Attached are Bob Bemer's Chairman's Welcome and Keynote Talk for

"GOVERNMENT Y2K" Conference

1997 Dec 09-12
Sheraton City Centre Hotel
Washington, DC

Minimum Biography

Bob Bemer wrote the first paper to describe commercial timesharing (1957 April), a major component of the Internet and the Web, and the first paper to describe Word Processing (1959). He made the primary ASCII design while at IBM, and has written most of the articles about ASCII, during which he successfully argued for the "8-bit-byte". He invented the Escape Sequence in 1960, a major enabling component for PCs and laser printers to work (your keyboard, upper left), which then became the universal switching mechanism for all computer-controlled communications. He wrote the adopted program of work for U.S. and international standards groups concerned with data processing, and conceived and proposed what is now the formal registry of ASCII-alternate character sets (Russian Cyrillic, Japanese KataKana, etc.,) permitting automatic interchange of all of the world's characters -- thus standardizing a single common alphabet, language, and switching mechanism to unite computers and communications. He coined the name "COBOL" and invented that language's Picture Clause, Identification and Environment Divisions in his language "Commercial Translator", one of three historical sources of COBOL.

Note that neither the talk, its outline, nor the visuals were to be preprinted in the handout. The handout should, however, notify that:

"For all attendees and the press, the entire keynote talk can be found, at conference time, on the WebVenue

www.bmrsoftware.com "

For printing from the Web, all documents paginated correctly for a HP laser printer at 63 lines per page, point size = 9.

ALL MATERIALS FOR RELEASE BY 1997 Dec 09

"GOVERNMENT Y2K" Conference
1997 Dec 09-12
Washington, DC

Chairman's Welcome

R. W. Bemer
BMR Software, Inc.
Dallas, TX

I'm sure we are all anxious to hear, from the representatives of these several branches or bodies of our U.S. Government, about the overall plan that our Government, as a whole, has in place to solve or at least ameliorate the Year 2000 problem of many computer systems. Perhaps we'll only hear about what the Government is doing for its own operations. But we should really hear what the Government's plan is for the entire United States.

FOR THE GOVERNMENT ITSELF

I will myself be happy to learn which body has overall responsibility to coordinate the plan, to publish the plan and its schedules for the entire population to see, to choose and tell us where it will be published, and what part each citizen is expected to play so that the plan may be successful. So far I have not seen this, even on the Web. I do read of Congresspeople who don't know, either, but have suggestions about what to do.

I am curious to know the scope and probabilities for the methods that will be used to assess relative completion of the work, with both current extrapolations and schedule of revised extrapolations, if necessary. Only then may we be sure it will be done on time.

I am especially sensitive to this last. When employed by the General Electric Computer Department I would attend meetings where some design and manufacture project was authorized because Marketing said they could sell 18 of something within six months. Believing these honest salespeople, I would ask, in another such meeting when those 6 months had passed, how many they had actually sold to the projections. They were not only shocked that I would ask such a question (when in fact they had not sold any), but irate with me for asking that they tell the truth.

For any of you unaware of the sequel, that General Electric Computer Department is out of business! No great harm there. But should we let the U.S. Government go out of business? We might live without parts of it, but not without the total entity that supports the requirements of our Constitution.

If you have forgotten (I admit I had to look it up) -- the Preamble to the Constitution of the United States says that the purpose of that Government is largely to:

" ... insure domestic tranquillity,
provide for the common defense,
promote the general welfare, ... "

FOR THE COUNTRY -- ITS PEOPLE

The Year 2000 problem is not just a computer program problem. Those programs reflect, and in some cases, control our lives. So it's a people problem, too.

I'd like to hear about what Government components are doing about the problem in their customary roles. Not only how they're changing their computer programs, but how they are governing such change in the entire country. Regulatory roles, for instance, like banning saccharin, even though it turned out harmless. Dare I say airbags? But one cannot help noticing that there are some Y2K companies out there, even publicly-traded companies, that are selling nothing but best efforts, without guarantees of schedule or actual success.

I am reminded of a wallpaper my wife once bought for a joke. For our mountain house, that is, where only good friends would see it. The design was nothing but patent medicine ads from days of unabashed deception. If those nostrums had worked as advertised, all of our great great grandparents would still be alive! My point is that government does not permit and condone fraudulent advertising any more.

So I'd like to know (wouldn't you?) about the first Y2K company to be prosecuted for false advertising of a harmful product (believe me, if the product doesn't work it will be VERY harmful). Where does the responsibility lie? With the Federal Trade Commission? The Food and Drug Administration? Has the Congress legislated the appropriate penalties for these Federal crimes? Is there a distinction in sentencing? Is there first- and second-degree Year 2000 fraud, to guide the predatory lawyers out there? The judges should know, too. What is the Attorney General's position on this?

You may think I am being facetious about this. I am not. I remember prosecutions for war profiteering, and for selling faulty goods (like bombs that didn't explode).

And can you imagine the selfishness of the company that just trademarked the symbol "Y2K" in early November? Where has patriotism gone? And they've promised to ask you all to cease and desist, or else.

How about the Center for Disease Control in Atlanta? If they can consider guns a disease, surely the Millennium bug should be in their sights!

What of the Army? They're used for various emergencies abroad. Is there anyone here who thinks we don't have an emergency here at home?

What of the U.S. Post Office? They haven't done badly in innovation and change in the past. We've been educated to the 2-character tokens for states. And first the 5-digit, and then the 9-digit zipcode. Moreover, mail put in order on zipcode by computer gets a special rate -- that was my idea, in 1970.

The Post Office is heavily into advertising now, so why not get the Cheers postman to tell us about the new dating method on cancellations, and why we're changing to that year-month-day-hour-minute sequence? It can make a great story. Of course the meter people will have to redesign to follow the new requirements.

What of the Department of Transportation? Even if buses, trains, and airlines run on time -- what time? We'll need new schedules. Perhaps this is a good time to convert to 24-hour notation.

Ah! The Department of Education! We've got a real and useful task for them, for a change. Change to rational computer-influenced time will require much re-education of the general public -- in a hurry. Can they do it? Where are the computer programs or games to teach this palatably? Are there time games for the PCs? Videos? Public service spots on television?

Not least, the Government Printing Office. They have a massive amount of forms and regulations, which will require corresponding redesign. Have they started?

Of course many agencies have specialized missions, and cannot be be tapped for such roles. For example, the Social Security Administration, and I hope we shall hear some good news from them today.

But perhaps all such questions will be answered today and tomorrow. But if not, and they are still valid questions, what is the next step, to be taken by whom? So you're all welcome to hear, find out, and decide for yourselves.

Why worry about global warming? It will decrease automatically anyway, with the drops in production and food when our financial institutions don't work.

Why worry about family leave? We may all have plenty of leave. But it won't be voluntary.

Why worry about reforming the IRS when it is in danger of collapse anyway? At least the stock market knows the danger of doing two interrelated things at once. They're going to defer the decimalization of quotes until they lick the Y2K problem. And the Governor of New York is to be commended for his edict that no new computer projects are to start until the Year 2000 problems are fixed for the State.

On a TV program of October 26 I saw a now famous author tell about his poor grades in college writing. He asked the teacher why he'd gotten a D-. She lit into him. She said his spelling was atrocious, his grammar horrible, but there was so much else that was redeeming that she couldn't bear to give him an F. I thought then of the Treasury Department, by coincidence also graded at D- in Y2K-solving by Congressman Horn's survey. Of course, so was the Nuclear Regulatory Commission, but unless we have bombs somewhere due to go off by computerized timing I'm not going to worry much about them. But I did hear that the airconditioning failed at the Hanford facilities when they set the clock ahead for a test.

This Year 2000 is a looming disaster, with its credentials revalidated every day, no matter what some skeptics say.

I must admit that Mr. Clinton made a speech at the National Archives last August, pledging that Government computers would not be plagued by the "millennium bug". "I want to assure the American people", he said, "that the Federal Government ... is taking steps to prevent any interruption in Government service". In my old memory playback I can hear the French Government pledging that under no circumstances would they ever be conquered by Germany. The Maginot Line was invincible.

"Non, mon ami! Everyone is agreed. Czechoslovakia, yes. Austria, yes. But certainly not France."

I recall the Director of Product Planning for Olivetti saying, when I was making a check on joint French-Italian manufacture, "But we agreed last May that they would be compatible". I replied "Marisa, that must have been the same day my wife and I agreed we would be millionaires by now, but it hasn't happened".

It takes more than agreement,

even by a United States President,

to make it actually happen.

Now we have the sad spectacle of Y2K companies fighting for the money. Charging much and solving little. Witness the greed about the aforementioned trademark.

(see the page from the Ottawa Citizen
newspaper of 1997 November 17 --
"First Trademark of the Millennium")

ComputerWorld has not been bashful about exposing some of the greed accompanying this whole effort. Last summer an article included a story about a man wishing to bid for some Y2K repair work. When asked how many employees his company had, he said "Only myself, but give me a week and I can get my whole family together".

And only lately have a few begun to warn "Hey -- this date data has to be interchanged with our suppliers, those we supply to, and the US Government. We can't have everybody that uses a windowing technique choosing a different cutoff point to decide if a date is in one century or another".

We must have national direction! I can say this with total sincerity, while still believing in minimal Government. Correct data is vital to our wellbeing. In our haste to fix this problem we should not introduce new problems with data that does not interchange correctly.

So is there another Churchill in view? Someone has to be in direct and sole charge, without any other assignments to worry about. The name I have heard proffered is Mikhail Gorbachev. Sounds good to me. He doesn't owe us much, and can't be bribed. We may not be able to settle on any single U. S. citizen, and with him we would not have to make any choices. Besides, Russia is where they originated Czars! Which is what we need now. Think of the worldwide prestige that would accrue to President Clinton if he were to make that nomination.

But while we're waiting, I've put a white paper description of a partial mechanism to fix the rules for import and export of time data into our WebVenue --

www.bmrsoftware.com

click on "white paper"

This is to supplement and assist the FAR rule on this topic:

(See Federal Acquisition Regulation)

(and text re compliance)

That's as far (no pun) as the US Government will go now, and it needs to go farther. I'm not doing this for commercial advantage; I really want this country to succeed.

ACTIONS TO TAKE

Many are tempted to delay, awed or overwhelmed by the magnitude of the problem. For them I offer my ancient motto for the software business.

DO SOMETHING

You know you have to. Why delay?

DO SOMETHING SMALL

That gets you started, and makes something to build on.

DO SOMETHING SMALL USEFUL

Be sure it's pertinent, and helps to solve the problem. And finally --

DO SOMETHING SMALL USEFUL NOW

Now we're back to Winston Churchill. ACTION THIS DAY!

As an example, everyone working in source code has a common complaint. It's tough to locate and identify all cases of year and date values. But on the way you can do something small -- identify all you can! And keep a record this time!

So one small thing I'm proposing is to add two new tokens to the COBOL Picture Clause. I feel I have that right -- most of the tokens you're using now were my choices. Let's allow

"Y" instead of a "9"
when you are sure that the named value refers to a year, and a

"C" instead of a "9"
when you are sure that the named value does NOT refer to a year.

At least document the new knowledge. Normally we cannot ask compiler builders to make any special changes, but a simple front-end program to recognize "Y" and "C" as equivalent to "9" is easy enough. Even if the compiler makes no specific use of the information. But it may!

The COBOL Standards Committee is too insular to worry about the benefit to the country -- they've denied it. But this public domain suggestion could indirectly benefit everyone everywhere!

ABOUT THE BLAME -- WHO'S FAULT WAS IT?

First let me tell you whose fault it wasn't! We get various, and often spurious, answers from the press, and they repeat each other more often than an echo.

a) It wasn't expensive memory

All that and more could have been saved by by writing programs that were less sloppy. Else how did they get PacMan on an early chip?

b) It wasn't the standardization bodies

They were ready for you to do it correctly in 1971, with American National Standard X3.30. And the International Standards Organization was ready with 4-digit years and all in 1973.

c) It wasn't my fault for the Picture Clause

It was just as easy to write

```
START_YR  PIC 9999
```

as it was to write

```
START_YR  PIC 99
```

d) It wasn't my fault for not warning you, because I did

In the article "Time and the Computer", published in February of 1979, I said

(ARTICLE PICTURE - Time and the Computer)

"In particular, don't drop the first two digits for computer processing, unless you take extreme care, remembering that it's only the "year of the century". Otherwise the program may fail from ambiguity in the year 2000."

That paper was not in an obscure publication. A Web search for "Internet Bibliography" will show it to be the primary time document for design of the Internet. So how many others paid attention? Few, obviously.

e) It wasn't really the programmer's fault for the 2-digit years. They just did what their employers and the country did, and who wanted them to reflect their uses.

Now let me tell you whose fault it WAS!

a) It was US, as lazy, fix-it-later people!
Walt Kelly tried to tell us --

"We have met the enemy, and they is us!

Pogo Possum

b) Yes, the programmers were at fault
for bad documentation and annotation,
a fault that continues today.

And it will increase as more and more of the population can use computers, knowing less and less about how they work. We can annotate better now. IBM's MLE (Millennium Language Extension) is an example.

c) And some programming languages did not then
allow names long enough to fully describe
the variables represented.

We don't know if a shorthand name "NOBR" means

the Number of Barrels in the warehouse

or The date of a lobotomy operation
(programmer humor for "no-brainer")

That, and laziness or poor supervision, is what caused some vagaries like using sports team names for the years.

It's time to stop blaming the programmers (as Newsweek did pretty much last summer) for the Year 2000 problem. Yes, it would be easier to find a year in a fixed field if they all started with 19 or 20. But computer data is not always in columns. So the problem is only partly the missing 2 digits. If you had those, how would you know that that 2001 was a year, or part of a movie title? It might be almost anything else -- say an amount of part #AB2 in stock in your warehouse.

We turned over our lives to computers several decades ago, when we started to use them to make decisions instead of just giving advice. But there was a price for the magic.

Computers work on a number basis. Binary or decimal. They do arithmetic operations upon numbers. Built into computers are registers for that arithmetic, working in time-honored fashion -- where the positions for powers of the base got larger going to the left. In simpler decimal words, the tens position is to the left of the units position, The hundreds position is to the left of the tens position, and so forth.

And we told you no later than 1973 that now that computers were running your lives you'd be better off to use the form of dates that computers have to use. Ambiguity in computers is dangerous to human health and welfare. But people did not and would not change. After all, they could see that:

06/13/02 is later than 01/31/01 - definitely

01/13/02 is later than 02/05/01 - maybe

06/03/01 is later than 01/04/01 - maybe

People use

MM DD, YY	and	DD MM YY	and	YY MM DD
May 14, 84		14 May 84		84 May 14
May 14, 1984		14 May 1984		1984 May 14

Think of the lefthand form as "Old U.S."
Think of the center form as "Old U.S. military and Europe"
Think of the righthand form as "International Standard"

Computers must be told how to decide. But the programs written did not keep adequate record of the decision rules.

Anybody knows that to compare two dates the computer can't just think. It has to subtract, and you can't subtract JAN from AUG. You have to use numbers for the months. And the Subtractions only come out right if the larger values are on the left.

You can't do arithmetic if everyone can make their own choice of where the 100s and 10s and units position are assigned. You've allowed the same problem for dates! 123 (YMD) would be the same as either 231 (MDY) or 321 (DMY). Now what are the rules for arithmetic operations?

So try to find a date pattern in a random file, when it could be any of these. One million combinations, of which only 99x12x31 should be valid. But maybe it's 12x99x31.

It's cultural. It's management. It's couch potatos!
My 1975 memo to Honeywell Information Systems said:

1975 Feb 13 2569 C61

JR Searles

RW Bemer

REPRESENTATION OF THE DATE

American National Standard X3.30 specifies that the numeric representation of the date shall be in year-month-day order, separated by hyphens. The International Standard 2014 does the same, the only difference being that the ISO prefers the 4-digit year to be better understood by humans, not computers. Thus today is:

ANSI 75-02-13 ISO 1975-02-13

HIS has adopted this practice in particular for fiscal weeks, as prescribed in ISO 2015, companion to 2014.

The purpose of this memo is to ask whether now is not the time to establish the general practice throughout HIS.
...

I wish I could show you Searles' reply. But I didn't get one. Guess what? Honeywell wouldn't change. The Government has not changed. In fear of not being reappointed or reelected? The Government hasn't helped. It hasn't even guided well. It refuses to use and acknowledge international standards, even as it brags and postures about international trade!

Does the metric system come to mind when I say this? Here is Government policy:

METER, but not METRE	(YES, that's official US Government, which thinks "-re" is too French)
ACRE, but not ACER	(HEY, didn't they get it backward here?)
GOER, but not GORE	(to be more consistent!)

The Government does not insist similarly on spelling "ACER" because it would have this problem with maple trees.

But what did you leave us with by refusing to use a single date form? A Year 2000 problem six times as large. Why? Probably for the same reason that the US Government can't find the fortitude to change to the metric system.

Yet much of Europe changed to the new date form decades ago. So did Canada, more recently, and they even found it was possible to change to the metric system. I believe the number of suicides this caused was very small. Look at Canada's mail system.

Envelope mailed from Canada

I must admit that not all of our Government has ignored this problem. The Navy has tried, as shown in this requisition from the Pearl Harbor Naval Station. Here we go.

Purchase Requisition -- Pearl Harbor Naval Station

You can see the requirement to fill in the date box in the YY MMM DD order. That's to enter for the computer. But also notice the manual date stamp! Well, I said they tried.

Everyone in a war wants to make money, but they don't want to fight. Of course that's not news. That's why we've drafted people in wartime before. And I repeat that this is a war situation. If people won't shoot the bullet they're at least going to have to bite it. And I did not spell that B-Y-T-E.

As everyone says, we're looking for the bullet to fix the byte. But we're going to have to bite the bullet to find the bullet to fix the byte!

LET'S TALK METHODS OF AMELIORATION

Note that I say "amelioration", not "solution", just as I have always referred to the silver bullet as being only possibly "plated", if at all.

For those besieged by the various vendors of systems to ameliorate the Year 2000 difficulty, I may have some useful advice. The first thing is to check the details!

DETAILS! DETAILS!

In those computers, at object level where the COBOL source program is blind, the details can kill you. So I want to confide some basic facts that your Y2K tool supplier may not have confided to you (have you noticed how little technical detail can be found in some brochures?). I shall show them from the viewpoint of IBM equipment, but their counterparts exist in all computer types. Bear with me. It's important.

First let's remember that date variables, in their various manifestations and combinations, have proved difficult to find. Not so much from their Picture Clause properties, but from their assigned names. Even to existing unnamed in old programs and databases. Or named by synonyms. Or maybe the names disappeared when your source code did. Always remember that fact of life in your evaluation. Remember the Germans that named year values after sports teams.

It happens that large IBM equipment, say 390 class, has different ways of expressing numbers, particularly signed numbers. Of course year values have always, until now, been positive values, having minimal computer use prior to the A. D. period. In EBCDIC form, zones of A, C, E, and F in a character indicate positive values; zones of B and D indicate negative values, so you can enter them. Decimal arithmetic is always done in packed decimal form, with a sign obtained from the zone of the units position. Very critical knowledge! Thus we expect to find "97", a year value, in 2 bytes as

F9F7 which packs to 097F

But if 97 had been computed, it might show as:

F9C7 which packs to 097C

Still +, but different.

It turns out that IBM compilers have two comparison commands to employ here -- compare packed decimal and compare logical. If the first is used, it's an arithmetic comparison, and any sign works -- "F" or "C". It's taken care of. They both mean a plus sign to the arithmetic register.

But sometimes the compiler will generate a compare logical command, where the above two values seem unequal. What to do? Simple. If the variable was defined as always positive in the Picture Clause portion, there can be no harm in always forcing an "F" into that units position. So one sees object code produced like:

```
F2 Lng(A) Lng(B) AAAA BBBB

          (pack BBBB into AAAA)

96 0F AAAA

          (force the F by an OR)
```

LET'S EXAMINE SEVERAL METHODS

What harm could this simple, but ubiquitous action do? Well, first take the windowing method where 28 is subtracted from all year values going in, and added back to all year values going out. We sure are lucky that the year 2000, evenly divisible by 400, is really a leap year just like 1972, and the calendar repeats its exact pattern every 28 years. Aren't we?

Ask your vendor of such an approach how they --

- Mark a year value to indicate that the 28 has been in fact subtracted (so as to not subtract 28 again and again).
- Know it is a year value that should have that 28 subtracted.
- Know that all internal year values have had 28 subtracted already.
- Know that all external year values have had 28 added back to them.
- Without changing the code that assumes years are positive, handle my birth year.

That last question is to the point of that persistent OR operation that is generated. I must tell you that I was born in 1920, currently recorded in the computer as "20", as expressed by the external form:

```
F2F0     or    FF  (zones)
               20  (numeric quartets)
```

To subtract the 28, the 20 is first packed as:

```
  020F    from which is subtracted the 28
- 028F    resulting in
 ------
  008D    which is "minus 8" for my birthyear
  F0D8    "-08" repacked
```

That "-08", by the way, prints as a capital Q for IBM.

Now we add 16 years to my birthyear to see if I may have a driver's license, done by the compiled pattern previously shown:

```
  008D    Pack F0D8 ("-08") into THAT
  008F    The "F" is forced by the OR immediate
+ 016F    Add the COMP-3 16-year period
 ------
  024F    resulting in a value of 24
  028F    add the 28 back in again for output
 ------
  052F    and unpack it to print it out
  F5F2    for an external form of "52"
```

Meaning 1952. So maybe I'm not allowed to get a driver's license until I am 32 years old. Or maybe the computer is telling me that I'm 16 years younger than I am, which I can certainly use!

Aha, you'll say. That forced + sign action is compiled in only when it is defined as an unsigned number to begin with! We'll just change that Picture Clause value to "S99" instead of plain "99", so it can have either sign.

And now we're back to the basic problem. How did you know it was a year value so you could do that? And does that Picture Clause still exist? Because if it does you could change it that way. But if you could do that you could change it to 4-digit years, which would be great! But it seems that you don't know!

Now I'm not saying that your vendor of some 28-year sliding window product cannot solve this problem. But you had better ask how! Maybe the reply will be that you can't go lower than 1928. You surely can't go higher than 2027! 2028's a leap year! So what happens to the 30-year mortgages next year?

If all of the above have been answered satisfactorily, ask where they stand with Patent 5,600,836 (Turn of the Century Solution, Inc.)?

> US Patent 5,600,836: System and method for processing date-dependent information which spans one or two centuries
>
> Inventors: Alter; Harvey, Ambler, PA
> Assignees: Turn of the Century Solution, Inc., Wayne, PA
> Issued : Feb. 4, 1997
> ...

It appears that this patent would be in force for all types of 28-year windowing. Even for the PhD in Phoenix who was surprised that I could tell that was his method, by virtue of the "2025" in the name of his product. Wasn't too hard. I simply subtracted 1997, and got 28.

THE EVANESCENT WINDOWING METHOD

If their approach is based on windowing -- an assumption of century value as a function of position on a scale of 00 to 99, ask them how they --

- Mark windowed values to indicate the cutoff used, to still keep only 2 digits.
- Handle more than 100 years unambiguously.
- Tell importers of your data what the rules of interpretation are.
- Modify to 4-digit capability to meet the US Government rules in the FAR previously shown.

And if that's all answered satisfactorily, ask where they stand with a patent I saw recently, but cannot find again. Granted to an Australian, it sure looks like it covers ALL windowing!

There can be some windowing failures if improperly used. IBM admits this. Add 40 to 98 by assuming 1998. Get 2038. Store as 38. Next time we see it will that 38 be 1938 by the rules? Probably not. Windowing pretty much has to be limited to a 100-year range bounded by 2000-W to 2100-W. So temptation will be great for some to minimize the value of W so they can go further into the future.

And that's a big danger for interchange. There aren't any standards. Everyone can pick an arbitrary value. Nobody has given direction. No laws; no contracts. Choose what you wish.

A major problem with any windowing method could be that once the decision is made there may be no way to record that decision, unless you go to 4-digit years at that point. But it was found pretty conclusively in the last two years that although full conversion to 4-digit years was the proper goal, it was very unlikely of achievement.

OTHER METHODS

If their approach is based on using IBM computers, ask where they stand with patent 5,644,762.

> US Patent 5,644,762: Method and apparatus for recording and reading date data having coexisting formats
>
> Inventors: Soeder; Thomas B., West Friendship, MD
> Assignees: Resolve 2000, Inc., Columbia, MD
> Issued : July1, 1997 Filed: May14, 1996
> ...

This patent owner has another way of making do with 2-byte years. And he may have a claim against IBM for hundreds of millions of dollars, if his patent holds up. It appears to be equivalent to IBM's unsigned packed decimal. I thought that IBM had already patented this?

He also has a display problem. For ASCII, many year values, if brought directly to the screen in the unsigned packed decimal form, will destroy the display. E.g., 1918 or 2018 will lose a character via CANcel. 1907 or 2007 will ring the BELL. 1908 or 2008 will effect a BackSpace; 1909 or 2009 a Horizontal Tab. Not to mention 1903 or 2003, which will stop display altogether with an ETX. EBCDIC control characters will have identical problems.

Another method that has excited the TECHSTOCKS community on the Web lately was developed by two brothers in Encino, CA. It's called the 19T0 Method, for reasons I do not understand. They say they've submitted a patent application, apparently unaware aware that a man in Newtown, CT, already had a patent for the approach this last September.

US Patent 5,668,989: Two-digit hybrid radix year numbers for year 2000 and beyond

Inventors: Mao: Decao, Newtown, CT
Assignees: none
Issued : Sep.16, 1997 Filed: Sep.18, 1996
...

This scheme involves using all 16 hexadecimal combinations in the decade position, supposedly taking one to 2059. I think it has several problems, the most severe of which is that the compilers will have to be rewritten to use it. The inventors admit this, and promote it.

Forget any approach based upon massive rewrite of a compiler. That would take, even with the cooperation of all compiler builders, longer than fixing all of the application programs. And to which of several schemes would the revised compiler be tailored? Even if IBM has all the good will and public-spiritedness in the world, they couldn't get it done. Then there is:

US Patent 5,630,118: System and method for modifying and operating a computer system to perform date operations on date fields spanning centuries

Inventors: Shaughnessy, Daniel P., Cleveland, OH
Assignees: 2000, Inc., Cleveland, OH
Issued : May 13, 1997 Filed: Nov.21, 1994
...

So for these generally-unembraced methods I can only caution people to not be too gullible.

THE 4-DIGIT EXPANSION METHOD

If their approach is based on expansion to 4-digit years in the data definition, ask them how they --

- Know it is a year value that should be expanded to 4 digits.
- Etc., with all the known problems that have caused virtual abandonment of this plan, especially the short time to deadline.

But bless them; their motives are the best. That's the first step to sanity.

If, however, they advise rewriting your software to base all time calculations on Julian Days,

PRAISE THEM,

for that's the right way to go. But get an iron-clad guarantee that it will be done in time -- with escrowed penalties. Thank you for your patience, and Good Luck!

In closing, I shall admit that since I wrote the synopsis for the program brochure, some months ago, I have come to understand that what is really needed is a GLOBAL Czar.

This understanding came from seeing most graphically the tight interaction between world markets during the recent Asian monetary crisis. If we can have a summit on global warming (which seems suspect, anyway), we should certainly have a global summit on the Year 2000 problem. If such could be mounted, it would ease the way to get someone of Mr. Gorbachev's standing to be Czar. What is the United Nations position on this? Have they even discussed it? If not, why not take this world problem there for action?

R. W. Bemer

...

"GOVERNMENT Y2K" Conference
1997 Dec 09-12
Washington, DC

Keynote Address by R. W. Bemer
BMR Software, Inc.
Dallas, TX

GOVERNMENT'S RESPONSIBILITY

I'll recapitulate my theme, from the program:

> "Governments acted too late when a single assassination began World War I, and again too late when Hitler began World War II. Their main faults were complacency and disbelief in the danger.
>
> Now our lives and well-being are in danger from our own lack of foresight, for we have allowed the computer to usurp our thought and action processes. We cannot return to our old ways -- we've forgotten how, and it's too late. But we can mobilize nationwide, the authority for which may be found in our Constitution, even in the very Preamble."

War and such emergencies demand close attention, control, and encouragement by the country's leaders. In World War II, when Britain threw out Chamberlain in favor of Churchill, they got a man who lived and breathed the major problem that his country faced. He paid attention to detail. He toured the defense sites, the armaments factories, and he informed the people. He never countenanced inaction on assignment. His personal notes to the people in charge said "Action this day!". When he didn't get it, he fired them, and hired someone else who would take action. And he studied the opponents and possible ways to defeat them. How many of you know that Churchill invented the armored tank? And much of the theory for the floating harbors (Mulberrys) that figured in the successful invasion of the Continent in 1944?

President Roosevelt, though not such a deep student of war, gave like attention to strategy. Not the least of which was mobilization and the War Production Board. I tell you this from personal experience, for during World War II I worked at Douglas Aircraft Co., not so much voluntarily as by mandatory assignment. Machinery for making lollipop sticks was changed, by order, to making anything for artillery. Who owns a 1943 Ford? If any were built, civilians didn't get them. We all worked together because survival of our country depended upon our doing so, in face of the common threat. Some of us even hummed "Rosie the Riveter". Have we such an enemy now? We sure do! A possible and likely collapse of our living systems. Are we facing it head-on, as a country?

Do you see any parallels to our leadership today? Churchill visited trenches during actual battle. Have you seen the President in your shop recently, asking how goes the battle against the Y2K monster, and what can he, as commander-in-chief, do to help you get it done?