, a system which I will call HDCC. This standard will crucially depend on hardware in each HD set. In my opinion, the most sensible plan is to require, by legislation or industry standard, that each HD set contain standardized hardware whose main purpose is the generation of characters. That means we should insist that each HD set contain a circuit board, or ROM, or other means to generate captions and subtitles.

That's hardly a new idea. Many commentators (*e.g.*, Estes, 1988) have called for built-in decoders in new, present-day NTSC sets. On the surface it sounds like a valid idea, but there is an important flaw. Let's look at the history of decoders. The initial Line 21 decoder, the TeleCaption I, sold out and was replaced by the more luxurious TeleCaption II. Developers at NCI modified the font, or typeface, of the TeleCaption II so that it offered a more refined appearance than the font of the TeleCaption I. A few accented characters were added, as you saw before. Yet the designers did not modify the crucial failing of the decoder font – the hard-to-read lowercase. The TeleCaption II font remains in force today in virtually all modern decoders. Moreover, NCI did not take the second opportunity it had to correct the many font problems when it designed its newest decoder, the TeleCaption 3000.

This is not to heap criticism on NCI or its engineers or subcontractors. Rather, I want to make the point that if decoders should become standard equipment on contemporary TVs, we would lose almost all hope of upgrading captioning technology between now and the advent of HD. Certainly the early TVs with built-in decoders, called Integrated Television Receivers, have not been upgraded, nor will they be, and certainly there has been no rush to alter the character set in the many free-standing decoders already in the field. Requiring a decoder chip or board in every present-day TV is the surest way to fossilize captioning at its present level of sophistication until HD comes along. It is a bad idea. But for HDCC, a built-in decoder is an excellent idea. Let us not turn to the capabilities which an HDCC system must have.

§3 TYPO-IMPERATIVES

Let us project ourselves into a fantasy world of the near future, in which we can design an HDCC system with all the necessary and desirable features we want. It makes sense to base our requirements on existing models – such as microcomputers, desktop publishing, other captioning and teletext services, typesetting systems – since adapting an existing technology is less of a challenge than reinventing the wheel. What features are required? Let's start with the most basic:

WORLDWIDE COMPATIBILITY

It will be wise to devise an HDCC system which can be implemented on all HD sets no matter where in the world they are manufactured and sold. An obvious reason for this is the cost saving which manufacturers will enjoy if they can produce for a very large market. It should not be difficult to devise an HDCC system which will work with all the HD formats which will ultimately be in place worldwide.

But an international system will require considerable forward thinking on the part of its designers. For example, we must not create a system which can set only English, as the Line 21 system is limited to doing. I'll have more concrete proposals later, but for now keep in mind that an HDCC system must be a venture of coöperation among different nations and cultures.

More interestingly, consider our requirements in...

FONTS

It's imperative that HDCC designers not repeat the sins which resulted in the borderline legibility and ugliness of closed-captions today. It will be a good investment to spend part of the HDCC development budget on hiring recognized digital typographers to adapt present-day fonts to HDCC work, or, better still, to design new fonts for this new medium.

What will we ask of these typographers? To provide a range of captioning fonts, in different scripts, which will satisfy a high standard of typographic utility and æsthetic excellence. Considering the resolution of high-definition TV, it would be reasonable to expect:

1. **At least two serif and two sansserif fonts** (Figure 6).
2. **Italics (not obliques) and small capitals for those fonts.**
3. **Variable size, within a certain range.** A size range analogous to 10-, 12-, 14-, 18-, 24-, and 36-point print typefaces would probably do; a similar range sufficed Monotype for decades and will probably last as long for us.
4. **Carefully-designed bold and extrabold versions of these fonts.** We should pay especial attention to the bolder weights of our fonts because bold fonts tend to be less legible than lighter weights, and because we can expect boldface fonts to be used extensively by discerning captioners.
5. **A monospace font** – that is, a font in which each character occupies the same space, as in the current Line 21 font or a typewriter font – in roman, bold, italic, and small caps. A monospace font is necessary for some tabular matter and discussions of computer programming.

That wide variety may seem lavish, but from a typographic perspective it is conservative indeed. It only seems lavish considering the poor quality of Line 21 decoder fonts. If we can find a way to extend the font capacity of HDCC beyond this minimum hardware complement, we should, since it is always better to have more choices than fewer. And we must take care that each font looks appropriate in all the languages it can set (Crawford, 1987; Hodgson and Sarkonak, 1987).

CHARACTER SETS

Since our fantasy HDCC system will have to function worldwide, we must plan to implement the widest conceivable range of character sets. Moreover – and this is a consideration which many people overlook – programs in one language often contain dialogue in another, which captioners sometimes have to either transcribe phonetically (as in the series *Shogun*), or write out without accents, or just sidestep by stating that a character is speaking, say, Chinese without captioning the exact Chinese wording.

HDCC fonts must therefore include:

1. **Latin alphabets.** We must be able to set every language written in Latin characters, from English to Icelandic to Welsh to Turkish to Vietnamese. There are several character sets to choose from – the set called *ISOLatin1*, preferred by Adobe Systems (Figure 7); the International Typeface Corporation set (Figure 8); or an amalgam, perhaps along the lines of the capacity of typesetting systems (Figure 9; Karow 1987). Accents must be available on both upper- and lowercase, and, for optimum flexibility, must be floating, not fixed (Figure 10).
2. **Cyrillic alphabets**, capable of setting all levels of all the languages written in Cyrillic alphabets, from Old Russian to Ukrainian to contemporary Russian. We need at least uprights and italics in these, if not several fonts.
3. **Greek**, including all breathing marks used until the recent simplification. These breathing marks, too, may be floating accents.
4. **Kanji and hanzi**, for Japanese and Chinese, respectively. Although at first glance it may seem a mind-boggling task to include umpteen thousand characters in a captioning font, it is a relatively painless procedure (Cf. Raike, 1986; Becker, 1984). The Japanese have already implemented such a captioning system (Akiyama, 1984). Any rare characters can be downloaded. Japanese and Chinese will probably read horizontally and left-to-right (and not vertically right-to-left) in an HDCC system for encoding convenience and based on the experience in Japan (Cf. Akiyama).
5. **Arabic.** A necessity for any comprehensive HDCC apparatus. We can employ the standard of Arabic typewriters (Figure 11), which is more linear and more easily programmed (Gleason, 1989; Cf. MacKay, 1986, Becker).
6. **Hebrew.** A relatively simple alphabet, but, like Arabic, it will require a predominately right-to-left writing direction.
7. **Pi characters.** For special characters, it is wise to implement the equivalent of the ITC Zapf Dingbats font as well as a pi font (Figure 12). We mustn't forget computer symbols and math characters, a full set of which will be handy. These pi characters must of course be visually harmonious with the text fonts.

Obviously some scripts are missing from this recommended repertoire – Korean, Thai, the many scripts of India. Yet the above alphabets will serve at least half the literate peoples of the world, and nothing stops us from downloading a Devanagari or a Hindi font if we should need it.

Finally, it's important to be able to combine any alphabets on any one line. Therefore a line containing English, Arabic, and Japanese, in that order, should be no problem for a well-designed HDCC system (Cf. Becker).

POSITIONING

HDCC must permit us virtually unlimited flexibility in positioning captions. If it should prove impractical to program HDCC to allow captions to be set anywhere on the screen, which is otherwise ideal, we could get by with a very tight grid – perhaps a grid which lets us set captions every 20 pixels, horizontally and vertically, all over the screen.

Character positioning on the line is a different issue. I mentioned floating accents before. Floating accents work because the accent characters are defined as having no width – something called a “dead key.” When you type a dead-key accent character, you do not move to the right, so that when you type the letter to be accented, the accent and the letter are superimposed. I suggest we provide for making *any* character an optional dead key, so that we not only can place an accent on any character, but produce mathematics more easily (Overhead 4).

TRANSMISSION

We must look beyond the American experience to determine how fast our captions should be transmitted. In Canada, it would be useful to be able to transmit at least English and French simultaneously; Europeans have already expressed a need to transmit five languages at once (Krizanic and Sestarikov, 1980). Even in America, such a capability would be highly valuable as captioning grows from a service for deaf viewers to a tool for literacy in different languages (Mehler, 1988; National Captioning Institute, 1983; Carney and Verlinde, 1987). Perhaps the children of Chinese immigrants would benefit from watching their favorite series with Chinese subtitles.

Transmission rates, therefore, should be set at the highest possible level so that at least five languages, in any combination, can be transmitted at once. Currently, the C1 and C2 channels of Line 21 captions are transmitted sequentially – C1 first, then C2. HDCC may emulate this procedure or transmit all channels simultaneously, as long as it is possible to display all channels on the same frame. Finally, there should be sufficient leeway in transmission capability to allow for the downloading of fonts, characters, and logos.

COLOUR-COÖRDINATION

Captioners in England today (Hawkins, 1982) and at WGBH in the '70s (Lyons, 1978) are proud of their use of colour in captions in such applications as speaker identification, though admittedly colourization is optional (Kerr, 1986). More locally, Line 21 captioners have been discouraged from colour-coding their captions for several reasons. First of all, of the NCI decoders only the Integrated Television Receiver can display colour captions; although the TeleCaption II decoder was to include this capability (Carney, 1985), it ultimately did not. Because so few viewers would benefit, captioners have been reluctant to produce minimal pairs of captions differing only by colour choices. Moreover, the colours available in Line 21 are limited, and not all of them are legible, especially given the invariable black background.

HDCC need not suffer the same restrictions. Simply put, captioners must have wide control over colour of text and the colour, dimensions, and opacity of background. Captioners should be trusted to judiciously employ a wide range of foreground and background colours, at least after some training. We can use one of the standard colour repertoires, such as the Pantone colour-reference system, or at least something with that range. It may be best to implement such colour routines in hardware. Finally, captioners should have control over the size and opacity of the background; it is not always necessary to add a background to caption text, and in some cases a translucent background obscures the least amount of the picture without reducing the legibility of the caption (*Cf. Blatt, Rosch, and Osterer*).

ROOM FOR EXPANSION

Finally, we must provide enough room in the data-transfer rate and in memory to download fonts, logos, and special characters, perhaps during moments when the captioning channels are unoccupied.

§3 POLITICS AND MONEY

All these plans will require not just money but a unity and strength of will for which the captioning industry is not noted. Select any two captioning firms in Canada and the U.S. at random and you will probably find that they do not get along. The National Captioning Institute has the most money and power, and NCI sets the largest number of trends in captioning.

Yet so far NCI has not shown much interest in planning for the inevitable future of high-definition television. It seems to me that this reluctance is shortsighted and dangerous. It was only by good luck that Line 21 was free for use in closed-captioning, and only by luck that consumer video equipment could read Line 21 data. As I have demonstrated already, Line 21 captioning technologies seem to have been thrown together with little expert typographic planning. We must not make the same mistakes again, nor must we rely on good luck to shine on us when we come to implement a closed-captioning system for HDTV.

I therefore call on all interested individuals and firms in the fields of captioning, subtitling, deafness, HDTV, accessibility, literacy, linguistics, and typography to *unite* to form a coalition which will produce a worldwide standard for captioning of high-definition TV. We may apply to become a subcommittee of some professional organization – like the Society of Motion Picture and Television Engineers, or the International Standards Organization – or we may stand alone, but no matter what we do, we must come together to secure funding and legislative backing for implementing the very highest quality captioning and subtitling system for high-definition TV.

We must start to work now in order to organize all the technical and aesthetic details and to deal with the political necessities of pressing for standardized hardware and software. We owe it to ourselves to start to work now on this, the wave of the captioning future.

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Joe Clark • 214 Donlands Avenue, Toronto, Ontario • (Canada) M4J 3R1 • (416) 469-1345. May 1, 1989.

Compared with the Nikon F4, the Canon RC-250 is a relatively simple, straightforward design. Weighing about 20 ounces and resembling a pair of binoculars or a smaller version of the Chinon Genesis "new concept" camera, the RC-250 is the first camera designed to give the consumer electronic still imaging. (Earlier, still imaging systems were relatively large, complex and expensive, designed for professional users.)

As a camera, the RC-250 has all of the standard 35mm features: an f/2.8 lens, automatic exposure control, shutter speeds from 1/30 to 1/500 second, built-in electronic flash, etc.

The most important difference is that the RC-250 uses a standard floppy disk to produce 50 exposures instead of using conventional film. The unexposed disk is inserted into the camera and automatically advanced to the first frame. Set the main switch to the "record" position, look through the viewfinder and, when everything is ready, press the button.

To see the picture, connect the RC-250 to a television receiver the same way as a videocassette recorder. Set the switch to "play" and the first frame appears on the screen.

Press the camera's "forward" button to advance the frames and press "reverse" to review earlier frames. Unwanted images can be erased: Slide the main switch to "erase," press the "forward" or "reverse" buttons to find the desired frame, then press "erase mode" and shutter release to erase the frame.

When a partially exposed disk is loaded into the camera, it is automatically advanced to the blank track following the highest-numbered exposed track.

The camera has an automatic exposure range of EV 8 to EV 18. A special feedback automatic exposure system compensates for the fact that CCD image sensors used for electronic recording have smaller exposure latitude than silver halide film. Thus, once the sensor determines lens aperture and shutter speed, the reading is checked to determine whether it falls within the CCD's latitude. If it doesn't, the shutter speed is adjusted so that correct exposure can be made.

Accurate color reproduction is provided by an on-chip RGB pure color stripe

built-in flash which fires when the light level is at EV 8 or lower. The flash unit can be turned off for low-light "available light" pictures or used manually for fill-flash in bright-light shooting.

To this reviewer, the question regarding the RC-250 is how consumers want to view images. While the technology for producing hard copy (prints) from electronic still images is available, it is not easily accessible for the average user. Until it is possible to bring a video disk to the nearest photo shop or drugstore and come back with a set of prints, the appeal of electronic still imaging will probably be limited.

The price of the camera—approximately \$800—would also seem a handicap. And one must point out that it is possible to get instant images via Polaroid cameras for well under \$100, while a conventional 35mm camera of similar capabilities would cost not much more than \$100.

But practical considerations aside, the Canon RC-250 does provide a preview of how electronic still imaging will be made available to that perhaps mythical, but oh-so-important, "average consumer."

TV Captioning

Continued from page 101

word when the product and logo fill most of the screen. Then, a caption designer captions only the extra word followed by an ellipsis.

Because commercials reproduce very rapid speech, captions appear and disappear faster and can dance around from corner to corner and top to bottom in a visual antiphony. Commercials are hard to caption, but watching a well-captioned spot is a rewarding experience. A rapid-fire commercial—with captions that are long enough to be sensible but short enough to avoid covering too much of the action, timed to exactly correspond with scene changes, and set so that it's easy to figure out who is saying what and how—is a rare example of the union of typographic art and science. It's here that the distinctive pleasure of captioned TV is most intense, combining art, communication, and living language in a one-of-a-kind medium which, for once, makes TV and reading more than just passive activities.

'Cold Eye' fan

To the Editors:
I always enjoy "A Cold Eye" after a quick flip through it's the first thing I read. ing PRINT since the day subscription—it has so offer than the elegant Arts . . .

Gay-baiting article?

To the Editors:
I was appalled that PRINT drew Sullivan's homophobia "Flogging Underwear: Chinese of American Art" (June 1988), which first New Republic.

AIDS activists have Sullivan for his offensive metaphor, and he has (see New York Native incredible that the ed Republic did not strip slur. I find it even m the editors of PRINT, prominent journal fo has lost many mem epidemic, would repr spirited metaphor. deaths of more than epidemic that has co homes, livelihoods, idea of critical analysi

But Sullivan's of stop with his AID rather incoherently ticle also reeks of gests that there is e companies which c lesbians comprise market share and v market. Anita Bry cruit"; Sullivan, u metaphor, argues ing" the average with homoerotic ; with right-wing g the Media who b ment should tell u ing to create.

Sullivan also r phobic saw: dec

Typography and TV Captioning

By Joe Clark

Closed captions represent a significant technological advance, but the quality of the type design has lagged behind. Here is a state-of-the-art report.



2

Typography, like many of the graphic arts, is a rather static medium. By its very nature, the printed page tends to limit the liveliness of type. But that isn't so on television, where technology helps letters come alive in ways the printed page can't reproduce. That's especially true in one particular video art—television captioning, or subtitling programs for the hearing-impaired.

Everyone knows that TV is a tremendous source of information and entertainment, but until recently deaf persons knew this only intellectually. Unable to hear part or, often, all of the soundtrack, the hearing-impaired viewer is cut off from much of the meaningfulness of television. The impact of TV depends largely on sound, and captioning is the best way to represent that component for a deaf audience.

The concept of captioning films for deaf viewers is decades old—British producer J. Arthur Rank exhibited a film with offscreen captions in London in 1949—but captioning did not become popular in North America until 1977, when WGBH-TV, the Public Broadcasting Service station in Boston, telecast an episode of “The French Chef” with captions. The captions, which looked much like the subtitles of a foreign-language movie, were usually placed at the bottom of the screen and were set in a font resembling a cross between Helvetica and Franklin Gothic. This experimental captioned show was a success and led to the establishment of the Caption Center at WGBH, North America's first company in the business of captioned TV.

The respected work of the Caption Center—its nightly rebroadcast of the ABC evening news attracted a large following—set a real precedent for captioned programming, and soon the deaf community began to lobby for more and more captioning. But there were problems. Not only was the Caption Center unable to accommodate the demand, but also many hearing viewers complained that the captions were distracting. At that time, captions were “open,” or visible on every set. Open captions had many advantages—different fonts and colors were available, for example, and anyone with a TV set could watch them—but their “openness” was their undoing. Unwilling to alienate the mainstream audience, broadcasters widely refused to air open-captioned programs. A better way had to be found, one which

could accommodate both hearing and deaf viewers with equal ease.

Technology came to the rescue in the form of “closed” captions, computer codes transmitted along with the picture which become captions only if the viewer connects a special “decoder” to his or her set. Similar to a cable converter, a decoder translates the caption codes into characters which then appear on the TV screen. Through closed captioning, a program can be enjoyed by deaf viewers with captions and by hearing viewers without.

Closed captioning held such promise that the non-profit National Captioning Institute (NCI) was formed in 1981 specifically for closed-caption TV programming. NCI was soon followed by a northern counterpart, the Canadian Captioning Development Agency (CCDA), which executes most Canadian captioning, as well as a few small firms in both countries. (Caption companies do nothing but *create the captions* for pre-recorded programs; they are not responsible for other aspects of a program's content and production.)

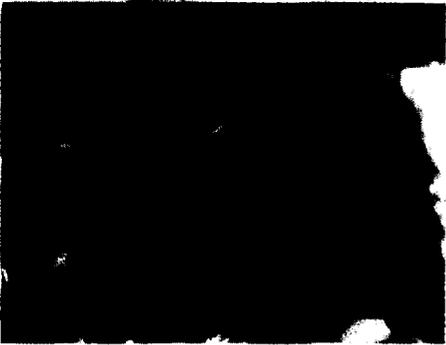
All these businesses caption pre-recorded programming in about the same way. Armed with a special videocassette, and working from a script or transcript of the program, the captioner breaks up the dialogue and other text from the show into captions of up to about 30 words in length. Then, the captioner makes decisions, based on the standards of the captioning firm where he works and the needs of the program, about where the captions will be located on the screen, what they will say, and when they should appear and disappear. With all this information entered into a computer, a new master version of the program is created with the caption data “encoded” into a special portion of the TV signal which is invisible on normally adjusted home TV sets without a decoder. Encoded captions require up to 40 hours of work for a one-hour program.

While closed captioning has been a big success, it has nevertheless engendered certain typographic compromises. Here, because caption design offers clues to meaning in unique ways, type and layout aren't just a matter of esthetics. Unfortunately, however, the potential of caption design lies unexploited because of the low standards at most captioning firms.

Home decoders are what actually gen-



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16.

13-16. A song-and-dance-in-a-thunderstorm commercial for 7Up, captioned by the Canadian Captioning Development Agency. The [♪♪♪] in Fig. 13 is superfluous since the singing doesn't start till the next scene. According to CCDA custom, the only end punctuation is at the finale of the song (Fig. 16), where the exclamation point is essential. These captions are ambiguous: The singer in the commercial is actually offscreen, so a more rigorous captioner might have set the lyrics in italics. In Fig. 14, the caption is displaced to the right slightly to avoid covering the product.

erate the characters that captioning viewers read. Built into each decoder is one and only one uniformly spaced, dot-matrix captioning typeface with italics, underlining, and a very few special and accented characters. There have been several generations of decoder fonts, with more recent decoders offering a somewhat wider range of characters and a less ragged look. But because there is only one font at a captioner's disposal, issues of typographic design in captioning have more to do with layout than font selection.

Captioning fonts, for many reasons, are far from perfect. Because of the lack of a complete set of accents, the fonts can't do justice to languages other than English. Captions consist of light characters on a black background, quite the opposite of what readers are used to. Worse yet, captioners are virtually forced to caption in upper case because the letters *j*, *q*, *y*, *p*, and *g* in the captioning fonts' lower case have no descenders. In these ways, closed-captioning contradicts a basic tenet of text design: For extended text, use dark-on-light type in upper and lower case.

Responsibility for these problems lies with the original North American design engineers, who have admitted that font quality was dictated by a desire to cut costs. If anything, the design of the captioning typeface should have been paramount, since good typography has everything to do with good captions, and if caption companies are serious about their type, they will contract with typographic design firms to design future generations of captioning typefaces. A good example to follow is the British Broadcasting Corporation, whose subtling and captioning fonts, designed by the Department of Typography at the University of Reading, are a paragon of legibility, parsimony, and suitability for the medium.

Generally speaking, TV captioning has three basic responsibilities: speaker identification (since the deaf viewer can't necessarily rely on voices), faithful rendition of the audio, and accurate timing. Of these, speaker IDs are the hardest to get right. Unlike subtling in foreign films, it's part of the captioning idiom to move captions around to denote who is speaking. *Alignment* of a caption is a basic way to identify a speaker. The very logical open captioning produced in the '70s by the Caption Center helped estab-

lish the convention that centered captions suggest a speaker above the axis of symmetry, while flush-left and flush-right captions suggest speakers at screen left and right, respectively.

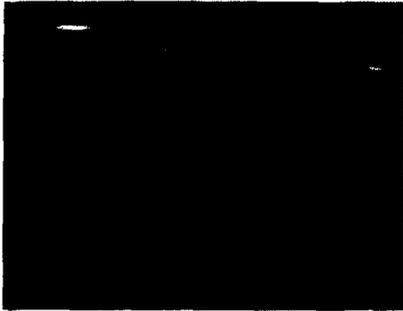
All well and good, but closed-captioning technology gets in the way of clear IDs. Captions can't go just anywhere; they are limited to four lines, each up to 32 characters wide, at the top of the screen and four more at the bottom. Furthermore, captions meant for the original decoder model*—as captions typically are—can be positioned only every four characters apart on each line. Most captions are flush left; centering is possible, but only in four-space increments. Right justification is practically impossible. With these constraints, captions alone frequently fail to make it clear who is speaking, particularly when the speaker is at screen right or part of a group.

Identifying a speaker involves a mix of philosophy and typography. The National Captioning Institute feels, without much evidence, that even hearing viewers cannot really tell who is speaking by voice alone; so, as Linda Carson, executive director of production at NCI, explains it, "we only show a *change* of speaker." NCI captioners usually show such a change by moving successive captions to the left or right in rough relation to where the actors are situated in the frame. Such captions look like left-justified blocks moved en masse to the left or right. When the speaker is extremely ambiguous, NCI places the name of the speaker in brackets—[DIANE], for example—and usually on a different line.

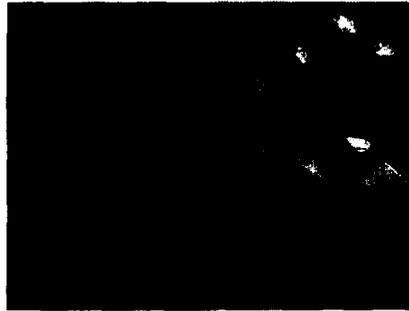
NCI's somewhat rudimentary design works well most of the time, though when captions move quickly, the practice of setting off commentary and speaker IDs with brackets just isn't distinctive enough. The Caption Center, on the other hand, operates under a different philosophy; for them, it's important to clarify not only that the speaker has changed, but who the new speaker is. The Caption Center is much more apt to use an explicit speaker ID, and their typography is more elegant; for example, **Diane:** in upper and lower case on its own line, with a colon for extra clarity.

By comparison, the Canadian Captioning Development Agency's standards are truly bizarre. Like NCI, CCDA believes it's necessary to show only a change of

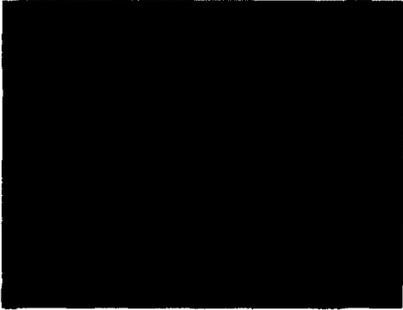
* There are several models of closed-caption decoder on



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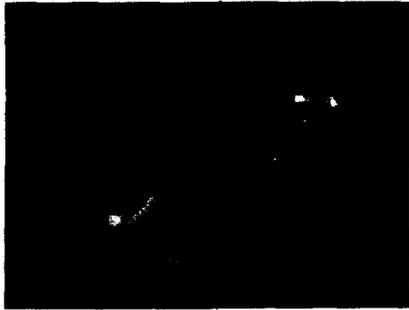
4.



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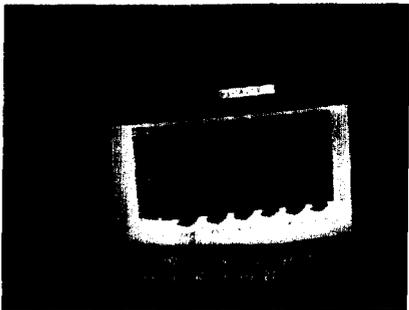
5.



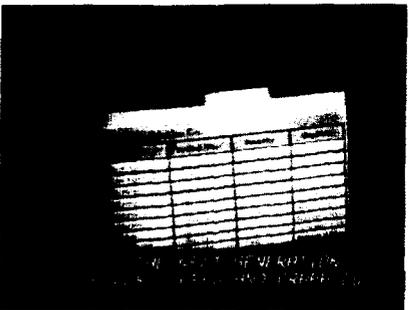
10.



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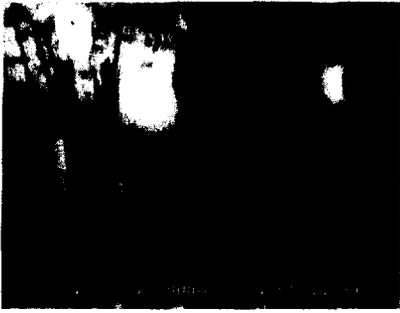
11.



1. The National Captioning Institute's registered service mark identifying the programs which they (and only they) have captioned. This symbol is recognized throughout the television industry. Designer: Cheryl Kaplan, Diana Graham/Graphic Design, New York.

2. The Caption Center's logo for closed-caption programs. This design is not copyrighted and may be used to identify any closed-captioned program. The legibility suffers somewhat in small sizes, but the "CC" within a television frame is immediately understandable.

3-12. Commercial for a microcomputer in which the actor's versatility suggests the computer's flexibility. The telephone rings (note Caption Center's standard style for sound effects: lower-case italic between parentheses) and the actor changes his voice with each call to make believe he is more than one person. In Fig. 8, we know the narrator is speaking because the captions are italicized. In Figs. 9-11, the captioners did the sensible thing and wrote out the voice changes; the colon isn't really necessary inside the parentheses. Note also that "gravelly" is misspelled.



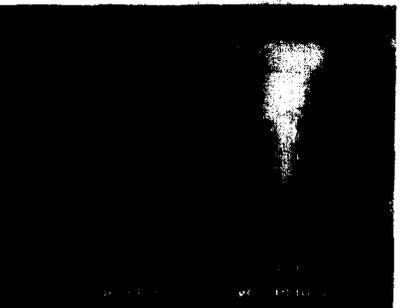
17.



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speaker, though CCDA feels there's enough difference between a left-justified block of caption text and a *centered* block to do the job. But since centering occurs only in four-character increments, it is approximate at best, and many centered captions look like left-justified captions. On the whole, CCDA's captions make it far too difficult to tell who is speaking from the caption alone, a double failure of typography and philosophy. CCDA also disregards esthetics (not to mention the alignment conventions of all the other captioners) when it blithely sets captions shaped like a parallelogram—that is, not centered and with ragged margins on both ends. To make matters worse, CCDA's explicit speaker IDs look like [DIANE]: with extra spaces inside the brackets and an unnecessary colon thereafter. CCDA doesn't always have the good sense to set such an ID on its own line, choosing instead to run the ID and the text together on the same line. With analogues neither in print nor in other captioning, CCDA's captions are a typographic disaster.

As if everyday speaker IDs weren't complicated enough, offscreen speakers need their own typographic protocol. Narration is commonly captioned in italics, as are the words of a speaker who is hidden (behind a closed door, for example). Using italics for hidden speakers is a typographic custom unique to captioning. Usually, though, offscreen speakers have to be identified by name, as do sound and voice effects, part of the second responsibility of captioning. Many sounds—phone ringing, thunder, knock on door—are pertinent to the story, so they too must be captioned.

Situations like these give the captioner a chance to test the limits of closed-captioning typography. NCI captions sound effects and other commentary the same way it captions explicit speaker IDs—in capitals, between brackets. A thunderclap would come out as [THUNDER] in the NCI framework. CCDA goes one worse with [THUNDER]—there are those strange spaces again. The Caption Center's conventions, on the other hand, are more sophisticated, with all commentary in lower-case italic between parentheses: (*thunder*). (The decoder forces a blank space around italic text, so the spaces between the parentheses are unavoidable.) The Caption Center is freer in its use of commentary and more eloquent in such

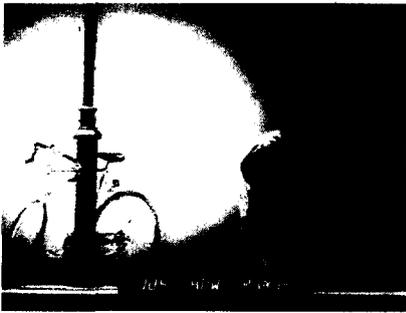
text, giving a hearing-impaired person an experience more nearly equivalent to that of a hearing viewer. The Caption Center's sense of layout—its care to accurately position captions, to disambiguate speakers, and to cleverly notate audio effects—sets it apart from other captioning firms. The Caption Center's work is by far the best of the North American captioning firms. It is a model of economy, style, logic and lucidity.

Timing, the third responsibility of captioning, is quite a dilemma. Since captions are set in the written word to represent the spoken, captions reside in a puzzling never-never land of language. Speech is faster than reading, so some editing and timing changes have to occur to let the viewer read the caption in about the time the character takes to speak. The challenge is then to edit the speaker's words and retain both the meaning and the flavor. Where necessary, sentences are excised and terms are rearranged; occasionally, misguided captioners delete individual words under the incorrect assumption that people read word-by-word. (Does it really make sense to abbreviate the traditional wedding vow to "for better, worse, for richer, poorer," as NCI once did? Is CCDA's change from "I knew you had it in you" to "I knew it was in you" worth it to save one word?)

Captioning problems are often multi-layered—most prominently in the case of music. The convention is to bracket phrases of music with cute characters called staff notes (♪), which resemble eighth notes in traditional music transcription. However, for copyright reasons, songs usually can't be edited at all. Furthermore, music relies on tempo, something difficult to render given the slow transmission rate of captions and the limits of human reading comprehension. Songs, a special form of language, need their own special captions, but to date no captioner has made a special effort to represent singing. Though it means extra work, there would be real benefit in fine-tuning the points at which captions appear and disappear to suit the speed of the song.

In fact, music captioning reveals one way captioners have adapted conventions of typography to suit the medium rather than adopting a more innovative approach. NCI and CCDA both believe that musical phrases do not need end punctuation, though both firms will cap-

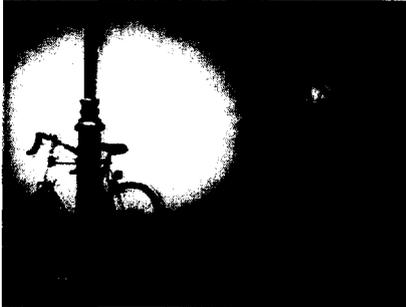
17-20. In this United Kingdom commercial for Heineken, a satire of black-and-white Eastern Bloc art films, the actors speak in Czech with English subtitles in the first half, and Cockney English with Czech subtitles in the second half. The BBC uses the font shown—complete with proportional spacing, upper and lower case, and variable colors—for its subtitling and captioning. A very important advantage of the BBC font is its enormous range of accented characters.



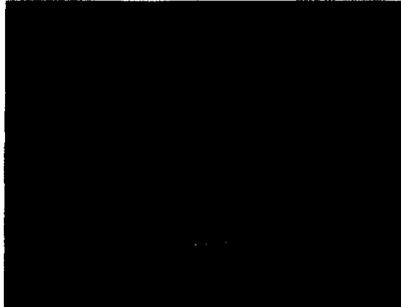
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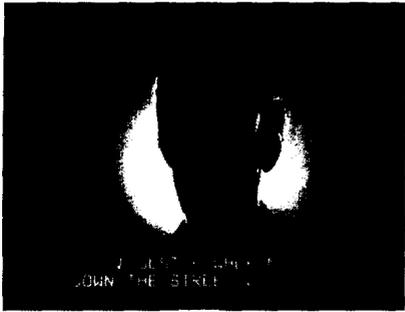
25.



30.

21-30. Commercial for Minute Maid, in which oranges cascade from every corner to show how intensely orange the soft drink is. *Italicized captions in Figs. 21 and 22 show that the narrator, not the actor, is speaking; note the centering in four-space blocks (Fig. 22).* As the commercial proceeds, a range of sound effects is introduced, all of which the National Captioning Institute captions as descriptively as it can, given the fleeting nature of the images. As the oranges pile out of the elevators (Fig. 25) and bump into each other, viewers see how captioners typically show simultaneous speech—in discrete little caption blocks. In this case, it really isn't important exactly who said what, so caption placement isn't critical. Finally, the captions follow a man as he runs from left to right down the steps (Figs. 29, 30).

31-35. Commercial for Canada Dry features Grace Jones singing "Ain't She Sweet." Note the eighth-note characters which indicate music. The captions are set at center bottom since it's obvious who is speaking. The Canadian Captioning Development Agency's annoying habit of setting parallelogram-shaped captions (not centered and with no flush margins) shows up in Fig. 31; captions like this look more like mistakes than design. CCDA omits a lot of punctuation: Figs. 32 and 33 need a comma and quotation marks. The double eighth notes denote the end of the song, but look out of place so close to a single eighth note. In Fig. 34, CCDA moves the caption to screen top to avoid obscuring the product. It could, however, have been made to fit at screen bottom on the right. Here, the actress is humming a tune—a significant fact not necessarily obvious to the deaf viewer. (There are such things as insignificant sound effects, but this isn't one of them.) Here, we see CCDA's unique and unattractive practice of setting spaces inside the brackets. The lack of accent marks, an annoying fault of North American closed-captioning, is also evident. Fig. 35 shows how French looks in white-on-black upper-case letters without accents; note that the second line is indented by four spaces, which is the smallest increment closed captioning allows. (The black spaces at the extreme ends of each line are part of the technology.)



31.



32.



33.



34.



35.

tion a question mark or an exclamation point if it's essential. Only the Caption Center punctuates songs as if they were everyday sentences. Moreover, the Caption Center notates mood music quite intelligently: jazzy background music comes out as (♪ *soft jazz* ♪). But strangely, the Caption Center never sets a comma at the end of a caption—not even before a quotation mark—because, as Caption Center director Mardi Loe-terman puts it, “in the decoder font, the comma looks like a period. When a comma is absolutely necessary for the meaning, we use an em dash.” (By that logic, most commas could be mistaken for periods. So why not eliminate them altogether?) For no good reason, NCI and CCDA end the last caption of a song with two staff notes (♪ ♪), ostensibly to show that a song has ended. (Then why not start *and* finish each song with two staff notes for symmetry's sake?)

Some other typographic innovations are very sensible. Consider an actor reading aloud from a book. NCI devised a clever means of notating that the text is a quotation: If the quotation spans more than one caption, all captions but the last have a quotation mark at the beginning but none at the end. The last caption in the quotation reverses the procedure, with a quotation mark at the end but not the beginning. (The Caption Center follows suit in its captioning, while CCDA senselessly surrounds every caption with quotation marks, making each caption look like a discrete quotation of its own.) This paradigm is an effective expansion of the convention, familiar in print, of writing all but the last paragraph of a long quotation with a quotation mark only at the beginning.

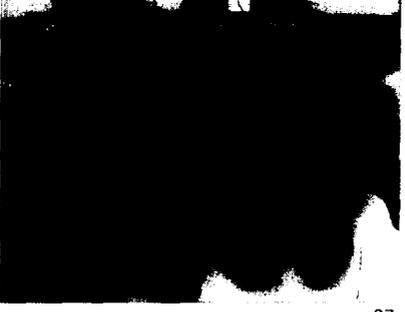
Like the exception that proves the rule, one category of programming—commercials—often forces captioners to flout captioning customs. By convention, captions for commercials must be verbatim, but they must also avoid covering up the product, onscreen titles, copyright lines, and logos. These constraints are considered more important than standard speaker identification, so captions can go wherever they fit. Captions may be omitted only when a title and the narration are identical, although often (maddeningly) the two differ by only *one*

Continued on page 156

Joe Clark is a proto-captioner, proto-typographer, proto-linguist, proto-man-about-town in Toronto. Before the publication of this article, he was a proto-writer.



36.



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38.



39.

36-39. In this commercial for Ontario Racing, even though there is ample room at the bottom of the screen for the captions, CCDA sets them at the top. Logic suggests that covering up wardrobe would be less jarring than covering up a forehead. This series illustrates CCDA's bad habit of italicizing arbitrarily (Fig. 36). Finally, Fig. 39 shows how CCDA very sensibly avoids obscuring the on-screen graphics by pushing the caption to the right.



Reading the Silver Screen

■ A decade's worth of legwork and consciousness-raising sparked by deaf and hard-of-hearing viewers brought captioning to all genres of TV programming, from newscasts to music videos. The campaign has been so successful that, by law, decoders to translate closed-caption signals into words visible onscreen are now built into all U.S. TV sets with screens at least 13 inches in diameter.

But if you have a hearing problem and want to watch the latest Hollywood film at your local cinema, you're out of luck. You're forced to wait for the home video to appear, and even then it might not be captioned.

Researchers at the National Center for Accessible Media (NCAM), a research group at WGBH, the Boston public broadcasting station, are fine-tuning several technologies to break the cinematic sound barrier for deaf and hard-of-hearing moviegoers. In late 1992 NCAM launched its Motion Picture Access Project after receiving countless complaints about uncaptioned first-run films.

The easiest solution would be open captioning, which all viewers would see. But conventional wisdom holds that hearing people resent captions. Witness the reluctance of major studios to release subtitled foreign-language films. Captioning for motion pictures has to be as unobtrusive for hearing moviegoers as it is useful for deaf and hard-of-hearing viewers.

Armed with a small grant from the Department of Education, NCAM engineers spent most of 1993 developing prototype movie-captioning systems. They faced a host of practical constraints, says Larry Goldberg, director of NCAM. First, because each device might be used



by thousands of people, it would have to be all but unbreakable and impervious to what the rigorously scientific minds at NCAM call "cooties." It must also work virtually anywhere in an auditorium "so you wouldn't have to have a specialized deaf section in the theater," he explains. Finally, it must be readable, comfortable, easy to use, and above all, cheap enough that stingy theater owners would buy it and sticky-fingered moviegoers wouldn't steal it.

A few months of brainstorming resulted in three trial technologies:

- *Virtual Vision glasses:* Initially developed as a kind of video Walkman for portable TV-watching, the Virtual Vision system

includes an oversized pair of eyeglasses and a small liquid crystal display that sits at the very top of the glasses and faces straight down. Captions are created by a computer and sent to the display through cables that tether the glasses to the seat. Through lenses and a mirror, the captions on the display are reflected onto the eyeglasses so that as the wearer looks at the movie screen, the captions seem to float in midair.

- *A seatback display:* This configuration consists of a vacuum-fluorescent display attached to the back of the seat in front of the viewer. The system—familiar from many supermarket cash registers—produces bright green dot-matrix characters that form the caption text by selectively energizing wires treated with a phosphor coating that glows when electrified. Users can adjust the height of the device as they would the head restraint in a car to place it within their visual range, thus avoiding hundreds of double-takes between movie screen and caption display.

- *A rearview display:* In this setup, a large light-emitting diode (LED) display located at the rear of the theater displays captions in mirror image. The user sees

the display reflected in a clear plexiglas panel mounted on an adjustable stalk attached to the arm of his or her seat while simultaneously watching the movie through the glass.

NCAM ran a field test of these technologies at a 65-seat Boston movie house showing *Sleepless in Seattle* and *In the Line of Fire* in October 1993. Audiences included hearing viewers as well as hard-of-hearing and deaf volunteers "because we wanted to see what hearing people would think if they were going to a theater with these devices around them," Goldberg says.

The systems received mixed reviews. When adjusted properly, the Virtual Vision glasses were highly readable and not distracting to other moviegoers. But the glasses need careful setup because they are designed to project virtual captions for a person's dominant eye. Thus, a person would have to know which eye is dominant and request a left or right-eye version, and theater owners would need stocks of each on hand. Moreover, because the glasses are expensive (retailing for \$700 apiece) and contain high-tech components, they're very much worth stealing.

Wearing the 5-ounce glasses through a two-hour movie also took its toll in simple fatigue, particularly for people who already wear glasses. The cables were another annoyance.

The seatback display was bright and readable. But it blinked and flashed when the captions were changed, which distracted hearing viewers seated nearby.

The rearview display was dirt cheap, low-tech, and easy to use, but not as bright or readable as the other options.

It was also difficult to read the LED display on the rear wall, and the jostling that occurs in a crowded theater. Still, Al Sonnenstrahl, a deaf person who tried each of the captioning systems, seemed most impressed with this option, finding it flexible enough to move to a comfortable viewing angle and both reflective enough to read the captions at the rear of the theater and transparent enough to see through the captions to the screen.

NCAM plans to conduct larger-scale tests on all three options in the next two years, says Goldberg, before deciding which one to release. In the meantime, researchers are working to improve the technologies. Adaptations to Virtual Vision glasses—such as reducing their weight and eliminating their

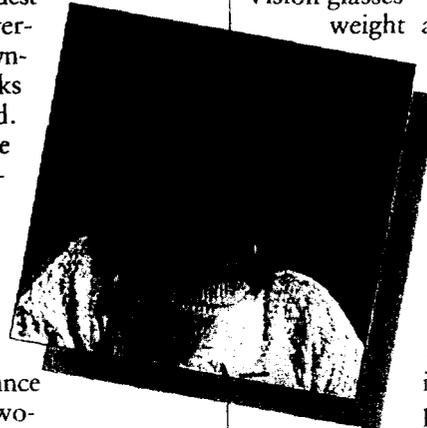
cables—are unlikely given that they would involve sophisticated, and therefore prohibitively costly, components.

NCAM designers hope to make the seatback display less obtrusive by reducing its size, perhaps to the point of making it portable. They also plan to test a grooved coating for the screen that channels the image to a narrower viewing angle, limiting the sideways spill of light from the display.

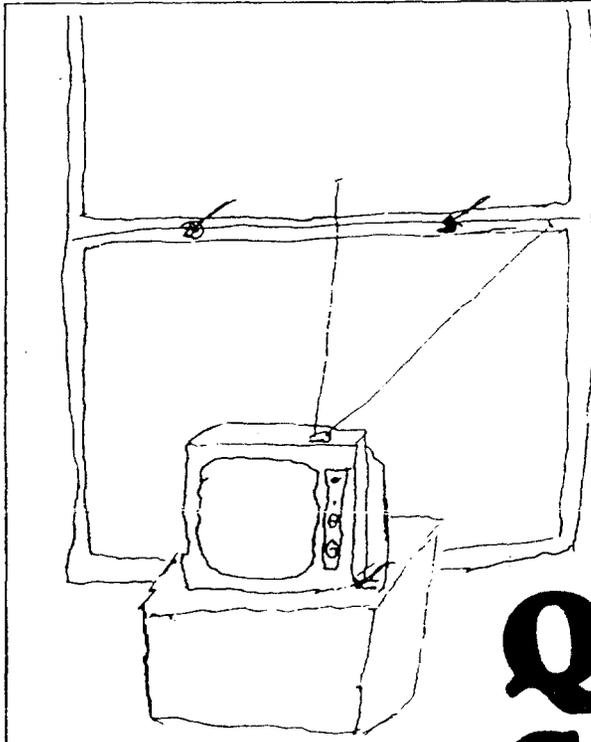
For the rearview displays, designers hope to use a brighter LED display on the theater's rear wall. They also

want to use a stiffer gooseneck stalk to improve the display's stability.

—JOE CLARK



Novel devices that let deaf and hard-of-hearing viewers read captions in movie theaters include a plexiglas panel (top) that reflects captions shown in reverse on the back wall of the theater, a seatback unit (left) that displays captions in dot-matrix characters, and special glasses (above) that project computer-generated captions onto the lenses.



by Joe Clark

Isn't it time to demand

QUALITY CAPTIONS?

I've been a captioning viewer off and on for 10 years. I've followed captioning from its start with the Captioned ABC News and other token open-captioned programs of the 1970s to the current practice of almost universal closed-captioning of prime-time programs.

Considerable emphasis has been placed on the sheer quantity of captioned shows on the airwaves. Captioning viewers, captioning companies and government programs have all emphasized quantity, and this was a good initial activist philosophy. Deaf peoples' justified frustration at the 2 ½ piddling hours of captioned TV per week forced engineers at PBS and elsewhere to devise a method of captioning programs that would not bother the teeming millions of hearing people who, we were told, had nothing but resentment for captions. As a result, the Line 21 closed-captioning technology we're now familiar with came into being.

But that was then — roughly 8 years ago.

Now captioning activists must start paying attention to the *quality* as well as the quantity of captioning.

Development of Line 21 captioning began in the late 1970's. As a computerized medium, captioning was restricted to the computer technology available at that time. Thus when closed-captioning got underway in earnest in 1981, the technology involved was already out of date.

The captioning decoders most viewers are familiar with, usually marketed under the brand name TeleCaption, have serious and unnecessary limitations. The typeface — or font — of each decoder is very rudimentary. The reasons captions appear in all upper case (capital) letters is because the lower-case letters in typeface of the TeleCaption decoder are virtually illegible. They're illegible because the letters g, y, p, q and j lack *descenders* — the portion of the letter that hangs below the base line. As a result, these particular letters look scrunched and are confusing to read for prolonged

periods. Captioners know this, so they set their captions in upper-case only. But psychologists and graphic artists have demonstrated that it takes a reader more time to read sentences in all-capitals. Reading comprehension and speed improves greatly with the mix of capital and lower case lettering that is typical of most articles.

There have been two "generations" of TeleCaption fonts. But the second generation was merely a polished version of the first; both were basically ready-made equipment from the 1970's. And you can't make high quality captions with out-of-date equipment. Today's captions bear that out.

No one in North America has yet taken the necessary extra step of designing custom typefaces for this specific medium. The BBC in England did just that, however, for its captioning apparatus, which emerged after the Line 21 technology was in place. Anyone who watches a captioned British TV show will be amazed at the artful, legible, sophisticated captions which are



a matter of course for their technology.

U. S. captioning viewers simply do not know how good Line 21 closed-captioning could look. Imagine captions in colors, in upper- and lower-case letters, dark on a light background just like type on paper, set in easily-readable typefaces, with a wide range of characters — and the ability to place the captions anywhere on the screen. The technology to make all that possible has been available for years. *Why don't we have it here now?*

If you depend on a computer for communication, would you want a 1980's model or one from the 1970's? If you had a choice between a 50-pound and a 25-pound wheelchair, which would you pick? And wouldn't you be angry if no one ever told you there were such things available as 25-pound wheelchairs in the first place?

If the presence of captions is a right, as The Disability Rag asserted last year (March/April, 1988), aren't mediocre captions a violation of the spirit, if not the letter, of that right?

The National Captioning Institute, which makes the modules for U.S. decoders, is in a position to design a very sophisticated technology for closed-captioning today. It is technologically possible, if not cheap, to make decoders which offer a much more pleasing character display.

With high-definition television on the way, it is imperative that a system be designed which is flexible, forward-looking and beautiful enough to work well into the 21st century. But it's clear that modernizing the technology of captioning is not a priority.

So I offer a challenge to captioning viewers: Keep lobbying TV producers, networks, advertisers and captioners to increase the quantity of closed-captioning — but let's spend just as much time pressing influential groups like the National Captioning Institute to upgrade the technology. We captioning viewers deserve better than the crayons-on-newsprint captions we put up with now. Better captioning is possible. It's time we demand it.

HERE'S WHAT THE National Captioning Institute could do with the current Line-21 captioning system:

Use more typefaces (fonts). Regular, italic, bold and bold italic would make sense. The new fonts should be easily read and attractive in both upper- and lower-case letters, and should be designed by competent typographers.

Use proportionally-spaced type — like magazines use, rather than the current style of uniformly-spaced letters, which look like regular typewriter type.

Let captioners choose the colors of type and background. Dark type on light background is easier to read.

Select fonts that allow for captions in languages other than English. (Current decoders can't even accommodate Spanish and French, let alone Danish, German and Icelandic.)

Add a wider range of symbols, including fractions (there already exist three less-than-legible fractions) and math symbols.

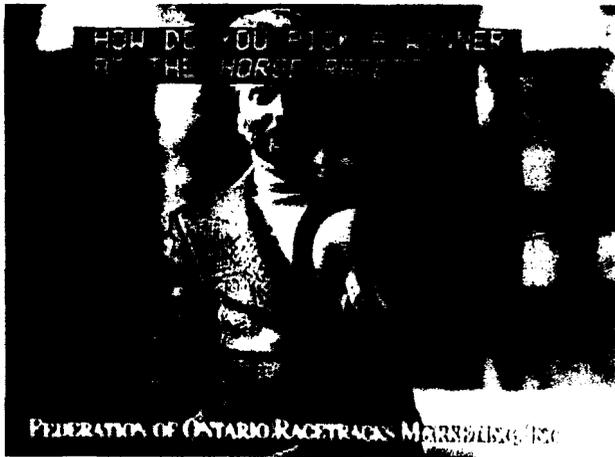
Use fonts that allow captions to appear anywhere on the screen. (Currently, captions are placed only at the top or the bottom of the screen and horizontally positioned only every 4 characters apart.)

Use a technology that will let captions be transmitted faster. Currently our captions are being transmitted at the rate of 2 characters per frame, and that's too slow.

It's possible to design a decoder which will display both old- and new-style captions correctly. But we don't have one yet.

Write to the National Captioning Institute (5203 Leesburg Pike, Falls Church, VA 22041; 800-533-WORD or 800-321-TDDS) and ask them why not.

Our Right to Good Quality Captions



Captioning examples (above and page 12) shot from TV screen.

As captioning viewers, we've all had the experience of watching Canadian shows whose captions are misspelled, or positioned in a way which makes it difficult to understand who is speaking, or timed so awkwardly that they do not correspond to the camerawork. Sometimes we even watch news shows where entire reports go uncaptioned. These faults are even more annoying because we usually don't find them in U.S. captioned programs.

The Deaf Power movement, and the success of last May's demonstrations about deaf education, should inspire us all to realize that deaf people have a lot of power. The Deaf Power movement involves *consciousness-raising* - deaf people becoming aware of issues, their rights, and what they can do to defend those rights and deal with those issues.

We've all been so busy arguing for *more*

captioning that we've overlooked a fundamental truth - it's no good fighting for more captions if the captions we get don't represent the program well in the first place. Any captions may be better than *no* captions, but just any captions should not satisfy us. We caption viewers deserve not only a large quantity of captioning, but also high quality. It's time we demanded it.

We need to become more attentive to the quality of the captioning we get. Do the captions have spelling errors? Are there features with no justification, like italics for product names in TV commercials? Can you tell who is speaking? Do the captions move too quickly or slowly? Is there too much or too little editing? Do the captions look good, generally? Write all these things down, along with the date and the name of whatever item you're watching.

By keeping records, you can be part of

the solution to captioning quality problems. Armed with your notes, you can contact the broadcaster, the program producer, the advertiser, and (especially) the captioning company to tell them what you think. Some of them have TDDs; the rest can be reached through BRS. Writing letters is a good idea, too. With enough people acting together, Deaf Power can drive these companies to improve their captions to at least the quality levels of average U.S. captions.

We should pay special attention to captioned newscasts, particularly those that don't give us the whole story. Many stations have a system which lets the station caption the prewritten scripts of a newscast, such as the newscaster's introduction to a story, but which doesn't always permit captioning of the story itself or of any live material. Most of the local newscasts in Canada are captioned that way, as is *The CTV National News*. We've all seen the technical and stylistic problems which have resulted from amateur captioners using a primitive technology.

Deaf viewers deserve nothing less than 99 percent word-for-word captioning of newscasts. That's possible only with real-time captioning, the technology used to caption most U.S. evening newscasts, *CBC Newsworld* programming, and other progressive shows. Call or write your local stations and *insist* on your right to equal access to their programming. If the stations don't hear from you, they will assume the public approves of what they're doing. If they're wrong to think that, make sure they know!

Indeed, we may have more success with such lobbying than ever before. The CRTC (the government agency which regulates Canadian broadcasting) has talked a lot about captioning in recent years, but has been reluctant to set firm standards. While the CRTC has empha-

sized the captioning of news, it accepts any captioning as satisfactory and explicitly *allows* broadcasters to caption only headlines of news stories, leaving the reports uncaptioned. This is equal access?

But that could change soon as the CRTC welcomes a new chairperson. Keith Spicer will certainly want to improve Canadian broadcasting, and the issue of caption quality is tailor-made for the progress he will seek. In a new job, with



an open mind, and with the winds of change clearly blowing in the direction of improved quality standards for captioning, Mr. Spicer may prove responsive to our requirements. Why not write him at the CRTC, Ottawa K1A 0N2.

We are at the vanguard of a new era in captioning. It's important that we unite as a political movement in our demand for better captioning, using Deaf Power and the inherent strength of our argument as a base. Just as broadcasters and captioners owe it to us to provide quality captions, we owe it to ourselves to settle for nothing less.

Joe Clark

Mr. Clark is a Toronto-based freelance writer and critic, specializing in captioning issues.

Having Trouble with Captioned Videos?

Renting or purchasing a video can be a very frustrating experience for deaf and hard of hearing consumers who need to find tapes that are closed captioned. Some videotapes labelled as being closed captioned are in fact not captioned. Video stores do not have decoders on their premises that consumers could use to check for captions before obtaining tapes.

Some decoders, it has been discovered, have technical problems that prevent them from picking up the captions on videos. Sears is the main distributor of decoders in Canada, although at least one other company in Ontario has produced its own model. Some Canadians buy their decoders in the U.S. and have models different from those distributed by Sears.

Illegal copying may also create problems. When an anti-dubbing signal is placed on a videocassette to prevent illegal copying it can override captions so that they do not appear on the screen. Illegal copies of videocassettes, also known as *pirated versions*, are sometimes sold to unsuspecting video dealers as good quality copies. Pirated copies erase or damage video captions.

Last spring a committee was set up at CHS in Toronto to address the availability and quality of closed captioning in rental videos. The *Closed*

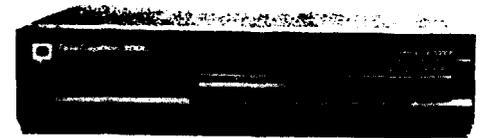
Captioning Committee has representatives from CHS, the Canadian Association of the Deaf, and Ontario Closed Caption Consumers (OCCC).

It was decided that, because of the complexity of the problem, the CHS committee would only focus on problems dealing with purchased or rented videotapes. OCCC will deal with captioning problems on television.

The committee recommends caution when you are renting videos. First, check to see if the video jacket shows the closed captioned symbols -- either "CC" or  (the U.S. National Captioning Institute official logo). Secondly, explain to the store manager or assistant manager on duty that you need captioned videos. State that if you find that the videos you rent turn out to have no captions you will expect to receive either an exchange for other videos or a cash refund. It is important to discuss your needs before paying the rental fee.

Some decoders will pick up captions from TV shows, but not from videos. If you have this problem, the committee suggests that you test the video in different models of decoders. This will help you to determine whether the problem is in your decoder or in the video. If the decoder is faulty it should be returned to the store where it was purchased.

Barb MacMillan and Sharon Fineberg



Living Colour Set Example With 2 Clips

VIDEOS SHOULD BE CLOSED-CAPTIONED

BY JOE CLARK

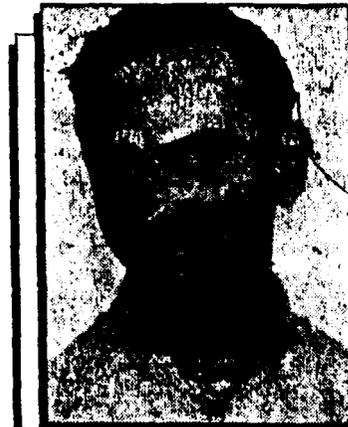
If there is one thing everyone is interested in these days, it is expanding their markets. Some people, too, are interested in making a social contribution while enhancing the bottom line. In early June, Epic act Living Colour showed both impulses can be satisfied at once by releasing two of its videoclips with closed-captioned subtitles that show up if a special decoder is connected to the TV set. Cyndi Lauper followed suit with her new video, "My First Night Without You."

On the surface, captioning a video is a strange idea—after all, deaf people are the main beneficiaries of closed-captioning, and conventional wisdom holds that deaf people don't buy music. But those are hollow arguments and, below the surface, there are actually some compelling reasons to caption music videos.

Closed-captioning has been around for most of the '80s and is by now a fixture of modern television. Though the present-day captioning system is technically limited, it is very functional as a means of making TV accessible to people with hearing impairments. Nearly all prime-time shows, many syndicated programs, and thousands of commercials and movies on pay-TV and home video have already been captioned by several firms. Research by those firms tells us that hearing-impaired people have the same tastes in TV as hearing peo-

ple, and the two main captioning companies in the U.S. report have received sheaves of letters asking for captions on music videos.

Who stands to gain from closed-captioning music videos? Simply put, everyone. Human hearing impairment varies from minor to total, and many viewers can hear most of the TV audio track but have some trou-



'Videos will be attractive to deaf people if they're captioned'

Joe Clark is a Toronto-based free-lance writer specializing in captioning issues.

ble discerning the words. There is no reason to think these people don't want their MTV or that they don't buy records. Videos, as visually interesting artworks, will be attractive even to profoundly deaf people if they are captioned. And there is an increasing public awareness of hearing loss among musicians, some of whom could certainly benefit from captioned videos.

More importantly, captioning videos begins to make sense when you

consider that most deaf people come from hearing families. For example, the daughter of Living Colour's manager, Ed Stasium, is deaf, and wondered what Living Colour was singing about. Now she knows, thanks to closed-captioning.

Interestingly, hearing-impaired people are not the only market for captioned TV. Plenty of research has

learning English as a second language find captions useful. They, too, are hearing people who watch TV and buy music.

Word in the captioning biz is that video makers, labels, and broadcasters think there are better things to caption than videos—isn't other TV programming more important? The issue of cost is an undercurrent in that attitude. In fact, it is ridiculously cheap to caption a video—roughly \$600 for five minutes or less—and, once fully captioned, a video needs no extra equipment to be broadcast and enjoyed by people with home decoders.

Should the networks pay for captioning, or should the labels? In the U.S., the best approach is a common fund for video captioning in which the label and a consortium of broadcasters split the cost. That way broadcasters get more viewers and record companies enjoy greater sales, all for a pittance.

In 1989, there is just no reason not to caption all our videos, both as clips and as home releases. We have to take care to develop a captioning style better suited to videos than today's caption styles, and we have to be careful which firms caption our videos (some are far better than others), but there is no reason to delay. Captioned videos are a rare opportunity to combine public service with profit. Living Colour is first on the bandwagon; can everyone else afford to be left behind?

Snow Job

By Joe Clark

Don't be fooled by imitations: The "subtitled" version of Snow's "Informer" video now making the rounds on MTV is an inelegant, imprecise way to read along with the music. You'll find a far better rendering in the closed-captioned version of the video (see photo).

Yes, that's closed-captioning, as in for deaf and hard-of-hearing viewers. Though captioning music videos doesn't directly lead to the increased sales that motivate the music industry, most major labels have captioned their videos for about the last four years (at about \$300 apiece) as a gesture of inclusion. The trend began when the hard-of-hearing daughter of record producer Ed Stasium (Living Colour, the Ramones, the Smithereens) complained about being shut out of her father's work; a few phone calls later, Living Colour's "Cult of Personality" broke the dam as the first captioned video to air as such on MTV. Upward of 600 videos, comprising acts as diverse as Wilson Phillips and Nine Inch Nails, have had the treatment.

In captioned form, you miss nary a word of Snow's faux-Jamaican patois; for copyright reasons song lyrics are never altered in closed-captioning. But the "subtitled" version, produced by the video's director, George Seminars, commits the sin of cleaning



Not for the deaf only

up the rapper's grammar—nearly eliminating, for example, Snow's use of object pronouns as subjects (*me for I, them for they*). Lingo like that, reminiscent of Superman's Bizarro doppelgänger, is part of the fun of "Informer," and you don't have to listen too closely to notice the poor match between the "subtitles" and the actual lyrics. (Snow's manager, Steve Salem, says he didn't even know the video was captioned in the first place, or he would have had the captions displayed for everyone to see.)

Presently you need a special \$150 decoder to make captions visible, but starting this July, by law all new TVs with screens 12 inches or larger will come equipped with decoder chips as standard equipment, meaning anyone will have access to captions at the push of a button. New caption-capable TVs will offer nicer fonts, more characters (like accents for French and Spanish), and lots of colors. With over 10 million new TVs bought each year, captioning is poised for an explosion into hearing households just as it serves ever more deaf people. ■

Helping the deaf 'hear' television

BY JOE CLARK

Mr. Clark is a Toronto-based freelance writer and critic specializing in captioning issues.

KEITH SPICER is sure to have a good many things on his mind as he takes over as chairman of the Canadian Radio-television and Telecommunications Commission. He will be under pressure to improve the quality of Canadian broadcasting, and there is one area in which he can be sure to leave his mark — TV captioning for the deaf and hard-of-hearing.

Caption TV is little more than a curiosity to most Canadians, but it is a lifeline of information and entertainment for the deaf and hard-of-hearing and is increasingly important in literacy campaigns for hearing people.

Closed captioning (the most common type) transmits coded subtitles along with the TV picture; the codes are translated into visible words by a device on the viewer's TV set. Attractive in principle, captioning and its regulation are a jumble of low standards indifferently applied.

The CRTC has become more aggressive lately in requiring Canadian broadcasters to use captions. In the past year, virtually every CRTC licence decision has contained a discussion of the applicant's plans for captioning.

Deaf communities in Canada have made it clear that captioned news is a priority for them, and the CRTC has emphasized the

captioning of news. When the CRTC renewed the licences of 75 local television stations in April, it required all applicants to work toward making their newscasts accessible. A number of stations were required to caption at least the headlines.

It was an inadequate ruling. TV newscasts typically contain a great deal of live material that cannot simply be typed out in advance and captioned as it is broadcast.

Fortunately, the technology exists to caption live programming: broadcasters can make use of stenocaptioning.

Stenocaptioning uses a specially trained court reporter who listens to the newscast and types the words in shorthand on a device linked to a computer, which in turn translates the shorthand into words and transmits them as captions. Although Canada has only two people qualified as stenocaptioners, the number could grow as demand increases.

The process, though relatively expensive and limited to English, has been commonplace in U.S. captioning for several years, but the CRTC has yet to recognize it as essential to captioning news.

Instead, the CRTC permits broadcasters to use an inexpensive but inferior system that cannot accommodate last-minute changes, ad-libbing, live weather reports or any news report that has not been transcribed in advance. A frequent result is that

the newscaster's introductions to the reports are captioned but many of the reports are not.

Such headline captioning obviously does not represent equal access for deaf and hard-of-hearing viewers, but it satisfies the CRTC.

The commission's indifference to stenocaptioning shows an unwillingness to consider quality as an issue. Such indifference is surprising from an agency with stringent quality standards in such areas as Canadian content and sex-role stereotyping.

To make matters worse, captioning of conventional, pre-scripted TV programs is riddled with quality problems of its own. Canadian captioners pay little attention to spelling and punctuation, have negligible interest in timing captions to represent the actual rate of speech, and have a profound nonchalance about clarifying which actor is speaking — all minimal requirements of captioning in the United States.

Yet deaf and hard-of-hearing people have been unwilling to complain about such issues (perhaps understandably), considering virtually any captioning better than none.

A committee of interested captioning viewers, critics, and agencies could advise the commission on quality standards, giving Mr. Spicer an excellent opportunity to improve TV access for deaf and hard-of-hearing people. What better way to start a new job?

Bill shows gov't not listening to needs of hearing impaired

BY JOE CLARK

JOE CLARK is a freelance writer who has been following the captioning issue for several years.

THE federal government's new proposed Broadcasting Act, Bill C-40, has attracted considerable attention for its vision of the CBC and the CRTC. But Bill C-40 deals with other broadcasting issues, too, and in one specific area it fails completely - closed-captioning for the hearing-impaired.

Broadcasters in Canada today generally accept captioning as a worthwhile, socially responsible undertaking. Captioners themselves are generally pleased with the progress made, but that self-satisfaction is vain: it's still true that almost all the captioned Canadian programming available is in the form of commercials and primetime network series. Realistically, perhaps 25% of all Canadian programming is captioned.

That's a problem. Deaf and hard-of-hearing people have a right to receive broadcasts in an intelligible form, a right which the government, through the CRTC, has not taken seriously. And even though access to only 25% of programming would never be tolerated by hearing Canadians if the shoe were on the other foot, it isn't only deaf people who want more captioning.

In August 1988, the Commons standing committee on the status of disabled persons recommend-

ed that the CRTC require, as a condition of licence, that 50% of all Canadian programming be captioned by 1992.

The CRTC has done no such thing, relying on the same voluntary approach which has proven ineffective. The minister of communications evidently accepts the failure of the voluntary approach, since Bill C-40's only oblique reference to captioning is that "programming accessible by disabled persons should be provided . . . as resources become available." In other words, "When it happens, you'll get it."

Broadcasters have resisted compulsory captioning primarily for reasons of cost. The impression is that captioning is too expensive. Of course, like any commodity, prices fall with greater demand, and with appropriate training a broadcaster can even caption programs in-house at manageable cost. The CBC, YTV, CTV and Canadian Home Shopping Network all caption at least part of their own programming, with varying success.

And there's the rub. As the standing committee recognized, the quality of captioning might decline with pressure to increase quantity. The committee recommended the formation of a body to police the quality of captioning. Perhaps it could act along the lines of a provincial press council.

We need such a committee right now. It's a dirty secret of Canadian broadcasting that Canadian captioning displays an appalling lack of care and research. Check out a captioned program and count the mistakes, from spelling errors ("embarrassed" for "embarrassed") to bad editing (aboriginal people becomes "aborigines") to arbitrary italicization (*United Nations, Olympics*) to a consistent failure to identify who's speaking. Such errors would never make it through the quality control process of major U.S. captioners.

Canadian captioners get away with these mistakes because most hearing people, who presently have the real power to change things, do not watch cap-

tioned TV, and those who do have kept their mouths shut. Bill C-40 does nothing to empower deaf Canadians and supporters of quality captioning to fight for what they deserve.

The bill needs to be amended to require firm quotas for captioning and to assure that quality levels will be raised at least to recognized U.S. standards. Anything less will constitute a failure to serve Canadian captioning viewers.

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PLAYBACK

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