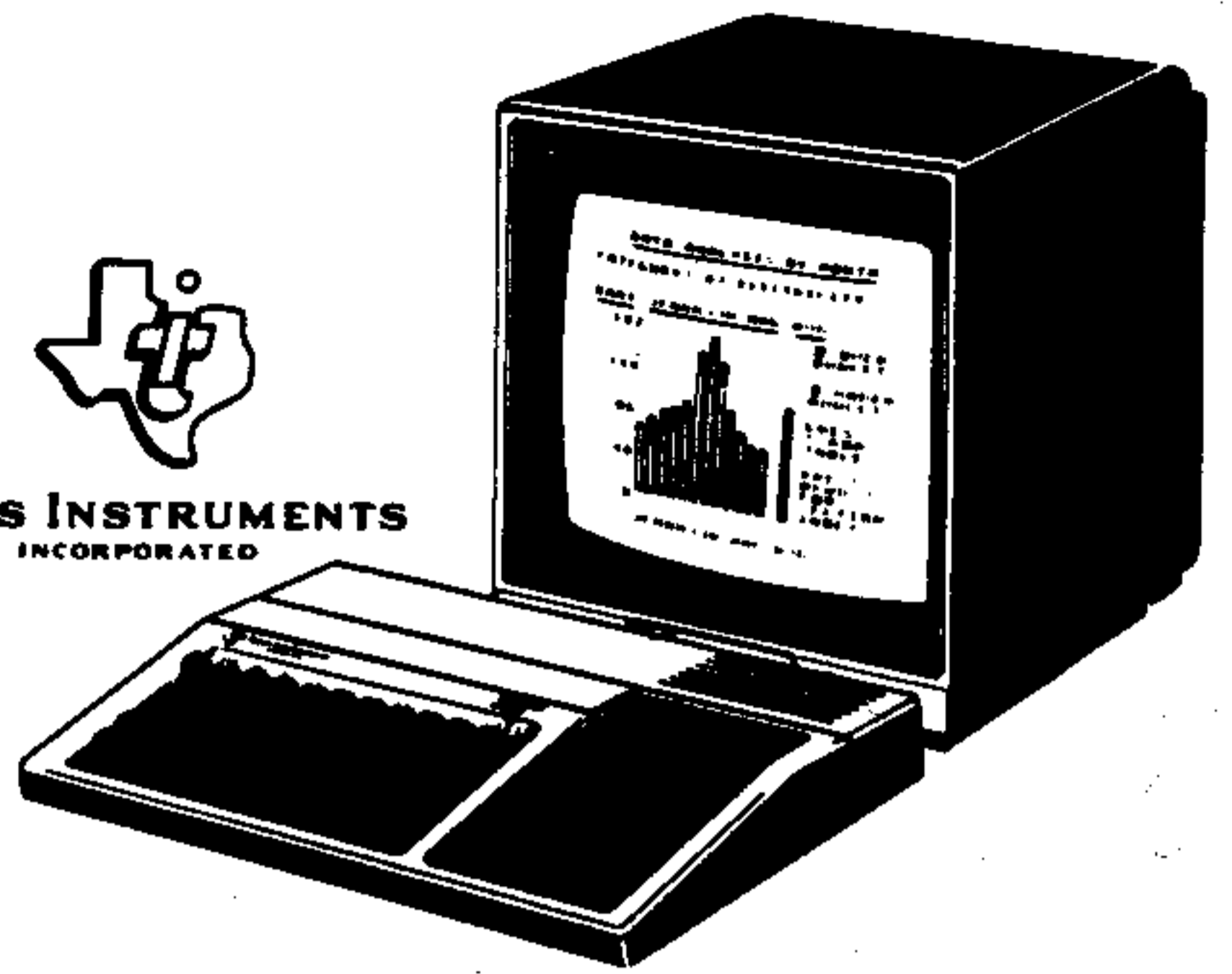


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UNOFFICIAL 99/4(A)  
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TABLE OF CONTENTS

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SUBMITTING MATERIAL  
TO UNOFFICIAL 99/4(A)

Contributions to UNOFFICIAL are very much welcome. We like to print a variety of programs which will be helpful, fun, educational and mind puzzling for other UNOFFICIAL readers.

Programs submitted must be on tape only. Disk programs can be handled, but they take more time to get to. We do not have time to 'key in' programs that are submitted on paper. All programs must be accompanied by a detailed instruction guide, and an editorial commentary for all other information that you feel is necessary. The more written the better. All correspondence must be typed, or hand printed.

We do pay for quality submissions, based on several criteria. Remuneration is small at the moment, but will increase as circulation does. Those wishing remuneration must so state when making submissions.

Editorial .....	2.
Letters .....	4.
Computers, Kids, and the Future .....	5.
Computer Apprentices Workshop .....	8.
15 Puzzle: Easy Style ....	10.
Press and Paper Review .....	13.
Mini-Memory Part II By M. Baker .....	15.
The Computer Oracle of Delphi .....	16.
In Closing .....	21.

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All programs in UNOFFICIAL 99/4(A) are 'as is'. UNOFFICIAL does not warrant that the programs will be free from error or will meet the specific requirements of the consumer.

The consumer assumes complete responsibility for any decisions made or actions taken based on information obtained using any programs in this publication.

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UNOFFICIAL 99/4(A)  
PRICES

# EDITORIAL

The price of UNOFFICIAL differs as you travel to different parts of the world. There have been numerous requests for this price list, so here it is. Also listed is the price for two year subscriptions.

For one year, six (6) issues

USA	\$10.00
Canada & Mexico	\$13.00
All other	
Countries (sea)	\$20.00
(air)	\$30.00

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Countries (sea)	\$35.00
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and must accompany all orders.

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UNOFFICIAL 99/4(A)  
BACK ISSUES

Copies of back issues are available even though numbers are few and some issues are only Xerox copies.

Jan-Feb (regular) Xerox, no cover.  
Jan-Feb (edited) Xerox, no cover.  
Mar-Apr Xerox, no cover.  
May-Jun Few original.  
Jul-Aug Few original.

Price including postage are:-

	N. America	All Other PLACES
Original	\$3.50	\$4.50
Xerox	\$5.00	\$6.00

I hope that this Editorial leaves you with a good feeling because here at UNOFFICIAL things are looking very good.

First let me say that subscriptions are increasing at a hectic pace. That can only mean we are doing something right. Of course UNOFFICIAL can not afford to become complacent because our job is to bring you the best in all areas that we cover.

The growth of UNOFFICIAL 99/4(A) has been and is tremendous: and has brought with it problems.

About the biggest problem -better say challenge- is the mailing list. How do you keep track of so many names, addresses, issues sent and other relevant information? Yes there are quite a few mailing programs on the market, but none fulfills the special needs of UNOFFICIAL. Rather than alter an existing mail program it is far better for us to write and develop our own mailing program that has the data file ability that we need.

Another growth area is in going down to the post office. When you walk into the small Clute post office with box after box of items to post, there is a definite rush to get to the counter before UNOFFICIAL does.

But growth has another side to it. Growth means that UNOFFICIAL is fulfilling a need that is there. For the TI owner there is not too much said about the 99/4 or the 99/4A. This lack of reading material is rather strange especially since TI has such a large assortment of educational programs and the soon to be released LOGO II.

Growth also allows you, the end user, to join local, national, and international user groups. These user groups are of great help when you are stuck and going nowhere fast.

So what does all this growth mean to the beginner and the hardened

programmer? For the beginning programmer he/she can know that there is a constant source of help in the form of the Computer Apprentices Workshop that covers programming in an interesting and innovative way. For the hardened programmer there are the programs and Quickies available to add to his/her library of useful ideas. But growth is now bringing in other opinions, programs, articles, and a larger feed back.

Letters that come in to UNOFFICIAL are very carefully read and reread so that we understand what was said. We carefully read the bad as well as the good comments because we aim to please. This type of feed back is essential for the good health of UNOFFICIAL because we are here to assist you in getting the most out of your TI computer. We can assist you so much better with your help than without it. How can you help yourselves? If you have read something about TI lately; have a program you would like to share; have a news release on a program you are selling; or a story to tell, send it in.

Everyone has a story to tell, and computer stories are no exception. In my experience most computer stories are hard to accept because you can not verify the validity of the story and the story is simply hard to accept. My computer stories are mostly ones that deal with my stupidity and huge errors so that I tend to never mention them. However I do have an illustrative story.

I usually do not listen to the radio inside the house because of poor reception, but I do listen to my radio in the truck. A while back I had to move the truck out of the garage so my wife could do the washing and I listened for a while to the Sheila Rushlo talk show on KTRH. I was not too interested in the topic being discussed but I remembered a topic from a previous show so I phoned the show and added my thoughts on the other topic and not the current show.

Everyone has thoughts and ideas on many topics: what is yours on computers?

Another side of growth is the fact that UNOFFICIAL has had several offers from persons interested in becoming contributing editors. Contributing

Editors are welcome because they offer the reader a variety of writing styles, points of view, and levels of experience. This can only add up to an exciting and well balanced publication. If you would like to get something published and can not spell, do not worry. UNOFFICIAL can debug your worst spelling because we have two main word processors with dictionaries and one back up word processor with its dictionary. If your poorly spelled comments get through that mess we are in bad shape.

Quite a few of the letters UNOFFICIAL receives have to do with the quality of the spelling and program errors. UNOFFICIAL has been guilty of some errors and that is why we are instigating a quality control with the aim of no spelling errors and no program listing errors. Ford says that quality is job #1. Chrysler tell you to buy a better car if you can find one. UNOFFICIAL is telling you that quality is job #1 and go to a TI computer magazine that has no errors: if you can find one.

According to a reliable source -TI- the new LOGO II will be out any month now (See "In Closing" for further comments). UNOFFICIAL will begin a monthly article using the LOGO II. Of course UNOFFICIAL will be giving LOGO a thorough going over and will do it with you -the reader- in mind.

The good news inside this issue is the fact that there is a program that uses the Speech Synthesizer (S.S. for short). Of course you do need something to operate the S.S. with, and in this case the program is in EX-BASIC. If you do not have EX-BASIC you can rewrite the program with minimal changes to run under TI-BASIC.

Having the S.S. is one of the really big advantages that the 99/4A has over the the other computers in the same and higher price range. By having the S.S. and EX-BASIC, programming becomes fun, enjoyable, and a challenge to create programs that use colour, motion, and sound.

At the moment TI has a free Speech Synthesizer and Expansion Box offer. Both items are useful in their own right but not necessarily a necessity. ###

# LETTERS

Dear Sir:

As you asked on page 22 of the July-August '83 issue, I'm "pushing my pen across paper." I have two comments: one positive; the other, negative.

First, I appreciate what you're doing. I particularly liked the file processing program you had designed for this issue. I'd been struggling with this -making progress, but struggling. Thanks.

Secondly, you've got to do something about typos. Just a rather study of the program on pages 12-13 revealed three typos (lines 100, 640 and 920). I appreciate the problem of a "shoestring" operation, but a little extra attention to the accuracy of programs would really be appreciated (don't waste too much time on the narrative; it's not so critical).

Maj. James F. Bryden  
1818 Tara Drive,  
Prattville, AL 36037

Only the truth really hurts, and we are listening closely. Mark.

Dear Sir:

I saw one of your programs (Amortization) in the Puget Sound 99'er newsletter and I would like to know if your organization is a User's Group for the TI 99/4A computer. If it is I would like some info on joining (cost, sample newsletter, etc).

David Hand  
P. O. Box 681  
Oak Harbor, WA 98277

A letter was sent, and the UNOFFICIAL's family increased by one. Welcome David.  
Mark

Dear Mark:

Returned home from vacation today to find your letter and three issues of UNOFFICIAL 99/4(A). Read your letter...

Then I'm going to start into your magazines, am really excited.

I'll be doing a review of UNOFFICIAL for our newsletter in September. I will be sending you a copy. Meanwhile, quite a few friends have expressed interest in subscribing after seeing my copy.

Jack Sughrue  
Box 459  
East Douglas, MA 01516

Thanks for your support and your letters are always welcome. Mark.

Dear Mark:

I am writing in response to your letter... requesting information about advertising in our Home Computer Newsletter. I must inform you that we do not accept advertising for the newsletter.

The Home Computer Newsletter is designed to be an information service to owners of the TI Home Computers. It is strictly published as a service to our consumers. For that reason, we are not currently accepting advertising for it. That policy may change in the future but I don't expect it to.

The Newsletter contains articles about products and services available from TI. You can see the problems we would create for ourselves if we would start plugging non-TI products such as your publication. Therefore, we have chosen not to write about any non-TI products or services in the newsletter.

If you need more information or if I can be of any help in the future, please let me know.

Edward K. Wiest  
User Communications  
Home Computer Division  
Texas Instruments Inc,  
P. O. Box 10508  
Lubbock, Tx 79408-3508

# COMPUTERS, KIDS AND THE FUTURE

As computers become more and more accepted in our homes, schools, work places and amusement arcades so our resistance to the machine decreases. We begin to see just what a computer can do and what its limitations are. Since we do not fully know what the true limitations of a computer are, we tend to place on it limitations we think and hope exist.

Limitations are not the main thrust of this article: what computers can do is.

Have you ever looked at a child as he/she is 'working' at the keyboard of a computer? If the opportunity ever comes your way, take it. Kids and computers seem to go hand in hand. Kids today are no better than you were at holding a crayon, shuffling about in a chair, or even coming home bruised, banged and covered in mud. But that is what you should expect. The big difference is in the use of computers in the school.

In schools across the country there is emerging a fourth "R", for computer literacy, entering the system of education. Slowly the need for having the up and coming generation 'computer literate' so that they can function and succeed in a computer-based society is being realized.

Having the technology is not enough, kids need to be part of the growing use and acceptance of computing machines and robots. This acceptance is more true as we see 'traditional' trades and skills disappear and the emergence of the computer in society.

Preparing kids for tomorrow is no small task and is one that needs the help of parents. Out of all the teaching population -up to high school level- you should expect only the new teachers to have been exposed to computers at a university. Aside from the teachers who have computers at home, the majority of

teachers are ignorant with respect to computers.

In the U.S. the school year is short with long breaks. In Japan the kids there attend school six days a week and eleven months a year. Who do you think is going to be better equipped for the future? A computer in the home can be one of the equalizing factors.

Back in school a computer can fill two areas of need, time on a task, and motivation.

By using a computer and the right programming package the machine can instruct in 12 minutes what used to take hours. The advantages of computers are many. A computer can repeat a question many times and never get bored, angry, or violent. The task in hand is usually made more enjoyable by skilled programmers who build in fun and by repetition. 'Repetition is the mother of memory', and kids learn from constant repetition.

The motivation behind a computer rests with the quality of the program. Addition and subtraction can be made more enjoyable if you have a vampire ready to 'bite' you if the answer you give is wrong and a werewolf if you take too much time. Can you see the math teacher at Central High dressing up in a vampire outfit? But a vampire and a werewolf are at home in a math class on a computer.

Out of all the topics taught in schools today, math and science are the toughest and the most neglected. Whether the neglect is the symptom of the toughness or vice versa is not the point. The point is kids need to have a decent working knowledge of math and science just to know how to balance a check book and to know what cleaning items to keep out of babies reach.

By computer drill and instruction the ability of kids can be improved.

Math can be made fun and science interesting by the choice of quality programs and time. By regular use of a computer, abilities do improve and the addiction becomes stronger.

Computer addiction is nothing new among older 'main frame' addicts, but now you will find 'mini' addicts all over the place: and the addicts are young. This is where computer clubs, selling programs, helping younger kids and even the aged in programming come in. Yes Computers can help 'chip' down the generation gap.

The main edge that the kids of today have is youth. Let me explain. If you born before 1965 you are basicly out of it. The up and coming generation is not worried where they will be in 20 or 30 years time. These kids are involved in Pac-Man, Space Invaders, and Tombstone City. Kids are involved with tommorrow today by using the silicon chip in their every day lives.

The main problem of having computers in schools is that the methodology of schools and the teaching ways have not changed much since the early 1800's

First you need teacher's who know how to teach computer programming and answer all the kids questions. Then you need to start changing the old teaching methodology of having one teacher in the classroom with all the children listening trying to absorb everything said and done. Computers can free the teacher to become a sort of resource and innovator of ideas. Let the computer do the repetition and drill work. Of course the classroom of the future is based on the premise that the school has enough computers so that every child has one to work with. Exactly what the future holds for schools and computers is still not well defined. Further complicating the matter is the lack of planning and direction in the schools across the land. This vacillation is not the case in the schools of Britain.

Across the ocean the British government is getting computers into the schools and producing The Computer Program for TV. The Famous BBC has its own computer -the BBC Micro- which is used in The Computer Program. There is definition and shape in what is being

done. Is the U.S. waiting for the private sector to lead or is the government going to move first: who knows?

Computers in schools are a great equalizer in giving kids of all races and background a fair chance. But if your child attends a 'poor' school, then the chances of seeing a computer in the classroom is small.

Generally speaking you will find computers being pushed by the white, upper middle- and middle-class family. Generally you will find this type and class of person active in the PTA and interested in seeing what the future holds, and wants his/her child to have the best chances that money can buy. This desire for the best usually equates into having a computer at the school and at home. Schools that have money and parents support are not slow to see which way the wind is blowing and act.

What about the poor school down in the Rio Grande Valley that is about 90% Mexican-American and does not have air conditioning? What do you think the chances are that they will have a computer for the kids to use? Then thereare the rural blacks down in the deep south. How many computer hours would you expect to have by the time he/she graduates from the local high school?

Yes computers are great but they also add to the gap between the 'haves' and the 'have nots'. Unless there is some equalizing factor between the ethnic groups then all the gains made in the 60's and 70's will be eroded.

In days gone by the home was the place to do all your learning. As learning by computers becomes more and more accepted so will the need for parents to take a more active roll in helping kids with their homework.

At the moment local libraries lend out quite an interesting array of items. The library of the future may even carry computer programs so that parents can select a program on a topic that they feel their child needs some work on. The parent could then check out the program just like a book. Having a place locally that has a good selection of quality programs will make available to the masses a teaching tool that the

parents have active control over.

If you feel lending out programs is too radical, the libraries could always have their own computers to run the programs on.

In many respects computers exceed expectations. But do not overlook one of the main functions that a school fulfills: association with other people. Computers can not teach you how to develop social skills and interpersonal relationships.

Has society come to understand computers as kids have? Until the general public rid itself of the "Big Brother" syndrome coupled with a fear of computers taking 'my' job we will have to wait for the kids of today to grow up and assume their place in society before computers are socially understood.

The Texas Instruments 99/4 and 99/4A computers can be of influence simply because they have LOGO and LOGO II and many educational packages. If you want games, buy Atari. If you want education come home to TI. Have a close look at the modules that use the speech synthesizer-- an education in itself. You have color, voice, and action for a well balanced blend that can captivate your child for hours while he learns the whole time.

When your children have grown up enough then there is LOGO and LOGO II to help develop new and deeper computer skills in your child. All the time you are giving your child a certain 'edge'.

This 'edge' will grow and become larger as the years go by and will be one of the tools to close the educational gap between the US and Japan.

At the moment a computer in every school is a dream, even with Apple's offer of giving every school an Apple computer. Our eyes ought to be looking over the Atlantic to Britain. With the BBC computer and the Sinclair ZX-81 in almost every school it will be interesting to see what effect this has on their up and coming generation.

So far we have been talking about kids and high schools, but what about the universities of the land.

Stevens Institute of Technology, Hoboken, N.J. expects ALL students to have a Digital DEC PC325 by the year

1986. Clarkson College of Technology at Potsdam, N.Y. will have ALL its students on Zenith Z-100 computers by the year 1986. Drexel University, Philadelphia, Pa will have all students on a non-commercial Apple. At Carnegie-Mellon the students will have an IBM computer that is still under development. All these universities are of the technical kind and the number of students small, but do not be deceived, other universities will soon follow: they have to just to stay accademically equal.

Playing at being an ostrich and hoping that computers will never effect you is not too smart. Supermarkets now have checkouts that have speech synthesizers that tell you what you have bought, the price, and your change. That is only the tip of the iceberg.

All this change may be strange to adults, but not to kids. And to think you and I made it through school by using pencil and paper.

###

## Eagle Base

### "Can You Soar With The Eagles?"

Eagle Base is in danger! Hundreds of alien ships are attacking from 40 sectors of space. Using the radar screen and Eagle-sight, combined with your strategy and skill, can you keep Eagle Base from being destroyed? Spread your wings and try—

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# COMPUTER APPRENTICES

## WORKSHOP

This is the second part of I/O, or input/output. Last time we covered some of the interesting parts of 'inputting' data into a program. It seems we spend most of our time entering a number, name, direction, or firing at the enemy: all forms of input.

On the other hand, output seems to be left alone or at best put to one side until the program you are writing is nearing the end and you have to display something.

The output of a program is as important as the input, maybe more so since the results of all this 'inputting' will be put in front of you. If the results are confusing, difficult to read, or in an illogical order then the program will be counted worthless even though it may be technically correct.

Basically output comes in two forms; an output to the screen or a hard copy on a printer. The information that you would have printed and the order it is printed in should be no different than that printed to the screen. The only difference being you only have 24 lines on a screen as against as much paper as you like.

The output of a program depends on three parameters:

1. What is expected.
2. Personal taste.
3. Overall aesthetics.

These three parameters are, of course, closely related. If you work as a computer programmer for a large company, you will have quite a few rules governing the output of a program. Within these rules, or guidelines, you have the ability to exercise personal taste and show your individuality. The program and output can and should show individuality based on the three

parameters above.

Let us look at an example of output onto the screen and then put it onto paper.

```
100 REM DIVISION PROGRAM
120 REM BY M. LEYTON
140 REM OUTPUT EXAMPLE
160 CALL CLEAR
180 TOTW=0
200 TOT=0
220 RANDOMIZE
240 X=INT(100*RND)+1
260 Y=INT(20*RND)+1
280 IF Y=1 THEN 260
300 IF Y>= THEN 240
320 IF (X/Y)=INT(X/Y)THEN 32
0 ELSE 240
340 TOT=TOT+1
360 PRINT " ";X
380 PRINT " ";Y
400 PRINT " ---"
420 INPUT Z
440 IF Z=99 THEN 660
460 IF Z=(X/Y) THEN 560
480 PRINT "WRONG ANSWER, TRY
AGAIN."
500 FOR I=1 TO 150
520 NEXT I
540 CALL CLEAR
560 GOTO 340
580 TOTW=TOTW+1
500 PRINT "WELL DONE, CORREC
T ANSWER."
620 FOR I=1 TO 130
640 NEXT I
660 GOTO 240
680 CALL CLEAR
700 PRINT "YOUR SCORE IS";TO
TW;"CORRECT"
720 PRINT "OUT OF";TOT-1;"QU
ESTIONS."
740 END
```

This is a simple program that drills you on division. Out of the thirty five lines only three had anything to do with the output and, basically, the output is very boring and offers no "enjoyment" to the learning process.

This is a functionally correct but poor program.

At the moment the size of the program is 595 bytes and only three lines of output plus two comment lines, one for correct and one for a wrong answer.

To make this program more 'interesting' when shown on the screen is going to take some cosmetic work. There is little that you can do to the numbers but a lot that you can do in the presentation of the division question.

You may say that cosmetic work has nothing to do with the output but after you have written many programs you will find that the most satisfying of all your creations will be the ones that look the best as well as do what they were created to do. Cosmetics count in computing.

What cosmetic work can be done to this simple program?

1. color, and color changing screens.
2. sound.
3. interesting layout of the screen.
4. motion for attention getting.

This may entail quite a bit of work but so did Pac-Man. When you try and make any program output interesting or fun, expect to at least double the length of the program; take as much time as you did writing the basic program; expect to have many problems creeping into the basic program from all the fancy stuff you are doing; and always keep a final hard copy -if you have a printer- or a separate cassette copy as you may well get lost and need to fall back and regroup.

Now let us look at an improved version of the division program with some 'extras' on it.

```
100 REM DIVISION PROGRAM
120 REM BY M LEYTON
140 REM FOR OUTPUT COLUMN
160 CALL CLEAR
180 TOTW=0
200 TOT=0
220 CALL CHAR(128,"FOFOFOFOO
FOFOFOF")
240 CALL COLOR(13,2,11)
260 CALL CHAR(129,"OFOFOFOFF
OFOFOFO")
280 RANDOMIZE
300 X=INT(100*RND)+1
320 Y=INT(20*RND)+1
340 IF Y=1 THEN 320
360 IF Y>=X THEN 300
380 IF (X/Y)=INT(X/Y)THEN 40
0 ELSE 300
400 TOT=TOT+1
420 PRINT " ";X;"DIVIDED BY
";Y;"IS ??"
440 PRINT
460 PRINT
480 PRINT
500 PRINT
520 PRINT
540 PRINT
560 FOR I=1 TO 5
580 FOR J=1 TO 2
600 CALL HCHAR(14,1,128,32)
620 CALL HCHAR(20,1,128,32)
640 CALL VCHAR(14,1,128,6)
660 CALL VCHAR(14,32,128,6)
680 NEXT J
700 FOR K=1 TO 2
720 CALL HCHAR(14,1,129,32)
740 CALL HCHAR(20,1,129,32)
760 CALL VCHAR(14,1,129,6)
780 CALL VCHAR(14,32,129,6)
800 NEXT K
820 NEXT I
840 PRINT
860 PRINT
880 PRINT
900 PRINT
920 PRINT
940 INPUT Z
960 IF Z=99 THEN 1400
980 IF Z=(X/Y) THEN 1180
1000 PRINT "WRONG ANSWER, TR
Y AGAIN."
1020 P=1
1040 FOR I=1 TO 100
1060 NEXT I
1080 CALL SOUND(200,262,2)
```

```

1100 CALL SOUND(200,196,2)
1120 CALL SOUND(400,131,2,14
7,2,185,2)
1140 CALL CLEAR
1160 GOTO 420
1180 IF P=1 THEN 1220
1200 TOTW=TOTW+1
1220 PRINT "WELL DONE, CORRE
CT !! "
1240 FOR I=1 TO 90
1260 NEXT I
1280 CALL SOUND(100,494,2,62
2,2)
1300 CALL SOUND(100,554,2,69
8,2)
1320 CALL SOUND(300,622,2,74
0,2)
1340 P=0
1360 CALL CLEAR
1380 GOTO 300
1400 CALL CLEAR
1420 PRINT "YOUR SCORE IS";T
OTW;"CORRECT"
1440 PRINT "OUT OF";TOT-1;"Q
UESTIONS."
1460 END

```

This is quite a bit different than the original version, but you should have been expecting that. The number of bytes has climbed to 1394 and that is

not all you could have done with this small program. You could say that the output and its design is a law unto itself. In theory you should be able to 'run' the output part of the program and have it work correctly. Sometimes this trial run is not possible due to the closeness of the output design and the data going into the output.

As for the output being a law unto itself this is true in so much as there is no right or wrong way to display the data; only aesthetic appeal.

Having a printer opens up a different world, but in this world there exist rules that you might not expect. A printer is only a glorified typewriter -if letter quality-, or a matrix printer capable of some graphics.

In both situations, letter or matrix printer, you have the ancient and well defined rules of the printed word. A letter or report had better follow accepted lines or not be well accepted. This may not seem right but that is business. With the dot matrix printer you have the ability to branch into printing design and there you will find few if any rules.

Writing programs is fun and creating an interesting and visually exciting output is half the fun.

###

---

## 15 PUZZLE: EASY STYLE

Out of all the common games that there are Fifteen Puzzler must be one of the best known. Maybe this puzzle is so well known because it has been with us so long that our grand-parents will know it when they see it on the screen. A formal explanation is not included here, but there is one at the end of the program if you need it.

This program was originally

written in TI-BASIC but had several major flaws that it had to be rewritten into EX-BASIC. With EX-BASIC you eliminate screen roll and slowness, and gain speech. If the speech becomes annoying, make line 330 a REMark line.

As a point of reference the program has been tested with a low score of 188 moves. If you can do better than this score let UNOFFICIAL know.

```

100 REM PUZZLE 15
110 CALL CLEAR
120 DIM A(16),N(4,4)
130 DISPLAY AT(7,5):"FIFTEEN
PUZZLER"
140 DISPLAY AT(10,1):"DO YOU
NEED INSTRUCTIONS ? (Y/N)"
150 ACCEPT AT(11,7)BEEP VALI
DATE("YN"):Q$
160 IF Q$="Y" THEN 1300
170 RANDOMIZE
180 M=0
190 DISPLAY AT(10,1)ERASE AL
L:"CREATING THE PUZZLE TAKES
A FEW SECONDS, HANG ON."
200 FOR I=1 TO 16
210 A(I)=0
220 NEXT I
230 FOR I=1 TO 16
240 R=INT(16*RND)+1
250 IF A(R)<>0 THEN 240
260 A(R)=I
270 NEXT I
280 GOSUB 490
290 IF F=1 THEN 200
300 GOSUB 650
310 DISPLAY AT(24,1):"<ENTER
> YOUR MOVE"
320 ACCEPT AT(24,20)BEEP SIZ
E(2):X
330 GOSUB 1110
340 GOSUB 830
350 GOSUB 890
360 IF F<>0 THEN 430
370 CALL SCREEN(7)
380 CALL SAY("UHOH")
390 DISPLAY AT(24,1):"ILLEGA
L MOVE, TRY AGAIN."
400 FOR I=1 TO 200 :: NEXT I
410 CALL SCREEN(8)
420 GOTO 310
430 A(F+X)=A(X)
440 A(X)=16
450 GOSUB 1000
460 M=M+1
470 GOTO 300
480 END
490 REM VERIFY SOLUTION...
500 F=1::S=0
510 FOR I=1 TO 5
520 FOR J=I+1 TO 16
530 IF A(I)>A(J) THEN S=S+1
540 NEXT J
550 NEXT I
560 FOR K=1 TO 8
570 READ X
580 IF A(X)=0 THEN S=S+1
590 NEXT K
600 RESTORE
610 P=INT(S/2)
620 IF P*2=S THEN F=0
630 RETURN
640 DATA 2,4,5,6,10,12,13,15
650 REM SHOW GAME BOARD
660 CALL CLEAR
670 WR=9
680 FOR I=1 TO 4
690 FOR J=1 TO 4
700 N(I,J)=A((I-1)*4+J)
710 IF N(I,J)=16 THEN 720 EL
SE 730
720 N(I,J)=0
730 NEXT J
740 DISPLAY AT(WR,7):N(I,1)
750 DISPLAY AT(WR,10):N(I,2)
760 DISPLAY AT(WR,13):N(I,3)
770 DISPLAY AT(WR,16):N(I,4)
780 WR=WR+1
790 NEXT I
800 DISPLAY AT(23,1):"THIS I
S MOVE # "
810 DISPLAY AT(23,15):M
820 RETURN
830 REM CHANGE NUMBER ENTRY
INTO A LOCATIO IN ARRAY.
840 FOR I=1 TO 16
850 IF A(I)=X THEN 870
860 NEXT I
870 X=I
880 RETURN
890 REM CHECK FOR LEGAL MOVE
900 F=0
910 IF X+1>16 THEN 930
920 IF A(X+1)=16 THEN F=1
930 IF X-1<0 THEN 950
940 IF A(X-1)=16 THEN F=-1
950 IF X+4>16 THEN 970
960 IF A(X+4)=16 THEN F=4
970 IF X-4<=0 THEN 990
980 IF A(X-4)=16 THEN F=-4
990 RETURN
1000 REM CHECK FOR A WIN
1010 FOR I=1 TO 16
1020 IF A(I)<>I THEN 460
1030 NEXT I
1040 GOSUB 650
1050 DISPLAY AT(20,5)ERASE A
LL:"YOU DID IT IN ONLY ";M;"
MOVES !"
1060 CALL SAY("YOU WIN")
1070 DISPLAY AT(23,1):"
DO YOU WANT TO TRY AGAIN
(Y/N)"
1080 ACCEPT AT(24,10)VALIDAT

```

```

E("YN")BEEP:Q$
1090 IF Q$="Y" THEN 180
1100 END
1110 REM SPEACH
1120 IF X>15 OR X<1 THEN 129
0
1130 ON X GOTO 1140,1150,116
0,1170,1180,1190,1200,1210,1
220,1230,1240,1250,1260,1270
1280
1140 CALL SAY("ONE"):: GOTO
1290
1150 CALL SAY("TWO"):: GOTO
1290
1160 CALL SAY("THREE"):: GOT
0 1290
1170 CALL SAY("FOUR"):: GOTO
1290
1180 CALL SAY("FIVE"):: GOTO
1290
1190 CALL SAY("SIX"):: GOTO
1290
1200 CALL SAY("SEVEN"):: GOT
0 1290
1210 CALL SAY("EIGHT"):: GOT
0 1290
1220 CALL SAY("NINE"):: GOTO
1290
1230 CALL SAY("TEN"):: GOTO
1290
1240 CALL SAY("ELEVEN"):: GO
TO 1290
1250 CALL SAY("TWELVE"):: GO
TO 1290
1250 CALL SAY("THIRTEEN")::
GOTO 1290
1260 CALL SAY("FOURTEEN")::
GOTO 1290
1270 CALL SAY("FIFTEEN")
1290 RETURN
1300 DISPLAY AT(2,5)ERASE AL
L BEEP:"FIFTEEN PUZZLER"
1310 DISPLAY AT(4,1):"THE OB
JECT OF THIS GAME IS TO MOV
E THE NUMBERS ABOUT"
1320 DISPLAY AT(6,1):"SO THA
T THEY LOOK LIKE THIS."
1330 DISPLAY AT(8,5):" 1  2
  3  4"
1340 DISPLAY AT(9,5):" 5  6
  7  8"
1350 DISPLAY AT(10,5):" 9 10
 11 12"
1360 DISPLAY AT(11,5):"13 14
 15  0"

```

```

1370 DISPLAY AT(13,1):"YOU G
ET THE NUMBERS INTO THIS
ORDER BY EXCHANGING THE ZERO
WITH THE NUMBER NEXT TO IT,
"
1380 DISPLAY AT(15,1):"OR TH
E NUMBER ABOVE OR BELOW."
1390 DISPLAY AT(23,1):" TO P
LAY PRESS <ENTER>"
1400 ACCEPT AT(23,24):Q$
1410 IF Q$="Y" THEN 170 ELSE

```

This game has been written with the GOSUB command in mind. By using this command you can break up the game into several pieces that are easy to program.

When you "RUN" the game you have to wait a few seconds so that the computer can make a game board that can be solved. On some occasions the computer will try four or even five times till the initial lay out is solvable. There is nothing worse than a game that has no solution.

Line 320 is where you will do all your entering. The following three lines are for speech, changing the number you have entered into a location in the array, and finally a check to see if the move you want is a legal move.

In the subroutine that shows the game board (lines 650-880) it is necessary to translate the one dimensional array 'A' into a two dimensional array 'N'. This is done so as to make the program more compact than it would have been with sixteen DISPLAY AT statements -one for each location.

As with any program you will find ways to increase the speed, or add different features by rewriting the program. Please do so and let UNOFFICIAL know so we can pass on what you have done.

###

```

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# PRESS AND PAPER REVIEW

Since the last issue of UNOFFICIAL TI has been in the news both for good and bad. Let us step back and look at the good first.

TI has brought out several computers, first we will look at the TI Professional computer. You will be hard pressed to find much written about this computer in the US computer magazines. The article UNOFFICIAL has come from Personal Computer World (May 1983). The article comes under the Benchtest heading and is written by Robin Webster. This magazine is British and came slow boat, hence the delay. One quick word about the layout of this magazine: the first one hundred pages are all ads with a few ads in the articles and about one hundred pages of ads at the end.

The Professional came out at the beginning of the year, with little fan fair, as an IBM PC compatible computer. As with all other IBM PC compatible computers, the Professional uses an Intel 8088 and not a TI chip.

This is not an in depth article but lets you know what the Professional is like and will help you decide if it is worth looking at this computer before buying an IBM PC. Some quotable quotes are, "The Professional's ability to mix text and graphics on the same screen is a definite plus when compared to the IBM PC's rather less salubrious capabilities in this department."

"...Ti is intending to offer a natural language interface and speech I/O facilities that can be used in database query applications and program input/output, respectively."

"I liked the machine as long as I thought about it as a new business machine from TI - I got a little worried about it when I thought of it as an IBM BC work-alike."

In Computers & Electronics (June 1983) there is a good comparison between

the TI-99/2 and Timex Sinclair 1000.

The article is written by Joe Desposito and places the 99/2 in the featherweight group with only the Timex Sinclair 1000 to fight. Joe carefully looks at the features of the 99/2. He lists the 4.2 to 36.2K memory, the 10.7 MHz speed, compatibility with the 99/4A, solid state software cartridge port, and ultra-sophisticated HEX-BUS support team.

"What's our opinion of the challenger's chances? At first glance, the 99/2 is certainly impressive. But will it suffer the same fate as the 99/4A, which gets software and hardware support almost exclusively from the parent company? ...Will anyone try to take the 99/2 apart and have some fun with it? A polished featherweight can tarnish quickly waiting in the locker room (inside the locker?) for something exciting to do."

In the May 1983 issue of Creative Computing there is, as the preamble puts it, "...a second look at the TI 99/4A." Fred Gray, author, gives you a very concise history of the 99/4 and 99/4A which can either be very interesting, or of cold comfort. Fred then takes you on a tour of what is different with the 99/4A over the 99/4. He then concludes with a quick and praise worthy review of the Editor/Assembler Package.

Over the page -still in Creative Computing- is an ad for the TI CC-40: a nice touch. What is this? The very next article in Creative Computing is on Texnet.

Robert Cashman bought a 99/4 and lived in an area with no user's group, but there is Ma Bell, The Source, and Texnet. Robert takes the reader with him as hooks up and down loads TI programs. He makes it sound very easy, so long as you have the right equipment and do not mind paying the phone bills.

Robert lists the joys of the Texnet as this:-

- TI News
- TI Software Directory
- TI User's Groups
- TI Service Centers
- TI Help
- TI Phonetic Directory
- TI Voice Chat
- TI Graphics Library
- TI Music and Sound Library
- TI Idea
- TI Logo Exchange.

The August 1983 issue of Popular Computing has an excellent review of seven versions of LOGO. Of course one of the seven was the soon to be released LOGO II. The article titled LOGO: What Makes It Exciting?, by Dan Watt, offers one sound piece of advice to all TI owners, "...I would strongly recommend that current TI LOGO users purchase the upgraded version."

Watt points out three limitation points of the LOGO II. They are 1) Limitation of the number of lines you can draw on. 2) Only integer arithmetic performed. 3) No direct access to memory locations.

But the good news is about the complexity that you can put in to a LOGO program. You have Sprites, music, color, and the 256 user-definable characters. The other good news is LOGO II is priced very competitively and the amount of extra hardware needed to run LOGO II is far less and cheaper than most of the other versions of LOGO covered in the article.

If you are tired of magazines that have boring articles, poor programs and all you look at are the ads then there is a magazine (?) for you. The title is "TI-99/4A The Everything Book for the Texas Instruments 99/4A Home Computer" and is published by Tenex Computer Marketing Systems. All it has is ads for game, education, business, and music programs. Also covered is a wide assortment of printers, cables, modems, joysticks, disks and books.

Now we come to some sad news as reported from England. In the Popular Computing Weekly magazine (16-22 June) there was the statement that "Texas

Instruments confirmed the demise of the new 99/2 mute black-and-white computer."

In the 4-10 June issue of the aforementioned magazine is the exciting news that QA Data Systems is bringing out a mother-board and memory expansion module for the 99/4A. It seems that this expansion unit will plug into the data bus port and will have 32K, four expansion slots, and a power supply all built in. The cost is low. In England the TI expansion unit costs \$244.72 and the 32K memory costs the same for a total of \$489.44. The projected price of the QA system is \$306.00

Again from over the ocean came Computer Answers. The magazine is basically a question-answer format with a few articles. In the May 1983 issue some hard questions about the TI-99/4A were answered.

The first question was on expanding the computer. The answer brought up the Expansion Box along with its price; and that is before you put anything in it. The writer then dives in to some of the internal workings and idiosyncracies of the 99/4A. The writer describes the function and operations of the program counter, the status register, and the workspace pointer. You really need to read the article to get a flavor of the hurdles put up by TI in their quest to control the accessory market. Other questions covered are why no memory map, why is TI not covered by computer magazines, graphic capabilities, and why are modules so much more costly than tape programs? All answers are well thought out and dive into deep waters at times.

Finally there is Compute ! magazine that still has programs and some 'light' articles for the 99/4A. This is the last time UNOFFICIAL shall mention Compute ! because its coverage of the 99/4A is the same from month to month.

If you have been watching your local Public Broadcasting System station then you will be familiar with the English series "The Computer Program". These programs have been demonstrating what you can do with computers by taking you through many applications of computers in real life. Each program covers one topic. A new American PBS computer series is on the air called

"Bits, Bytes and Buzzwords". This program, like its English counterpart, deals in generalities because no one program can cover all the personal

computers with in depth and informative programs. If you do not know all a computer can do these are excellent PBS programs well worth watching.

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## MINI-MEMORY PT2

This is the second of a two part article taken from The Sprite. (vol.1 No.4 April 1983) A monthly newsletter of The 9900 User's Group in Moorstown New Jersey. The article is written by M. Baker.

This month we'll be wrapping up the Mini-Memory expose' with a discussion of it's Editor-Assembler capabilities. For those who are not sure what those fancy words are or even what they do for us, let me step aside and present some quick definitions. The word assemble of course, means to put together. What we are putting together are instructions in a language that the TI-99 understands directly. The TI-99 handles what is called machine code or machine language. These are called OPERATION CODES (OP CODES). Each of these is given a shorthand type phrase, or "acronym" called a NMONIC (NI-MON' IK)

We then take these nmonics and key them in as we do in BASIC, i.e. GOSUB. They are immediatly converted to machine code. We continue this under the guidelines set up until we've completed our program. In the Mini-Memory line-by-line Assembler there are seven directives (Assembler commands) recognized. These 7 directives when entered as required as programming aid commands (not to be confused with instructions) that direct the Assembler to perform specific operations and may generate many instructions to satisfy one directive. So, the bottom line then is that you enter a nmonic called a "source" statement. This is immediately

converted to machine (object) code. This is where the terms "source file" and "object file" come from. The "source file" is the program listing in a form that people can easily read. The "object file" is the actual program the computer RUNS.

If you are a serious assembly language programmer the EDITOR/ASSEMBLER package sold separately should be investigated. In general, the price of the Mini-Memory or the Editor/Assembler packages is identical. The required peripherals for each, however, is substantially different! To keep it short, the Mini-Memory requires NO extra peripherals. This is the saving grace of the Mini-Memory when getting started in assembly programming.

The seven Assembler directives are: AORG, BSS, DATA, END, SYM, EQU, and TEXT. These could also be considered mnemonics for the assembler. AORG represents Absolute ORiGin and sets the location counter (an absolute address) to whatever you wish. It also will display the address contents as well. It may therefore be used to inspect and change while in the Assembler. BSS is Block Starting with Symbol. It reserves a block of memory by bytes for later use. DATA allows us to initialize a word or words of memory to a definitive value be it a constant or a pointer to a constant. The pointer may be any letter or combination of letters or even a mathematical expression.

END is the way we exit the Assembler. The Assembler then checks to



make sure we do not have a reference that is not defined. If we have an unresolved reference or if we wish to look at a table of references, we use the SYM command which stands for SYMBOL table. The EQU or the EQUate command defines a value for a symbolic constant or assigns a value of one symbol to another.

This command (EQU) should be used with care since any unresolved references could be difficult to track down. The TEXT command allows us to enter straight text into our program. The text may be as long as desired.

The EDITOR portion is really not so much a separate entity but part and parcel of the line-by-line Assembler. The ability to go back and change a line is always present. Correcting an error while typing is even easier. Moving from one field to any entry to another is accomplished by the space bar. Editing of a field is accomplished prior to leaving that field simply by typing in the correct entry and depressing the space bar. The assembler accepts the last value entered for the specific field as the input.

One big difference between Assembly programming and BASIC programming is that it is highly recommended you have your program written out BEFORE you key it in. Keying in an assembly program off the top of your head will just get you in trouble when you do a RUN of the program.

When you finally run an assembly program the first thing you will notice is a marked increase in speed. Night and day is a mild form of acclamation. You can write all your subroutines in the assembly language and call them from either BASIC or EXTENDED BASIC. This will make your BASIC or EXTENDED BASIC programs run faster. You must have a 32K expansion memory system to use your assembly programs with EXTENDED BASIC.

Well, I hope I've given you an insight as to what assembly language is and how the Mini-Memory uses it to give you flexibility in programming. It really isn't as mystifying as it's been passed on to be. It's simply another programming language and preconceptions should be avoided as with anything unknown.

by M. Baker

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## THE COMPUTER ORACLE OF DELPHI

One of the many functions that the Computer Oracle of Delphi has is to decide what the truth is with regard to certain questions. As you all may know the definition of truth is a knowledge of things as they were, as they are, and as they are to come. That sounds all encompassing and comes not easy when you are a new oracle.

The starting goal of all new oracles is to hit the correct answer at least 50% of the time. That may sound kind of average but it is a tough goal. Of course the oracles have computers to

help out -that is why this column is called the Computer Oracle of Delphi.

By using modern high speed computers it is possible to reach solutions to tough problems in hours rather than days. Computers use random to try different avenues of thought, and logic to solve the problem.

At this time we will be looking at how the Computer Oracle of Delphi creates its own random numbers. Of course the Oracle could use the random numbers from the TI-99/4A, but so could lesser oracles and discover how the

Computer Oracle does so well. This Oracle has its own number generator.

Of all the random number generators available, the Power Residue Method is about the most widely used in computers. Before we look at the program for the random numbers we need to cover some notations and concepts in number theory.

Given two numbers 'A' and 'B', and the difference between these two numbers is evenly divisible by an integer 'C', then 'A' is said to be "congruent to B modulo C". Or:-

$$A = B \text{ mod } C \quad \text{EQU \# 1.}$$

For example:-

$$21 = 11 \text{ mod } 5$$

Where A = 21, B = 11, and their difference, 10, is evenly divisible by 5. Or to put it another way, the quotient (A-B)/C is an integer.

$$(21 - 11)/5 = 2$$

As with all formula there are certain rules. For A, B, and C to satisfy equation # 1. then the following must apply.

- 1) A and B must have the same remainder after being divided by C.
- 2)  $A - B = I * C$  where I is an integer.

Looking at rule # 2. above, you can see that with a given B and C you can have a range of values for A and I as possible solutions to the equation. The many solutions are called a 'collection'. A collection for the formula  $A = 26 \text{ mod } 6$  is:-

I	1	0	-1	-2	-3	-4	-5
A	32	26	20	14	8	2	-4

Since we are dealing with the Power Residue Method we chose 'A' to be the smallest positive number of the collection. This smallest number is known as the "least positive residue", and in this case it is  $A = 2$ .

If the value of B and C is known, then it is easy to calculate the least positive residue (A) by the following method :-

$$A = B - (B/C) * C \quad \text{EQU \#2}$$

Where (B/C) is a truncated integer division. To put it another way, the fraction part of the division (B/C) is ignored, leaving only the integral part. The remainder that you ignore is equal to the value 'A'.

Let us look at an example. We wish to know the value of 'A' given B=20 and C=8.

$$A = 20 - (20/8) * 8$$

$$A = 20 - (2) * 8$$

$$\text{therefore:- } A = 4$$

What we have stated above is covered by this example. If you do not follow how 'A' is calculated, re-read the above before proceeding.

At this point we can define a series of power residues  $A_n$  as such:-

$$A_n = B^n \text{ (mod } C) \quad \text{for } n=1,2,3,\dots$$

Let us look at the example when B=5 and C=31:-

$$\begin{aligned} A_1 &= 5^1 \text{ (mod } 31) = 5 \\ A_2 &= 5^2 \text{ (mod } 31) = 25 \\ A_3 &= 5^3 \text{ (mod } 31) = 1 \\ A_4 &= 5^4 \text{ (mod } 31) = 5 \\ &\vdots \\ &\vdots \\ &\vdots \end{aligned}$$

Since this is a repeating series, then we can say that 5, 25, and 1 are the power residues.

By using this concept we are now ready to adapt what we have been doing to the computer and get our random numbers. The random number  $R_{n+1}$  is generated by the relation known as the

"multiplicative congruence method."

$$R_{n+1} = X R_n \pmod{2^d}$$

Where  $R_n$  is the previous random number, or seed, and 'd' is the number of bits in a word (16 for the 99/4A), and 'X' is a number chosen so as to give the longest series of random numbers with out repetition. Using  $d=15$  and  $X=2^8+3$ , then we have:-

$$R_{n+1} = R_n(2^8+3) \pmod{2^{15}}$$

or...

$$R_{n+1} = 259 * R_n \pmod{2^{15}}$$

or...

$$R_{n+1} = 259 * R_n - ((259 * R_n) / 2^{15}) * 2^{15} \quad \text{EQU \# 3.}$$

Remember that the division inside the parenthesis will result in a truncated integer.

Following are two examples where  $R_n$  is randomly given. Do not forget that the previous random number is the seed for the next random number, so by having control over the seed we can create our own special random number series.

Assuming that  $R_n = 2^{10} + 1$ , then the next number in the series can be found by using equation # 3. First we shall perform the truncated division:-

$$((259 * 1025) / 32768) = 8$$

Then...

$$R_{n+1} = 259 * 1025 - 8 * 32768$$

$$R_{n+1} = 3331$$

Then...

$$R_{n+2} = 10761$$

$$\text{and } R_{n+3} = 1819$$

If  $R_n = 2^{30} + 3$  then the value of  $R_{n+1}$  will be found by the same method as we have done before.

$$((259 * 1073741823) / 32768 = 8486911$$

Then...

$$R_{n+1} = 259 * 1073741823 - 8486911 * 32768$$

$$\text{Then } R_{n+1} = 32510$$

Both of these examples produce numbers of a large size and that is not exactly what we want. The random numbers we are after must fall between 0 and 1. This, of course, is easily done in the program.

The subroutine is written in EX-BASIC because of the parameter/argument handling facilities.

```
1000 SUB RANDU(SEEDIN,SEEDOUT,NUMM)
1010 TEMP1=SEEDIN*259
1020 IF TEMP1>=0 THEN 1040
1030 TEMP1=TEMP1+2147483647+
1
1040 TEMP2=INT((259*SEEDIN)/
32768)
1050 NUMM=TEMP1-(TEMP2*32768
)
1060 SEEDOUT=NUMM
1070 IF NUMM>0 AND NUMM<1 TH
EN 1090
1080 NUMM=NUMM/10.
1090 SUBEND
```

The following calling program will show just how good RANDU is:-

```
90 COUNT=0 :: SUM=0
100 DISPLAY AT(10,3)ERASE AL
L:"ENTER YOUR BEGINNING SEED
"
110 ACCEPT AT(12,5)BEEP VALI
DATE(NUMERIC):START
```



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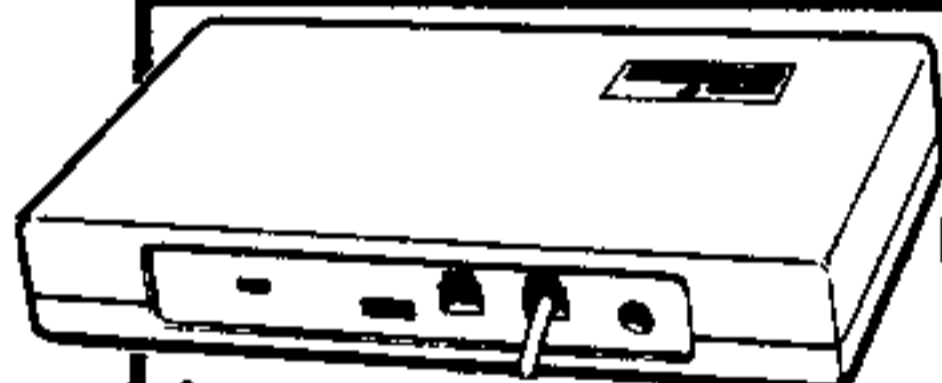
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```

120 CALL RANDU(START,OUT,IX)
130 COUNT=COUNT+1
140 SUM=SUM+IX
150 IF COUNT=100 THEN TOT1=SUM/100
160 IF COUNT=1000 THEN TOT2=SUM/1000
170 IF COUNT=2000 THEN TOT3=SUM/2000 :: GOTO 190
180 START=OUT :: GOTO 120
190 DISPLAY AT(2,2)ERASE ALL
:"AVERAGES FOR 'RANDU'"
200 DISPLAY AT(5,2):"100 ITERATIONS"
210 DISPLAY AT(5,17):TOT1
220 DISPLAY AT(7,2):"1000 ITERATIONS"
230 DISPLAY AT(7,17):TOT2
240 DISPLAY AT(9,2):"2000 ITERATIONS"
250 DISPLAY AT(9,17):TOT3
260 END

```

By entering the number 1025 as the starting 'seed', then we get the following averages:-

TOT1 = 0.3648829

TOT2 = 0.32147527

TOT3 = 0.31735113

As you can see the averages are on the low side of 0.5. By using the 99/4A built in random number generator we get an average that is about this magical 0.5 mark.

TOT1 = 0.5354157888

TOT2 = 0.5097687852

TOT3 = 0.5031399956

What we have done here is develop a mathematical idea into a computer program. As you can see, the program works but the average is coming in too low. There are some places in the formula that we can change, try these two Let 'd' =  $2^{31}$ , and

'X' =  $2^{16}+3$ . By having larger numbers in the formula you can use a larger 'seed' thus giving you a larger range of numbers. By changing the numbers you will get (using 262145 as the 'START'):-

TOT1 = 0.3878120416

TOT2 = 0.3565956198

TOT3 = 0.3517109458

If those numerical changes are not good for you, there is a modification you can make. One of the rules of random numbers is that the same number can follow itself in a random number sequence. Elimination of this repetition can give a better average. But you are altering the rules of a random number series.

Is this 'weighting' factor towards the lower side of 0.5 going to effect a program using RANDU? It all depends on how you view randomness. The toss of a coin is effected by the unequal distribution of metal caused by one side having a larger raised area than the other. We still use coins to decide football game starts and many other sporting results. Is it fair? That depends, but it is accepted and that is what counts.

Have fun with your own random number subroutine, and if you find a better way let UNOFFICIAL know; but I doubt it.

###

The next issue of UNOFFICIAL will be a special issue. We are rushing a 16K program to have it ready for the November-December issue. And all 16K will be loaded from tape; but not at one go. See you then.

# IN CLOSING...

In closing this issue UNOFFICIAL has just received a copy of the April 26, 1983 report from the President's Commission on Excellence in Education. The title of the report is A Nation at Risk. You may have heard about it on the national news at the time of its release. Have you forgotten it like everyone else?

"If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves."

"We recommend that schools, colleges, and universities adopt more rigorous and measurable standards, and higher expectations for academic performance and student conduct, and that 4-year colleges and universities raise their requirements for admission. This will help students do their best educationally with challenging materials in an environment that supports learning and authentic accomplishments."

Finally, "The task of assuring the success of our recommendations does not fall to the schools and colleges alone. Obviously, faculty members and administrators, along with policymakers and the mass media, will play a crucial roll in the reform of the educational system. But even more important is the role of parents and students, and to them we speak directly."

If you did all the typing in the random number program you will know how long it takes to get the answers. The eternal problem of an infinite loop is always there and there are only a few ways of testing for such a loop or like problems. Of course you could have the computer do something as against sitting there with a blank screen, but

unnecessary programming can bring problems you can not account for.

What can you do? If you want to include extensive debugging in the program you have that option. Another is to have a logic analyzer to test the computer directly: slim to a thin chance of doing that !! Or there is the old and cheap method of placing an AM radio next to the TI-99/4A and listen to the noise generated by the digital circuitry.

The most obvious sound patterns are made by loops, but with practice more complex flow patterns can be recognised.

In the early days of home computers listening to your computer was almost impossible due to the FCC radio-frequency emission rules. Things have changed and now Atari is about the only computer that meets the original standards.

The rise and fall of the ill fated TI-99/2 is a dramatic sign of the times. In the computer world you have to hit it right the first time or take a big loss. At the same time that TI ended the 99/2 Timex came out with a family of below \$100.00 computers. Of course there are other computers entering the low price end, but none as strong as Timex.

One muses over the new TI-99/8 and its capabilities...wondering if TI can get enough made and out into the shops, in sufficient quantity, for Christmas.

Do you hold stock in Texas Instruments Inc.? If you do or do not it has been hard not to hear about the dramatic fall of the stock value. The fall -related to low quarterly earnings- was placed at the feet of the home computer division. To have the 99/2 that close to mass production must have cost many millions of dollars. But there is someone that has done very well

in the midst of all TI's problems. His name is Bill Cosby. It is a pity that you can not invest in Bill because he seems to have a rosy future promoting TI computers and Jello-Brand pudding.

LOGO II will make a difference when it comes out, but the real question is when. The new LOGO was announced several months ago but still is nowhere to be seen. This long lag between announcing and delivering is not unusual in the computer world. IBM has announced a computer called 'Peanut' in the spring and that computer has not made the magazine evaluation stage. If you think that is bad, some large main frame companies announce computers years ahead of delivery just to keep the opposition on their toes. UNOFFICIAL feels that LOGO II should be out by Christmas.

If this issue of UNOFFICIAL reaches you later than expected, remember that there is a hurricane sitting out there and ready to come ashore tomorrow. Depending on what happens over the next several days will affect printing and

delivery. At the moment we are packing up house and getting ready to move to San Antonio for the duration of bad weather.

Finally a preview of the next issue. As was stated we are working on a 16K -or as large as TI-BASIC will allow- word adventure game. It is a game of the imagination where you have to do some serious thinking. We think you will like it.

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What article or program did you like and why?

What type of article or program would you like to see in UNOFFICIAL?

Overall what would you say are UNOFFICIALS' strong and weak points?

Since some of UNOFFICIALS' programs are long, would you be interested in buying the programs on tape, say one tape a year containing all programs?

How do you rate UNOFFICIAL on a scale of 1-10 ?