**Wizardry Proving Grounds v3.2 Project - Apple II Version**

List of code bugs and issues and enhancements for the Wizardry Proving Grounds v3.2 project.

The baseline for this project is the re-engineered Pascal source code (and assembler code) from the Wizardry_I program by Thomas William Ewers. This project would not exist without it.

Compilation of bugs and issues as of 24 Mar 2024 by Eric Labelle (snafaru@zimlab.com).

The source info for this list includes E. Labelle, Thomas W. Ewers, DDG Ahab, Denis Molony, and others.

NOTICE: This document is essentially complete now as we have actually ran out of things to fix as per our latest release.

Wizardry Proving Grounds v3.2 Web Site and GitHub:

Web Site: https://www.zimlab.com/wizardry/proving-grounds-v3

GitHub: https://github.com/snafaru

More details of bugs and issues fixed and enhancements are here:

https://www.zimlab.com/wizardry/proving-grounds-v3 in document Wizardry-Proving-Grounds-v3.2-Code-Changes-Readme.txt

18 March 2026. Amazingly, after years of work, all the issues in this document have been resolved with the release of Proving Grounds v3.2. My sincere thanks to everyone who helped me. Eric.

Eric Labelle (Snafaru).

#001 - The Bishop bug

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Status: Fixed in WC001. Recompiled. Verified. Closed.

The bug:

If your character is a Bishop, it can identify the true name of an item. These are in its inventory slots 1 through 8. Pressing other keys besides 1 through 8 can have the following benefits:

- 9 : The Bishop gains 100 million experience points.

- S : The character below the Bishop gains 100 million experience points.

- J : The character below the Bishop gains 100 million gold pieces.

The fix:

This bug is due to a programming error. The code is similar to "IF (CH>="1") OR (CH<="8") THEN". The "OR" should have been an "AND".

Why this fix: To prevent exploit and to prevent game corruption if other keys are pressed.

#002 - Latumapic does not work

Status: Fixed in WC003. Recompiled. Verified. Closed.

The bug: It appears that it was supposed to loop through all four groups and identify all of them. But since the array index is LLBASE04 instead of the GROUPI incrementor, it instead picks a random group and identifies it four times.

Original Code:

```
BEGIN
            FOR GROUPI := 1 TO 4 DO
            BATTLERC[ LLBASE04].A.IDENTIFI := TRUE;  (* BUG?
WITH BASE04*)
END;
```

1) 2 MEN IN ARMOR (2)
2) 2 PRIESTS (2)
3) 2 MEN IN ROBES (2)
4) 1 MAN IN KIMONO (1)

DDG'S OPTIONS

SPELL NAME ? >LATUMAPIC

| # | CHARACTER NAME | CLASS | AC | HITS | STATUS |
|---|---|---|---|---|---|
| 1 | SNAFARU | G-SAM | 2 | 93 | 93 |
| 2 | MOLONY | G-SAM | 2 | 100 | 100 |
| 3 | CT6502 | G-LOR | 2 | 6502 | 6502 |
| 4 | DDG | G-PRI | 8 | 100 | 100 |
| 5 | CRAIG | G-MAG | 8 | 87 | 87 |
| 6 | RICE | G-BIS | 8 | 56 | 56 |

1) 2 HIGH PRIESTS (2)
2) 2 LVL 7 FIGHTERS (2)
3) 1 HIGH NINJA (1)
4) 2 LVL 7 MAGES (2)

SNAFARU'S OPTIONS

F)IGHT S)PELL P)ARRY
R)UN U)SE

| # | CHARACTER NAME | CLASS | AC | HITS | STATUS |
|---|---|---|---|---|---|
| 1 | SNAFARU | G-SAM | -6 | 53 | 93 |
| 2 | MOLONY | G-SAM | -6 | 50 | 100 |
| 3 | CT6502 | G-LOR | -6 | 6439 | 6502 |
| 4 | DDG | G-PRI | 0 | 49 | 100 |
| 5 | CRAIG | G-MAG | 0 | 45 | 87 |
| 6 | RICE | G-BIS | 0 | 8 | 56 |

#003 - The silencing effect of Montino is meant to wear off, but it doesn't

Status: Fixed in WC009. Recompiled. Verified. Closed.

Answer: Applied code adjustments as per DDG Ahab's suggestion below.

The bug:

```
             FOR X := 0 TO ALIVECNT - 1 DO
                IF BATTLERC[ GROUPI].A.TEMP04[
ALIVECNT].INAUDCNT > 0 THEN
                   BATTLERC[ GROUPI].A.TEMP04[
ALIVECNT].INAUDCNT :=
                   BATTLERC[ GROUPI].A.TEMP04[
ALIVECNT].INAUDCNT - 1
```

The array index should be X rather than ALIVECNT.

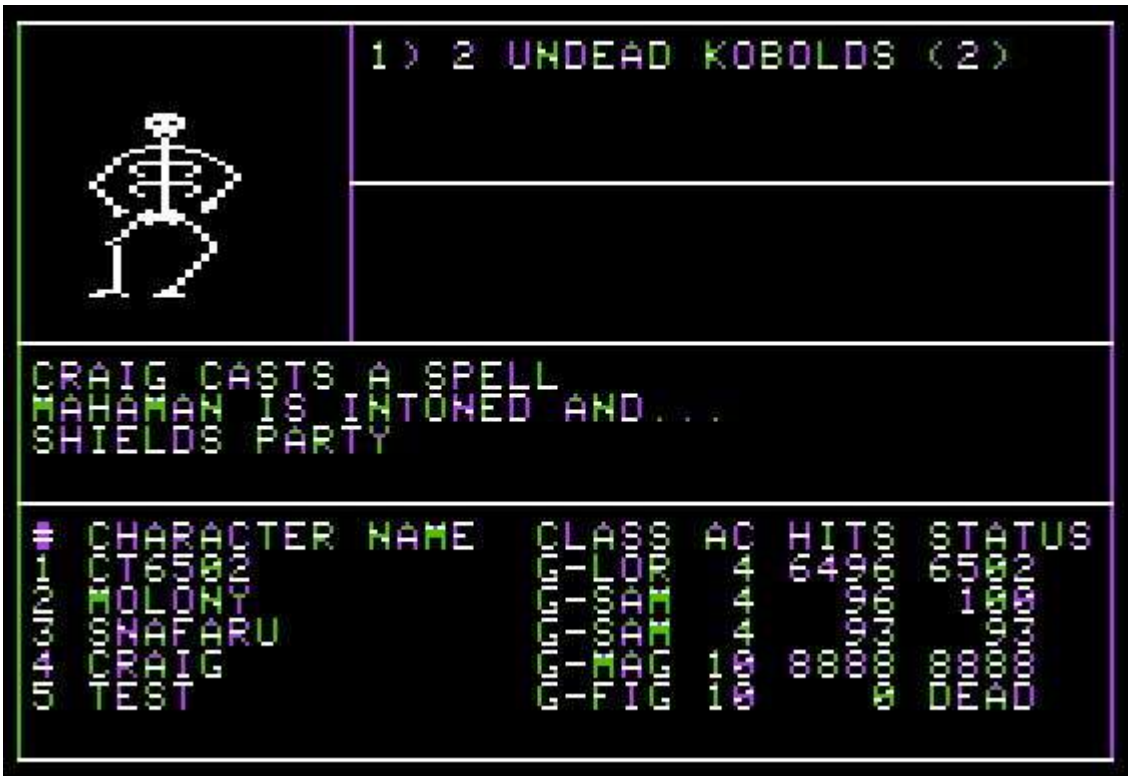
Furthermore, the outer function forgets to call this procedure on the fourth monster group.

```
BEGIN (* HEALHEAR *)
  DECINAUD( 0, PARTYCNT);
  DECINAUD( 1, BATTLERC[ 1].A.ALIVECNT);
  DECINAUD( 2, BATTLERC[ 2].A.ALIVECNT);
  DECINAUD( 3, BATTLERC[ 3].A.ALIVECNT)
END; (* HEALHEAR *)
```

#004 - Haman and Mahaman are both broken

Status: Fixed in WC006. Recompiled. Verified. Closed.

Answer: Fixed by adding parenthesis and changed the Mahaman flag value from 7 to 8.



1) 2 UNDEAD KOBOLDS (2)

CT6502'S OPTIONS

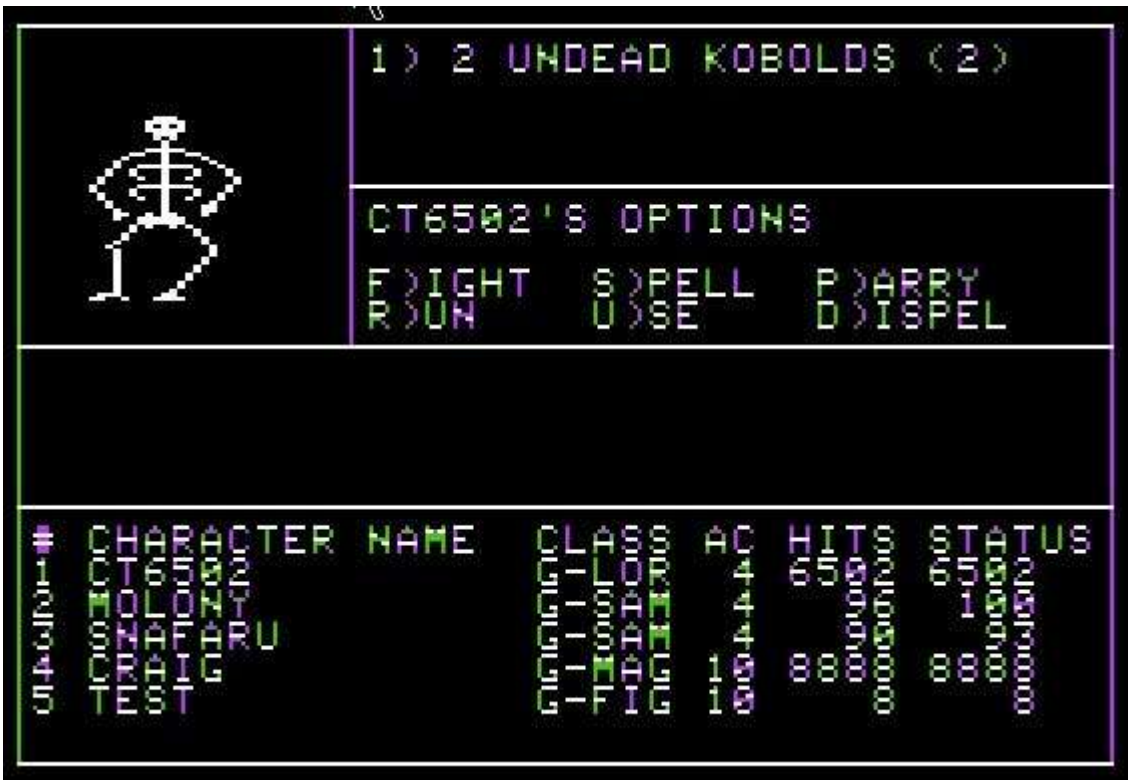
F)IGHT  S)PELL  P)ARRY
R)UN  U)SE  D)ISPEL

| # | CHARACTER NAME | CLASS | AC | HITS | STATUS |
|---|---|---|---|---|---|
| 1 | CT6502 | G-LOR | LO | 6496 | 6502 |
| 2 | MOLONY | G-SAM | LO | 96 | 100 |
| 3 | SNAFARU | G-SAM | LO | 93 | 93 |
| 4 | CRAIG | G-MAG | LO | 8888 | 8888 |
| 5 | TEST | G-FIG | LO | 0 | DEAD |

1) 2 UNDEAD KOBOLDS (2)

CRAIG CASTS A SPELL
MAHAMAN IS INTONED AND...
RESSURECTS AND HEALS PARTY!

| # | CHARACTER NAME | CLASS | AC | HITS | STATUS |
|---|---|---|---|---|---|
| 1 | CT6502 | G-LOR | 4 | 6500 | 6502 |
| 2 | MOLONY | G-SAM | 4 | 100 | 100 |
| 3 | SNAFARU | G-SAM | 4 | 93 | 93 |
| 4 | CRAIG | G-MAG | 10 | 8888 | 8888 |
| 5 | TEST | G-FIG | 10 | 0 | DEAD |




The bug: There are supposed to be seven possible effects, with less powerful ones more likely to be selected. Instead, each spell has three possible effects with equal distribution, and two of the effects are impossible.

Haman: HAMCURE, HAMMAGIC, HAMHEAL

Mahaman: HAMCURE, HAMSILEN, HAMTELEP

Unused: HAMPROT, HAMALIVE

Reference: Jun 27, 2014, 5:40:39 PM in https://groups.google.com/g/comp.sys.apple2/c/aI5ob1mLUwY/m/CIqEeVUvDAAJ

Bug4:
---
What are the possible results for HAMAN and MAHAMAN?

Here is the code with a very bad bug. See if you can spot it.

```
CASE RANDOM MOD 3 * MAHAMFLG OF (* MAHAMFLG IS 6 OR 7 *)
0, 1, 2, 3, 4, 5: HAMCURE;
7, 8, 9, 10, 11: HAMSILEN;
```

12, 13, 22, 23: HAMMAGIC;
14, 20, 21: HAMTELEP;
6, 15, 19: HAMHEAL;
17: HAMPROT;
16, 18: HAMALIVE;

Hint: If you search the internet, you will not find all 7 of these actions for HAMAN and MAHAMAN.

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.
.

And to be more specific, the case expression can only evaluate to the values 0, 6, 7, 12, and 14. It is likely that they really wanted something like:

```
CASE RANDOM MOD (3 * MAHAMFLG) OF (* MAHAMFLG IS 6 OR 8 *)
```

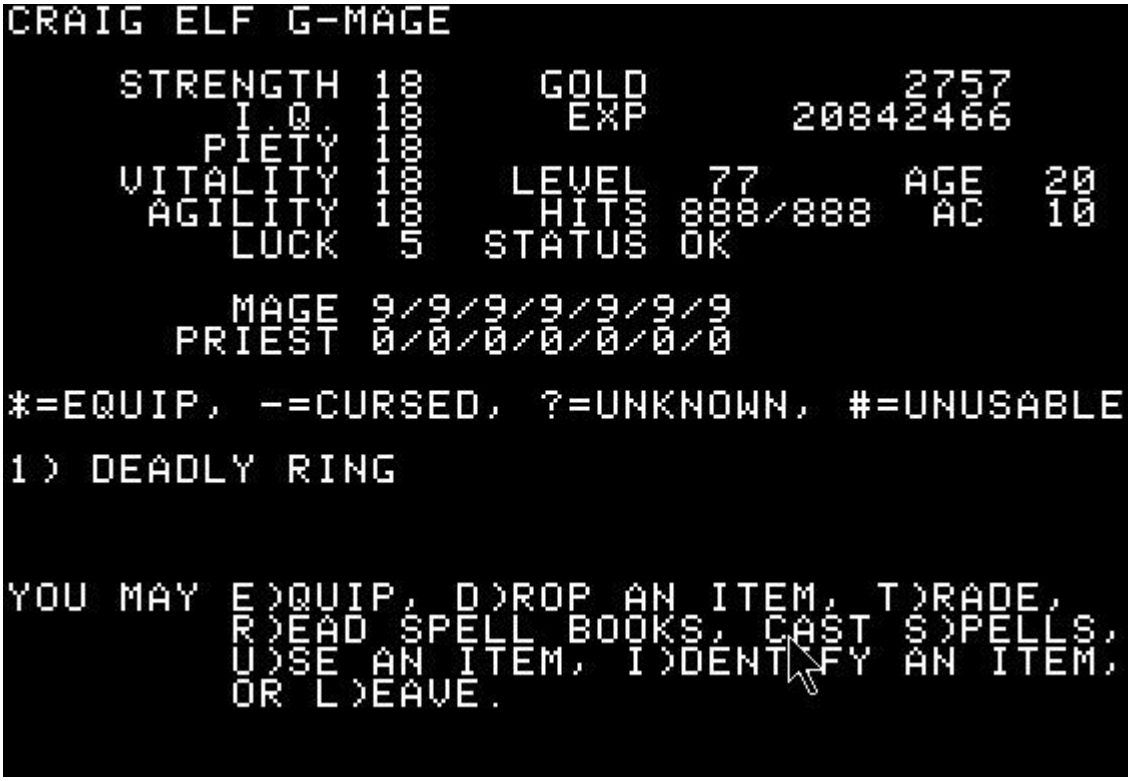
Note the two changes: the parenthesis and the MAHAMFLG values. It appears they wanted to have the results weighted in favor of the action HAMCURE for example. Completely butchered code for the lack of the parenthesis.

#005 - Regeneration, Degeneration: HEALPTS is probably meant to stack

Status: Fixed in WC010. Recompiled. Verified. Closed.

Answer: Adjust code to have regeneration and degeneration items stack. Poison and stacking poison from chest traps are also taken in account. The Deadly Ring is now actually deadly.

The bug: HEALPTS (hit points regeneration and degeneration) is probably meant to stack but instead, it just takes whatever item has the biggest heal value. Consequently, the DEADLY RING's HP draining property has no effect; the base value of 0 takes priority over the ring's negative value, being larger.




F)ORWARD C)AMP S)TATUS
L)EFT Q)UICK A(-W->D
R)IGHT T)IME CLUSTER
K)ICK I)NSPECT
SPELLS :
STAIRS GOING UP
TAKE THEM (Y/N) ?
# CHARACTER NAME CLASS AC HITS STATUS
1 SNAFARU G-SAM 11 93 93
2 MOLONY G-SAM 4 100 100
3 CT6502 G-LOR 10 6425+6502
4 DDG G-PRI 10 100 100
5 RICE G-BIS 10 96 96
6 CRAIG G-MAG 10 888- 888


F)ORWARD C)AMP S)TATUS
L)EFT Q)UICK A(-W->D
R)IGHT T)IME CLUSTER
K)ICK I)NSPECT
SPELLS :
# CHARACTER NAME CLASS AC HITS STATUS
1 SNAFARU G-SAM 11 93 93
2 MOLONY G-SAM 4 100 100
3 CT6502 G-LOR 10 6429+6502
4 DDG G-PRI 10 100 100
5 RICE G-BIS 10 96 96
6 CRAIG G-MAG 10 885- 888


#006 - Dispel does not work on undead monsters with status afflictions

Status: Fixed in WC011. Recompiled. Verified. Closed.

Answer: Adjust code to have dispel work on monsters that have an affliction.

The issue: This would be a pretty rare occurrence though; Katino doesn't work on the undead, and casting Manifo when you can just dispel them is crazy.

#007 – TWIZLONG/ADDLONGS large number calculations bug

Status: Fixed in WC025. Recompiled. Verified. Closed.

Answer: The Addlongs procedure that adds two numbers has a bug where part of the first value is passed on to the second value because they have the same name thus having a addition/multiplication side effect starting at 10000. This causes the experience points of some monsters to be artificially high.

The fix: Updated the declaration of the procedure to have the second value as a constant.

Why this fix: To fix the Addlongs procedure bug. Also, this makes current monsters or future ones in another scenario to have a more predictable experience allocation.Reported by: DDG Ahab.

The issue: Too much experience awarded by certain monsters.

References: Thomas W. Ewers

Jul 15, 2014, 4:43:46 AM

Jul 15, 2014, 11:41:13 AM

Jul 15, 2014, 9:28:29 PM

Jul 16, 2014, 3:23:47 AM

Jul 16, 2014, 11:12:09 AM

on
https://groups.google.com/g/comp.sys.apple2/c/aI5ob1mLUwY/m/CIqEeVUvDAAJ

Ex: Monsters with at least 80 spell resistance award much more XP than intended due to a long integer multiplication bug.

#008 - The Lord's Garb and other non-weapon item do not grant certain properties

Status: Closed. Fixed in Wizardry Restored v2.2 26-JAN-23.

Answer: In the spirit of standard fantasy role-playing, armor type equipment is not supposed to give offensive values. These attributes should be removed from the Lord's Garb in the Wizardry database. This seems to have been wishful zeal. No code corrections necessary.

The issue: The Lord's Garb's  is flagged to grant critical hits and 2x damage towards weres, undead, and demons, but it won't, because the game only checks weapons for these flags.

#009 – First round of combat balance issues

Status: Fixed in WC023. Recompiled. Verified. Closed.

Answer: Modified the code to disallow casting spells and using breath during surprise rounds for both monsters and characters.

Some early thoughts: Normally, in many traditional fantasy dice role-playing games, a magic user would not have time to prepare his spell on a surprise round (no way to tell exactly when the enemy will show up or be in range, the magic user cannot keep his spell in a "prepared" state indefinitely), they would cast only on the second round. Breathers do not have to prepare their "spells". On one hand if the party that surprises the monsters can use their spells, that is quite a survival boon for them. In the code, your party has more chances of surprising the monsters then they have surprising you. This means on a run for Werdna getting one or two lucky breaks (surprise) where you can cast spells actually makes it easier to reach Werdna. If Dragon Zombies get 1 free surprise round of breathing and get the initiative and breathe at the beginning of the second round, it is unlikely your party will survive... that is why high agility is very important on your spell casters to they go before the breathers. Often, getting surprised by level 10 Mages for example means a total wipeout of your party. Would disabling spell casting and breath on a surprise round make the game too easy? Probably not. We are more like fixing things that was killing the fun in the game... if the Dragon Zombies wipe out your entire party twice or more in a row, a player might just give up and stop playing. While we are at it, why not disable

monster's draining abilities on their surprise round? It is not clear here what could/should be disabled on a surprise round without affecting the game balance.

The issue: Getting wiped out on round 1 because you got surprised by spellcasters or breathers. Wiz3 alleviated this by disallowing spells during surprise rounds, though breathers will still ruin you.

#010 – Manifo issue

Status: Fixed in WC014. Recompiled. Verified. Closed.

Answer: Adjusted the code so that the monsters have the status PLYZE instead of ASLEEP if affected by Manifo. Reduce the monsters' resistance to Manifo so that it now sits in between the original setting and Legacy of Llylgamyn (over-powered). Ex: Now a level 3 monster has a 65% chance to resist Manifo, compared to a 60% chance to resist Katino. The second fix was done out of necessity and for negligeable coding space (less than 512 bytes left on disk for coding) and can easily be reversed or changed if necessary.

Brain juggling:

Although level 1 monsters having a 60% chance to resist Manifo is a bit harsh the objective of this project is to fix bugs. It would be easy to make Manifo to be overpowered, this would be a game balance item, maybe this is for Wizardry PG 4.0.

The Priest spell Manifo (hold monster) is the counterpart of the Mage spell Katino (sleep monster). Although Manifo has less change of success than Katino, Monsters have much, much less chance to recuperate from Manifo if their status is PLYZE. These are very low-level spells, just like in dice fantasy role playing games do not expect too much from low level spells. Changing the % effect chance to be the same as Legacy of Llylgamyn would make the Manifo spell too powerful. Consider this: if your party has 2 Priests instead of a Priest and a Mage, then casting 2 Manifos should do the trick for a group of low-level monsters.

Here is extra information of what the code is before changes:

A level 5 monster has 0 chances of being affected by either Manifo or Katino.

Katino success chance (here the lower the better):
```
20 * BATTLERC[ CASTGR].B.HPREC.LEVEL,'SLEPT',3)
```

Manifo success chance:
```
50 + 10 * BATTLERC[ CASTGR].B.HPREC.LEVEL,'HELD',0)
```

Both have the same effect:
```
CASE DAMTYPE OF
0, 3:  BATTLERC[ GROUPI].A.TEMP04[ CHARI].STATUS := ASLEEP;
```

At monster level 5 both have no chance of success.

Possible status effects:
```
TSTATUS = (OK,AFRAID,ASLEEP,PLYZE,STONED,DEAD,ASHES,LOST);
```

Monster recovery from ASLEEP:
```
TRYHEAL( 20 * BATTLERC[ T2].B.HPREC.LEVEL);
```

Monster recovery from PLYZE:
```
TRYHEAL(  7 * BATTLERC[ T2].B.HPREC.LEVEL);
```

The issue: Manifo is nearly useless. It inflicts SLEEP (not PARALYZE, though the status exists), but even the weakest monster has a 60% chance to resist. Perhaps this is marginally useful against creeping coins, who can't be Katino'd or dispelled, but I can't think of any other situation where it would be slightly useful.

#011 – Loktofeit issues

Status: Fixed in WC028. Recompiled. Verified. Closed.

Answer: Updated the code so that the cast chance is the same as Wizardry 3 - Legacy of Llylgamyn which is (65 + Character Level)%.

Early thoughts: Nobody will disagree on this issue. Suggestion: Make Loktofeit teleport to a random location when used in combat. Maybe this would be something for Wizardry PG Expansion 4.0. You could even add the status effect "Afraid" on the party when this spell is used and have it displayed on screen.

The issue: The penalty for using Loktofeit is such that it is never used.

```
          IF (RANDOM MOD 100) >  2 * CHARACTR[ BATI].CHARLEV
THEN
            BEGIN
              MVCURSOR( 1, 13);
              PRINTSTR( 'LOKTOFEIT FAILS!');
              EXIT( SLOKTOFE)
            END;
```

That's a 69% failure rate for a level 15 caster, and for the dear price you pay on a success, which is losing all your equipment and practically all your gold, this is just unacceptable. Wiz3 boosts the minimum success rate to 65 + Character Level%.

#012 – Draining issues

Status: Fixed in WC027. Recompiled. Verified. Closed.

Answer: Monsters can drain your characters several times during combat. This is killing the fun factor in the game.

The fix: Added code for the monsters to not being able to drain your characters if they have already been drained. This includes a character drained by Haman or Mahaman. Although, casting successively Haman or Mahaman will drain your characters each time.

Why this fix: The draining effects are now working the same way they are in Wizardry 3 - Legacy of Llylgamyn.

Pre-implementation thoughts: Is this a coding issue or an inequitable balance issue against the player? It certainly does slow the player's progress down for sure (then again, there's that reset button). Consider this: If Palpatine zaps Luke Skywalker several times, Luke will get drained every time. **Suggestion: leave it alone. Maybe this would be balance item for a Wizardry PG v4.0?).**

The issue: In Wizardry 3, you can only get drained once per combat, and casting HAMAN/MAHAMAN counts. In Wizardry 1, there is no limit.

#013 – Ninjas not living up its unarmed combat performance promise

Status: Fixed in WC030. Recompiled. Verified. Closed.

Answers: I think it is safe to say everyone has the same opinion on this one. Here is the Ninja definition in the Wizardry manual:

> NINJA-are inhuman fighting machines. They can use any weapons or armor but work best without any! When fighting without protection with their bare hands, they can cause havoc and destruction, and may even kill the strongest opponent with a single blow! Their great training gives them a lower and lower ARMOR CLASS as they reach higher and higher levels of ability.

The fix: Added these code enhancements:

- The requirements to change class to ninja are now 15 in all stats instead of 17. Must still be of evil alignment.

- Base bare hands damage increased from 2d4 to 2d8.

- Unarmed Armor Class increased from 1 point every 3 levels, to 1 point every level.

- Unarmed Combat Initiative Bonus of 1 point (10%) for every 3 levels.

Preliminary suggestion: But how much more unarmed damage and natural armor could be given to the ninja without creating imbalance? Maybe this would be for a Wizardry balance project (Wizardry PG v4.0?). Let's remember that the goal of this project is to fix bugs, not change the game.

The issue: The manual says that Ninjas are better off without weapons and armor, but this is false. Ninjas do 2d4 per hit unarmed, which is better than the 2d2 of other classes, but finding better weapons than this is not hard! Critical hits work fine with weapons. Armor is also almost certainly better than going naked; you would need to be level 21 to match the effect of just wearing Evil Plate +3.

#014 – Saving throws inconsistencies - LUCKSKIL

Status: Fixed in WC016. Recompiled. Verified. Closed.

Answer: Saving throws are based on your character's Luck attribute and a modifier. After a long analysis, everything jives except for saving vs the chests' Poison Gas Trap. It pointed to "3" (Breath) attack, changed it to "2". This makes use of category "2" since it did not make sense for the Poison Gas Trap and Breath being in the same category.

The Wizardry saving throw table is so similar to the 1979 AD&D table found here: http://grognardia.blogspot.com/2020/12/saving-throws.html that it is almost certain that this is where it comes from.

**SAVING THROW MATRICES**

**I. SAVING THROW MATRIX FOR CHARACTERS AND HUMAN TYPES**

| Character Class and Experience Level | | Attack to be Saved Against: Paralyzation, Poison or Death Magic | Petrification or Polymorph* | Rod, Staff or Wand | Breath Weapon** | Spell** |
|---|---|---|---|---|---|---|
| Clerics* | 1-3 | 10 | 13 | 14 | 16 | 15 |
| | 4-6 | 9 | 12 | 13 | 15 | 14 |
| | 7-9 | 7 | 10 | 11 | 13 | 12 |
| | 10-12 | 6 | 9 | 10 | 12 | 11 |
| | 13-15 | 5 | 8 | 9 | 11 | 10 |
| | 16-18 | 4 | 7 | 8 | 10 | 9 |
| | 19+ | 2 | 5 | 6 | 8 | 7 |
| Fighters* | 0 | 16 | 17 | 18 | 20 | 19 |
| | 1-2 | 14 | 15 | 16 | 17 | 17 |
| | 3-4 | 13 | 14 | 15 | 16 | 16 |
| | 5-6 | 11 | 12 | 13 | 13 | 14 |
| | 7-8 | 10 | 11 | 12 | 12 | 13 |
| | 9-10 | 8 | 9 | 10 | 9 | 11 |
| | 11-12 | 7 | 8 | 9 | 8 | 10 |
| | 13-14 | 5 | 6 | 7 | 5 | 8 |
| | 15-16 | 4 | 5 | 6 | 4 | 7 |
| | 17+ | 3 | 4 | 5 | 4 | 6 |
| Magic-Users* | 1-5 | 14 | 13 | 11 | 15 | 12 |
| | 6-10 | 13 | 11 | 9 | 13 | 10 |
| | 11-15 | 11 | 9 | 7 | 11 | 8 |
| | 16-20 | 10 | 7 | 5 | 9 | 6 |
| | 21+ | 8 | 5 | 3 | 7 | 4 |
| Thieves* | 1-4 | 13 | 12 | 14 | 16 | 15 |
| | 5-8 | 12 | 11 | 12 | 15 | 13 |
| | 9-12 | 11 | 10 | 10 | 14 | 11 |
| | 13-16 | 10 | 9 | 8 | 13 | 9 |
| | 17-20 | 9 | 8 | 6 | 12 | 7 |
| | 21+ | 8 | 7 | 4 | 11 | 5 |

There are the 5 saving throw checks used in the game:

0 - Poison & Paralysis & Critical Hit (Special monster skills).
1 - Stone.
2 - Was not used, moved the Poison Gas Chest Trap here.
3 - Breath. Poison Gas Chest Trap, made no sense, moved to 2.
4 - Silence. Anti-Mage/Anti-Priest Chest Traps.

Here are the compiled resistances, after changes, each point is 5%:

- [0] Vs. Poison & Paralysis & Critical Hit: Fighter 15%, Samurai 10%, Lord 10%, Ninja 15%, and if race is Human 5%.

- [1] Vs. Stoning: Priest 15%, Bishop 10%, Lord 10%, Ninja 10%, and if race is Gnome 10%.

- [2] Vs. Poison Gas Chest Trap: Bishop 10%, Ninja 20%, and if race is Elf 10%.

- [3] Vs. Breath Attacks: Thief 15%, Ninja 15%, and if race is Dwarf 20% to reduce the Breath damage by half.

- [4] Vs. Anti-Mage and Anti-Priest chest trap and Silence: Mage 15%, Bishop 10%, Samurai 10%, Ninja 10%, and if the race is Hobbit 15%.

- Vs. all of the above: add 5% for every 5 Levels of your character.

- Vs. all of the above: add 5% if your Luck is 6, 10% if your Luck is 12, and 15% if your Luck is 18.

LUCKSKIL analysis:

wiz
---

```
PROGRAM WIZARDRY;
        TCHAR = RECORD
            LUCKSKIL : PACKED ARRAY[ 0..4] OF 0..31;
```

roller
------

```
    PROCEDURE MAKECHAR;  (* P010B09 *)


      PROCEDURE INITCHAR;  (* P010B0A *)

        VAR
             LSI    : INTEGER;
             UNUSED : INTEGER;

        BEGIN
          FILLCHAR( CHARREC, SIZEOF( CHARREC), 0);
```

```
          CHARREC.NAME := CHARNAME;
          CHARREC.AGE := (18 * 52) + (RANDOM MOD 300);
          CHARREC.GOLD.LOW := 90 + (RANDOM MOD 100);
          CHARREC.STATUS := OK;
          FOR LSI := 0 TO 4 DO
            BEGIN
              CHARREC.LUCKSKIL[ LSI] := 16
            END;
          CHARREC.MAXLEVAC := 1;
          CHARREC.CHARLEV := 1;
          CHARREC.ARMORCL := 10
        END;


utilitie2
---------
      PROCEDURE UPLCKSKL( LSSUB:    INTEGER;  (* P010123 *)
                          LSMODAMT: INTEGER);

        BEGIN
          LSMODAMT := CHARACTR[ CHARI].LUCKSKIL[ LSSUB] -
LSMODAMT;
          IF LSMODAMT < 1 THEN
            LSMODAMT := 1;
          CHARACTR[ CHARI].LUCKSKIL[ LSSUB] := LSMODAMT
        END;


      PROCEDURE INITSTUF;  (* P010124 *)

        VAR
             X : INTEGER;
             Y : INTEGER;

        BEGIN
          WITH CHARACTR[ CHARI] DO
            BEGIN
              FOR X :=
                BEGIN
                  WEPVSTY2[ 0][ X] := FALSE;
                  WEPVSTY2[ 1][ X] := FALSE;
                  WEPVSTYP[ X] := FALSE
                END;
              FOR Y := 0 TO 6 DO
                BEGIN
                  WEPVSTY3[ 0][ Y] := FALSE;
                  WEPVSTY3[ 1][ Y] := FALSE
```

```
            END
          END
        END;


      BEGIN  (* EQUIPCHR *)
        WITH CHARACTR[ CHARI] DO
          BEGIN
            TEMPX := (20 - CHARLEV DIV 5) - (ATTRIB[ LUCK] DIV
6);
            IF TEMPX < 1 THEN
              TEMPX := 1;
            FOR LUCKI := 0 TO 4 DO
              LUCKSKIL[ LUCKI] := TEMPX;

            CASE CLASS OF

              FIGHTER :   UPLCKSKL( 0, 3);
                 MAGE :   UPLCKSKL( 4, 3);
               PRIEST :   UPLCKSKL( 1, 3);
                THIEF :   UPLCKSKL( 3, 3);

               BISHOP : BEGIN
                          UPLCKSKL( 2, 2);
                          UPLCKSKL( 4, 2);
                          UPLCKSKL( 1, 2);
                        END;

              SAMURAI : BEGIN
                          UPLCKSKL( 0, 2);
                          UPLCKSKL( 4, 2);
                        END;

                 LORD : BEGIN
                          UPLCKSKL( 0, 2);
                          UPLCKSKL( 1, 2);
                        END;

                NINJA : BEGIN
                          UPLCKSKL( 0, 3);
                          UPLCKSKL( 1, 2);
                          UPLCKSKL( 2, 4);
                          UPLCKSKL( 3, 3);
                          UPLCKSKL( 4, 2);
                        END;

            END;
```

```
            CASE RACE OF
               HUMAN:  UPLCKSKL( 0, 1);
                 ELF:  UPLCKSKL( 2, 2);
               DWARF:  UPLCKSKL( 3, 4);
               GNOME:  UPLCKSKL( 1, 2);
              HOBBIT:  UPLCKSKL( 4, 3);
            END;


rewards
-------
            BEGIN  (* ANTIPM *)
              FOR CHARPM := 0 TO PARTYCNT - 1 DO
                BEGIN
                  PLYZSTON := (RANDOM MOD 20) < CHARACTR[
CHARPM].LUCKSKIL[ 4];

                  CASE CHARACTR[ CHARPM].CLASS OF

                       MAGE:  IF BMAGEDAM THEN
                                IF PLYZSTON THEN
                                  ISPLYZE
                                ELSE
                                  ISSTONED;

                     SAMURAI:  IF BMAGEDAM THEN
                                IF NOT PLYZSTON THEN
                                  ISPLYZE;

                      PRIEST:  IF NOT BMAGEDAM THEN
                                IF PLYZSTON THEN
                                  ISPLYZE
                                ELSE
                                  ISSTONED;

                      BISHOP:  IF NOT BMAGEDAM THEN
                                IF NOT PLYZSTON THEN  (* IF NOT
SET... *)
                                  ISPLYZE;
                  END
                END
            END;   (* ANTIPM *)
.
.
.
          BEGIN (* DOTRAPDM *)
```

```
            CLRRECT( 13, 8, 26, 2);
            MVCURSOR( 13, 8);
            IF TRAPTYPE <> 0 THEN
              BEGIN
                PRINTSTR( 'OOPPS! A ');
                PRTRAPTY( TRAPTYPE, TRAP3TYP)
              END
            ELSE
              PRINTSTR( 'THE CHEST WAS NOT TRAPPED');
            PAUSE2;

            CASE TRAPTYPE OF

              1:  (* POISON *)

                    CHARACTR[ CHRXCHST].LOSTXYL.POISNAMT[ 1] :=
                      CHARACTR[ CHRXCHST].LOSTXYL.POISNAMT[ 1] +
1;

              2:  (* GAS *)

                    FOR CHARX := 0 TO PARTYCNT - 1 DO
                      IF (RANDOM MOD 20) < CHARACTR[
CHARX].LUCKSKIL[ 3] THEN
                        CHARACTR[ CHARX].LOSTXYL.POISNAMT[ 1] :=
1;
```

combat4

```
      PROCEDURE DOSILENC;  (* P01080A *)

        VAR
             CHARX : INTEGER;

        BEGIN
          FOR CHARX := 0 TO BATTLERC[ CASTGR].A.ALIVECNT - 1 DO
            IF CASTGR = 0 THEN
              ISISNOT( CASTGR,
                       CHARX,
                        100 - 5 * CHARACTR[ CHARX].LUCKSKIL[ 4],
                       'SILENCED',
                       1)
            ELSE
              ISISNOT( CASTGR,
                       CHARX,
```

```
                        10 * BATTLERC[ CASTGR].B.HPREC.LEVEL,
                        'SILENCED',
                        1)
        END;
```

combat5

```
            PROCEDURE RESULT( ATTK0123: INTEGER;  (* P01090B *)
                              STONFLAG: INTEGER;
                              POISSTON: INTEGER;
                              DAMSTR:   STRING);

              VAR
                   CHANCBAD : INTEGER;

              BEGIN
                IF (RANDOM MOD 20) >
                                    CHARACTR[ MYVICTIM].LUCKSKIL[
STONFLAG] THEN
                  EXIT( RESULT);
                IF ATTK0123 = 3 THEN
                  BEGIN
                    CHANCBAD := BATTLERC[ BATG].B.HPREC.LEVEL *
2;
                    IF CHANCBAD > 50 THEN
                      CHANCBAD := 50;
                    IF (RANDOM MOD 100) > CHANCBAD THEN
                      EXIT( RESULT)
                  END;
                IF POISSTON > 0 THEN
                  IF CHARACTR[ MYVICTIM].WEPVSTY3[ 1][ POISSTON]
THEN
                    EXIT( RESULT);
                IF CHARACTR[ MYVICTIM].STATUS >= DEAD THEN
                  EXIT( RESULT);
                CLRRECT( 1, 14, 38, 1);
                MVCURSOR( 1, 14);
                PRNAME( 0, MYVICTIM);
                PRINTSTR( 'IS ');
                PRINTSTR( DAMSTR );
                CASE ATTK0123 OF

                  0:  IF BATTLERC[ 0].A.TEMP04[ MYVICTIM].STATUS
< STONED THEN
                        BATTLERC[ 0].A.TEMP04[ MYVICTIM].STATUS
:= STONED;
```

```
                    1:  CHARACTR[ MYVICTIM].LOSTXYL.POISNAMT[ 1]
:= 1;

                    2:  IF BATTLERC[ 0].A.TEMP04[ MYVICTIM].STATUS
< PLYZE THEN
                          BATTLERC[ 0].A.TEMP04[ MYVICTIM].STATUS
:= PLYZE;

                    3:  BEGIN
                          BATTLERC[ 0].A.TEMP04[ MYVICTIM].STATUS
:= DEAD;
                          BATTLERC[ 0].A.TEMP04[ MYVICTIM].HPLEFT
:= 0
                        END
                  END;
                  PAUSE1
                END;  (* RESULT *)


              BEGIN  (* CASEDAMG *)
                WITH BATTLERC[ BATG].B DO
                  BEGIN
                    IF SPPC[ 1] THEN
                      RESULT( 1, 0, 3, 'POISONED');
                    IF SPPC[ 2] THEN
                      RESULT( 2, 0, 0, 'PARALYZED');
                    IF SPPC[ 0] THEN
                      RESULT( 0, 1, 5, 'STONED');

                    IF DRAINAMT > 0 THEN
                      DRAINLEV;

                    IF SPPC[ 3] THEN
                      RESULT( 3, 0, 0, 'CRITICALLY HIT')
                  END
              END;  (* CASEDAMG *)


combat5
-------

      PROCEDURE DOBREATH;  (* P010906 *)

        VAR
             UNUSED : INTEGER;
             HITDAM : INTEGER;
```

```
             CHARX  : INTEGER;

        BEGIN
          PRINTSTR(  'BREATHES!');
          FOR CHARX := 0 TO PARTYCNT - 1 DO
            BEGIN
              IF BATTLERC[ 0].A.TEMP04[ CHARX].STATUS < DEAD
THEN
                BEGIN
                  CLRRECT( 1, 12, 38, 3);
                  MVCURSOR( 1, 12);
                  HITDAM := BATTLERC[ BATG].A.TEMP04[
BATI].HPLEFT DIV 2;
                  IF (RANDOM MOD 20) >= CHARACTR[
CHARX].LUCKSKIL[ 3] THEN
                    HITDAM := (HITDAM + 1) DIV 2;
                  IF CHARACTR[ CHARX].WEPVSTY3[ 1][ BATTLERC[
BATG].B.BREATHE]
                      THEN
                    HITDAM := (HITDAM + 1) DIV 2;
                  UNAFFECT( 0, CHARX, HITDAM)
                END
            END
        END;


            PROCEDURE RESULT( ATTK0123: INTEGER;  (* P01090B *)
                              STONFLAG: INTEGER;
                              POISSTON: INTEGER;
                              DAMSTR:   STRING);

              VAR
                   CHANCBAD : INTEGER;

              BEGIN
                IF (RANDOM MOD 20) >
                                  CHARACTR[ MYVICTIM].LUCKSKIL[
STONFLAG] THEN
                  EXIT( RESULT);
.
.
.
            BEGIN  (* CASEDAMG *)
              WITH BATTLERC[ BATG].B DO
                BEGIN
                  IF SPPC[ 1] THEN
                    RESULT( 1, 0, 3, 'POISONED');
```

```
IF SPPC[ 2] THEN
  RESULT( 2, 0, 0, 'PARALYZED');
IF SPPC[ 0] THEN
  RESULT( 0, 1, 5, 'STONED');
```

The issue:

There are saving throw types, simply called LUCKSKIL in the code. These confer a variety of protective effects but are completely invisible to the player. LUCKSKIL[2], which elves get a -2 bonus on, seems to do absolutely nothing! I call this "save vs. wands" as the rest of them seem to correspond well to death, breath, petrify, and spell. Save vs. Death resists poison, paralysis, and critical hits in combat. But it has no benefit against corresponding trap types. Save vs. Petrify resists stoning hits in combat, but also has no benefit against corresponding trap types.

#015 - Bonus points on character creation are handled strangely

Status: Closed.

Answer: Going back to the roots of dice fantasy role-playing games this is normal when rolling characters, a bit harsh, but normal. As an example, in AD&D, what are the chances of rolling 18 Strength on 3d6 then 100 exceptional Strength on 1d100 for a score of 18/00. Strange but not a code defect.

The issue: There is a roughly 91% chance that the bonus points are 1d4+6, a roughly 8.5% chance of it being 1d4+16, and a roughly 0.5% chance of it being 1d3+26. I am not sure what the intended point distribution is, but this end result doesn't sound like it was arrived at on purpose.

#016 – Luck vs. teleport into rock

Status: Closed.

Answer: BREAKPOS means "Break Possession". Luck in this case has to do with the chance of an item not breaking when going to the cemetery when your entire party dies in the maze, and besides being dead all your party member's gold is divided by 2. Your entire party also dies and goes to the cemetery when teleporting into rock. Except, the game code specifically bypassed the check against breaking your items and losing half your gold when you teleport into rock, then you recover your "OUT" characters from the boot screen U)tilies to play your characters again. Essentially, the authors of Wizardry are giving you a break. It would be too cruel if the authors made you start all over if you teleported into rock by mistake.

The issue: Luck has some purpose for the event of teleporting into rock (see the function BREAKPOS but I cannot figure out what, or why it would matter.

#017 – AFRAID issue

Status: Closed. See #011 above for possible implementation.

Answer: It is just not used in the game. Could be used if building another scenario and giving a spell the capability to inflict this effect. Maybe in Wizardry PG Expansion 4.0, see #011 above.

The issue: An AFRAID status effect exists, but there is no way to inflict or be affected by this.

#018 – PARALYZE issue

Status: Closed. See "#010 – Manifo issue". It is implemented there.

Code exists for inflicting PARALYZE on monsters, but there is no way to actually do this.

#019 – To Hit issue

Status: Fixed in WC015. Recompiled. Verified. Closed.

Answer: True, monsters at the back were easier to hit. Victim is monster groups 1 to 4. Changed the code to:

+ ((3 * VICTIM) - 6); Extra set of parentheses here to make sure nothing stupid happens and for clarity.

This way, the chance to hit the first monster group does not change, i.e., -3 (-15%), a minus number here is good, but decreases for each subsequent monster groups by 3 (15%).

The issue:

The to-hit chance against an enemy is calculated like this:

```
                HPCALCPC := 21
                            - BATTLERC[ VICTIM].B.AC
                            - CHARACTR[ BATI].HPCALCMD
                            + BATTLERC[ VICTIM].A.TEMP04[
SINGLEX].ARMORCL
                            - 3 * VICTIM;
```

These line items correspond to:

- Monster's natural armor class

- Attacker's tohit bonuses (level, strength, weapon properties)
- Monster's AC penalties (dilto, morlis, mamorlis)

But I am not sure what VICTIM means. I think it corresponds to the monster's group number, but if so, it would mean that monsters in the front row are harder to hit than monsters in the back row, which makes no sense.

#020 – SWINGCOUNT issue

Status: Closed. Fixed in Wizardry Restored v2.2 26-JAN-23.

Answer: The swing count of these weapons should be all set from 1 to 0 in the Wizardry database. This is not a WIZARDRY.CODE coding issue.

The issue: There is absolutely no difference between 0 and 1; all classes have a base SWINGCOUNT value of 1, which does not stack with the weapon, but the larger SWINGCOUNT takes.

#021 – POISON issue

Status: Closed. May require further balance discussions.

Answer: All true. But if poison stacks then this can seriously diminish the chances of a character finishing a combat round before dying of poisoning or walking back to the castle. This could seriously affect the balance of the game, the lower the character level the worse the imbalance. Chest poison traps does stack though until reset by another poisoning event.

The issue: The engine contains logic to handle poison values above 1, but it is impossible for your poison value to ever exceed 1. All poison events set your poison level to 1 rather than increment it, except in the case of repeatedly opening chests that have the Poison Needle trap where it does stack properly, but it still goes back to 1 afterwards if poisoned by any other means.

#022 - Disbanding your party cures poison

Status: Closed. Further discussions can be done about this.

Answer: In a role-playing sense, the purpose of disbanding a party is for them to lick their wounds, take care of ailments and pray for a rescue. You could argue that by the time a rescue party arrives, the poisoning has been curbed. Besides, if you disband you party, its characters age by 25 weeks.

#023 – Change class vs spell learning

Status: Closed. Further discussions can be had about this but see the answer below.

Answer: This is the eternal debate that will never come to an end of dual-class and changing class in dice and computer fantasy role-playing games. Some game masters would allow it (succumbing from the pressure by the players?) because arguably you are still at that level 10 mage proficiency even if you changed class to a fighter.

The issue: If you change class to a non-spellcaster, you can continue learning new spells in any circle where you already know at least one spell.

#024 – Resting vs Age

Status: Closed. More discussions can be had about this.

Answer: True. But if resting at the Adventurer's Inn ages your characters, would your characters then age too quickly and thus make it even harder to gain stats and therefore even harder to make it to a Lord or Ninja class which are already hard enough? In Wizardry, the older your character, the less likely they will gain stats when leveling up. In dice role-playing games resting is short (regenerating your fatigue), if you have no magical means to cure wounds then it takes time (days, weeks, to heal), Wizardry reflects that in some way.

The issue: Resting does not age the characters.

#025 – Resurrection vs Age

Status: Closed.

Answer: Exactly. Resurrection success chance is based on Vitality. Other role-playing systems may or may not include age as a factor. Wizardry just does not. This would mean changing the game, not fixing a bug.

The issue: Age does not directly affect the success rate of resurrection spells. Vitality does, though, both with Di/Kadorto and temple services.

#026 – Highwaymen Issue

Status: Closed.

Answers: Good observation. But it is not a bug.

The issue: Highwaymen, who have monster id=6, only spawn in level 2, and only as companions to LVL 1 Mages. Apart from special encounters, this is the only monster in the game who will never spawn as a party leader.

#027 – Anti-magic area issue

Status: Closed.

Answer: Further analysis shows that it may be possible to keep the party in a state where they cannot cast spells until they are back at the castle. This though can cause havoc in other made scenarios such as the DragonQuest scenario which uses anti-magic area as part of the "story". Also, if it was made to last the entire expedition, it would just be a game killer, and looking at it this way there is just no point. Keeping the current behavior though gives the scenario designer the possibility of creating "warded" areas where spells have no effects.

Early Answer: The game mechanics/database does not have that kind of multiple attributes, I mean stacking, for squares. This would require a hefty re-write of code and would actually change the game. Also, this would probably mean changing the structure of the database tables. **Going back dice role-playing game terms, one could have the very weak argument that the "fizzle wards" are replaced by "darkness wards" when getting in a dark area of the maze for example, but this is obviously not a very convincing explanation to justify this game behavior.**

The issue: Anti-magic fizzle effect wears off when you step on a square of any type other than NORMAL or ANTIMAGIC.

#028 – Breath attack issue

Status: Closed. Could be a future consideration.

Answer: The poison breath could probably be coded to poison the party but that could potentially make some monsters too powerful and create imbalance. Maybe it could be implemented in an "4.0 expansion". Also, the code would probably have to have poison stack for this to work. Imagine if you get hit by a Poison Breath, then if you survive the encounter, you would lose 10, 20 hit points due to poisoning for every few steps you take until cured.

The issue: On breath attacks, an example is the gas dragon. Its breath property has value "3" which corresponds to poison. You would intuitively expect its breath attack to poison your party, but this can't happen. All it means is that if someone has poison protection (e.g. Mace Pro Poison) then the attack will do half damage.

#029 – Alarm trap issue

Status: Closed. Tested.

Answer: Pretty sure this is the way it is supposed to work. The chest from the initial group of monsters because you attacked them in their lair. The alerted monsters came about in a state of "alertness", just grabbing their weapons and without carrying treasure since they showed up because of all the commotion your fight with the first monsters caused. So, the chest from the initial group is still there and opens after you popped the alarm.

The issue: If you set off an alarm trap, you will automatically get a chest reward from the next encounter, but the reward type is determined by the monsters you alerted, not the monsters you fought to get the chest.

#030 – Monster resistances issues

Status: Closed.

Answer: Concerning monster resistances to poison and magic, maybe a game "4.0 expansion" with some spells having those effects can be done. Right now, it is just not used.

The issue: Let's take for example the werebear, who has resistance to cold and poison. The cold resistance will halve the damage of Dalto and Madalto. But the poison resistance does absolutely nothing, as no spells in Wizardry inflict poison damage. Only fire, physical, and cold resistances will do anything for the monsters (even magic resistance does nothing).

#031 – Maelific issue

Status: Closed. Fixed in Wizardry Restored v2.2 26-JAN-23.

Answer: This would be an adjustment in the database record of the monster, this is not a WIZARDRY.CODE coding issue.

The issue: The Maelific has a group size of 1d0+1. I'm pretty sure it was supposed to be entered as 1d1, but the end result is the same.

#032a – Extra treasure tables

Status: Closed.

Answer: They are just not used. Extras for another scenario.

The issue: Treasure tables 22 & 23 are present, but are not used.

#032b – Shuriken issue

Status: Closed.

Answer: True. The code is

CRITHITM := CRITHITM OR OBJECT.CRITHITM;

If you would give the Ninja twice a shot at critically hitting the monster every round, then the Ninja would be way too powerful, thus creating imbalance. So, we have here a redundancy of the critical hit effect and although changing that weapon's properties in the Wizardry database could be done, it makes no difference. In another scenario, a weapon could be given the critical hit property on an item that can be used by a non-ninja character.

The issue: The Shuriken confers the critical hit ability! Too bad only ninjas can use it, making this pointless.

#033 – Dagger of Speed issue

Status: Closed.

Answer: Working as expected. Reflective of actual real human combat where a wild attack more than often means you have opened up your defenses.

The issue: The Dagger of Speed has an armor malus. I am unsure if this is a mistake or not.

#034 – The monsters' friends/no friends attribute does not work at all

Status: Fixed in WC005. Recompiled. Verified. Closed. Also, WERDNA's resistance to befriending has been turned on in Wizardry Restored v2.2 26-JAN-23.

Answer: Fixed by adding a line of code to the FRIENDLY procedure.

The issue: 'A FRIENDLY GROUP OF'. In a monster record, there is an attribute to resist befriending, meaning you cannot have a friendly encounter with them if set to on (or true). The issue was that even if that attribute was on, you could still have a friendly encounter with them. This means you might not get Werdna's amulet if he befriends you when you meet him for example and decide to not fight him. Of course, Werdna's resistance to befriending would have to be set to on so that he never be friends with your characters.

#035 – Inventory full issue

Status: Fixed in WC033. Recompiled. Verified. Closed.

The issue: Before the fix, a random character was selected to receive a treasure item. If that character's inventory was full, then the item was lost. This meant you might not have gotten Werdna's amulet upon defeating him for example.

The fix: Look at the entire party's inventory for space to receive an item. Display a message when the entire party's inventory is full.

Why this fix: To avoid having to continuously micro manage the party's inventory to ensure that there is enough space for treasure drops.

Preliminary Answer: The short answer: Make sure you have inventory room on all your characters when meeting Werdna or opening lucrative deep levels chests. The long answer: There are less than 512 bytes of free space on disk for more code, this may require a few precious coding lines. Maybe something for Wizardry PG Expansion 4.0.

The issue: If the character receiving an item from a treasure chest has a full inventory, they do not get it. This means you might not get Werdna's amulet upon defeating him for example.

#036 – Treasure tables range bug.

Status: Fixed in WC022. Recompiled. Verified. Closed.
Also, all database updates brought forward in WC024 - Interim Release 2023-02-09 including Treasure Tables 18 and 19 updates.

Answer: Adjust to code and database tables for the monsters' treasure to give the intended treasures. The monsters were not giving the intended range of treasures they were set to across all the treasure tables. The most blatant example: the monsters are not supposed to drop a Deadly Ring which is a one-time event in the game. The fix also takes care of a division by zero problem, i-e, x MOD 0.

Reported by: DDG Ahab. Contribution Eric Labelle, Denis Molony.

Other References: Thomas W. Ewers at Jul 11, 2014, 3:59:55 AM on https://groups.google.com/g/comp.sys.apple2/c/aI5ob1mLUwY/m/CIqEeVUvDAAJ

The issue: In short, the lower range of the treasure tables is off by two, and the upper range off by one.

#037 – The Halito vs Sopic bug

Status: Closed.

Answer: Analyzing all the monsters' spell casting possibilities, one could say the same for Lahalito and Madalto. Essentially, it seems clear the authors wanted to give the monsters offensive spells, thus Halito at level 2. If the monsters would have Sopic at that level, it could potentially make it extremely hard for low level characters to hit the monsters, thus creating imbalance. Same for Priest spell, at level 7 the monsters cast Mabadi but should it not be Malikto? The authors decided to go with Mabadi. So, no code fixing is needed since nothing is broken. Here more of the code:

```
CASE SPELLLEV OF

  1:  IF TWOTHIRD THEN
        SPELLCAS := KATINO
      ELSE
        SPELLCAS := HALITO;

  2:  IF TWOTHIRD THEN
        SPELLCAS := DILTO
      ELSE
        SPELLCAS := HALITO;  (* BUG *)

  3:  IF TWOTHIRD THEN
        SPELLCAS := MOLITO
      ELSE
        SPELLCAS := MAHALITO;

  4:  IF TWOTHIRD THEN
        SPELLCAS := DALTO
      ELSE
        SPELLCAS := LAHALITO;  (* ...HMMM *)

  5:  IF TWOTHIRD THEN
        SPELLCAS := LAHALITO   (* ...HMMM *)
      ELSE
        SPELLCAS := MADALTO;

  6:  IF TWOTHIRD THEN
        SPELLCAS := MADALTO    (* ...HMMM *)
      ELSE
        SPELLCAS := ZILWAN;
```

```
    7:  SPELLCAS := TILTOWAI;
  END;


  CASE SPELLLEV OF

    1:  SPELLCAS := BADIOS;

    2:  SPELLCAS := MONTINO;

    3:  IF TWOTHIRD THEN
          SPELLCAS := BADIOS
        ELSE
          SPELLCAS := BADIAL;

    4:  SPELLCAS := BADIAL;

    5:  IF TWOTHIRD THEN
          SPELLCAS := BADIALMA
        ELSE
          SPELLCAS := BADI;

    6:  IF TWOTHIRD THEN
          SPELLCAS := LORTO
        ELSE
          SPELLCAS := MABADI;

    7:  SPELLCAS := MABADI;
  END;
```

The bug:

HALITO should be SOPIC

```
4555  12   24:1    67                2:  IF TWOTHIRD THEN

4556  12   24:3    70                      SPELLCAS := DILTO

4557  12   24:2    70                    ELSE

4558  12   24:3    77                      SPELLCAS := HALITO;
(* BUG *)

4559  12   24:3    84
```

#037 – Lostxyl error - aka Roster "Out" Characters

Status:  Fixed in WC032. Recompiled. Verified. Closed.

Answer #1: "INMAZE" indeed indicates if the character is in the party or can be R)ecovered using the boot side U)tilities, the later happens if the game crashes or you press reset or teleport into Rock.

Answer #2: This was a bug. In the Training Grounds, the Roster of players does not always display characters that are "Out" in the dungeon. Note that characters that are "Out" cannot be added to the party at Gilgamesh's Tavern. Now there is an indication as to why a character cannot be added to the party.

The fix: Updated the code to display all characters that are "Out".

Code to:

```
                (* WC032 FROM -LOCATION [ 1]- TO -LOCATION [ 3]-
*)

                IF CHARREC.INMAZE OR (CHARREC.LOSTXYL.LOCATION[
3] <> 0) THEN

                  WRITE( ' OUT');
```

Following the email that led to this fix:

From: Denis Molony <dmolony@iinet.net.au>

Sent: Tuesday, December 13, 2022 10:29 PM

To: Eric Labelle <eric@zimlab.com>

Subject: inmaze

This is a list of references to the INMAZE attribute. I think it indicates whether a character is in a party, not necessarily in the maze.

It also looks like a bug in DSP20NM where it compares LOSTXYL[1] <> 0. I think that should be the level coordinate ([3]), not the x axis.

Teleport:

```
        BEGIN
          WRITELN( 'YOU LANDED IN SOLID ROCK OUTSIDE THE');
          WRITELN( 'DUNGEON - YOU ARE LOST FOREVER!');
          FOR X := 0 TO PARTYCNT - 1 DO
            BEGIN
              CHARACTR[ X].INMAZE := FALSE;
              CHARACTR[ X].STATUS := LOST
            END;
          XGOTO := XCEMETRY;
          EXIT( UTILITIE)
        END;
```

Temple of Cant:

```
            IF ((WHO.LOSTXYL.LOCATION[ 1] +
                 WHO.LOSTXYL.LOCATION[ 2] +
                 WHO.LOSTXYL.LOCATION[ 3] ) <> 0)
                     OR
                 WHO.INMAZE THEN
              DSP2STR( WHO.NAME, ' IS NOT HERE');
```

More Cant:

```
              BEGIN
                IF WHO.STATUS = DEAD THEN
                  WHO.STATUS := ASHES
                ELSE
                  WHO.STATUS := LOST;
                WHO.INMAZE := FALSE;
                MOVELEFT( WHO,
                          IOCACHE[ GETRECW( ZCHAR, WHOHELP,
SIZEOF( TCHAR))],
                          SIZEOF( TCHAR));
                WRITELN;
                IF WHO.STATUS = LOST THEN
                  DSP2STR( WHO.NAME, ' WILL BE BURIED')
                ELSE
                  DSP2STR( WHO.NAME, ' NEEDS KADORTO NOW')
              END; (* ASHLOST *)
```

Cemetary:

```
              IF CHARACTR[ LLBASE04].STATUS <> LOST THEN
                BEGIN
                  WITH CHARACTR[ LLBASE04] DO
```

```
                    BEGIN
                      IF STATUS < DEAD THEN
                        STATUS := DEAD;
                      INMAZE := FALSE;
                      DIVLONG( GOLD, TWO);
                      BREAKPOS;

UPDCHARS (leave game or go to training grounds):

        BEGIN
          FOR X := 0 TO PARTYCNT - 1 DO
            BEGIN
              CHARACTR[ X].INMAZE := FALSE;
              MOVELEFT( CHARACTR[ X],
                        IOCACHE[ GETRECW( ZCHAR,
                                          CHARDISK[ X],
                                          SIZEOF( TCHAR))],
                        SIZEOF( TCHAR));
            END;
          PARTYCNT := 0;
          MOVELEFT( IOCACHE[ GETREC( ZZERO, 0, SIZEOF(
TSCNTOC))],
                    X,
                    2);
          EXIT( SHOPS)
        END;  (* UPDCHARS *)

CHK4WIN:

            CHARACTR[ CHARX].INMAZE := CHARACTR[ CHARX].STATUS =
OK;

LOOKLOST:

          FOR PICKCHAR := 0 TO SCNTOC.RECPERDK[ ZCHAR] - 1 DO
            BEGIN
              MOVELEFT( IOCACHE[ GETREC( ZCHAR, PICKCHAR,
SIZEOF( TCHAR))],
                        PICKREC,
                        SIZEOF( TCHAR));
              IF NOT PICKREC.INMAZE THEN
                IF PICKREC.LOSTXYL.LOCATION[ 3] = MAZELEV THEN
                  IF INMYROOM[ PICKREC.LOSTXYL.LOCATION[ 1],
                               PICKREC.LOSTXYL.LOCATION[ 2] ]
THEN
                    FOUNDLOS
            END;
```

```
          IF PICKCNT = 0 THEN
            WRITELN( '** NO ONE **')
        END;  (* LOOKLOST *)

PICKUP:

          CHARDISK[ PARTYCNT] := PICKLIST[ PICKCHAR];
          CHARACTR[ PARTYCNT].LOSTXYL.LOCATION[ 1] := 0;
          CHARACTR[ PARTYCNT].LOSTXYL.LOCATION[ 2] := 0;
          CHARACTR[ PARTYCNT].LOSTXYL.LOCATION[ 3] := 0;
          CHARACTR[ PARTYCNT].INMAZE := TRUE;

ADDPARTY:

          IF CHARI = SCNTOC.RECPERDK[ ZCHAR] THEN
            EXITADDP( '** WHO? **')
          ELSE
            IF CHARACTR[ PARTYCNT].INMAZE OR
               (CHARACTR[ PARTYCNT].LOSTXYL.LOCATION[ 3] <> 0)
THEN
              EXITADDP( '** OUT **')
            ELSE
              IF (PRTYALGN <> NEUTRAL) THEN
                IF (CHARACTR[ PARTYCNT].ALIGN <> NEUTRAL) THEN
                  IF (PRTYALGN <> CHARACTR[ PARTYCNT].ALIGN)
THEN
                    EXITADDP( '** BAD ALIGNMENT **');
          GOTOXY( 0, 20);
          WRITE( 'ENTER PASSWORD  >');
          GETPASS(  CHARNAME);
          GOTOXY( 0, 21);
          IF CHARNAME <> CHARACTR[ PARTYCNT].PASSWORD THEN
            EXITADDP( '** THATS NOT IT **');
          CHARDISK[ PARTYCNT] := CHARI;
          CHARACTR[ PARTYCNT].INMAZE := TRUE;

REMOVE:

        BEGIN
          CHARI := GETCHARX( FALSE, 'WHO WILL LEAVE');
          IF (CHARI < 0) OR (CHARI = PARTYCNT) THEN
            EXIT( REMOVE);
          CHARACTR[ CHARI].INMAZE := FALSE;

DSP20NM:
```

```
                IF CHARREC.INMAZE OR (CHARREC.LOSTXYL.LOCATION[
1] <> 0) THEN
                  WRITE( ' OUT');

LOSECHAR:

        BEGIN
          CHARREC.STATUS := LOST;
          CHARREC.INMAZE := FALSE;
          PUTCHARC( CHARREC, CHARACX);
          GTSCNTOC
        END;

DISBAND:

              INMAZE := FALSE;
              LOSTXYL.LOCATION[ 1] := MAZEX;
              LOSTXYL.LOCATION[ 2] := MAZEY;
              LOSTXYL.LOCATION[ 3] := MAZELEV;
              AGE := AGE + 25;
```

#038 – Mabadi issue

Status: Fixed in WC013. Recompiled. Verified.

Answer: Added code to skip that message if the monster is dead. Also, removed extra space at the beginning of " IS HIT...".

The issue: Monsters " IS HIT BY MABADI!" message is displayed although no monsters are left alive.

#039 – Password issue

Status: Enhancement WC019. Recompiled. Verified.

Answer: The main reason for this is that removing this from the game saves a good chunk of coding space that can used for enhancements instead. Having to enter passwords for characters is superfluous, especially nowadays.

The issue: Recuperate coding space. Remove the prompts for a password when adding characters at Gilgamesh's Tavern and at the Training Grounds.

#040 – Using an item still shows its non-decayed name

Status: Fixed in WC017. Recompiled. Verified.

Answer: Add a line of code to refresh the items list after an item has been used.

The issue: When in Camp, if using an item and it decays (Ex: Dios Potion > Broken Item), the display still shows the undecayed item name until refreshed.

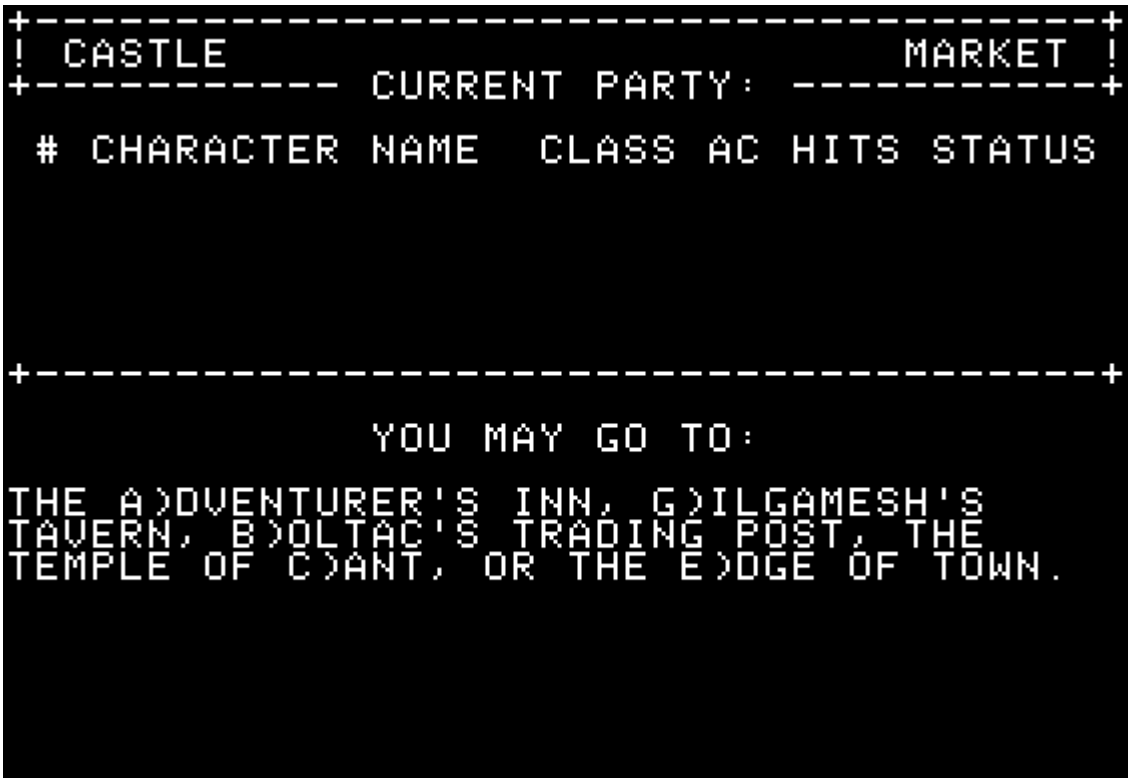
#041 – Misspelling of Dispel, Morgue, Group #

Status: Fixed in WC002. Recompiled. Verified.

#042 – Gilgamesh misspelling

Status: Fixed in WC004. Recompiled. Verified.

In the Castle Market, change "Gilgamesh' Tavern" to "Gilgamesh's Tavern".



#043 - Bug1 reported by Thomas W. Ewers

Status: Fixed in WC040. Recompiled. Verified.

The issue: On the boot side of Wizardry, there is a Utility to "Make Scenario Disk". An off-by-one error in the code had the top half part of the first monster picture overwritten with junk when making the scenario disk.


The fix: Corrected the off-by-one error.

Reported by: Thomas W. Ewers

Ref: Jun 27, 2014, 5:40:39 PM in https://groups.google.com/g/comp.sys.apple2/c/aI5ob1mLUwY/m/CIqEeVUvDAAJ

Bug1:
---

Last weekend I finished retrieving the hi-res "pictures" from SCENARIO.DATA for the monsters and enemies you see in the game. These are displayed in the upper left corner of the screen while playing. I then went to the first level of the game and encountered one of the earliest "bad guys": the BUBBLY SLIME. Unfortunately, the hi-res part of the screen was somewhat

mangled where the picture of the SLIME was partially displayed.

I thought, "How could my disk image have gotten corrupted?" Did I insert this diskette at the wrong time when doing something else? Did I mix and match my Scenario version with the other Boot version in the game? Was my diskette not formatted correctly to start with? Was there a bug in the software trying to display the image? Eventually I looked at the SCENARIO.DATA file on the SCENARIO side of the disk I started with. On that diskette the image was intact and correct, but on the "DUPLICATE/SCENARIO" disk I had made, the first block (1 Pascal block = 2 DOS sectors) were clearly just garbage.

I then set out to find the bug, I started from scratch and initialized a diskette and then used the Wizardry "Utilities" to make my scenario diskette.

Sidetrack: Versions 2 and 3 of Wizardry clearly state you must create your own DUPLICATE/SCENARIO diskette to play the game. The instructions for Wizardry I are not very clear and make it sound like you should just use the "MASTER/SCENARIO" to play the game. Since playing the game has some destructive effects on the data on your scenario diskette, if you go that route and solve the game you will never be able to start over and play the entire game. Good for sales, bad for players (and their brothers and sisters).

Ok, so all I did was create the DUPLICATE/SCENARIO and used my DUMPDATA program to extract the image from SCENARIO.DATA and display the image on the Apple screen. And it was already corrupt! I did not need to even start playing the game!

I realized the "make a DUPLICATE/SCENARIO" code must be broken.

In WIZBOOT (that's the name for WizUtil.code), PROCEDURE MAKESCEN() has a bug:

```
CHARREC0.STATUS := LOST;
FOR TEMPI := 0 TO SCNTOC.RECPERDK[ ZCHAR] DO
WRCHARAC( CHARREC0, TEMPI);
```

This code occurs right after 35 tracks of data have been copied from the MASTER/SCENARIO to your DUPLICATE/SCENARIO. It is clearing out any CHARACTRs that might have been on the

MASTER/SCENARIO disk.

RECPERDK is "RECords of this type PER DisKette". Note TEMPI starts at 0. There is room on the diskette for 20 CHARACTR (ZCHAR) characters, and RECPERDK[ ZCHAR] is 20. Yup! Another off-by-one error. It is writing 1 block too many and clobbering the first hi-res picture image.

Another interesting twist to this bug. If you use only the MASTER/SCENARIO and encounter SLIME (and there are a few more creatures that use this same picture) you see the actual image the way it should be. It is only when you make your DUPLICATE/SCENARIO that you see this error.

low:

#044 - Bug2 reported by Thomas W. Ewers – Random Number Generator issues

Status: Fixed in WC053. Recompiled. Verified.

The Issue: Bugs with the RNG and the memory locations it uses. Solution crafted by Qkumba (Peter Ferrie).

Note by Snafaru: Below it seems every mention of 005FB should be 005FA?

By: Thomas W. Ewers

Ref: Jun 27, 2014, 5:40:39 PM in https://groups.google.com/g/comp.sys.apple2/c/aI5ob1mLUwY/m/CIqEeVUvDAAJ

Bug2:
---
I have this comment in MVCURSOR() code:

; MVCURSOR( 80, Y) ADJUST RANDOM # (UNTIL KEY IS AVAILABLE)

In GETKEY() in the main WIZARDRY() program is this:

MVCURSOR( 80, 0); (* ADJUST RANDOM #, AND RETURN WHEN A CHAR IS AVAIL *)

This is a way for the program to help "randomize" the seed for the next time the RANDOM number generator is called.

(As mentioned in an earlier post, there's a bit of strange code associated with MVCURSOR. Sometimes it doesn't do "cursor" stuff.)

Here's the code in MVCURSOR( 80, 0):

```
L5931
LDX #00
L5933
INC 0047A,X ; INCREMENT RANDOM #
BNE L593D ;
INX ;
CPX #04 ;
BNE L5933 ;
L593D
```

```
LDA 0C000 ; KEYBOARD DATA
```

Here is a partial listing for the table in the APPLE II Reference manual, p. 134:
Table 26: I/O Scratchpad RAM Addresses
Base Address 1 2 3 4 5 6 7
$0478 $0479 $047A $047B $047C $047D $047E $047F
$04F8 $04F9 $04FA ...
$0578 $0579 $057A ...
$05F8 $05F9 $05FA ...
$0678 $0679 $067A ...
$06F8 $06F9 $06FA ...
$0778 $0779 $077A ...
$07F8 $07F9 $07FA ...

Here's some code from the RNG:

```
LDY #07 ; SHIFT SOME BITS 7 TIMES
L5CCC
ASL 0047A
PHP
ROL 004FA
ROL 0057A
ROL 005FB
BMI L5CE0
```

It's not the most kosher thing in the world to just use these slot memory locations for your own purposes!

But there is something even worse going on here. This code in MVCURSOR wants to increment the first 4 memory locations listed under slot #2 as found in the table on p 134. In reality it is incrementing the first memory location for slot#2, slot #3, slot #4, slot #5.

Yikes!

Not to mention that only 1 of the 4 bytes used in the Random Number Generator are being altered by this code. Therefore, the RNG they thought they were implementing is not what they wrote! I'm not sure how this affects the numbers generated but it is clearly not a good thing. Maybe altering one byte while using keyboard input makes this RNG "good enough", but further testing might prove otherwise. One other thing, did you notice that the

RNG is accessing the first 3 bytes of slot#2 and 1 byte of slot#3?

The answer: See below.

Bug/Issue #:  WC053 - Random Number Generator Fix
==========

Status:  Fixed. Recompiled. Verified.

Date of change:  17-Mar-2026.

Bug reported by:  Thomas William Ewers

Code by:  Peter Ferrie (Qkumba) main code and solution, with adjustments to other affected files by Eric Labelle

Recompiled by:  Eric Labelle

Fix:  This fix is to use safe memory locations in Assembly and to fix the Random Number Generator bug. My sincere thanks to Qkumba for performing yet another incredible feat.

Following are the programming code details
==========

Source disk:  Wiz1D.dsk

Files:  CLRPICT.TEXT, DRAWLINE.TEXT, MVCURSOR.TEXT, PRGRCHR.TEXT, RANDOM.TEXT

Code from:

```
 .PROC CLRPICT,4 ;   P01001A,4 ; 4 PARAMETERS
;
 .REF L5AE4, L5B33
;  REFERENCE HI RES SCREEN MEMORY POINTERS (LEFT EDGE) START WITH LINE 5.
;
;
;  CLEAR "PICTURE" AREA OF SCREEN (82 X 79 PIXELS)
;
;      -OR-
;
;  SET VALID RECTANGLE COORDINATES
;
;
 PLA       ; POP RETURN
 STA 00
 PLA
 STA 01
;
 PLA
 STA 06    ; 06 := PARAM 4
 PLA
 LDA 06
 CMP #064  ; PARAMETER 4 = 100?
 BEQ L5BF5 ;   YES, L5BF5    (CLEAR PICTURE AREA)
 CMP #065  ; PARAMETER 4 = 101?
 BEQ L5BC3 ;   YES, L5BC3    (FOR WIZARDRY I IT IS NEVER 101)
;
;            $7F9, $779, $6F9, $679 ARE SLOT #1 RAM SCRATCHPAD!?
;
;
;            SET UP VALID RECTANGLE DRAWING REGION (BOUNDARIES)
;
;
 STA 007F9 ; $7F9 = PARAM 4  Y UPPER BOUNDARY (ALWAYS 79)
 PLA
 STA 00779 ; $779 = PARAM 3  X UPPER BOUNDARY
 PLA
```

```
 PLA
 STA 006F9 ; $6F9 = PARAM 2  Y LOWER BOUNDARY (ALWAYS 0)
 PLA
 PLA
 STA 00679 ; $679 = PARAM 1  X LOWER BOUNDARY
 PLA
;
 LDA 01    ; PUSH RETURN
 PHA
 LDA 00
 PHA
 RTS
;
;
;

L5BC3 ;      PARAM 4 SET TO 101  (NEVER EXECUTED)
 PLA
 STA 06
 PLA
 STA 07
 PLA
 PLA
 PLA
 PLA
 LDA 01
 PHA
 LDA 00
 PHA
 CLC
 CLD
 LDA #04E
 STA 04
L5BD9
 JSR L5C0E
 DEC 04
 CMP #040
 BNE L5BD9
L5BE2
 JSR L5C34
 DEC 04
 CMP #0D
 BNE L5BE2
L5BEB
 JSR L5C0E
 DEC 04
 BNE L5BEB
 JMP L5C0E
;
;
; CLEAR PICTURE DISPLAY AREA
;
; 79 LINES X 82 COLUMNS OF PIXELS ON THE HI RES SCREEN.
;
;   START WITH LINE 5 (ZERO BASED) AND END WITH LINE 83 (ZERO BASED).
;   START WITH COLUMN 4 (ZERO BASED) AND END WITH COLUMN 85 (ZERO BASED).
;
L5BF5     ;  PARAM 4 = 100.
 PLA      ;  THROW AWAY ALL PARAMETERS.
 PLA
 PLA
 PLA
 PLA
 PLA
 LDA 01   ; PUSH RETURN ADDRESS
 PHA
 LDA 00
 PHA
;
 CLC
 CLD
```

```
 LDA #04E ; EXECUTE L5C0E (CLEAR LINE) 79 TIMES
 STA 04
L5C07
 JSR L5C0E
 DEC 04
 BNE L5C07
;
;              CLEAR 82 HORIZONTAL PIXELS (MAINTAIN FIRST 4 PIXELS ON LINE)
;
L5C0E
 LDX 04      ; INDEX INTO HI-RES LINE PTRS.  LINES 5 TO 83. (DECIMAL, BASE 0)
 LDA L5AE4,X ; START AT BOTTOM OF SCREEN AND WORK UPWARDS
 STA 02
 LDA L5B33,X
 STA 03      ; $02.03 HAVE ADDRESS OF LEFT EDGE OF HI-RES SCREEN
;
 LDX #0B     ; CLEAR 11 FULL BYTES (7 X 11 = 77 SCREEN PIXELS)
 LDY #00
 LDA #0F     ; MAINTAIN FIRST 4 LEFTMOST PIXELS ON THIS LINE,
 AND @2,Y    ; BUT CLEAR THE OTHER 3 PIXELS IN THIS BYTE
 STA @2,Y
 INY
 LDA #00     ; CLEAR 7 DISPLAYABLE PIXELS FOR EACH BYTE OF HI RES MEMORY
;
L5C27
 STA @2,Y
 INY
 DEX
 BNE L5C27   ; CLEAR 11 FULL BYTES (7 X 11 = 77 SCREEN PIXELS)
;
 LDA #0FC    ; IN NEXT BYTE, CLEAR FIRST 2 LEFTMOST PIXELS BUT MAINTAIN
 AND @2,Y    ; OTHER 5 DISPLAYABLE PIXELS.
 STA @2,Y    ;    3 + 77 + 2 = 82 PIXELS
 RTS
;
;
;
L5C34 ;       PART OF L5BC3 CODE.  NEVER EXECUTED.
 LDX 04
 LDA L5AE4,X
 STA 02
 LDA L5B33,X
 STA 03
 LDX #0B
 LDY #00
 LDA #0F
 AND @2,Y
 STA @2,Y
 INY
L5C4B
 LDA @6,Y
 STA @2,Y
 INY
 DEX
 BNE L5C4B
 LDA #0FC
 AND @2,Y
 STA @2,Y
 CLC
 LDA 06
 ADC #0A
 STA 06
 LDA 07
 ADC #00
 STA 07
 RTS
 .END
```

Code to:

```
 .PROC CLRPICT,4 ;   P01001A,4 ; 4 PARAMETERS
```

```
;
;          ; FIX WC053 - CODE BY QKUMBA TO USE SAFE MEMORY LOCATIONS
;          ; AND FIX THE RANDOM NUMBER GENERATOR BUG BY REPLACING
;          ; $047A,$04FA,$057A,$05FB,$04F9,$0579,$0679,$06F9,$0779,$07F9 BY
;          ; $BFF0,$BFF1,$BFF2,$BFF3,$BFF4,$BFF5,$BFF9,$BFFA,$BFFB,$BFFC
;
 .REF L5AE4, L5B33
;  REFERENCE HI RES SCREEN MEMORY POINTERS (LEFT EDGE) START WITH LINE 5.
;
;
;  CLEAR "PICTURE" AREA OF SCREEN (82 X 79 PIXELS)
;
;      -OR-
;
;  SET VALID RECTANGLE COORDINATES
;
;
 PLA       ; POP RETURN
 STA 00
 PLA
 STA 01
;
 PLA
 STA 06    ; 06 := PARAM 4
 PLA
 LDA 06
 CMP #064  ; PARAMETER 4 = 100?
 BEQ L5BF5 ;   YES, L5BF5    (CLEAR PICTURE AREA)
 CMP #065  ; PARAMETER 4 = 101?
 BEQ L5BC3 ;   YES, L5BC3    (FOR WIZARDRY I IT IS NEVER 101)
;
;            $BFF9, $BFFA, $BFFB, $BFFC RAM SCRATCHPAD!?
;
;
;            SET UP VALID RECTANGLE DRAWING REGION (BOUNDARIES)
;
;
 STA 0BFFC ; $BFFC = PARAM 4  Y UPPER BOUNDARY (ALWAYS 79)
 PLA
 STA 0BFFB ; $BFFB = PARAM 3  X UPPER BOUNDARY
 PLA
 PLA
 STA 0BFFA ; $BFFA = PARAM 2  Y LOWER BOUNDARY (ALWAYS 0)
 PLA
 PLA
 STA 0BFF9 ; $BFF9 = PARAM 1  X LOWER BOUNDARY
 PLA
;
 LDA 01    ; PUSH RETURN
 PHA
 LDA 00
 PHA
 RTS
;
;
;

L5BC3 ;      PARAM 4 SET TO 101  (NEVER EXECUTED)
 PLA
 STA 06
 PLA
 STA 07
 PLA
 PLA
 PLA
 PLA
 LDA 01
 PHA
 LDA 00
 PHA
 CLC
```

```
 CLD
 LDA #04E
 STA 04
L5BD9
 JSR L5C0E
 DEC 04
 CMP #040
 BNE L5BD9
L5BE2
 JSR L5C34
 DEC 04
 CMP #0D
 BNE L5BE2
L5BEB
 JSR L5C0E
 DEC 04
 BNE L5BEB
 JMP L5C0E
;
;
; CLEAR PICTURE DISPLAY AREA
;
; 79 LINES X 82 COLUMNS OF PIXELS ON THE HI RES SCREEN.
;
;   START WITH LINE 5 (ZERO BASED) AND END WITH LINE 83 (ZERO BASED).
;   START WITH COLUMN 4 (ZERO BASED) AND END WITH COLUMN 85 (ZERO BASED).
;
L5BF5     ;  PARAM 4 = 100.
 PLA      ;  THROW AWAY ALL PARAMETERS.
 PLA
 PLA
 PLA
 PLA
 PLA
 LDA 01   ; PUSH RETURN ADDRESS
 PHA
 LDA 00
 PHA
;
 CLC
 CLD
 LDA #04E ; EXECUTE L5C0E (CLEAR LINE) 79 TIMES
 STA 04
L5C07
 JSR L5C0E
 DEC 04
 BNE L5C07
;
;              CLEAR 82 HORIZONTAL PIXELS (MAINTAIN FIRST 4 PIXELS ON LINE)
;
L5C0E
 LDX 04      ; INDEX INTO HI-RES LINE PTRS.  LINES 5 TO 83. (DECIMAL, BASE 0)
 LDA L5AE4,X ; START AT BOTTOM OF SCREEN AND WORK UPWARDS
 STA 02
 LDA L5B33,X
 STA 03      ; $02.03 HAVE ADDRESS OF LEFT EDGE OF HI-RES SCREEN
;
 LDX #0B     ; CLEAR 11 FULL BYTES (7 X 11 = 77 SCREEN PIXELS)
 LDY #00
 LDA #0F     ; MAINTAIN FIRST 4 LEFTMOST PIXELS ON THIS LINE,
 AND @2,Y    ; BUT CLEAR THE OTHER 3 PIXELS IN THIS BYTE
 STA @2,Y
 INY
 LDA #00     ; CLEAR 7 DISPLAYABLE PIXELS FOR EACH BYTE OF HI RES MEMORY
;
L5C27
 STA @2,Y
 INY
 DEX
 BNE L5C27   ; CLEAR 11 FULL BYTES (7 X 11 = 77 SCREEN PIXELS)
;
```

```
 LDA #0FC    ; IN NEXT BYTE, CLEAR FIRST 2 LEFTMOST PIXELS BUT MAINTAIN
 AND @2,Y    ; OTHER 5 DISPLAYABLE PIXELS.
 STA @2,Y    ;    3 + 77 + 2 = 82 PIXELS
 RTS
;
;
;
L5C34 ;       PART OF L5BC3 CODE.  NEVER EXECUTED.
 LDX 04
 LDA L5AE4,X
 STA 02
 LDA L5B33,X
 STA 03
 LDX #0B
 LDY #00
 LDA #0F
 AND @2,Y
 STA @2,Y
 INY
L5C4B
 LDA @6,Y
 STA @2,Y
 INY
 DEX
 BNE L5C4B
 LDA #0FC
 AND @2,Y
 STA @2,Y
 CLC
 LDA 06
 ADC #0A
 STA 06
 LDA 07
 ADC #00
 STA 07
 RTS
 .END
```

Code from:

```
 .PROC DRAWLINE,5 ;  P01001B,5 ; 5 PARAMETERS
 ;
 .DEF L5AE4, L5B33
 ;   DEFINE POINTERS TO HI RES SCREEN LEFT EDGE STARTING WITH LINE 5.
 ;
 ; THIS ROUTINE USES $679, $6F9, $779, $07F9 SET PREVIOUSLY BY
 ; CLRPICT PROCEDURE (WITH THE LAST PARAMETER NOT SET TO 100 OR 101).
 ;
 ; THOSE VALUES DETERMINE THE VALID RECTANGLE DRAWING REGION.
 ;
 CLC
 CLD
 PLA     ; POP RETURN
 STA 00
 PLA
 STA 01
 PLA
 STA 0C  ; 0C := PARM 5  LINE LENGTH (MAX NUMBER OF PIXELS TO DRAW)
 PLA
 PLA
 STA 0A  ; 0A := PARM 4  DELTA VERTICAL ( -1, 0, +1)
 PLA
 PLA
 STA 08  ; 08 := PARM 3  DELTA HORIZONTAL ( -1, 0, +1)
 PLA
 PLA
 STA 06  ; 06 := PARM 2  Y COORDINATE
 PLA
 PLA
```

```
 STA 04  ; 04 := PARM 1  X COORDINATE  (0,0) IS UPPER LEFT IN "PICTURE"
 PLA
;
 LDA 01  ; PUSH RETURN
 PHA
 LDA 00
 PHA
;
L59FA
 LDA 04       ; SEE IF X COORDINATE IS OUTSIDE DRAWING BOUNDARY
 CMP 00679
 BMI L5A2C    ;   YES, L5A2C
 CMP 00779
 BEQ L5A08
 BPL L5A2C    ;   YES, L5A2C
L5A08
 TAX
 LDA 06       ; SEE IF Y COORDINATE IS OUTSIDE DRAWING BOUNDARY
 CMP 006F9
 BMI L5A2C    ;   YES, L5A2C
 CMP 007F9
 BEQ L5A17
 BPL L5A2C    ;   YES, L5A2C
;
L5A17
;
;             ; PREPARE TO DRAW A PIXEL
;
 TAY
 LDA L5AE4,Y  ; SET UP POINTER TO HI RES SCREEN LOCATION
 STA 02       ;   L5AE4 TABLE STARTS WITH LINE 5 OF HI RES (ZERO BASED)
 LDA L5B33,Y
 STA 03
 LDY L5A40,X  ; GET BYTE OFFSET FROM LEFT EDGE OF SCREEN MEMORY MAP
 LDA L5A92,X  ; LOAD 1 BIT INTO A  (1 MEMORY LOCATION HOLDS 7 SCREEN PIXELS)
 ORA @2,Y     ; SET 1 BIT ON SCREEN
 STA @2,Y     ; SET 1 BIT ON SCREEN
L5A2C
 CLC          ; ADVANCE TO NEXT HORIZONTAL POSITION (-1, 0, +1)
 LDA 04
 ADC 08
 STA 04
 CLC          ; ADVANCE TO NEXT VERTICAL POSITION (-1, 0, +1)
 LDA 06
 ADC 0A
 STA 06
 CLC          ; DEC LINE LENGTH COUNTER
 DEC 0C
 BNE L59FA    ; DO ANOTHER PIXEL ALONG THE LINE.
 RTS
;
L5A40
;
;  HORIZONTAL OFFSET TO DETERMINE HI RES MEMORY MAPPED SCREEN LOCATION.
;  THE FIRST 4 COLUMNS OF HI RES ARE NOT PART OF THE "PICTURE" AREA.
;
;  THIS TABLE IS INDEXED BY THE HORIZONTAL PIXEL POSTION.
;
 .BYTE 000, 000, 000
 .BYTE 001, 001, 001, 001, 001, 001, 001
 .BYTE 002, 002, 002, 002, 002, 002, 002
 .BYTE 003, 003, 003, 003, 003, 003, 003
 .BYTE 004, 004, 004, 004, 004, 004, 004
 .BYTE 005, 005, 005, 005, 005, 005, 005
 .BYTE 006, 006, 006, 006, 006, 006, 006
 .BYTE 007, 007, 007, 007, 007, 007, 007
 .BYTE 008, 008, 008, 008, 008, 008, 008
 .BYTE 009, 009, 009, 009, 009, 009, 009
 .BYTE 00A, 00A, 00A, 00A, 00A, 00A, 00A
 .BYTE 00B, 00B, 00B, 00B, 00B, 00B, 00B
 .BYTE 00C, 00C
```

```
;
L5A92
;
;  PIXEL POSITION IN MEMORY MAPPED SCREEN LOCATION
;  THERE ARE 7 PIXELS PER BYTE (HI BIT NOT USED AS PIXEL BIT).
;  LOW ORDER BIT IS LEFTMOST ONE DISPLAYED ON SCREEN FOR THAT BYTE.
;
;  THE FIRST 4 COLUMNS ON HI RES ARE NOT PART OF THE "PICTURE" AREA.
;
 .BYTE 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002
;
L5AE4
;
; HI RES PAGE 1 LEFT EDGE SCREEN MEMORY PTR (LOW PART).
; THE TABLE STARTS WITH LINE 5 OF HI RES SCREEN.
; THIS IS THE "PICTURE" PART OF WIZARDRY DISPLAY WHERE THE MAZE
; IS DRAWN.  THE AREA IS 82 PIXELS WIDE BY 79 PIXELS HIGH.
;
 .BYTE 000, 000, 000
 .BYTE 080, 080, 080, 080, 080, 080, 080, 080
 .BYTE 000, 000, 000, 000, 000, 000, 000, 000
 .BYTE 080, 080, 080, 080, 080, 080, 080, 080
 .BYTE 000, 000, 000, 000, 000, 000, 000, 000
 .BYTE 080, 080, 080, 080, 080, 080, 080, 080
 .BYTE 000, 000, 000, 000, 000, 000, 000, 000
 .BYTE 080, 080, 080, 080, 080, 080, 080, 080
 .BYTE 028, 028, 028, 028, 028, 028, 028, 028
 .BYTE 0A8, 0A8, 0A8, 0A8, 0A8, 0A8, 0A8, 0A8
 .BYTE 028, 028, 028, 028
;
L5B33
;
; HI RES PAGE 1 LEFT EDGE SCREEN MEMORY PTR (HIGH PART)
;
 .BYTE 034, 038, 03C
 .BYTE 020, 024, 028, 02C, 030, 034, 038, 03C
 .BYTE 021, 025, 029, 02D, 031, 035, 039, 03D
 .BYTE 021, 025, 029, 02D, 031, 035, 039, 03D
 .BYTE 022, 026, 02A, 02E, 032, 036, 03A, 03E
 .BYTE 022, 026, 02A, 02E, 032, 036, 03A, 03E
 .BYTE 023, 027, 02B, 02F, 033, 037, 03B, 03F
 .BYTE 023, 027, 02B, 02F, 033, 037, 03B, 03F
 .BYTE 020, 024, 028, 02C, 030, 034, 038, 03C
 .BYTE 020, 024, 028, 02C, 030, 034, 038, 03C
 .BYTE 021, 025, 029, 02D
 .END
```

Code to:

```
 .PROC DRAWLINE,5 ;  P01001B,5 ; 5 PARAMETERS
 ;
 ;          ; FIX WC053 - CODE BY QKUMBA TO USE SAFE MEMORY LOCATIONS
 ;          ; AND FIX THE RANDOM NUMBER GENERATOR BUG BY REPLACING
 ;          ; $047A,$04FA,$057A,$05FB,$04F9,$0579,$0679,$06F9,$0779,$07F9 BY
 ;          ; $BFF0,$BFF1,$BFF2,$BFF3,$BFF4,$BFF5,$BFF9,$BFFA,$BFFB,$BFFC
 ;
 .DEF L5AE4, L5B33
 ;   DEFINE POINTERS TO HI RES SCREEN LEFT EDGE STARTING WITH LINE 5.
 ;
```

```
 ; THIS ROUTINE USES $BFF9, $BFFA, $BFFB, $BFFC SET PREVIOUSLY BY
 ; CLRPICT PROCEDURE (WITH THE LAST PARAMETER NOT SET TO 100 OR 101).
 ;
 ; THOSE VALUES DETERMINE THE VALID RECTANGLE DRAWING REGION.
 ;
 CLC
 CLD
 PLA     ; POP RETURN
 STA 00
 PLA
 STA 01
 PLA
 STA 0C  ; 0C := PARM 5  LINE LENGTH (MAX NUMBER OF PIXELS TO DRAW)
 PLA
 PLA
 STA 0A  ; 0A := PARM 4  DELTA VERTICAL ( -1, 0, +1)
 PLA
 PLA
 STA 08  ; 08 := PARM 3  DELTA HORIZONTAL ( -1, 0, +1)
 PLA
 PLA
 STA 06  ; 06 := PARM 2  Y COORDINATE
 PLA
 PLA
 STA 04  ; 04 := PARM 1  X COORDINATE  (0,0) IS UPPER LEFT IN "PICTURE"
 PLA
;
 LDA 01  ; PUSH RETURN
 PHA
 LDA 00
 PHA
;
L59FA
 LDA 04       ; SEE IF X COORDINATE IS OUTSIDE DRAWING BOUNDARY
 CMP 0BFF9
 BMI L5A2C    ;   YES, L5A2C
 CMP 0BFFB
 BEQ L5A08
 BPL L5A2C    ;   YES, L5A2C
L5A08
 TAX
 LDA 06       ; SEE IF Y COORDINATE IS OUTSIDE DRAWING BOUNDARY
 CMP 0BFFA
 BMI L5A2C    ;   YES, L5A2C
 CMP 0BFFC
 BEQ L5A17
 BPL L5A2C    ;   YES, L5A2C
;
L5A17
;
;             ; PREPARE TO DRAW A PIXEL
;
 TAY
 LDA L5AE4,Y  ; SET UP POINTER TO HI RES SCREEN LOCATION
 STA 02       ;   L5AE4 TABLE STARTS WITH LINE 5 OF HI RES (ZERO BASED)
 LDA L5B33,Y
 STA 03
 LDY L5A40,X  ; GET BYTE OFFSET FROM LEFT EDGE OF SCREEN MEMORY MAP
 LDA L5A92,X  ; LOAD 1 BIT INTO A  (1 MEMORY LOCATION HOLDS 7 SCREEN PIXELS)
 ORA @2,Y     ; SET 1 BIT ON SCREEN
 STA @2,Y     ; SET 1 BIT ON SCREEN
L5A2C
 CLC          ; ADVANCE TO NEXT HORIZONTAL POSITION (-1, 0, +1)
 LDA 04
 ADC 08
 STA 04
 CLC          ; ADVANCE TO NEXT VERTICAL POSITION (-1, 0, +1)
 LDA 06
 ADC 0A
 STA 06
 CLC          ; DEC LINE LENGTH COUNTER
```

```
 DEC 0C
 BNE L59FA    ; DO ANOTHER PIXEL ALONG THE LINE.
 RTS
;
L5A40
;
;  HORIZONTAL OFFSET TO DETERMINE HI RES MEMORY MAPPED SCREEN LOCATION.
;  THE FIRST 4 COLUMNS OF HI RES ARE NOT PART OF THE "PICTURE" AREA.
;
;  THIS TABLE IS INDEXED BY THE HORIZONTAL PIXEL POSTION.
;
 .BYTE 000, 000, 000
 .BYTE 001, 001, 001, 001, 001, 001, 001
 .BYTE 002, 002, 002, 002, 002, 002, 002
 .BYTE 003, 003, 003, 003, 003, 003, 003
 .BYTE 004, 004, 004, 004, 004, 004, 004
 .BYTE 005, 005, 005, 005, 005, 005, 005
 .BYTE 006, 006, 006, 006, 006, 006, 006
 .BYTE 007, 007, 007, 007, 007, 007, 007
 .BYTE 008, 008, 008, 008, 008, 008, 008
 .BYTE 009, 009, 009, 009, 009, 009, 009
 .BYTE 00A, 00A, 00A, 00A, 00A, 00A, 00A
 .BYTE 00B, 00B, 00B, 00B, 00B, 00B, 00B
 .BYTE 00C, 00C
;
L5A92
;
;  PIXEL POSITION IN MEMORY MAPPED SCREEN LOCATION
;  THERE ARE 7 PIXELS PER BYTE (HI BIT NOT USED AS PIXEL BIT).
;  LOW ORDER BIT IS LEFTMOST ONE DISPLAYED ON SCREEN FOR THAT BYTE.
;
;  THE FIRST 4 COLUMNS ON HI RES ARE NOT PART OF THE "PICTURE" AREA.
;
 .BYTE 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002, 004, 008, 010, 020, 040
 .BYTE 001, 002
;
L5AE4
;
; HI RES PAGE 1 LEFT EDGE SCREEN MEMORY PTR (LOW PART).
; THE TABLE STARTS WITH LINE 5 OF HI RES SCREEN.
; THIS IS THE "PICTURE" PART OF WIZARDRY DISPLAY WHERE THE MAZE
; IS DRAWN.  THE AREA IS 82 PIXELS WIDE BY 79 PIXELS HIGH.
;
 .BYTE 000, 000, 000
 .BYTE 080, 080, 080, 080, 080, 080, 080, 080
 .BYTE 000, 000, 000, 000, 000, 000, 000, 000
 .BYTE 080, 080, 080, 080, 080, 080, 080, 080
 .BYTE 000, 000, 000, 000, 000, 000, 000, 000
 .BYTE 080, 080, 080, 080, 080, 080, 080, 080
 .BYTE 000, 000, 000, 000, 000, 000, 000, 000
 .BYTE 080, 080, 080, 080, 080, 080, 080, 080
 .BYTE 028, 028, 028, 028, 028, 028, 028, 028
 .BYTE 0A8, 0A8, 0A8, 0A8, 0A8, 0A8, 0A8, 0A8
 .BYTE 028, 028, 028, 028
;
L5B33
;
; HI RES PAGE 1 LEFT EDGE SCREEN MEMORY PTR (HIGH PART)
;
 .BYTE 034, 038, 03C
```

```
 .BYTE 020, 024, 028, 02C, 030, 034, 038, 03C
 .BYTE 021, 025, 029, 02D, 031, 035, 039, 03D
 .BYTE 021, 025, 029, 02D, 031, 035, 039, 03D
 .BYTE 022, 026, 02A, 02E, 032, 036, 03A, 03E
 .BYTE 022, 026, 02A, 02E, 032, 036, 03A, 03E
 .BYTE 023, 027, 02B, 02F, 033, 037, 03B, 03F
 .BYTE 023, 027, 02B, 02F, 033, 037, 03B, 03F
 .BYTE 020, 024, 028, 02C, 030, 034, 038, 03C
 .BYTE 020, 024, 028, 02C, 030, 034, 038, 03C
 .BYTE 021, 025, 029, 02D
 .END
```

Code from:

```
 .PROC MVCURSOR,2 ; 2 PARAMETERS ;    P01001F,2
;
;          ; CALL:  MVCURSOR (X, Y);
;          ;
;          ; IN THIS ROUTINE:
;          ;
;          ;        X STORED AT $4F9  (SLOT #1 RAM SPACE)
;          ;        Y STORED AT $579  (SLOT #1 RAM SPACE)
;          ;
;          ;            PRGRCHR USES $4F9 AND $579
;          ;
;          ; MVCURSOR( 40, Y)    TURN ON GRAPHICS MODE
;          ; MVCUROSR( 50, Y)    TURN ON TEXT MODE
;          ; MVCURSOR( 60, Y)    JUMP TO $2002  (COPY PROTECTION)
;          ; MVCURSOR( 70, Y)    CRASH AND BURN (COPY PROTECTION)
;          ; MVCURSOR( 80, Y)    ADJUST RANDOM # (UNTIL KEY IS AVAILABLE)
;          ;                                  $47A, $47B, $47C, $47D (???)
;          ;                        RNG USES:  $47A, $4FA, $57A, $5FB (!!!)
;
 PLA       ; PULL RETURN
 STA 00
 PLA
 STA 01
;
 PLA       ; PARAM 2    08 := Y COORDINATE
 STA 08
 PLA
 PLA       ; PARAM 1    06 := X COORDINATE
 STA 06
 PLA
;
 LDA 01    ; PUSH RETURN
 PHA
 LDA 00
 PHA
;
 LDA 06
 CMP #028  ; X = 40?
 BEQ L58EF ;   YES, L58EF
;
 CMP #032  ; X = 50?
 BEQ L58FC ;   YES, L58FC
;
 CMP #03C  ; X = 60?
 BEQ L5909 ;   YES, L5909
;
 CMP #046  ; X = 70?
 BEQ L590C ;   YES, L590C
;
 CMP #050  ; X = 80?
 BEQ L5920 ;   YES, L5920
;
;          ; X NOT A "SPECIAL" VALUE
;
 STA 004F9 ; SAVE "X" COORDINATE (AT SLOT #1 RAM SPACE)
```

```
 LDA 08
 STA 00579 ; SAVE "Y" COORDINATE (AT SLOT #1 RAM SPACE)
 RTS
;
L58EF
;
;          ; TURN ON GRAPHICS MODE
;
 STA 0C050 ;   GRAPHICS
 STA 0C054 ;   PRIMARY PAGE
 STA 0C057 ;   HI RES
 STA 0C052 ;   ALL GRAPHICS
 RTS
;
L58FC
;
;          ; TURN ON TEXT MODE
;
 STA 0C051 ;   TEXT
 STA 0C054 ;   PRIMARY PAGE
 STA 0C056 ;   LO RES
 STA 0C052 ;   ALL TEXT
 RTS
;
L5909
;
;          ; EXECUTE COPY PROTECTION CODE
;          ; CODE AT $2002 WAS LOADED FROM SCENARIO.DATA ON SIDE 2 OF DISK
;          ;
 JMP 02002 ;
;
L590C
;
;          ; CRASH AND BURN  (PART OF COPY PROTECTION CODE)
;
 LDA #0BF  ; START AT $BF00..$BFFF
 STA 03
 LDA #00
 STA 02
;
L5914
 LDY #00
L5916
 STA @2,Y  ; STORE 0
 DEY
 BNE L5916 ; DO 256 BYTES
;
 DEC 03    ; CONTINUE DOWNWARD THROUGH MEMORY
 JMP L5914 ; EVENTUALLY THE SYSTEM WILL EXECUTE A 0 INSTRUCTION
           ; WHICH IS A BRK INSTRUCTION.  SINCE THE BRK VECTORS
           ; HAVE ALREADY BEEN CHANGED, THE MONITOR WILL REBOOT.
           ;
L5920
;
;          ; ADJUST RANDOM # UNTIL KEY IS AVAILABLE FROM INPUT BUFFER
;          ;   OR A KEY IS PRESSED.
;
 LDA 0C083 ; SELECT RAM CARD RAM READ, BANK 2
 JSR 0BF0A ; $BF0A IS CONCK IN SYSCOM (PASCAL OS)
 LDA 0C083
 LDA 0BF18 ; $BF18 IS RPTR IN SYSCOM (PASCAL OS)
 CMP 0BF19 ; $BF19 IS WPTR IN SYSCOM (PASCAL OS)
 BNE L5942 ; CIRCULAR INPUT BUFFER.  WHEN EQUAL, THEN NO CHARACTERS AVAILABLE.
;
;            ;   NO CHARACTER WAS IN THE INPUT BUFFER
L5931
 LDX #00
L5933
 INC 0047A,X ; INCREMENT RANDOM #         (BUG !!!!!!)
 BNE L593D   ;   $47A, $47B, $47C, $47D   (??????????)
 INX         ;   RAM FOR SLOTS #2, #3, #4, #5
```

```
 CPX #04     ;
 BNE L5933   ; RNG CODE USES $47A, $4FA, $57A, $5FB (ALL SLOT #2)
L593D
 LDA 0C000   ; KEYBOARD DATA
 BPL L5931   ; KEY PRESSED?  NO, L5931  (CONTINUE INCREMENTING RANDOM #)
;
L5942
;            ;   YES, A KEY WAS PRESSED (OR IS AVAILABLE FROM INPUT BUFFER)
 LDA 0C08B   ; RAM CARD RAM READ, BANK 1
 RTS
 .END
```

Code to:

```
 .PROC MVCURSOR,2 ; 2 PARAMETERS ;    P01001F,2
;
;          ; FIX WC053 - CODE BY QKUMBA TO USE SAFE MEMORY LOCATIONS
;          ; AND FIX THE RANDOM NUMBER GENERATOR BUG BY REPLACING
;          ; $047A,$04FA,$057A,$05FB,$04F9,$0579,$0679,$06F9,$0779,$07F9 BY
;          ; $BFF0,$BFF1,$BFF2,$BFF3,$BFF4,$BFF5,$BFF9,$BFFA,$BFFB,$BFFC
;
;          ; CALL:  MVCURSOR (X, Y);
;          ;
;          ; IN THIS ROUTINE:
;          ;
;          ;        X STORED AT $BFF4
;          ;        Y STORED AT $BFF5
;          ;
;          ;            PRGRCHR USES $BFF4 AND $BFF5
;          ;
;          ; MVCURSOR( 40, Y)    TURN ON GRAPHICS MODE
;          ; MVCUROSR( 50, Y)    TURN ON TEXT MODE
;          ; MVCURSOR( 60, Y)    JUMP TO $2002  (COPY PROTECTION)
;          ; MVCURSOR( 70, Y)    CRASH AND BURN (COPY PROTECTION)
;          ; MVCURSOR( 80, Y)    ADJUST RANDOM # (UNTIL KEY IS AVAILABLE)
;          ;                       RNG USES:  $BFF0, $BFF1, $BFF2, $BFF3
;
 PLA       ; PULL RETURN
 STA 00
 PLA
 STA 01
;
 PLA       ; PARAM 2    08 := Y COORDINATE
 STA 08
 PLA
 PLA       ; PARAM 1    06 := X COORDINATE
 STA 06
 PLA
;
 LDA 01    ; PUSH RETURN
 PHA
 LDA 00
 PHA
;
 LDA 06
 CMP #028  ; X = 40?
 BEQ L58EF ;   YES, L58EF
;
 CMP #032  ; X = 50?
 BEQ L58FC ;   YES, L58FC
;
 CMP #03C  ; X = 60?
 BEQ L5909 ;   YES, L5909
;
 CMP #046  ; X = 70?
 BEQ L590C ;   YES, L590C
;
 CMP #050  ; X = 80?
 BEQ L5920 ;   YES, L5920
;
;          ; X NOT A "SPECIAL" VALUE
```

```
;
 STA 0BFF4 ; SAVE "X" COORDINATE
 LDA 08
 STA 0BFF5 ; SAVE "Y" COORDINATE
 RTS
;
L58EF
;
;          ; TURN ON GRAPHICS MODE
;
 STA 0C050 ;   GRAPHICS
 STA 0C054 ;   PRIMARY PAGE
 STA 0C057 ;   HI RES
 STA 0C052 ;   ALL GRAPHICS
 RTS
;
L58FC
;
;          ; TURN ON TEXT MODE
;
 STA 0C051 ;   TEXT
 STA 0C054 ;   PRIMARY PAGE
 STA 0C056 ;   LO RES
 STA 0C052 ;   ALL TEXT
 RTS
;
L5909
;
;          ; EXECUTE COPY PROTECTION CODE
;          ; CODE AT $2002 WAS LOADED FROM SCENARIO.DATA ON SIDE 2 OF DISK
;          ;
 JMP 02002 ;
;
L590C
;
;          ; CRASH AND BURN  (PART OF COPY PROTECTION CODE)
;
 LDA #0BF  ; START AT $BF00..$BFFF
 STA 03
 LDA #00
 STA 02
;
L5914
 LDY #00
L5916
 STA @2,Y  ; STORE 0
 DEY
 BNE L5916 ; DO 256 BYTES
;
 DEC 03    ; CONTINUE DOWNWARD THROUGH MEMORY
 JMP L5914 ; EVENTUALLY THE SYSTEM WILL EXECUTE A 0 INSTRUCTION
           ; WHICH IS A BRK INSTRUCTION.  SINCE THE BRK VECTORS
           ; HAVE ALREADY BEEN CHANGED, THE MONITOR WILL REBOOT.
           ;
L5920
;
;          ; ADJUST RANDOM # UNTIL KEY IS AVAILABLE FROM INPUT BUFFER
;          ;   OR A KEY IS PRESSED.
;
 LDA 0C083 ; SELECT RAM CARD RAM READ, BANK 2
 JSR 0BF0A ; $BF0A IS CONCK IN SYSCOM (PASCAL OS)
 LDA 0C083
 LDA 0BF18 ; $BF18 IS RPTR IN SYSCOM (PASCAL OS)
 CMP 0BF19 ; $BF19 IS WPTR IN SYSCOM (PASCAL OS)
 BNE L5942 ; CIRCULAR INPUT BUFFER.  WHEN EQUAL, THEN NO CHARACTERS AVAILABLE.
;
;            ;   NO CHARACTER WAS IN THE INPUT BUFFER
L5931
 LDX #00
L5933
 INC 0BFF0,X ; INCREMENT RANDOM #
```

```
 BNE L593D   ;   $BFF0, $BFF1, $BFF2, $BFF3
 INX         ;   RAM FOR SLOTS #2, #3, #4, #5
 CPX #04     ;
 BNE L5933   ; RNG CODE USES $BFF0, $BFF1, $BFF2, $BFF3
L593D
 LDA 0C000   ; KEYBOARD DATA
 BPL L5931   ; KEY PRESSED?  NO, L5931  (CONTINUE INCREMENTING RANDOM #)
;
L5942
;            ;   YES, A KEY WAS PRESSED (OR IS AVAILABLE FROM INPUT BUFFER)
 LDA 0C08B   ; RAM CARD RAM READ, BANK 1
 RTS
 .END
```

Code from:

```
 .PROC PRGRCHR,1 ; 1 PARAMETER    ; P010020,1
;
;        CALL:  PRGRCHR( ACHAR);
;
;               ACHAR IS A PACKED ARRAY[ 0..7] OF 0..255;  (SEE TCHRIMAG)
;
;        PURPOSE:  PRINT A CHARACTER TO THE HI RES SCREEN (7 X 8 PIXELS)
;
;        USES:  $579 IS LINE POSITION ON SCREEN
;               $4F9 IS HORIZONTAL POSTION ON SCREEN
;
 .DEF L0998, L0999
;
 PLA          ; PULL RETURN
 STA 00
 PLA
 STA 01
;
 PLA          ; 02 := CHARACTER TO DISPLAY  (PACKED ARRY[ 0..7] OF 0..255)
 STA 02
 PLA
 STA 03
;
 LDA 01       ; PUSH RETURN
 PHA
 LDA 00
 PHA
;
 CLD
 CLC
 LDA 00579    ; LINE POSITION
 ASL A        ; ADJUST SINCE L5998 AND L5999 HAVE 2 BYTES PER POINTER
 TAY
 LDA L5998,Y  ; LEFT EDGE OF SCREEN (TOP PIXEL OF CHARACTER)
 ADC 004F9    ; ADD HORIZONTAL POSITION ON SCREEN
 STA 04       ; SET 04.05 TO HI RES LOCATION FOR CHARACTER
 LDA L5999,Y
 STA 05
 LDX #08      ; EACH CHARACTER IS 8 PIXELS HIGH
 LDY #00
;
L597E
;
;             ; PLACE A ROW OF PIXELS ON THE SCREEN FOR THE CHARACTER
;
 LDA @2,Y     ; GET 7 PIXELS OF THE CHARACTER
 STA @4,Y     ; PUT 7 PIXELS ON THE SCREEN
 INC 05       ; ADVANCE 1 ROW OF PIXELS ON THE SCREEN
 INC 05
 INC 05
 INC 05
 CLC
 INC 02       ; INCREMENT TO NEXT ROW OF CHARACTER PIXELS
```

```
 BNE L5991
 INC 03
L5991
 DEX
 BNE L597E    ; DO ANOTHER ROW UNTIL 8 ARE PLACED ON SCREEN.
              ; 8 ROWS FOR 1 CHARACTER HAVE BEEN PLACED ON THE SCREEN.
 INC 004F9    ; ADVANCE HORIZONTAL POSITION
 RTS
;
;
;             ; TABLE OF 24 POINTERS TO LEFT EDGE OF HI RES SCREEN
;             ; EACH PTR REPRESENTS ONE "CHARACTER" ROW OF 8 PIXELS.
;
L0998
L5998
 .BYTE 0
L0999
L5999
 .BYTE 020, 080, 020, 000, 021, 080, 021, 000, 022, 080, 022, 000, 023, 080
 .BYTE 023, 028, 020, 0A8, 020, 028, 021, 0A8, 021, 028, 022, 0A8, 022, 028
 .BYTE 023, 0A8, 023, 050, 020, 0D0, 020, 050, 021, 0D0, 021, 050, 022, 0D0
 .BYTE 022, 050, 023, 0D0, 023
 .END
```

Code to:

```
 .PROC PRGRCHR,1 ; 1 PARAMETER    ; P010020,1
;
;          ; FIX WC053 - CODE BY QKUMBA TO USE SAFE MEMORY LOCATIONS
;          ; AND FIX THE RANDOM NUMBER GENERATOR BUG BY REPLACING
;          ; $047A,$04FA,$057A,$05FB,$04F9,$0579,$0679,$06F9,$0779,$07F9 BY
;          ; $BFF0,$BFF1,$BFF2,$BFF3,$BFF4,$BFF5,$BFF9,$BFFA,$BFFB,$BFFC
;
;        CALL:  PRGRCHR( ACHAR);
;
;               ACHAR IS A PACKED ARRAY[ 0..7] OF 0..255;  (SEE TCHRIMAG)
;
;        PURPOSE:  PRINT A CHARACTER TO THE HI RES SCREEN (7 X 8 PIXELS)
;
;        USES:  $BFF5 IS LINE POSITION ON SCREEN
;               $BFF4 IS HORIZONTAL POSTION ON SCREEN
;
 .DEF L0998, L0999
;
 PLA          ; PULL RETURN
 STA 00
 PLA
 STA 01
;
 PLA          ; 02 := CHARACTER TO DISPLAY  (PACKED ARRY[ 0..7] OF 0..255)
 STA 02
 PLA
 STA 03
;
 LDA 01       ; PUSH RETURN
 PHA
 LDA 00
 PHA
;
 CLD
 CLC
 LDA 0BFF5    ; LINE POSITION
 ASL A        ; ADJUST SINCE L5998 AND L5999 HAVE 2 BYTES PER POINTER
 TAY
 LDA L5998,Y  ; LEFT EDGE OF SCREEN (TOP PIXEL OF CHARACTER)
 ADC 0BFF4    ; ADD HORIZONTAL POSITION ON SCREEN
 STA 04       ; SET 04.05 TO HI RES LOCATION FOR CHARACTER
 LDA L5999,Y
 STA 05
 LDX #08      ; EACH CHARACTER IS 8 PIXELS HIGH
 LDY #00
```

```
;
L597E
;
;             ; PLACE A ROW OF PIXELS ON THE SCREEN FOR THE CHARACTER
;
 LDA @2,Y     ; GET 7 PIXELS OF THE CHARACTER
 STA @4,Y     ; PUT 7 PIXELS ON THE SCREEN
 INC 05       ; ADVANCE 1 ROW OF PIXELS ON THE SCREEN
 INC 05
 INC 05
 INC 05
 CLC
 INC 02       ; INCREMENT TO NEXT ROW OF CHARACTER PIXELS
 BNE L5991
 INC 03
L5991
 DEX
 BNE L597E    ; DO ANOTHER ROW UNTIL 8 ARE PLACED ON SCREEN.
              ; 8 ROWS FOR 1 CHARACTER HAVE BEEN PLACED ON THE SCREEN.
 INC 0BFF4    ; ADVANCE HORIZONTAL POSITION
 RTS
;
;
;             ; TABLE OF 24 POINTERS TO LEFT EDGE OF HI RES SCREEN
;             ; EACH PTR REPRESENTS ONE "CHARACTER" ROW OF 8 PIXELS.
;
L0998
L5998
 .BYTE 0
L0999
L5999
 .BYTE 020, 080, 020, 000, 021, 080, 021, 000, 022, 080, 022, 000, 023, 080
 .BYTE 023, 028, 020, 0A8, 020, 028, 021, 0A8, 021, 028, 022, 0A8, 022, 028
 .BYTE 023, 0A8, 023, 050, 020, 0D0, 020, 050, 021, 0D0, 021, 050, 022, 0D0
 .BYTE 022, 050, 023, 0D0, 023
 .END
```

Code from:

```
 .FUNC RANDOM,0 ;     P01001C,0 ; NO PARAMETERS
;
;
;           CALL:  RANDOM;
;
;           PURPOSE:  RETURN A RANDOM NUMBER FROM 0 TO 32,767.
;
;           NOTE:  USES $47A, $4FA, $57A, $5FB.  (SLOT #2 RAM)
;           NOTE2: MVCURSOR( 80, X), USED BY GETKEY(), CHANGES
;                  VALUES OF $47A, AND
;                            $47B, $47C, $47D (BUG?)
;
 PLA       ; PULL RETURN
 STA 00
 PLA
 STA 01
;
 PLA       ; PULL DUMMY SINCE THIS IS A FUNCTION
 PLA
 PLA
 PLA
;
 LDY #07   ; SHIFT SOME BITS 7 TIMES
L5CCC
 ASL 0047A
 PHP
 ROL 004FA
 ROL 0057A
 ROL 005FB
 BMI L5CE0
```

```
 PLP
 BPL L5CE6
 BMI L5CE3
L5CE0
 PLP
 BMI L5CE6
L5CE3
 INC 0047A
L5CE6
 DEY
 BNE L5CCC     ; PERFORMED 7 SHIFTS YET?  NO, L5CCC.
;              ; YES
 LDA 0047A     ; HIGH 16 BITS
 LSR A         ; CLEAR HIGH BIT (ENSURES ONLY POSITIVE NUMBER RETURNED)
 PHA           ;
 LDA 0057A     ; USE $57A AS PART OF RANDOM NUMBER LOW 16 BITS
 PHA
;
 LDA 01        ; PUSH RETURN
 PHA
 LDA 00
 PHA
 RTS
 .END
```

Code to:

```
 .FUNC RANDOM,0 ;     P01001C,0 ; NO PARAMETERS
;
;          ; FIX WC053 - CODE BY QKUMBA TO USE SAFE MEMORY LOCATIONS
;          ; AND FIX THE RANDOM NUMBER GENERATOR BUG BY REPLACING
;          ; $047A,$04FA,$057A,$05FB,$04F9,$0579,$0679,$06F9,$0779,$07F9 BY
;          ; $BFF0,$BFF1,$BFF2,$BFF3,$BFF4,$BFF5,$BFF9,$BFFA,$BFFB,$BFFC
;
;           CALL:  RANDOM;
;
;           PURPOSE:  RETURN A RANDOM NUMBER FROM 0 TO 32,767.
;
;           NOTE:  USES $BFF0, $BFF1, $BFF2, $BFF3.
;           NOTE2: MVCURSOR( 80, X), USED BY GETKEY(), CHANGES
;                  VALUES OF $BFF0, AND
;                            $BFF1, $BFF2, $BFF3
;
 PLA       ; PULL RETURN
 STA 00
 PLA
 STA 01
;
 PLA       ; PULL DUMMY SINCE THIS IS A FUNCTION
 PLA
 PLA
 PLA
;
 LDY #07   ; SHIFT SOME BITS 7 TIMES
L5CCC
 ASL 0BFF0
 PHP
 ROL 0BFF1
 ROL 0BFF2
 ROL 0BFF3
 BMI L5CE0
 PLP
 BPL L5CE6
 BMI L5CE3
L5CE0
 PLP
 BMI L5CE6
L5CE3
 INC 0BFF0
L5CE6
```

```
 DEY
 BNE L5CCC     ; PERFORMED 7 SHIFTS YET?  NO, L5CCC.
;              ; YES
 LDA 0BFF0     ; HIGH 16 BITS
 LSR A         ; CLEAR HIGH BIT (ENSURES ONLY POSITIVE NUMBER RETURNED)
 PHA           ;
 LDA 0BFF2     ; USE $BFF2 AS PART OF RANDOM NUMBER LOW 16 BITS
 PHA
;
 LDA 01        ; PUSH RETURN
 PHA
 LDA 00
 PHA
 RTS
 .END
```

Final compiled file names: WIZARDRY.CODE

Destination disk: All Wizardry Proving Grounds boot and scenario disks.

#045 - Bug3 reported by Thomas W. Ewers

Status: Closed.

Answer: 2 Jan 2023 by Eric L. Testing shows everything seems to work normally. Although the Evil Helm +2 is not a cursed item, it will become cursed on a Good character that equips it. Thereafter it cannot be sold at Boltac's by that character but, if the character has not equipped it, it can be sold as it has not turned into a cursed state. Note: tested also the Neut P-Mail + 2 with the same results.

By: Thomas W. Ewers

Ref: Jun 27, 2014, 5:40:39 PM in https://groups.google.com/g/comp.sys.apple2/c/aI5ob1mLUwY/m/CIqEeVUvDAAJ

Bug3:
---

While playing the game the other day (oops, I meant to write "testing the game"), I had a BISHOP identify an object. No, this is not the famous "identify item #9" bug. I noticed the object had a "-1" in the name. As I found by examining SCENARIO.DATA, the CURSED field for OBJECTS is set for every item that has a negative number in the name. In this instance I did not need to EQUIP the item. My BISHOP took the item to BOLTACs trading post and was able to sell it. But there is code that usually produces this message when you try to sell a cursed item:

"** WE DON'T BUY CURSED ITEMS **"

The code in IDITEM() has a bug where the "CURSED" field is not always set after an item has been identified by a BISHOP.

Although they fixed another bug in this code for WizardyIII (LOL), I think this bug is there also.

#046 - Object special number 23

Status: Fixed in WC007. Recompiled. Verified. Closed.

Answer: Altered code as suggested by Thomas, test.

By: Thomas W. Ewers comment in UTILITIE2.TEXT

Code:

```
23: BEGIN
    (* LOOKS LIKE BUG!  PARTYCNT - 1  !!! *)
    FOR SPCTEMP := 0 TO PARTYCNT DO
    CHARACTR[ SPCTEMP].HPLEFT :=
    CHARACTR[ SPCTEMP].HPMAX
END;
```

#047 - Hidden CTRL-G Bell

Status. Fixed in WC008. Recompiled. Verified.

Answer: To avoid future problems when editing or viewing COMBAT5.TEXT. To make it clear what is going on in the code.

The issue:

SOMETHING TO WATCH FOR TO NOT LOSE THE "BEL" WHEN EDITING CODE:

The COMBAT5.TEXT contains three hidden CTRL-G ascii characters to ring the BELL 3 times for when your character scores a critical hit. Key word here: hidden.

Reference:

Posts: May 22, 2014, 12:42:15 PM and
May 23, 2014, 11:54:02 AM on:
https://groups.google.com/g/comp.sys.apple2/c/aI5ob1mLUwY/m/CIqEeVUvDAAJ

The R)place technique by Tommy works.

The WRITE( CHR(7), CHR(7), CHR(7)); technique would probably work too since it works in a short program. See the proof of concept for three ways to ring the bell in Wizardry here: https://github.com/snafaru/Hello

#048 - 80-Column on Apple IIe

Status. Fixed in ST004. Recompiled. Verified.

Answer: Implement Chris Torrence's solution.

The issue: When playing on an Apple //e, Wizardry text mode is displayed in 80 Columns which gives a weird spacing between all characters and lines on the screen.

#049 - When entire party gets slaughtered, there's a roll vs your Luck skill to see if your items break, but it is not working

Status: Closed. See #016 – Luck vs. teleport into rock.

Answer: Tested, the BREAKPOS (Break Possessions) works when your party get slaughtered in the maze. But the programmers decided to skip it if you teleported into rock, giving you a break.

Missing **CHARACTR[ LLBASE04]. ????**

```
      PROCEDURE BADSTUFF;  (* P010218 *)

         PROCEDURE BREAKPOS;  (* P010219 *)
          VAR
               X     : INTEGER;
               POSSX : INTEGER;

          BEGIN
            WITH CHARACTR[ LLBASE04] DO
              BEGIN
                FOR POSSX := 1 TO CHARACTR[
LLBASE04].POSS.POSSCNT DO
                  IF NOT CHARACTR[ LLBASE04].POSS.POSSESS[
POSSX].CURSED THEN
                    IF (RANDOM MOD 21 > ATTRIB[ LUCK]) THEN
                      CHARACTR[ LLBASE04].POSS.POSSESS[
POSSX].EQINDEX := 0;
                X := 0;
                FOR POSSX := 1 TO CHARACTR[
LLBASE04].POSS.POSSCNT DO
                  IF CHARACTR[ LLBASE04].POSS.POSSESS[
POSSX].EQINDEX <> 0 THEN
                    BEGIN
                      X := X + 1;
                      CHARACTR[ LLBASE04].POSS.POSSESS[ X] :=
CHARACTR[ LLBASE04].POSS.POSSESS[ POSSX]
```

```
                    END;
                CHARACTR[ LLBASE04].POSS.POSSCNT := X
              END
            END;

          BEGIN (* BADSTUFF *)
            TWO := 2;
            FOR LLBASE04 := 0 TO PARTYCNT - 1 DO
              BEGIN
                IF CHARACTR[ LLBASE04].STATUS <> LOST THEN
                  BEGIN
                    WITH CHARACTR[ LLBASE04] DO
                      BEGIN
                        IF STATUS < DEAD THEN
                          STATUS := DEAD;
                        INMAZE := FALSE;
                        DIVLONG( GOLD, TWO);
                        BREAKPOS;
                        IF (RANDOM MOD 50) < MAZELEV THEN
                          BEGIN
                            LOSTXYL.LOCATION[ 1] := -1;
                            LOSTXYL.LOCATION[ 2] := -1;
                            LOSTXYL.LOCATION[ 3] := -1
                          END
                        ELSE
                          BEGIN
                            LOSTXYL.LOCATION[ 1] := MAZEX;
                            LOSTXYL.LOCATION[ 2] := MAZEY;
                            LOSTXYL.LOCATION[ 3] := MAZELEV
                          END;
                        MOVELEFT( CHARACTR[ LLBASE04],
                                  IOCACHE[ GETRECW( ZCHAR,
                                                    CHARDISK[
LLBASE04],
                                                    SIZEOF(
TCHAR))],
                                  SIZEOF( TCHAR))
                      END
                  END
              END;  (* END FOR *)

            MOVELEFT( IOCACHE[ GETREC(  ZZERO, 0, SIZEOF(
TSCNTOC))],
                      SCNTOC,
                      SIZEOF( TSCNTOC))
          END;
```

#050 - Mamorlis issue

Status: Fixed in WC012. Recompiled. Verified.

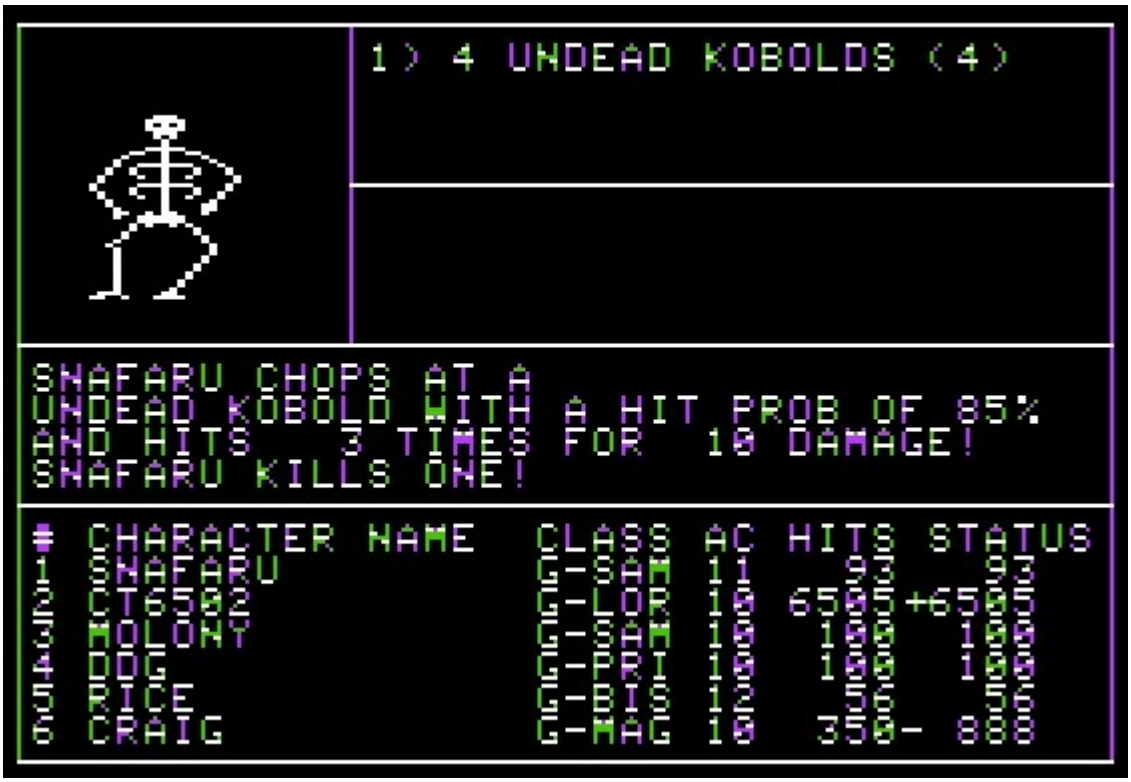
Answer: Fixed code to include the 1st monster in each group.

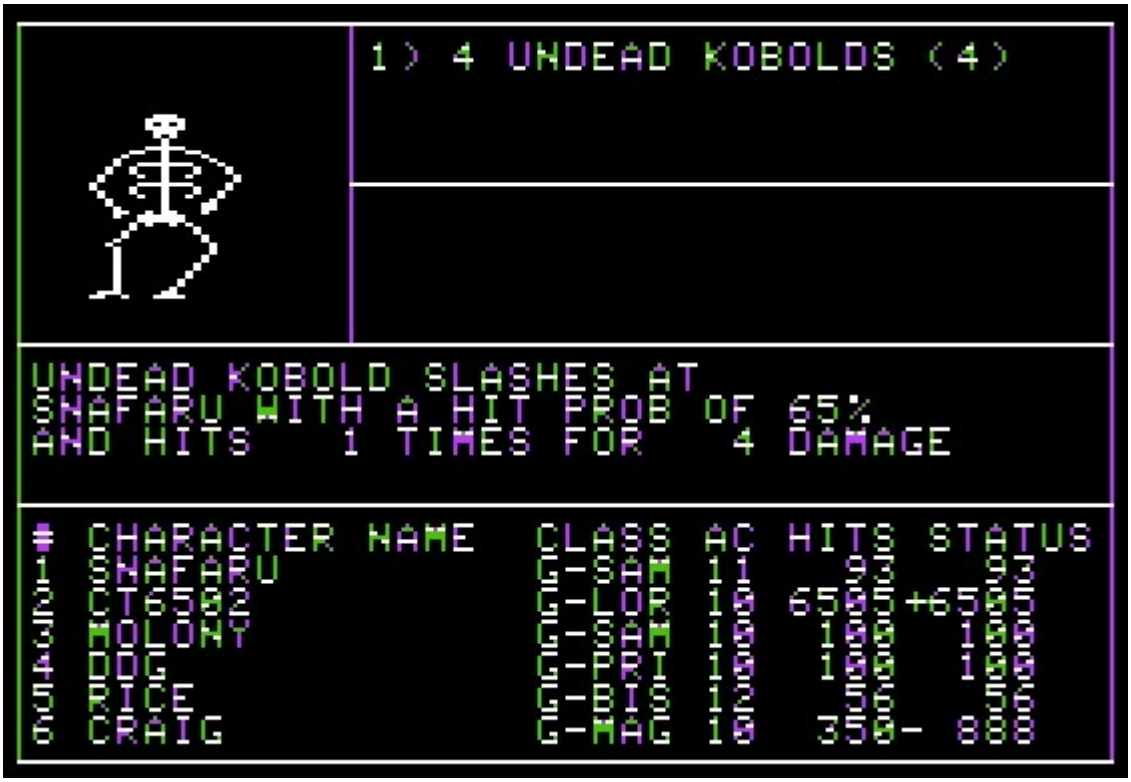
The issue: Mamorlis is supposed to fear all the monsters (reduce their armor class by 3) but the 1st monster of each group is not affected.

#051 - Display Hit Probability

Status: Enhancement WC018. Recompiled. Verified.

The issue: Enhance the battle details display by showing the hit probability of characters and monsters on-the-fly.



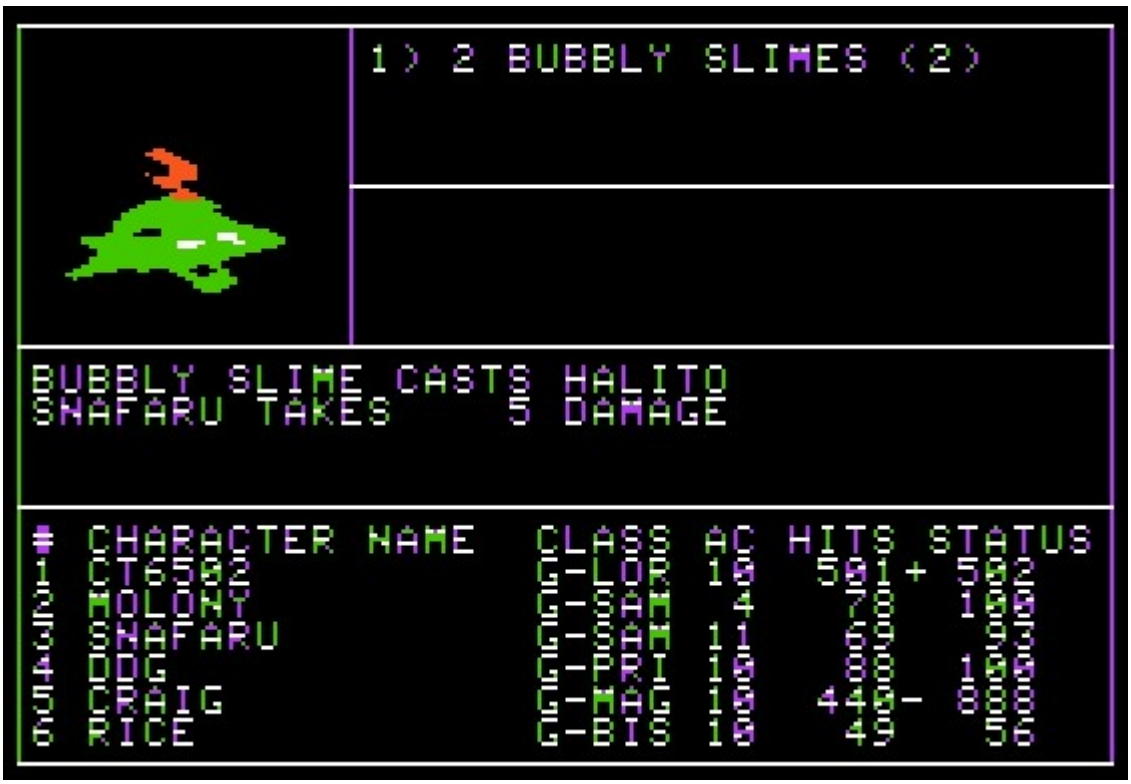



#052 - Display the Spells the Monsters are Casting

Status: Enhancement WC020. Recompiled. Verified.

Answer: Added code to show what spells are cast by both the monsters and characters in the combat window.

The issue: Enhancement suggested by DDG Ahab. It would be nice to see what spells the monsters are casting.


1) 2 BUBBLY SLIMES (2)
BUBBLY SLIME CASTS HALITO
SNAFARU TAKES 5 DAMAGE
# CHARACTER NAME CLASS AC HITS STATUS
1 CT6502 G-LOR 10 501+ 502
2 MOLONY G-SAM 4 78 100
3 SNAFARU G-SAM 11 69 93
4 DDG G-PRI 10 88 100
5 CRAIG G-MAG 10 440- 888
6 RICE G-BIS 10 49 56


1) 2 BUBBLY SLIMES (2)
CRAIG CASTS TILTOWAIT
BUBBLY SLIME TAKES 53 DAMAGE
BUBBLY SLIME DIES!
# CHARACTER NAME CLASS AC HITS STATUS
1 CT6502 G-LOR 10 502+ 502
2 MOLONY G-SAM 4 77 100
3 SNAFARU G-SAM 11 64 93
4 DDG G-PRI 10 88 100
5 CRAIG G-MAG 10 437- 888
6 RICE G-BIS 10 49 56

#053 - Monsters cast Zilwan

Status: Status: Fixed in WC012. Recompiled. Verified.

Answer: Changed the monsters' casting of ZILWAN for MADALTO instead. Madalto was the only spell that made sense. Other high level spells like Makanito, Mamorlis, Lakanito, Masopic do nothing at all or nothing useful for the monsters.

The issue: Some monsters cast the spell ZILWAN, which has absolutely no effects on the player characters.

#054 - Misspelling Bad Amount

Status: Fixed in WC026. Recompiled. Verified.

The issue: When trading gold between two characters, and the amount entered is invalid you get a message. The contraction of a word in that message is slightly annoying and unnecessary.

The fix: Changed the message from "Bad Amt" to "Bad Amount".

Why this fix: Clarity. To remove the distraction caused by the contraction of a word.

#055 - Several words are contracted and missing the apostrophe

Status: Fixed in WC029. Recompiled. Verified.

Answer: For consistency.

#056 - Mapiro Mahama Diromat

Status: Fixed in WC031. Recompiled. Verified.

Answer: Added a delay after the incantation before going back to the castle. This gives the player a chance to read the message.

The issue: On level 1, after coming back from the elevators, or from farming the Murphy's Ghosts, there is a shortcut back to the castle. The shortcut happens when you enter a certain room, and the mage therein sends you back to the castle after an incantation. The problem is that part of the message appears and disappears from the screen so fast that you cannot read it.

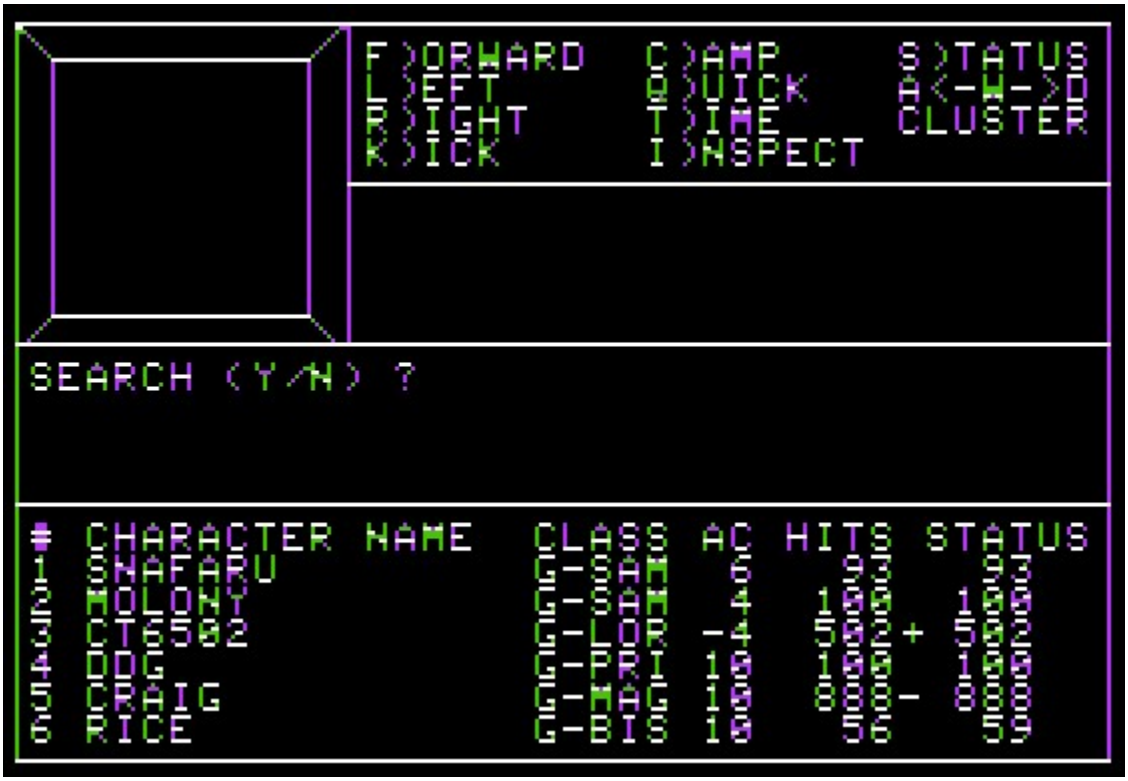
#057 - Search for Item

Status: Fixed in WC031. Recompiled. Verified.

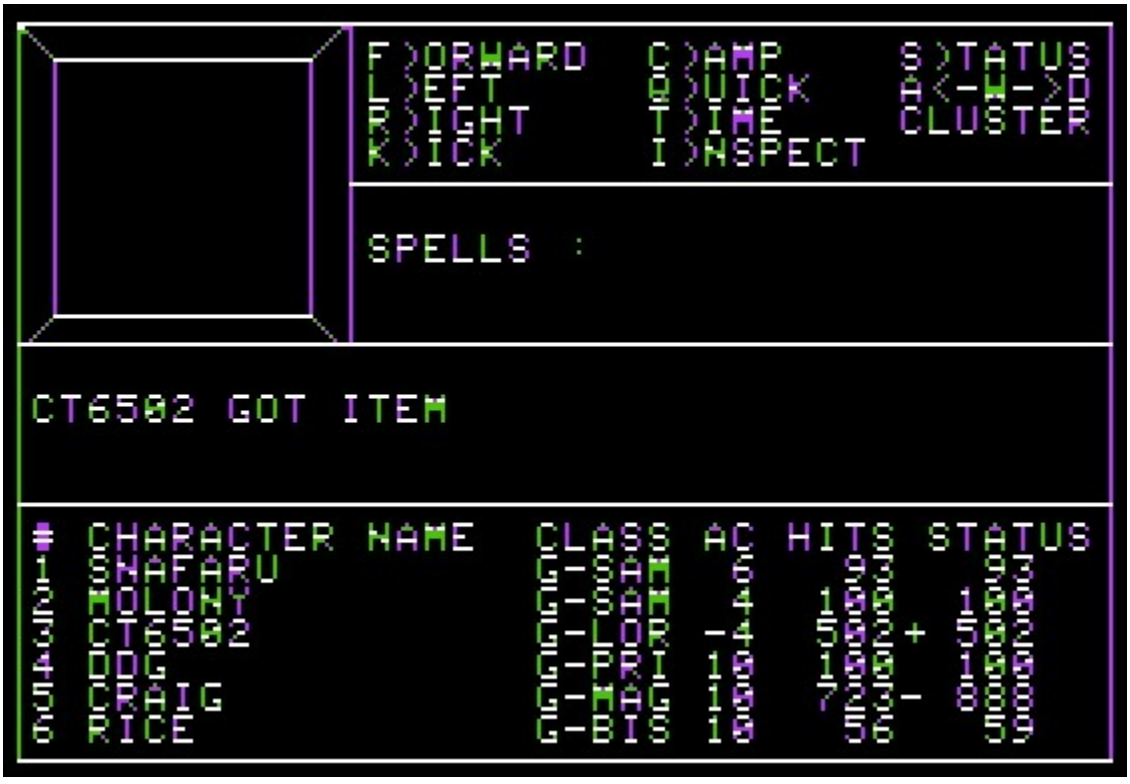
The issue: In the maze, the party enters areas where Wizardry tells a story and then asks you if you want to "Search (Y/N)?". If the party's inventory is full then nothing happens and that leaves the player wondering what is going on.

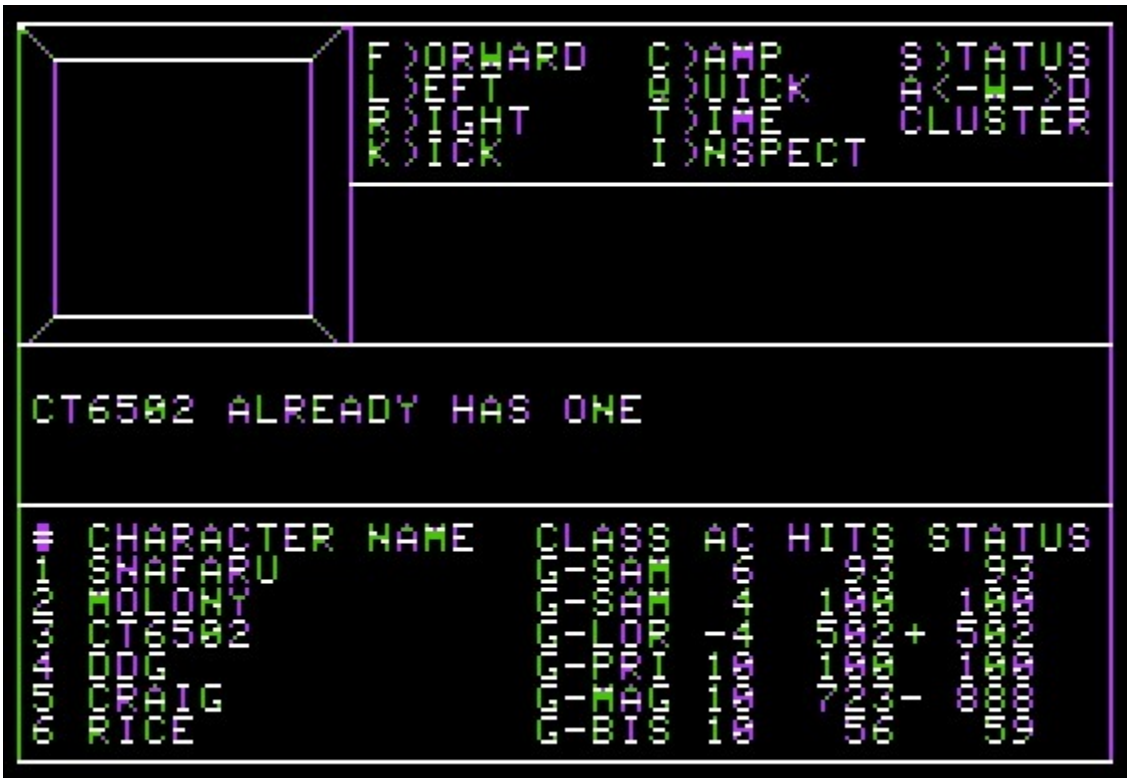
The fix: Added messages to inform the player when the characters' inventories are full as well as when the characters already have the item they are supposed to get.

Why this fix: To inform the player as to what is going on when responding yes to "Search (Y/N)?".




F)ORWARD
L)EFT
R)IGHT
K)ICK
C)AMP
Q)UICK
T)IME
I)NSPECT
S)TATUS
A(-W->D
CLUSTER
SNAFARU IS FULL
# CHARACTER NAME CLASS AC HITS STATUS
1 SNAFARU G-SAM 6 93 93
2 MOLONT G-SAM 4 100 100
3 CT6502 G-LOR -4 502+ 502
4 DDG G-PRI 10 100 100
5 CRAIG G-MAG 10 723- 888
6 RICE G-BIS 10 56 59


F)ORWARD
L)EFT
R)IGHT
K)ICK
C)AMP
Q)UICK
T)IME
I)NSPECT
S)TATUS
A(-W->D
CLUSTER
SPELLS :
CT6502 GOT ITEM
# CHARACTER NAME CLASS AC HITS STATUS
1 SNAFARU G-SAM 6 93 93
2 MOLONT G-SAM 4 100 100
3 CT6502 G-LOR -4 502+ 502
4 DDG G-PRI 10 100 100
5 CRAIG G-MAG 10 723- 888
6 RICE G-BIS 10 56 59




#058 - "Resurrects" misspelled

Status: Fixed in WC035. Recompiled. Verified.

Answer: Fixed.

The issue: When casting Haman or Mahaman, the word "Resurrects" is misspelled "Ressurects".

#059 - Run the game in ProDOS

Status: Fixed in WC036. Recompiled. Verified.

Answer: Added code to Q)uit the game. Peter Ferrie built a ProDOS "shell" to run Wizardry in ProDOS.

The challenge: Run Wizardry in ProDOS.

#060 - Disarm Trap Bug

Status: Fixed in WC037. Recompiled. Verified.

Contributors: Eric Labelle. Bug reported by Reiska42.

The issue: This happens when finding a chest that is booby trapped with a trap of type 3 (Crossbow Bolt, Exploding Box, Splinters, Blades, and Stunner). Upon disarming the trap if you enter any valid trap name besides the current trap then nothing happens and you go back to the chest options. You can continue entering all the trap names and nothing will happen. The only way out is to open the chest, leave it, or enter the right trap name.

The fix: Added the same code a in Wizardry III Legacy of Llylgamyn to fix this bug.

Why this fix: To make disarming chest traps work as intended.

#061 - Camp Screen Update

Status: Fixed in WC038. Recompiled. Verified.

Contributors: Eric Labelle. Enhancement suggested by Reiska42.

The suggestion: Update the gold, hit points and status of a character when performing actions such as trading gold, or casting spells to cure hit points or ailments.

The action: Added the necessary code to allow these enhancements.

Why this: It is nice now to see the screen updated on the fly when performing these actions.

#062 - Fix Maze Text Entry Overflow Crash

Status: Fixed in WC039. Recompiled. Verified.

Contributors: Eric Labelle.

Bug reported by: Reiska42.

The issue: In the maze, when entering text for a spell name, chest trap name, time delay, or answer to a riddle, if you continue typing characters the text will overflow to next lines and eventually the game will crash.

The fix: Restrict the length of the entry to the minimum necessary to prevent the game from crashing.

Why this fix: To prevent the game from crashing. But did not make it so short as to prevent answering a fairly long riddle of up to 22 characters. One can still corrupt the screen by overtyping but at least the game will not crash anymore.

#063 - Pool and Divide Gold and More

Status: Fixed in WC040. Recompiled. Verified.

Contributors: Eric Labelle.

With suggestions from: Marshall Bockrath, Todd Borax, Chris Torrence

Enhancements: Added the possibility for a character to "Pool the Gold" of the entire party in his pocket. This can be done in Gilgamesh's, Boltac's, Adventurer's Inn and Camp. Furthermore, you can also "Divide the Gold" between all characters whilst inspecting your character at Gilgamesh's or Camp.

Enhancements: Updated the code to allow characters to be transferred between scenario disks even if they are carrying quest items. Note This was reverted in WC041 on 5 Feb 2024.

Fix: Also see WC043 above. On the boot side of Wizardry, there is a Utility to "Make Scenario Disk". An off-by-one error

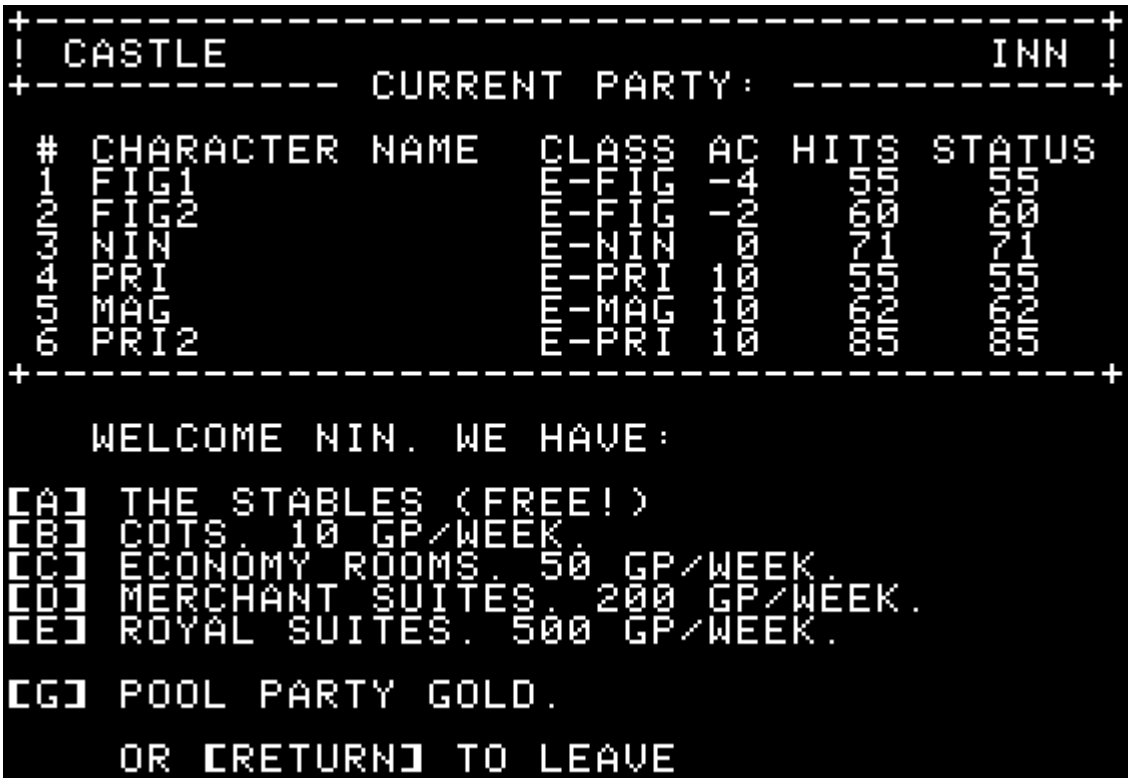
in the code had the top half part of the first monster picture overwritten with junk when making the scenario disk.

Consistency: The Evil Shield +3 armor class has been improved from 5 to 6 to be consistent with the armor protection of all the other shields.

At Gilgamesh's Tavern:

At camp:


At the Adventurer's Inn:



At Boltac's Trading Post:


#064 - Allow transfer characters to any scenario copy

Status: Fixed in WC042. Recompiled. Verified.

Contributors: Eric Labelle.

Enhancements: Added the possibility transfer characters to any scenario copy even if it has the same serial number as the source.

Spelling: Full spelling and corrected double "R" from "** CHAR HAS NON-XFERRABLE ITEMS **" to "** CHAR HAS NON-TRANSFERABLE ITEMS **".

#065 - Kandi spell enhancements

Status: Fixed in WC043. Recompiled. Verified.

Contributors: Eric Labelle.

Contributors: Eric Labelle.

Enhancements: The Kandi spell (find character location) now gives the precise location of a dead character in the maze instead of just the general area. Furthermore, Kandi now gives the character's camp location in the maze when using the D)isband option.

Note: This reduces the Kandi spell programming space and thus its Pascal coding segment size sufficiently to cross a block in downsize thus giving almost an entire 512 bytes of extra coding space for future enhancements coming after this one.

## #066 - Display Silenced Character Status

Status: Fixed in WC044. Recompiled. Verified.

Contributors: Eric Labelle.

Enhancements: Added the status 'SILENC' in the character's status screen in combat when they have been silenced by monsters casting the Montino spell.

## #067 - Auto Update Hit Points of Poisoned Characters

Status: Fixed in WC045. Recompiled. Verified.

Contributors: Eric Labelle.

Enhancements: Added code to automatically update the remaining hit points of poisoned characters in the status window while walking in the maze.

## #068 - Monsters cannot yell for help when surprised

Status: Fixed in WC046. Recompiled. Verified.

Contributors: Eric Labelle.

Enhancements: Prevent monsters from yelling for help when surprised. This was a guaranteed party slaughter (game breaker) in many scenarios. For Proving Grounds for example, on level 10, if four Dragon Zombies surprised you, you could end up facing eight Dragon Zombies the next round, no party can survive this. And if there are multiple groups of monsters surprising you it was even worse.