TBC - The User Guide

COLLABORATORS			
	TITLE : TBC - The User Guide		
ACTION	*NAME*	*DATE*	*SIGNATURE*
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TBC - The User Guide

1.1   TBC - The User Guide - Contents

```
                              TBC

                   (Title Bar Clock)
          (also known as Threapwood's Big Clock)


                  by David M Hollway


                    -= Giftware =-


         Version 2.52 (8:55pm, 10th June 1994)


                     Contents
                     --------
```

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```

1.2   TBC - The User Guide - Introduction

                1) Introduction

  Earlier this year I downloaded from the
                Aminet
                 a program called HFK,
written by Herbert West. HFK displays a simple clock in the left-hand
end of the Workbench screen title-bar. Importantly, it uses the correct
colour scheme (even on Kickstart 3.0), ie the same colours as the Workbench
menus. I like HFK, because it is fully Kickstart 3.0 compatible, and
simple.
  However, I had one tiny quibble with HFK. If I wanted to change the
Workbench preferences, then I had to quit HFK, otherwise IPrefs
displayed a requester saying "Please close all windows". This really
annoyed me (because I often change screenmodes, and it was really tedious
to quit & restart HFK each time). Then I hit upon the solution: I wrote
a simple AmigaDOS script that would quit HFK and then re-start it after
a short delay (to give IPrefs time to close & re-open the Workbench
screen). I left the icon for this script on the Workbench, so all that I
had to do was double-click the icon just before changing screenmode.
  An elegant solution. Or so I thought.

  But then one day I was idly reading the "Libraries" RKM (as one does :-)),
and I noticed a section about "notification" requests. So "Hey!" I thought,
"why don't I write a program that will watch the ENV:Sys directory, and
then when anything is written to this directory, close down & restart
HFK?". So I did. That, too, seemed like an elegant solution at the time.
But then I started thinking that this was a really kludgy solution (to have
two programs running), and I decided to write a replacement for HFK.

  So here's the replacement: TBC!
It's started off a a straightforward clock, but I've been carried away
with adding new features, so that the result now is a clock program
that does just about everything except cure bunions..

Incidentally, in case you're thinking "why doesn't this weirdo write a
version of TBC that has no GUI to save memory?", I can tell you that the
GUI on TBC takes only 4K. Are you *that* short of memory?

1.3   TBC - The User Guide - Features

                3) Features

TBC is a great program (IMHO ;-)) offering the following features:

                o   will automatically hide itself to allow
                    IPrefs to reset the screen
                o   very low CPU load
                o   fully WB3.0 compatible & enhanced
                o   can display time in a variety of
                    formats (24 hour, 12 hour etc)
                o   colours used for display can be altered

```
                                o  requires OS 2.04 (v37) and above
                                o  Alarm Clock feature
                                   that will, at a configurable time,
                                   flash the screen/play a sample/beep/
                                   launch a command (optional).
                                o  Fully configurable by means of
                        tooltypes
                                                        or
                        GUI
                                         * o  ability to make tea/coffee/goats' milk
                                   at preset intervals
                                o  Ability to appear automatically on the
                                   active screen
                                o  will optionally chime every n minutes
                                o  can also display current date in choice
                                   of formats
                                o  as of v2.5, TBC can warn you if your Amiga's
                                   memory is running low
```

```
* - feature no longer available.. registered users of TBC now get a
    *FREE* Slightly Confused Yak delivered to their home :-)
```

```
  Yes, yes, I know, it's a long feature list for a clock program, but
 I just can't stop adding to this program..
```

1.4   TBC - The User Guide - Legal Tripe

```
2) Disclaimer
```

```
   Just in case there are any Americans reading this:
```

```
 This program is (C) 1994 David M Hollway.
```

```
 I take absolutely no responsibility for any damage or loss resulting
 from the use of this program.
 If TBC causes your computer to explode, wiping out 3/4 of your home
 country, it's not my fault.
 If TBC causes the value of your investment portfolio to plummet, it's
 not my fault.
 If TBC causes your aunt to break out in bright green spots and start
 speaking in tongues, again, it's NOT MY FAULT.
```

```
 "Amiga", "Kickstart", "Lorraine" and "Marketing" are (C) Commodore-Amiga,
 Inc.
```

```
 Never trust a dog with orange eyebrows.
```

```
 This program has been tested on the following Amiga systems:
```

```
   1)  A4000, 68EC030, 2MB CHIP, 6MB FAST,  85MB harddrive,  OS 3.0
   2)  A4000, 68EC030, 2MB CHIP, 6MB FAST,  85MB harddrive,  OS 2.04
   3)  A4000, 68EC030, 2MB CHIP, 6MB FAST,  120MB harddrive, OS 3.1
   3)  A4000, 68EC030, 2MB CHIP, 0MB FAST,  85MB harddrive,  OS3.0
```

```
   4)   A4000, 68LC040, 2MB CHIP, 16MB FAST, 500MB harddrive, OS 3.1
   5)   A1200, 68EC020, 2MB CHIP, GVP 4MB FASTRAM + SCSI, 85MB harddrive,
        OS3.0
   6)   B2000, 68000,   1MB CHIP
```

From this I'm assuming that TBC will work on any Amiga that runs 2.04 or
greater.
Obviously though a battery-backed realtime clock would help! :-)
And a TV or other display device. Come to think of it, a voltage supply to
the Amiga can be handy too..

If it doesn't work on your system, PLEASE let me know! I'm especially
interested to hear from you if you've tried TBC (successfully or
otherwise) on a 68000-based Amiga. See the end of this documentation
for information on contacting me!

This program may be used in military installations. But it can't be
used by pacifist groups. So there. Probably because after using TBC
you'll feel like head-butting your Amiga.

1.5   TBC - The User Guide - Installation

```
              4) Installation
```

Easy. Just copy the "TBC" program (and its icon) to a suitable place on
your disk. If you want TBC to load automatically when you boot, then
place it in the "WBstartup" drawer of your "SYS:" partition or disk.

That's it. TBC will now run using the default settings.
To get the best out of TBC however, you should configure it using
its
              tooltypes
              .

1.6   TBC - The User Guide - Options

```
              5) User Options
```

Click with the left mouse button on the TBC window to bring up the
"TBC Options" window.

Options are:

"Foreground:"   : click on a colour in this box, and the text of the
                         TBC display will be rendered in this colour.

"Background:"   : click on a colour in this box, and the background
                         of the TBC display will be rendered in this
                         colour.

"Use Pens:"   : if this gadget is "ticked", then TBC will use the

```
                          same colours as the Workbench menus. Under
                          kickstart 2.0x, this means grey-on-black.
                          Under 3.x, the menu colours can be set using
                          the "Palette" preferences editor.

  "Time:"                 : select an option from this gadget. TBC can display
                          the time in one of four formats:

                          "6:34 pm"  - 12 hour clock
                          "6:34:00"  - 12 hour clock with seconds display.
                          "18:34"    - 24 hour clock
                          "18:34:00" - 24 hour clock with seconds display.

  "Date:"                 : As for "Time:" above, TBC can display the current
                          date in a choice of formats. These are:

                          "No Date"  - Don't display the date
                          "25.12.94" - Display date in dd.mm.yy format
                          "12.25.94" - Display date in mm.dd.yy format

                          If the date is displayed, then the clock display
                          will, each time it updates, toggle between the
                          current time and the current date.

  "Update (seconds)"      : enter a number n in the text box next to this
                          option, and the clock will be updated each time
                          n seconds have elapsed.

  "Leap (danger!):"       : If you select this option, then TBC will always
                          appear on the currently active screen.

                          *CAUTION*
                          If TBC is displayed on a "non public" screen,
                          and that screen is closed by an application,
                          you MAY WELL crash the Amiga.
                          Always make sure that you close TBC (or de-select
                          this option) before closing the application.

                          As an extra safeguard, TBC will not leap onto
                          a screen unless:

                             a) The screen is wider than 600 pixels
                                (this rules out most games)
                             b) The screen has a title.
                                This is to prevent TBC leaping onto the
                                screen opened by a screenblanker
                                program, which would (as soon as you
                                moved the mouse) crash the screenblanker.

                          Programs whose screens TBC will leap on to
                          include:
                                Directory Opus v4.x
                                Final Copy
                                Final Writer
                                PCTask
                                Scribble!
```

But sadly not DPaint, because it does naughty
things with screen overlays etc, and doesn't have
a title (it just prints "DPaint" in its title bar)
Additionally, as of version 2.2 of TBC, I've
added a small (1 second) delay before TBC "leaps"
onto a newly active screen.
I can't make this feature totally safe, but if you
take care, it's very handy.
CAUTION ENDS

If this option is switched off, TBC will appear
on the default public screen.

"Alarm Hour:"   : use this slider to set the hour at which the alarm
                       will sound (in 24-hour format, 0 to 23).

"Alarm Min:"   : use this slider to set the minutes at which the
                       alarm will sound, ie 0 to 59.

"Chime each:"   : if you enter a number other than 0 in this box
                       then TBC will "chime" each time the "minutes
                       past the hour" reach a multiple of that number.
                       For example, entering 15 will cause TBC to chime
                       at xx.00, xx.15, xx.30, and xx.45.

"Alarm:"   : This cyclebox determines the current state of
                       the alarm feature.
                       It can have the following settings:

                         "No Alarm" - Alarm is OFF.
                         "Flash"   - Alarm is ON, and when alarm-time
                                      is reached, the screen will flash
                                      (and beep/play a sample if you
                                      have Workbench 3.x) repeatedly.
                         "Command" - Alarm is ON, and when alarm-time
                                      is reached, a command or AmigaDOS
                                      script (see "Command:" below) will
                                      be launched.
                         "Do Both" - The above two options combined.

                       Once the alarm is sounding, it can be stopped
                       by clicking with the left mouse button on the
                       TBC display. If the options screen is being
                       displayed when the alarm goes off, you can stop
                       the alarm by setting this cycle-gadget to
                       "No Alarm"

"Command:"   : If you enter a command in this text-box,
                       and set the "alarm" gadget to "Command" or "Do
                       Both", then when TBC sounds its alarm it will
                       also run the command for you. You must give the
                       command's name with its full path, for example:
                        SYS:Utilities/Clock
                           - will run the standard WB clock (why??)
                        SYS:Tools/HDTools/Quarterback
                           - will run a hard-disk backup program

```
                              Note that this can either be a command, or an
                              AmigaDOS script. If the latter, then the script
                              must have its "script" protection bit set, for
                              example type at a shell:

                                1.System3.0:> protect mydisk:myscript +S
```

```
"If free mem is less
 than:"                 : Type a number into this text box, set the
                          cycle gadget next to it to anything other than
                          "ignore it", and lo! you will be warned by TBC
                          when the amount of free memory (FAST + CHIP)
                          falls below that number of Kilobytes.
                          The options that can be set on the cycle gadget
                          are:

                            "ignore it"      - doesn't do anything when memory
                                               is low
                            "flash screen"   - Uses the O/S DisplayBeep()
                                               function to flash the screen
                                               (or play a sample/beep if
                                               you're using 3.0)
                            "show requester" - Displays a Recoverable Alert
                                               when memory is below n K.
                                               An Alert is always a chilling
                                               sight, so I'd recommend that
                                               you:
                                                a) remember not to panic when
                                                   you see it, and
                                                b) use this option if you're
                                                   expecting memory to get
                                                   VERY low (such that
                                                   neither a requester nor a
                                                   beep can be used)
```

```
"Use"                   : click here to close the options window, and use
                          the current TBC settings.
```

```
"Hide"                  : click here to hide the TBC window, to allow IPrefs
                          to reset the WB screen. TBC will automagically
                          re-appear after a short delay (see
                  TOOLTYPES
                  ).
                          This is handy in situations where you've changed
                          preferences, but you still have other applications
                          open on the WB. This option allows you to hide
                          TBC if it's re-appeared before you've closed
                          down the other applications.
```

```
"Quit"                  : click here to exit from TBC (why would you want to
                          do this??)
```

1.7   TBC - The User Guide - Tooltypes

6) Workbench Tooltypes

By default, TBC displays a 12-hour clock, in the current workbench menu colours, updating its display every second, with an alarm set for 12:00 midday.

If you would like the initial options to differ from the defaults, you can specify the options by means of TOOLTYPES (if you're not sure how to do this, consult a Workbench manual) (or even a Haynes auto manual).

TBC supports the following tooltypes:

NONEWLOOK   : this can be set to either 0 (to use the current WB
               colours), or 1 (to use the user-defined fixed colour
               scheme).

DELAY   : this is the number of seconds that will elapse between
               successive updates of the TBC display. Sensible values
               are between 1 and 60. Very silly values are 4000, 99 and
               "ni".

FOREPEN   : the pen to use for the writing on the display, ie with
               the default Workbench 2.x palette, a value of 1 would be
               black.

BACKPEN   : the pen to use for the background of the TBC display. Don't
               set this to the same value as FOREPEN, becauses you won't
               be able to see the display!
               NOTE: If the NONEWLOOK tooltype is either not specified,
               or set to 0, then the values of FOREPEN and BACKPEN will
               be ignored.

FORMAT   : set this to either 0, 1 or 2, to get one of the following
               TBC displays:
                       0 - time in format 6:34 pm
                       1 - time in format 6:34:00
                       2 - time in format 18:34
                       3 - time in format 18:34:00

IPREFSWAIT : Yes, by popular demand here's a tooltype that allows you to
               set the delay (in seconds) that TBC allows for IPrefs to
               reset the WB screen. For example, if you specify
               IPREFSWAIT=7, then when the screenmode/font etc of the WB
               is changed, TBC will hide its window for 7 seconds.
               A higher value of IPREFSWAIT than the default may be needed
               if IPrefs haKs a lot of work to do when resetting the WB,
               eg closing many drawers, using a 256-colour WB, etc.

               ** USERS OF TBC v1.x PLEASE TAKE NOTE **
               This tooltype is now IPREFS rather than IPREF (note the
               extra 'S')!

ALARM   : This determines the initial state of the alarm feature.
               Valid options are:

                       0 - Alarm is OFF.
                       1 - Alarm is ON, and when alarm-time is reached,

                                        the screen will flash (and beep/play a sample
                                        if you have Workbench 3.x) repeatedly.
                                2 - Alarm is ON, and when alarm-time is reached,
                                        a command or AmigaDOS script (set using
                                        ALARMRUN) will be launched.
                                3 - 1 & 2 combined.

ALARMHOUR   :   The hour of the alarm, in 24-hour format, eg valid options
                range from ALARMHOUR=0 to ALARMHOUR=23.

ALARMMIN   :   This tooltype sets the alarm minutes; valid options range
                from ALARMMIN=0 to ALARMMIN=59.

ALARMRUN   :   This can be used to specify a command to be run when the
                alarm is activated. For example:

                    ALARMRUN=SYS:Prefs/Palette

                For more information,
                click here
                .

CHIME   :   This is the chime setting (see
                section 4
)
                eg: CHIME=15

DATE   :   This is the date format setting, eg:

                    DATE=0   means no date is displayed
                    DATE=1   means date is displayed as dd.mm.yy
                    DATE=2   means date is displayed as mm.dd.yy

SCREENLEAP :   Set this option to enable/disable screen leaping.
                eg: SCREENLEAP=1 or SCREENLEAP=0

MEMWARN   :   This is the amount of memory (in K) below which TBC
                will alert you..

WARNTYPE   :   ..and this is how TBC will alert you. Valid options are:

                    WARNTYPE=0 means "do nothing"
                    WARNTYPE=1 means "flash the screen once"
                    WARNTYPE=2 means "display a requester"
                    WARNTYPE=3 means "display an alert"

                See
                User Options
                 for more details!

In addition you'll need to specify the tooltype DONOTWAIT if you've
placed TBC in your SYS:WBStartup drawer. If you don't, then you'll see
a requester saying "TBC has not returned - Shall I wait some more?"
every time you reboot. This is a real pain in the proverbials, and is
caused not by TBC but by Kickstart.

1.8   TBC - The User Guide - Contacting the Author

```
7) Contacting the Author
```

  This small trifle has been released as GIFTWARE. This means that if you use and like the program, the author (that's me) would welcome a gift from you. Please note that this is not compulsory - I hate "Crippleware", so I've released this fully working version of TBC (ha! the program has hardly any features to begin with.. if I crippled some features the program wouldn't do anything :-)) and I'd love to get a gift from people.

This gift can be *anything* you feel the program is worth.. if nothing else, send me some e-mail (address below), a postcard of your home town, or even write to me! I'm not expecting anybody to send me a 4000-040, but you never know... here's some suggestions for gifts anyway :-)

```
        - a funny/ funky / impressive Sound/Noise/ProTracker module
        - ditto, but in MED/ OctaMED format
        - a humorous anecdote
        - a postcard
        - a letter to say "thank you"
        - an e-mail message
        - vast amounts of money
        - free beer (here's hoping...)
```

Even if you do nothing else, I'd ask you to dim your monitor to half-brightness in salute to Commodore, and what might have been.

If you are Swiss I'd especially like to hear from you, as I'm going to that wonderful country for a year (as of July 1994).

I can be contacted in the following ways (in order of preference):

by e-mail: I have two internet addresses, so mail sent to either

```
        dmh11@tower.york.ac.uk
     or dmh-a@minster.york.ac.uk

        should reach me.
```

by snail-mail: Bit tricky this one, because of the above mentioned
           Swiss trip. Probably the best address to send mail to
           is:

```
              DM Hollway,
               Langwith College,
                University of York,
                 Heslington,
                  York,
                   YO1 5DD
```

```
by telepathy: Just concentrate «:-)
```

```
Anybody interested can get the full source-code for TBC by writing to me,
and enclosing sufficient money to cover postage from the UK to their
country.
```

1.9   TBC - The User Guide - History

```
8) Version History
```

```
   (versions prior to 2.0 removed to save space on my hard drive)
```

```
   Version 2.0:       Fourth public release. (8th May 1994)
                      Added "Alarm Run" feature and ALARMRUN  tooltype.
                      Cleaned  up  &  optimised code somewhat. It may not be
                      smaller, but it's neater!
```

```
   Version 2.01:      Never released.
                      Tiny, tiny bug fix.
                      Made BOTH colons "tick" on clock display.
                      Happy, Fergus? :-)
                      Altered  user  interface  layout slightly. (transposed
                      ALARM and UPDATE areas, if you must know)
```

```
   Version 2.1:       Fifth public release (15th May 1994)
                      Added  CHIME,  DATE  and  LEAP options (and tooltypes)
                      Altered user interface layout  to accomodate  the  new
                      options.
                      Drastically  cleaned  up  &  optimised code,  with the
                      result  that  this new version is only about 500 bytes
                      larger than v2.0, despite the new features.
```

```
   Version 2.2:       Sixth public release (17th May 1994)
                      Whoops..  there  were a couple of fairly major bugs in
                      version 2.1 - occasional  screen  corruption occurred
                      if the clock  used  a  proportional font. That's  now
                      fixed (I hope!).  TBC  has  now been tested with fonts
                      up to 24pt. If you have to use a bigger font than that,
                      then your eyes need seeing to!
                      Improved  the  ALARM  function;  you  can  now  choose
                      whether  TBC  beeps,  runs a command, or both when the
                      alarm  goes  off. (see 'Options'  and 'Tooltypes').
                      Replaced RectFill() calls with SetRast(), saving a few
                      bytes.  Code should now be bug-free. I bet I'll regret
                      saying that!
```

```
  Version 2.2.1:      Yes..  I do regret saying that!  There was a tiny  bug
                      in TBC  v2.2 that  caused  the  ALARM tooltype  to  be
                      ignored. That's  now  fixed. And I've updated  the
                      documentation properly too.
```

```
  Version 2.5:        Hmm... a couple of silly bugs in previous versions :-(
                      In fact even as I write this I've noticed another bug!
                      Just a moment....   ...there,  that's fixed the swine.
                      As I was saying: in this version  I've added a "memory
```

warning" feature, and also TBC will now report 12:00am
as 12:00 am, whereas in all previous versions it
reported it as 0:00am. In addition, previous versions
changed from "am" to "pm" at 1:xx, rather than 12:xx.
Many thanks to the two alert people in the U.S who
spotted and reported those bugs!
In fact I've just spotted another bug.. the ALARM
tooltype STILL isn't being recognised properly! How
very embarassing, I thought I'd fixed it in 2.2.1!
Oh well, it's definitely fixed now.

Version 2.51:   Well, my beta-testers have failed miserably :-)
NOBODY reported the fact that in 2.5 the entire alarm
feature didn't work! Many thanks to Slingshot of
Dimentia UK, who was the only person observant enough
to notice this! Duh.. It's a good job I didn't release
2.5 publicly :-)

Version 2.52:   Well this bug's got me confused.. for some reason if I
set the "seconds" string to _5_ spaces in 24hour mode,
("16:34") then the current hour gets printed instead
of the five spaces.. but if I set it to _6_ spaces, it
gets printed as expected! Anybody out there have an
idea why this is the case? Anyway, it's fixed now!

1.10   TBC - The User Guide - Aminet

What is Aminet?

The "Aminet" is a vast collection of Amiga software.
Many (academic) institutions around the world store copies (or "mirrors")
of the Aminet collection.

To access Aminet, use the "FTP" program (available on most UNIX systems,
etc) to connect to any of the following sites:

        src.doc.ic.ac.uk
        ftp.uni-paderborn.de
        wuarchive.wustl.edu
        ftp.funet.fi

(and many others that I can't remember).

1.11   People I wish to thank

I wish to thank the following persons, groups, and ideas, without
whom I would never have been inspired to write and update TBC..

Herbert West (author of HFK)
Slingshot of Dimentia UK, who yelled at me when I missed him out of the
                         first draft of these docs. Sorry m8..
Fergus O'Hea

Paul Hollow
Jane Williams
Edd Dumbill
Eric Haines
William "Wim" Roose
Matthew "Small White Block Thingies!" Marcus & Dylan "purple hair?" Owen
All the Amiga crew on Monochrome (138.40.17.1)

...and a BIG thank-you to Dave Haynie, John Toebes, Andy Finkel,
   and all the real geniuses who struggled against so much adversity
   (and against Commodore Management) to bring us the glorious AMIGA!

May Messrs. Gould & Ali never be allowed to control a company again!

While I'm at it, I'll give a quick mention to the many wonderful people
who've written to me to offer praise, bug reports, suggestions, criticisms
and so on. Thankyou, everybody!

```
Dave Dustin        : who suggested the option to set alarm behaviour
Geoff Seeley       : who told me about a silly bug
Chris Poirier      : Sorry Chris, still no multiple alarms..
Byron Montgomerie
& J. Parcone       : OK, I've fixed the 12:00am = 0:00am bug
James Atwill       : for suggesting a seperate GUI.. is the extra
                     4K that TBCs GUI takes really *that* important?
Scott Rowland      : for asking about the TBC-on-a-private-screen
& Rodney Hester      problem.. read the caveat in section 5!
Roland Mcintosh    : for his kind words about TBC
Matt Prechota      : ditto.. and I don't know what you mean about the
                     font change handling problem?
Russell Woodford   : for being the first person to remind me that a clock
                     should change from am to pm at 12:00, NOT 1:00
James Dunne        : for suggesting a memory meter feature..
```

..phew! That's it I think.. If I've omitted anybody I'm sorry!

Other influences.. feel free to contact me to discuss them:

Monty Python
Terry Pratchett
Christianity
Craig Shaw Gardner
Red Dwarf
Star Trek & ST-DS9
Gary Larson
Ren & Stimpy

And I can strongly recommend the following programs to any
Amiga enthusiast:

```
  SwazInfo           by David Swasbrook
  CycleToMenu           F. Giannici
  PatchPointer          Steve Lemieux
  StatRAM               ?
  KingCON               David Larsson
```

```
  MonEd                  ?
  DropBox                Steve "Meef" Anichini
  Garshneblanker         Michael D Bayne
  NewEdit                Uwe Rohm
  AppTrash               Johan Stenarson
  AltTab                 Gerard Cornu
  StarClick              ?
  SnoopDOS               Eddy Carroll
  Iconian                Chad Randall (BRILLIANT Icon Editor!)
  UnixDirsII             Martin Scott
```

1.12   Everything you ever wanted to know about Public Screens

A "public" screen is an Intuition screen on which applications
other than the one that opened the screen can open their windows.

Prior to Kickstart 2.0 (v36), the only "public" screen was the Workbench;
now, however, there can be any number of public screens open at a given
time.

TBC shouldn't really be able to open on non-public screens, and so it
employs some trickery to do so. Which is why it's dangerous to close these
screens whilst TBC is open on them – well-behaved applications that open
public screens (for example, Directory Opus) will detect that there are
"alien" windows open on their screen and act accordingly.

1.13   IMPORTANT: Read this before even CONTEMPLATING editing the source!

```
            Notes about the Source-code for TBC
            ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

The file "TBC_252.c" in this archive is the source-code for version 2.52 of
TBC.
The source is in C, and it should compile with either DICE or SAS/C 6,50.

I'm sorry that it has no comments whatsoever in it; if anything in it is
unclear please contact me and I'll try and explain it. It's a major failing
of mine that I don't comment my programs. Hey, *I* know what they do :-)

As regards usage of this sourcecode, you may use sections of it in your own
programs.   If you release such a program publicly, please acknowledge me
somewhere in the documentation to your program.
If you modify this code, re-compile it, and then distribute it publicly,
please send me a copy of the new program AND acknowledge me in the
documentation – something along the lines of:

   "Super-TBC version 99.5 by John Doe, original version by DM Hollway"

..will be fine.

 I'm quite happy for people to release their own "improved" versions of TBC,
so long as these conditions are followed.

If you have any queries about these conditions, or indeed about TBC itself,
please feel free to contact me.