ANTIOPE
VIDEOTEX SYSTEM

TDF - TFTV - CCETT - SOFRATEV - DGT

What is Antiope ?

ANTIOPE is a high performance, complete videotex system (i.e. teletext + viewdata) designed by French television and industry. It is not simply equipment, but also a complete software-based system for producing, editing, transmitting and displaying pages of alphanumeric and graphic information on a television set.

What are ANTIOPE's prospects ?

1 A new medium for information, education and recreation purposes, for wide or specific audiences.

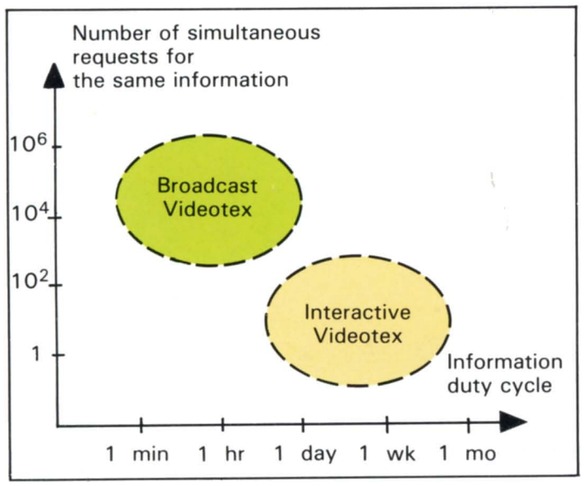
2 The possibility for data bases to provide information to more people.

3 New services for transmission by TV networks, telephone companies or other carriers.

4 A peripheral or integrated television product for TV receiver manufacturers.

Antiope exists in two versions

Mixed, with regard to services rendered :



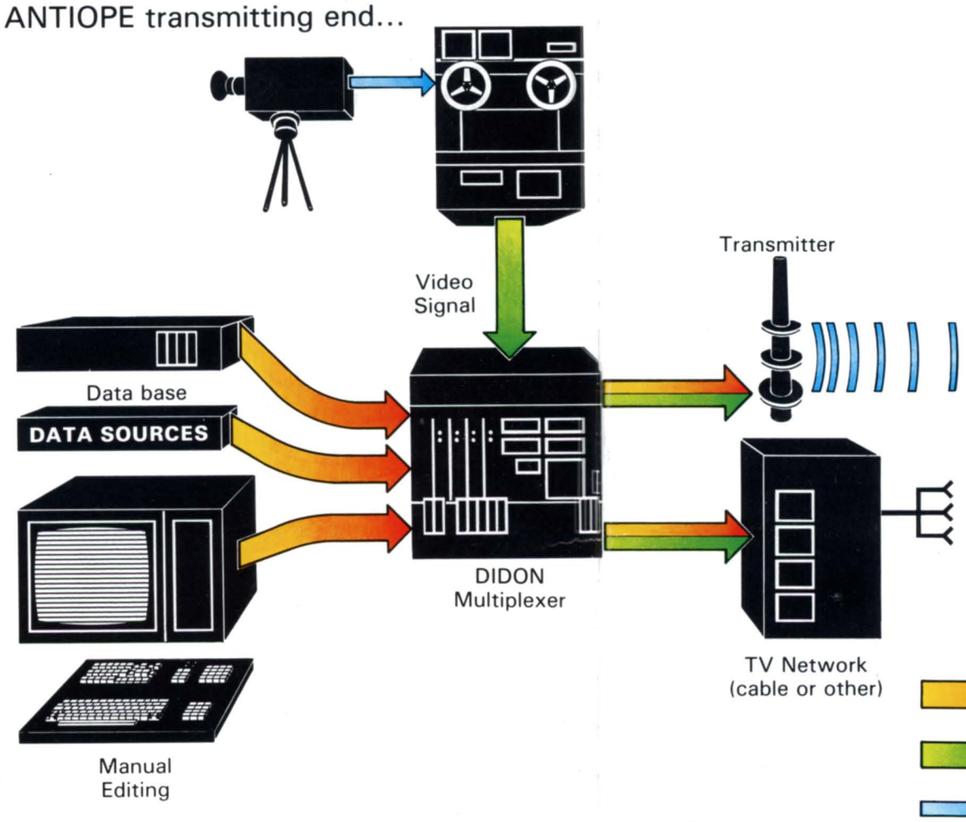
and

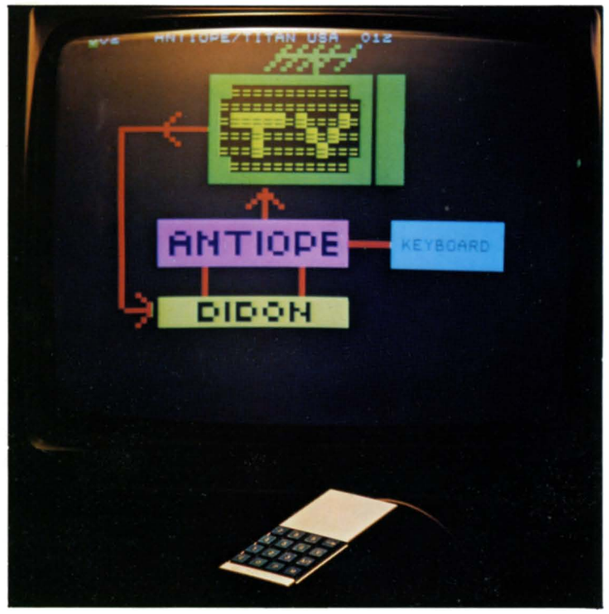
Compatible :

The graphic possibilities, character encoding and decoders are the same for both versions.

Broadcast Version

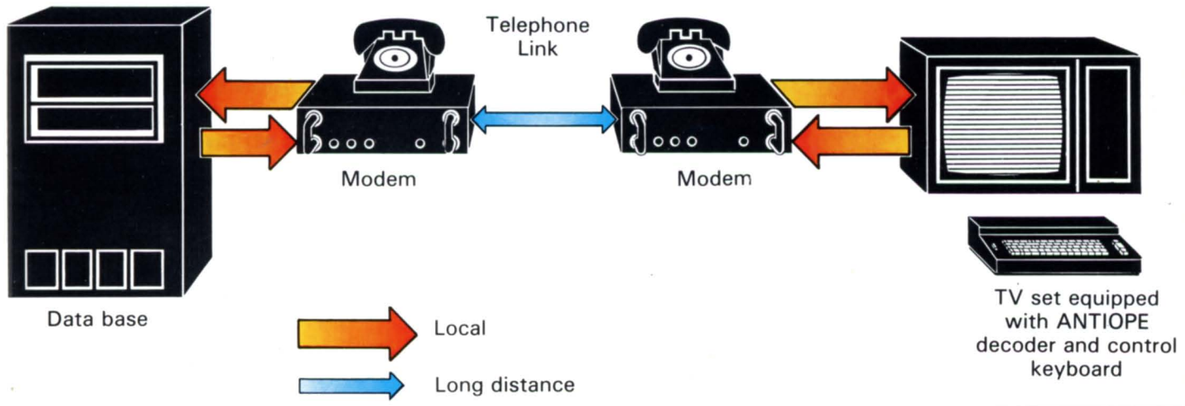
ANTIOPE transmitting end...





... and receiving end

Interactive Version

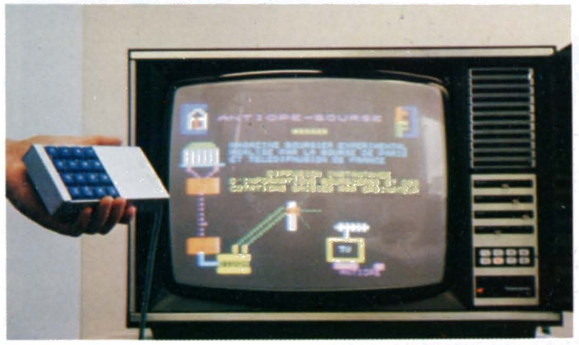


How does Antiope work ?

Broadcast Version

A viewer whose normal TV set is equipped with a decoder and tuned to a channel containing videotex information may select on his keypad any page among the thousands available on call. This page of text and/or diagrams is displayed on the TV screen for as long as the viewer wishes.

The pages offer all types of information, and are constantly updated.



Where does the information come from ?
The pages of text are edited on a keyboard or generated from a computer-stored data base.

The alphanumerical characters are coded as a string of zeros (0) and ones (1) and stored as computer data.

How is the data transmitted ?
The codes are multiplexed on a video signal and transmitted on the TV network (via microwave links and transmitters, cable or satellite).

How does the text appear on the screen ?
The decoder attached to the TV set translates the data as it is sent in the video signal, and builds up the video image of the page selected.

ANTIOPE represents a new way of using existing television systems. Its cost is very low due to the fact that :

- existing broadcasting networks (microwave or cable) don't need to be modified ;
- the terminal is composed of a standard TV set equipped with a decoder.

Interactive Version

A viewer whose normal television set is equipped with a decoder can use his telephone to request any page among the thousands stored in a data base. This page of text and/or diagrams is displayed on the TV screen for as long as the viewer wishes.

Where does the information come from ?
The alphanumerical characters of pages edited manually or automatically by computer are coded as a string of zeros (0) and ones (1), and placed in storage.

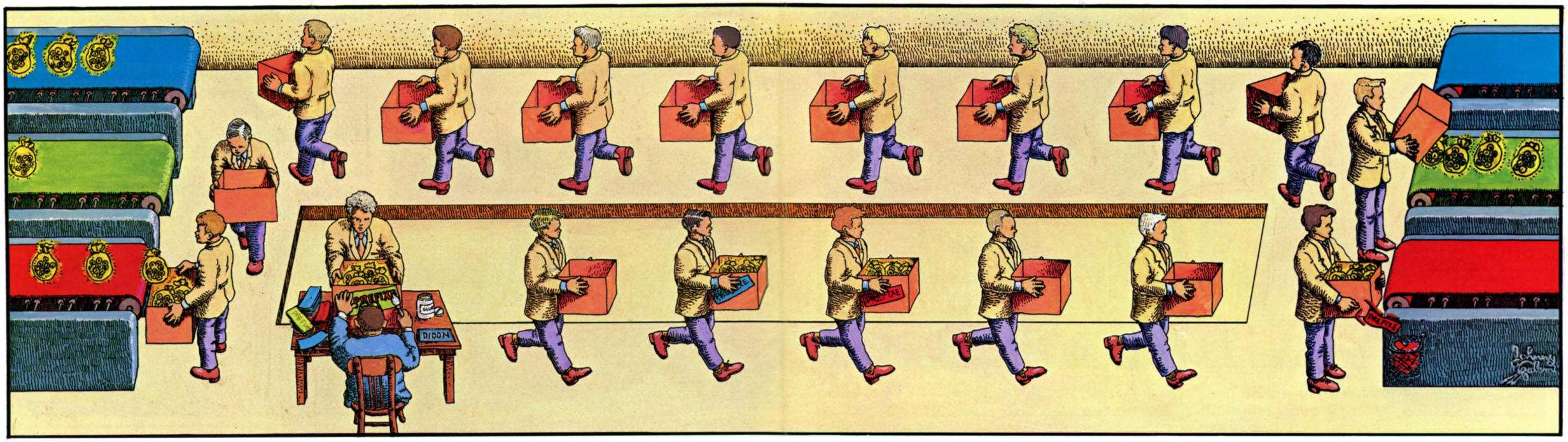
How is the data transmitted ?
The codes are transmitted via modems through telephone links, just like any other computer data.

How does interaction work ?
The user asks a central processor for a series of pages of information, which are sent only to him. He can also establish a two-way communication between himself and another user, and exchange information.

ANTIOPE brings computer techniques within reach of the general public.

Antiope data transmission

ANTIOPE, in its broadcast version, is more than a teletext system. It uses the packet digital data broadcasting system, called DIDON.

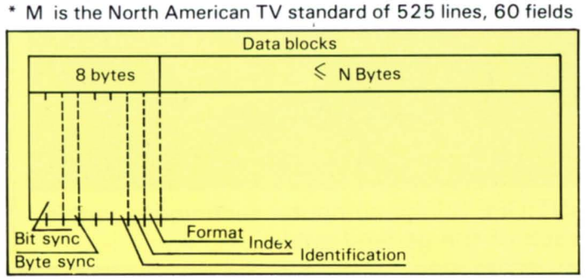


Data is supplied in byte string form from the source to the DIDON multiplexer, which slices it into blocks containing a maximum of N bytes (N depends on the bit rate used ; for the M* system, N is 20).

An 8 byte prefix is added to each data block. The prefix, together with the data block, makes up a packet.

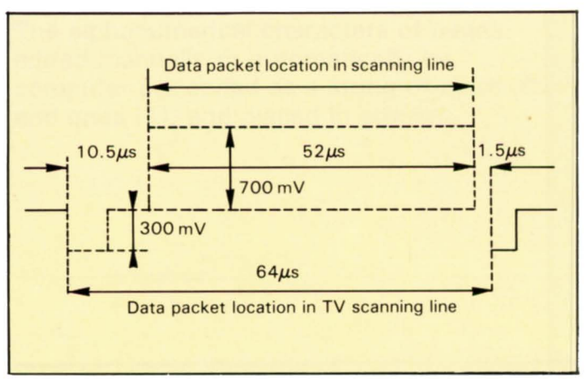
This prefix is applied and used by the video broadcasting system. The prefixes are stripped out upon reception and the blocks from a given channel are decoded, yielding the entire data string transmitted.

* M is the North American TV standard of 525 lines, 60 fields



The lines allocated to the video signal can be shared among several digital data sources. The transmission system creates various digital channels by allocating free lines as they are needed, depending on the resources available at the time. The system guarantees a maximum average data rate on each channel.

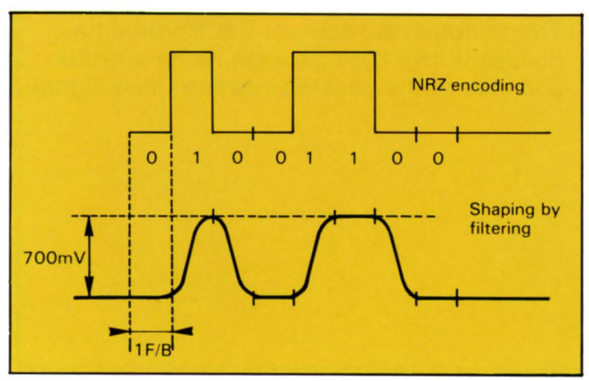
DIDON allows information to be broadcast according to its instantaneous rate.



The signals are transmitted in binary code using the NRZ (Non Return to Zero) encoding technique.

They are filtered so as to match their spectral energy distribution to the properties of the television channel.

The data sampling frequency can be adapted to any television standard, the only consequence being a modification of the network's useful rate.

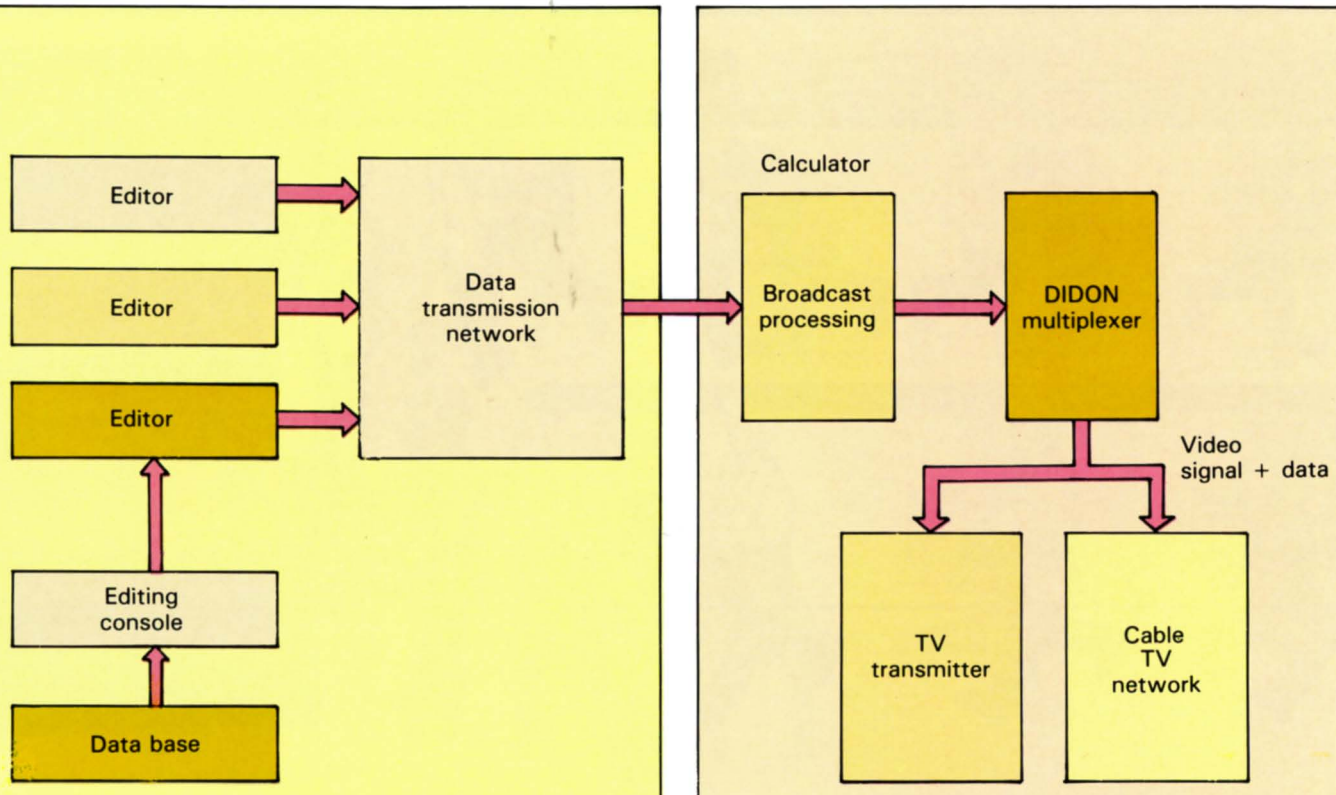


DIDON is a transparent data transmission system for messages, i.e. it can transmit any digital data no matter what this data represents.

DIDON is applicable to services other than the ANTIOPE videotex system (see example on last page).

Sources

The editing system is separate from the transmission system.



Editing

The editors are :

— either interfaced with data bases, in case of automated editing (the editor encodes the information in ANTIOPE language using a special program) ;

— or manual sources consisting of a keyboard hooked to a minicomputer that encodes the pages in the ANTIOPE format.

The editor may be physically close to the transmission system, or remotely connected to it through a data transmission system.

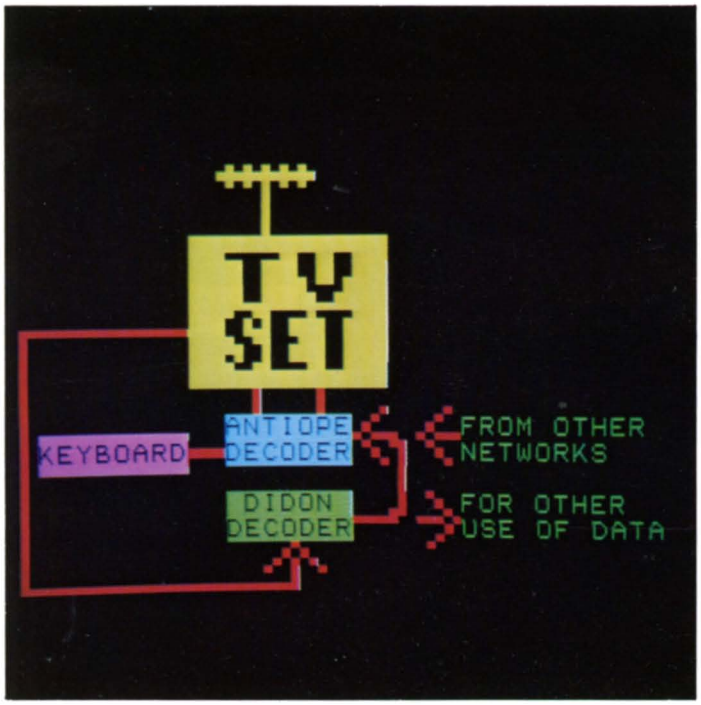
Transmission

The transmission module includes a calculator that stores the data (e.g. on a floppy disk), and processes the broadcasting of the pages of text.

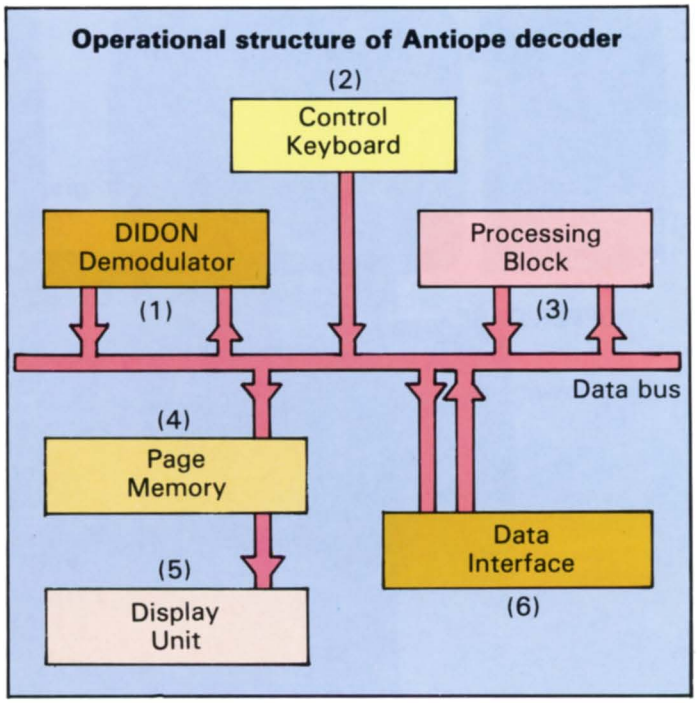
In most cases, the pages are transmitted cyclically to the DIDON multiplexer.

The multiplexer receives the digital data, divides it into byte packets, adds a prefix and inserts the packets into the video signal.

Receiving equipment



A normal TV set is not enough for the reception of videotex magazines. A TV set can receive outside signals and transform them into display, but for videotex it needs special devices for data reception, decoding and picture generation. The ANTIOPE decoder comprises this additional equipment. When it is connected to an ordinary TV set, the combination becomes an ANTIOPE terminal.



The DIDON demodulator (1) extracts the data from the video signal :

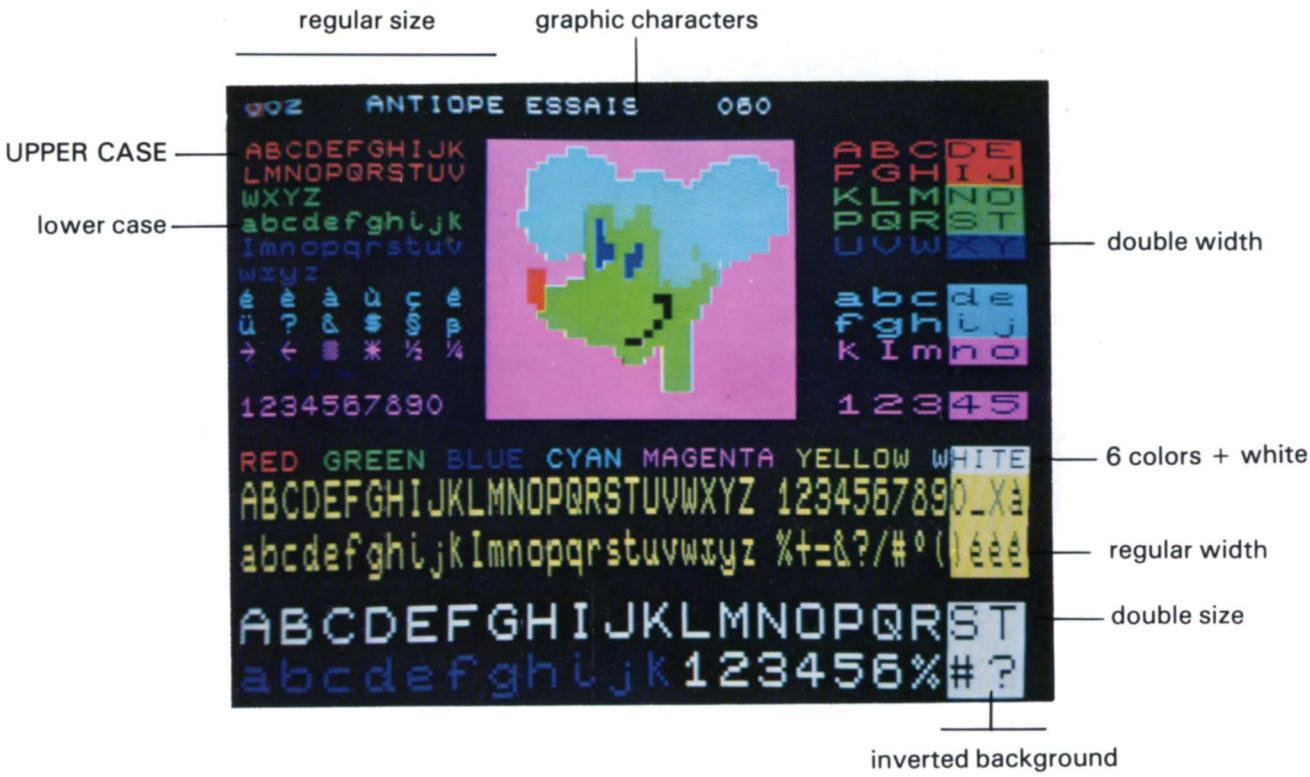
when the data corresponding to the page selected on the keyboard (2) is received, the processing block (3) translates it into code characters, the page is stored in the memory (4) and displayed on the TV screen by a display unit (5).

An interface (6) allows reception of data from another network (telephone), or retrieval of data received by the DIDON demodulator.

Present-day, first generation decoders are built with discrete components, but once the circuits are fully integrated, it will of course be possible to build the decoders into the TV set for a very slight additional cost.

Antiope makes it possible to visualize

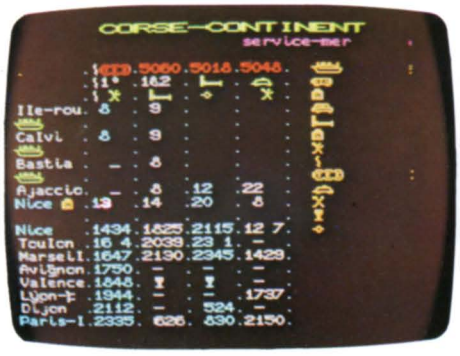
all the letters of the Latin alphabet



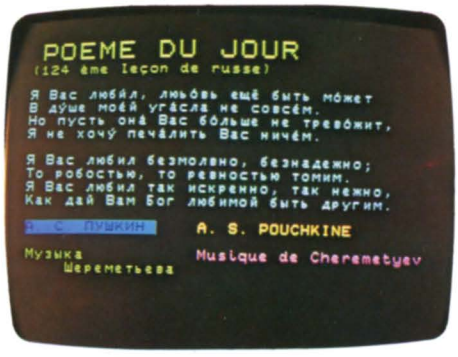
as well as : enclosed insertions - masking - flashing

in addition to :

Symbols



Latin/Russian



extension to other alphabets (Arabic, Greek...)
and to new software-based alphabets (symbols, other signs)

Some other kinds of information Antiope can transmit

Newsflashes

Weather reports

Sports

Stock market

Educational

Civil defense warnings
Emergency alerts

Employment ads

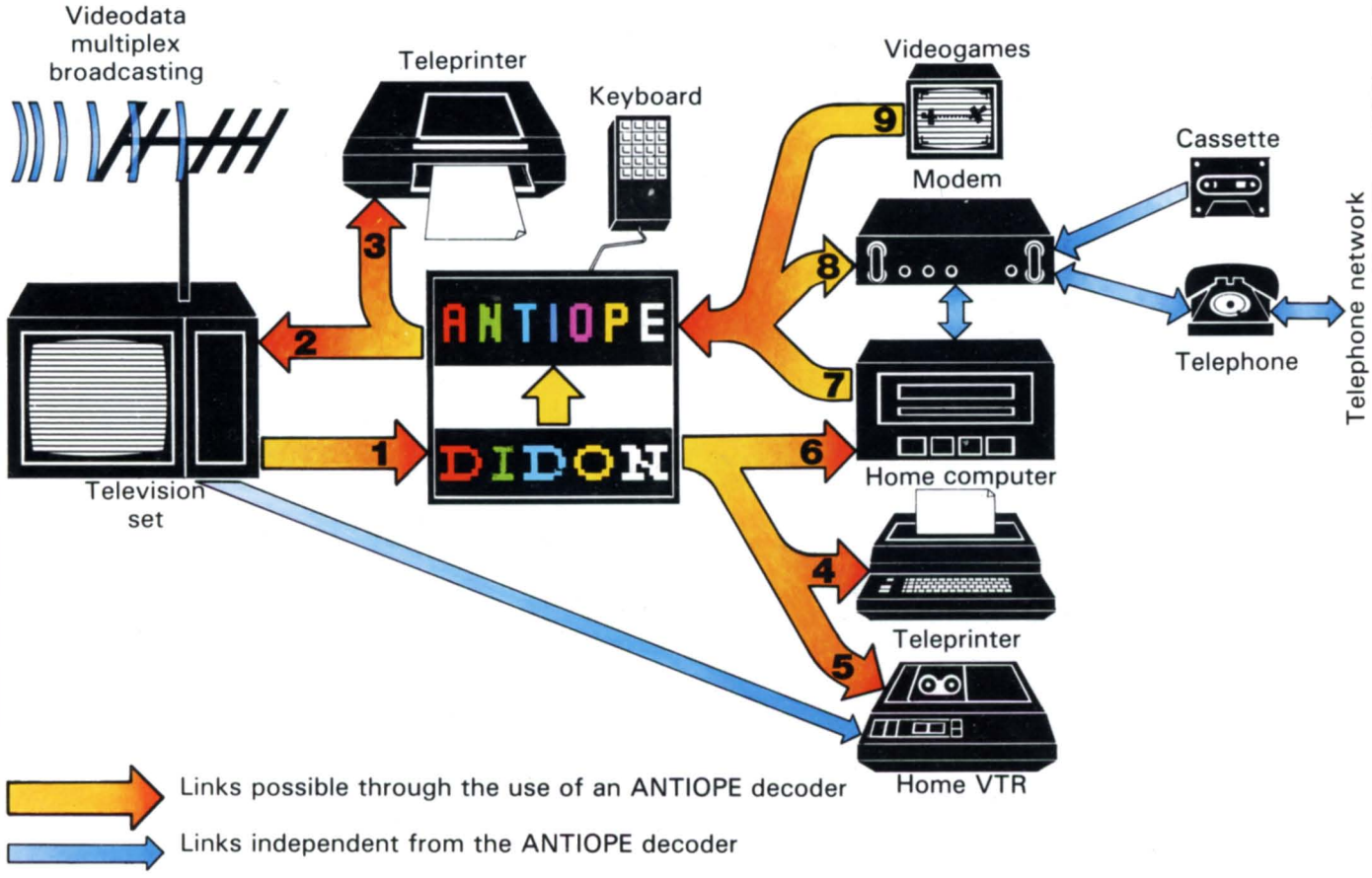
Subtitling (foreign languages, captions for the hearing-impaired)

In a few years' time

every home now equipped with a television set and a telephone may also have :

— a VTR
— a home computer
— a teleprinter

This equipment may all be interconnected via the DIDON-ANTIOPE terminal.



1 : Reception for multiplexed videodata transmitted on the TV network
2 : Display of pages of text on a TV set
1 + 2 : Broadcast VIDEOTEX (ANTIOPE)
3 : Printing of videotex pages on paper
4 : Print-out of videotex in data form
5 : Reception of commands directed to the home VTR
6 : Reception of data directed to the home computer
7 : Display of pages generated by the home computer
8 : Interactive VIDEOTEX (ANTIOPE)
9 : Display of videogame pages

Name _____

Title _____

Department _____

Organization _____

Street _____

City _____

State, Zip _____

Please send me information on _____

Name _____

Title _____

Department _____

Organization _____

Street _____

City _____

Country _____

Please send me information on _____

Specifications for ANTIOPE videotex in the North American TV standard

(525 lines, 60 fields)

Useful bytes per TV line		20
Capacity for 1 TV line per field		9600 bits/sec.
Number of characters per row		40
Number of rows per page		21
Pages/sec. for 1 data line per field*		1.7
Full channel maximum capacity*		430 pages per sec.
Capacity for an average wait time of :	1 line/field	full channel
5 sec.	17 pages	4300 pages
10 sec.	34 pages	8600 pages

*1 page contains an average of 700 bytes

ANTIOPE & DIDON may be used with any TV standard

BUSINESS REPLY MAIL

ANTIOPE Videotex
SOFRATEV
124 bis, ave. de Villiers
75017 Paris (France)

BUSINESS REPLY MAIL*

ANTIOPE Videotex
TELEGEN
800 Welch Road
Palo Alto, California 94304

*For the United States only

ADDRESSES

TDF (Télédiffusion de France)
21-27, rue Barbès
92129 Montrouge (France)
Tel. : (331) 657 11 15
Telex : 250738

CCETT (Centre Commun d'Études de Télévision et Télécommunications)
2, rue de la Mabilais
B.P. 1266
35013 Rennes Cedex (France)
Tel. : (3399) 01 11 11
Telex : 740284

SOFRATEV (Société Française d'Études et de Réalisations d'Équipements de Radiodiffusion et de Télévision)
124 bis, ave. de Villiers
75017 Paris (France)
Tel. : (331) 755 68 63
Telex : 641821

TFTV (Association pour la Diffusion des Techniques Françaises Audiovisuelles)
66, rue Pierre Charron
75008 Paris (France)
Tel. : (331) 359 12 85
Telex : 280754

DGT (Direction Générale des Télécommunications - Direction des Affaires Industrielles et Internationales)
38-40, rue du Général Leclerc
92131 Issy-les-Moulineaux (France)
Tel. : (331) 638.44.44
Telex : 202715

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