

OTTAWA

IBM P.C.

USERS' GROUP

NEWSLETTER

January 21st, 1985 - Issue 85(1)

EXECUTIVE

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Assistant Libr. #1	Michel Lemire	568-8429	993-5033
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Editor	Gord Hopkins	828-3834	726-3590
Secretary	Eric Clyde	749-2387	993-3291
Meeting Facilities	Stu Moxley	592-4933	N/A

***** IMPORTANT NOTICE: CHANGE OF MEETING LOCATION *****
*
* NEXT MEETING DATE IS: Wednesday, January 30th at 8:00 p.m. *
*
* MEETING LOCATION IS: NRC AUDITORIUM, Sussex Drive *
* (Gothic Building opposite turn-off to Hull - Parking in Rear) *
*

Happy New Year! Welcome to the first 1985 edition of this newsletter. With this issue there are a couple of things to note. First, I have attempted a little classier format, with new banner and letter-quality print. Second, we have changed our meeting location due to problems in getting a firm commitment of facilities from Camell Hall. And finally, you will notice that the size of the executive has grown to take care of our growing membership.

With the increasing size of the club, I urge you more than ever to offer any time and/or resources that you can spare. I am getting in desperate need of some material for the next issue of this newsletter and welcome any contributions. Relevant topics for submission include programming tips, tutorials on selected BASIC and/or DOS commands, technical discoveries, computer gossip, and finally, but not least, computer humour. If you can't think of anything, get your spouse, covivant, boy/girlfriend to share their perceptions about your "new love". I will accept submissions in either hard-copy or electronic form. For hard-copy, please send your items to:

Gordon Hopkins
17-D Forester Crescent
Nepean, Ontario K2H 8Y1

LAST MEETING: November 28th, 1984

Our last meeting welcomed Fred Jennings, Manager for IBM PCs in Education, from IBM Toronto. Fred has been with IBM for many years and was able to relate numerous anecdotes and facts about the early development of the IBM PC, reasons for selecting the 8088 processor, etc. He also gave an enlightening presentation on where he sees IBM fitting into the educational marketplace. IBM has recently taken great strides to see some action in this market by offering significant discounts on PC Jrs to teachers and expanding their educational software offerings. Fred was also able to field several questions concerning DOS 3.0 & 3.1, XENIX, and the PC-AT.

The second part of the evening was taken up with our annual election of club executives. The results of the election, mostly acclamations, are shown above in the executive listing.

On behalf of the club, I would like to thank Mike Luckam, our past-president, for his generous contributions of time and energy to the success of our club and to welcome Harry Gross as our new president.

LOCAL BULLETIN BOARDS

Below is a recent list of Ottawa area bulletin boards. These facilities change so quickly that we cannot guarantee an answer for all numbers. The majority use 300 baud, even parity, 7 data bits, and 1 stop bit, but experiment because many are now switching to 1200 baud service.

Alleycat	236-1145		Home Computing Club	725-2312
Compucentre	230-7154	9 PM to 8 AM	Micro Tech	526-0062
Computer Innovations	726-1206	10 PM to 10 AM	Modem World	727-0575
Conference Centre	725-9295		O.B.E.	523-1614
E.T. Wilson	748-1035		TBC-1	820-4646
Edu-Tot	592-0240	24 HRS	TBC-2	820-4669

SOFTWARE LIBRARY NEWS

The new year brings new things to look forward to in the Club Library!

Since the Library is getting to a respectable size, it's becoming more difficult to remember what program is on what disk. And with a new disk coming each month, the task isn't going to get any easier! Starting in March, the club is going to introduce DISK-00 which will contain a database of all the programs in the library, complete with keywords and descriptions. Programs will be able to be listed by type of program, function, language, hardware requirements, size, etc. Also included will be database entries for all the "Specialty Disks", as well as the Club Constitution, a complete description of the club's operation, and other general club information. Any new information for the database will be included in each monthly disk along with any other update information. Hopefully, this will reduce the problem of finding that one program that will reduce your other problems!

Another feature to be introduced in March will be Club Subscriptions! Soon you'll be able to have your monthly diskette waiting for you at the next meeting without having to ceremoniously request the next disk, or leaving a disk on "deposit".

Policies for the DISK-00 and Club Subscriptions are currently being discussed at club planning meetings. These two improvements won't be available until the March meeting (partially as an inducement to renew your memberships...), but keep your eyes open for more developments in the January and February disks. Until then, if you have any comments or suggestions, let us know!

Till the next meeting,
Mike Schupan

NEWS AND RUMOURS

From James Walsh:

I have heard rumours (reliable sources) that the PC and XT series will be replaced in early 1985 with a new series based on the 80186. Upgrades to existing systems will be available (motherboard swap) for about \$500-\$600 U.S. IBM is giving large rebates to dealers on volume orders in an apparent attempt to get rid of existing PCs and XTs.

Xenix for the AT will be released formally on January 21st. It is currently available in beta version from Microsoft to Independent Software Vendors.

Update on Windows - I talked to Microsoft earlier this week, and the size and performance problems have been fixed (they wanted to be able to run windows with a graphics application in under 256K - they've now got it under 192K, and performance of some screen-updating was pretty slow). The Windows internal specifications have now been fixed - any future updates will be bug fixes and compatible enhancements. This is good news for software developers (like myself) - they can develop Windows products with confidence that they will work on the announced product. Apparently, only documentation and further testing are left to go before the release date.

IBM is supposed to be enhancing Topview to allow graphics, thus competing directly with Windows. I strongly suspect that Windows will make it to the marketplace before a graphics Topview (Topview itself hasn't even been released) but who knows what will happen in the marketplace. Other new products from IBM - a lapsed portable, similar to the DG/One, is in the works, code-named 'Clamshell'.

IBM Compatible Tandy 1000 and 1200 from Radio Shack

These two entries from Radio Shack are PC and PC-XT compatible machines and seem to be very inexpensive. The Tandy 1000 comes with one 360K disk drive, 128K memory, monochrome graphics, colour graphics, 90 key keyboard (from Tandy 2000), parallel port, joystick and lightpen interface and 3 expansion slots. The list price is \$1749, and add another \$230 for a monochrome monitor. We tried Perfect Writer and the Fortran Compiler for the IBM-PC with no trouble on this machine. However, apparently PC programs that will only operate with the IBM monochrome monitor will not work on the Tandy computers.

SUBMITTED ARTICLES

Getting More Colour from Your Adapter!

By: Andrew Tuline & Byron Sheppard

Are you feeling limited with 4 colour graphics? Does the hi-res mode look a little drab? Well, there are ways to add excitement to your monochrome and colour graphics. Among them are artifacting and dithertizing, two techniques used widely on other colour computers.

Unfortunately for the RGB monitor owner, those two methods have draw-backs. In order to understand why, we must first examine the differences between the various types of colour displays used.

The colour television is the most widely used and also the poorest quality display. This is due to the fact that all colour and synchro- nization signals are combined to form a single composite video signal. This is then mixed with a higher frequency signal, usually channels 2 or 3, and applied to the T.V.'s antenna terminals. From here the T.V. converts it back to its original form. This extra (and redundant) handling greatly reduces picture quality.

The composite video monitor is a step up from the T.V. The major difference between the two is that the composite signal described earlier does not have to be converted to T.V. frequencies. This then cuts down on one of the conversion processes, thereby reducing distortion. Unfortunately, due to the complexities of the composite video signal, this type of monitor still is not very good.

The RGB monitor, recently introduced to personal computing, is the highest quality colour display currently available. The reason for this is that all of the signals are sent to the monitor on separate wires. Since this is the way that all the monitors actually USE the signals, the whole series of combining, recombining, and splitting done in the previous two colour displays is eliminated. This simple and straight-forward approach effectively results in the RGB type of monitor having a much higher picture quality.

Artifacting

The composite monitor and T.V., while having lower resolution than the RGB, are capable of displaying more colours by taking advantage of faults in the composite video signal. This process is known as artifacting, and is the simplest method of increasing the number of colours for the display. It involves drawing lines on alternate even or odd columns. Magenta, for example, appears red if drawn on even columns and blue if drawn on odd columns. Unfortunately, this will not work with RGB monitors. (See last paragraph for exception.) Below is a table of colours available when using this technique.

Normal colours	Even columns	Odd columns
Green	Red'	Green'
Red	Red''	Blue
Brown	Red'	Green''
Cyan	Black	Cyan
Magenta	Red	Blue
White	Brown	Cyan

The quotation marks beside the colours represent a slightly different shade of the original colour.

Dithertizing

The next step in adding more colours to your display is to use a technique called dithertizing. It involves setting points in a checkerboard pattern of different colours. You could, for instance, set all even columns and rows to red, all odd rows and columns to green, and the rest to yellow, producing some alternate colour. Since this technique doesn't depend on "faults" in the video signal, it will work on RGB type monitors. The main drawback of this technique is the increased time necessary to draw a picture. However, with the use of assembly language subroutines and/or preset shape tables, you could speed up any graphics action.

Some Program Examples

Using artifacting, the following short program will show lots of colours in the medium resolution mode.

```
10 SCREEN 1,0
20 FOR I=0 TO 50
30 LINE (I,0)-(I,50),RND*4
40 NEXT
50 GOTO 20
```

It is even possible to turn the "hi-res" monochrome mode into a multi-coloured spectacle with a change in line 10.

```
10 SCREEN 2:OUT 984,&HA:OUT 985,&H32

OUT 984,&HA - Selects 320x200 colour
             graphics.
OUT 985,&H32 - is binary 00110010
                  ^^ ^
                selects cyan palette-!! !
                selects intensified---! !
                select green backgnd.----!
```

The last addition will allow an RGB monitor to use the standard 3 colour palette. Otherwise, when using the composite video input, there are many colours available, even in this mode.

For more information, please refer to pages 2-57 to 2-59 of the Technical Reference Manual. More advanced programmers should also refer to the BIOS video section starting on page A-43.

There is a device available for owners of RGB monitors which will allow the use of the techniques previously described. It is called an N.T.S.C. demodulator, and converts the composite video signal to RGB format. The demodulator is manufactured by Electrohome (model# I-1302) and is available from the Byte shop for about \$100. Incidentally, the N.T.S.C. module enables you to attach your RGB monitor to a video recorder or T.V. tuner. In this case, it makes an excellent television monitor.

Low Resolution Graphics Mode

By: Andrew Tuline

It seems someone has finally found the 160 X 100 graphics mode I've been having so much trouble with. It's in the Dec. 82 issue of Dr. Dobbs Journal by John Seal of Franklin Indiana.

Starting in the 80 X 25 text mode, the user must split a single character into foreground and background by poking character 222 into the display buffer. Then the 6845 CRT controller is set to squeeze the four video pages onto one screen, effectively giving 100 points of vertical resolution. To set the points, the user must set either the foreground, or background attributes depending on the location of the character. Below is a copy of the program submitted by the author.

```

100 '
110 'Set up low resolution 160 X 100
115 ' 16-color graphics mode
120 '
130 SCREEN 0 : WIDTH 80      ' set up 80 X 25 alpha
140 KEY OFF : CLS           ' clear screen
150 OUT &H3D8,9              ' disable blink attribs
160 A%=&H3D4 : D%=&H3D5      ' crt controller ports
170 OUT A%,4 : OUT D%,&H7F   ' vertical total
180 OUT A%,6 : OUT D%,&H64   ' vertical displayed
190 OUT A%,7 : OUT D%,&H70   ' vert sync position
200 OUT A%,9 : OUT D%,1     ' max scan line addr
210 DEF SEG=&HB800           ' display buffer seg
220 FOR CC%=0 TO &H3FFE STEP 2 ' all character codes
230 POKE CC%,&HDE : NEXT    ' set to special char
240 FOR AT%=1 TO &H3FFF STEP 2 ' all attributes
250 POKE AT%,0 : NEXT       ' preset to black
260 '
270 ' Compute offset into display
275 ' buffer, based on X and Y
280 '
290 DEF FNOFFSET%(X%,Y%) =160 * Y% + (X% OR 1)
300 '
310 END

```

Addenda

An easy way to set the width to 40 while in screen 2 and then converting back without clearing the screen or using get/put graphics is by typing:

```

def seg=&H40:poke &H49,4 'sets width 40
def seg=&H40:poke &H49,6 'sets width 80

```

There is a video data area used by the BIOS in Segment &H40 starting at address &H49 to address &H66. Again, refer to the technical manual page A-3 for further information.

An interesting mode of resolution I found a long time ago while in screen 2 is as follows:

out 984,&H18

This is similar to the 160 X 100 mode shown above, but unfortunately I have been unable to decode the colour pattern.

Also, the user could try to change the parameters of the 6845 Display Chip itself. There are 19 registers in the 6845. 18 of them are addressed by the first one by the following. For example, if we wanted to put a &H64 to register 6 we would type the following:

```
out &H3d4,6      ;set address register to point
                  ;to register 6
out &H3d5,&H64    ;put &H64 into register 6 of
                  ;display chip.
```

Each of these registers controls different parameters for the display, such as the starting address of the display, the cursor address, the total number of lines displayed and so on. See page 2-56 of technical manual.

Finally, to wrap it up, I'd like to say that although I was initially dismayed at the resolution of the colour graphics on the PC, I also found that to do any reasonable animation that too many pixels causes the speed to reduce drastically. While we may not have 16 shades of each colour as on the Atari, we do have enough to keep us busy. Maybe the next version of the Flight Simulator will allow the owners of RGB monitors to also enjoy the colour of flight. (Ed. It does!!)

Questions and Answers about IBM's New Window Package "TopView" by Billy Brackenridge

Q1. What does TopView do?

A1. TopView provides an operating environment giving applications multitasking and windowing facilities. For applications that are specifically designed to run with TopView (i.e., are programmed using the TopView API) all facilities are available for developers to include in their applications. In addition, many existing applications can run in the TopView environment. But, in general, the user can only take advantage of a subset of TopView facilities when running existing applications. At the very least, the facility for switching between co-resident applications is available with existing applications. TopView provides a multitasking and windowing environment for applications that run with DOS 2.0, DOS 2.1 or DOS 3.0; however, only DOS 2.0 and DOS 2.1 functions are available when using DOS 3.0. TopView features:

- Concurrent execution of multiple tasks and programs.
- Switching between coresident programs.
- Move, size and scroll of an application's windows.
- Display of multiple windows at one time.
- Mouse support.
- Data exchange.
- Several ease-of-use features such as pop-up menus, Help, on-line tutorial, access to commonly used DOS facilities, etc.
- Support for text applications on both monochrome and color displays, support for graphics applications on color display.

Q2. How much does TopView cost?

A2. The IBM Product Center price is \$149.00 (estimated price).

Q3. What applications will run with TopView now?

A3. Many programs have been designated as "compatible with TopView" by IBM or the vendor that wrote the program. These programs have been tested in the TopView environment and can coexist with other programs running with TopView. However, depending on the way the program was written, all of the TopView facilities may not be available when using that program. For example, a program that writes directly to the video buffer cannot be windowed or execute while in the background. Following, is a partial list of IBM applications that have been tested or are in the process of being tested with TopView. The fact that an application does not appear on this list does not mean that the application will not run in the TopView environment. It may simply mean that the application has not been tested in the TopView environment when this document was written.

- | | |
|------------------------------|-----------------------------------|
| - BASIC | - Macro Assembler |
| - Advanced BASIC | - Multiplan** 1.1 |
| - BASIC Compiler | - Pascal Compiler |
| - COBOL Compiler | - PC Cluster |
| - DisplayWrite 1 | - PCWriter |
| - DisplayWrite 2 Version 1.1 | - Personal Communications Manager |
| - Easywriter* 1.1 and 1.15 | - Personal Editor |
| - FORTRAN Compiler | - Professional Editor |
| - IBM Filing Assistant | - Script/PC |
| - IBM Graphing Assistant | - VisiCalc*** 1.2 |
| - IBM Reporting Assistant | - Word Proof |
| - IBM Writing Assistant | |

* Easywriter is a trademark of Information Unlimited Software, Inc.

** Multiplan is a US trademark of Microsoft Corporation.

*** Visicalc is a trademark of VisiCorp.

LATE NEWS FLASH >>>>>

There are two guest speakers tentatively scheduled for our January meeting. A representative from Henco Software will be on hand to discuss a very powerful new database manager, called INFO. This product stems from the mainframe environment and has recently been ported to the IBM PC. Our other speaker is club member, Craig Statchuk, who has offered to take us all on a magical mystery tour of the RS232 serial interface. He plans to tell us how to enter battle with this ogre and come out the winner.

I look forward to seeing you at the next meeting so don't forget the NEW LOCATION.

That's all for now!!!
HAPPY COMPUTING

Gordon Hopkins
Editor