The Date of Creation of
the First Text Adventure

(An Exercise in Source Criticism)

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Stating the problem

The exact time of the emergence of the computer game genre called adventures seem for some reason to reside in obscurity. Everybody agrees that the very first adventure game was what is variously called *Adventure*, *Colossal Cave Adventure*, *Colossal adventure* or *Classic adventure* by Willie Crowther and Don Woods, that it was created on a mainframe computer and programmed in Fortran. But the dating varies from 1967 over "the early seventies " to the more precise 1972, 1975 or 1976. One source dates the birth as late as 1978. So perhaps some investigation is in order to provide a more secure dating.

The date is given as early as 1967 in the short survey of the history of "videogames" in J.C. Herz: *Joystick Nation. How Videogames Gobbled Our Money, Won Our Hearts, and Rewired Our Mind.* Abacus. London 1997 (Pp. 10-11 and 14). This book professes to be among other things a history and a cultural criticism of computer games.

Another early computer game mentioned by J.C.Herz was *Hunt the Wampus*, and she introduces *Adventure* this way:

"Hunt the Wampus flickered briefly as a computer game phenomenon, then faded. Like some australopithecine also-ran, it was superseded by a more robust contemporary, the legendary *Adventure* mainframe game of 1967. Originally known as ADVENT (file names maxed out at six letters), *Adventure* was the ur-sword-and-sorcery game, just as *Spacewar* was the ur-shooter. The object: explore subterranean caves, fight monsters, plunder storerooms for treasure, et cetera. *Adventure* was a logical extension of the fantasy role-playing game that suffused hackerdom, spawning cultish extra-curricular organizations like the Society for Creative Anachronism. A high percentage of computer programmers were and are, not surprisingly,

Dungeons & Dragons aficionados. There's an affinity between computer programming and games that require reams of graph paper and twenty-sided dice. Both are artificial universes governed by quantifiable rules, probability, and obsessive mapping. Charting out subterranean passages and dead ends is pretty much analogous to mapping out a circuit or debugging a piece of code. So a combination of computers and dragon-slashing games was begging to happen. *Adventure* not only took care of the scorekeeping and referee chores, but its bone dry humor and exploratory conventions influenced a generation of games programmers. In *Adventure* and its descendants, the emphasis was on puzzle solving and getting to some mysterious end at a slow, novellistic pace. [...]." (pp.10-11)

The context implies that the game was created on a DEC PDP-1, the same computer that was used for *Spacewar*, created by Steve Russell in 1962. But later in the same book J.C.Herz writes:

"As arcade blossomed into hothouse flowers of digital graphics in the late 1970s, another species of entertainment software was evolving in the dark: The text-based adventure game. Hatched on the hulking PDP-10s of academia, prototypes like ADVENT eventually found the light in titles like *Wizardy* and *Zork*. The latter, a 1977 mainframe game programmed by Mark Blank and Brian Moriarty at MIT, was orginally dubbed Dungeon. Accessible through ARPANET (the percursor of the Internet) ADVENT's distinctly wry sense of humour quickly percolated into hacker culture and lore. By 1978, the game had infiltrated virtually every computer lab in the nation. [...]" (Pp. 147-48)

J.C. Herz does not give any source or reference for her information about *Adventure*, but the date of 1967 tallies with other sources such as Mike and Sandie Morrison: *The Magic of Interactive Entertainment.* Sams Publ. 2nd. Ed. 1994.

At the other end of the period indicated, we find A.F. de Geus, J.H.Jongean & A.M.Koelmans: *Adventure Description Language. A new way to generate adventure games.* Sigma press. Wilmslow. U.K. 1985:

"The adventure was written, way back in 1978, by two bored computer programmers, Willie Crowther and Don Woods. The object of the game was to explore a cave and collect all the treasures hidden inside it while fighting off dwarves, trolls, a pirate and varoius nasty animals, and finding your way through a maze or two. The game was a phenomenal success; versions surfaces all over the world, and many an hour of working time was lost because people who started to play were simply unable to stop! The original game was written in FORTRAN, an a DEC mainframe computer and occupied a massive amount of memory." (p. 1)

Other sources tell us that that "massive amount of memory" was 300 K.

More conservative is Gary McGath: *COMPUTE!'s Guide to Adventure Games.* COMPUTE! Publications. Greeensboro, N.C. 1984 who writes:

"Will Crowther created the first adventure game - the preliminary version of Adventure - in 1975. It was written in FORTRAN on a Digital Equipment Corporation PDP-10 computer, and its popularity spread quickly as Crowther made it available nationally through ARPAnet. (ARPAnet was the first nationwide computer network, linking many computer centers at universities and research facilities around the country)
   Don Woods of Stanford University made some major enhancements to Crowther's program, and the result was the program that is still regarded as the standard version of the Adventure. Enhancements and adaptations have gone on, though, and today the game is available in numerous versions for every sort of computer.
   Adventure has all the features that are now traditional parts of the genre. The player gives two-word commands to direct the character's action (through an underground complex). The more treasure the character finds and brings to the surface, the more points he gets. And if he solves the entire labyrinth, he is finally carried away on the shoulders of the cheering elves.
   Crowther's inspiration for Adventure, with its mixed bag of mythologies and its environment of mysterious underground passages, came largely from a non-computer game, which was a revolutionary in its own field as Adventure was in computer games: the role-playing game called Dungeons and Dragons.
   Tactical Studies Rules (now known as TSR Hobbies, Inc.) published the first edition of Dungeons and Dragons in 1974. [...]" (Pp. 5-6)

My fourth source: David Miitchel: *An Adventure in Programming Techniques.* Addison-Wesley. Wokingham, U.K. 1986 states simply:

"This book is about building Computerised Fantasy Games - CFGs for short. They're often called Adventure Games, after the original game written by Willie Crowther and Don Woods to run on a DEC mini-computer back in the early seventies. The game is simply called Adventure, although versions of the same game now on sale are often called Colossal Adventure or Original Adventure." (p. xiii)

The Web site *Adventureland*, maintained by teh swede Hans Persson, includes a Timeline of the history of adventure games: <http://www.lysator.liu.se/adventure/timeline.html> (revision of 25.05.1999). This dates the contribution of Willie Crowther to 1972 and the contribution of Don Woods to 1976. Hans Persson also states that a PDP-1 was used for the first version by Crowther.

Which is the correct date?

All this raises the question of who is right. The easy way out is of course to try to contact the authors themselves to resolve the question, but before doing that it is possible to narrow the gap considerably by checking the dates and other information given against other available evidence.

This is the sort of thing one would expect a writer like J.C.Herz to have done, so that her dating has some preliminary credibility. As stated above she does not give any explicit references, but her text implies that most of the information about the early stages of the development of video games is based on interviews with key persons, like the statements about the very first computer game, *Spacewar*, that stand directly before the first section on *Adventure*.

But her information about *Adventure* and its followers is flawed in many ways. Her first section implies that the game was developed on a PDP-1, while the second implies that a PDP-10 was used. The two sections are not necessesarily contradictory, though, since PDP-10 in the second extract may refer to the followers, like *Wizardry* and *Zork*, though this is not the most likely reading.

The idea that a PDP-1 was used is also supported by Hans Persson in the *Adventureland* Timeline from 1999.

The use of a PDP-1 is consistent with the date 1967, since the PDP-1 was introduced in 1961 (and used for *Spacewar* in 1962), while the PDP-10 was not introduced till 1967 and not in widespread use till 1969. The last PDP-10 was produced in 1983. (Source: Various Web pages consulted 23. Aug. 99)

The programming language, FORTRAN, is not very helpful for dating, since it was introduced in 1958 and had a long life after that.

The second extract from J.C.Herz seems actually to imply that *Adventure* was created in "the late 1970s", and that its success was closely related to the ARPAnet, which was commissioned in 1969, but did not really become operational till the first years of the 1970s, mainly from 1972. But the text is ambiguous and "By 1978, the game had infiltrated virtually every computer lab in the nation." may refer to *Zork* rather than *Adventure*. The context: "Accessible through ARPANET (the percursor of the Internet) ADVENT's distinctly wry sense of humour quickly percolated into hacker culture and lore. By 1978, the game had infiltrated virtually every computer lab in the nation." points to a date around 1975 rather than 1967.

Actually, dating the followers can help us setting a latest date. J.C.Herz mentions two games in the second extract: *Wizardry* and *Zork*. *Wizardry* was a series of games written by Andrew Greenberg and published for the Apple

II, the first one in 1981 (Source: James Hague: The Giant List of Classic Game Programmers. Last Updated August 17, 1999 <http://dadgum.com/giantlist/> (accessed 22.08.1999)

Zork was orginally written in 1977 for the PDP-10 by 2 students at MIT, Marc S. Blank and P. David Lebling. Other people credited for this game are Timothy A. Andersson and Bruce Daniels. (So J.C.Herz got that wrong as well). A special computer language, MDL, was created for the purpose, but the game was later ported to a PDP-11 using FORTRAN. Marc Blank and David Lebling later formed the company Infocom and marketed Zork with sequels as well as other text adventure games for the microcomputer market. (Sources: Marc S. Blank & S.W.Galley: "Hos to Fit a Large Program into a Small Machine or How to fit the Great Underground Empire on your desktop." *Creative Computing.* July 1980. P. 80 - 87. P. David Lebling: "Zork and the Future of Computerized Fantasy Simulations." *Byte.* Dec. 1980. P. 172 - 182. See also: P.David Lebling, Marc S. Blank & Timothy A. Andersson: "Zork: A Computerized Fantasy Simulation Game." *Computer.* April 1979)

Another important follower was Scott Adams' *Adventureland* which was created in 1978 and followed in the same year by *Pirate's Adventure*. These were the first adventure games created directly for a microcomputer, the Radio Shack TRS-80, written in TRS-80 BASIC. Scott Adams says himself that it was playing the orginal Adventure on a PDP-10 that inspired him to try an implementation for a microcomputer. (Sources: Scott Adams: "An Adventure in Small Computer Game Similuation." *Creative Computing.* August 1979. P. 90 - 97. Scott Adams: "Pirate's Adventure". *Byte.* Dec. 1980. P. 192 -212.)

I think one can safely say on the basis of this that *Adventure* was not written later than 1977 (the year of the first version of Zork), and probably not later than 1976.

Adventure seems to depend to a great extent on the sort of natural language dialogue experimented with in Joseph Weizenbaums ELIZA (published in "Eliza - A Computer Program for the Study of Natural Language Communication between Man and Machine" *Communications of the ACM.* Vol. 9. No. 1. January 1966) and Terry Winograd's SHRDLU published in his Ph.D. thesis in 1971. A main feature of the game is a "parser" that analyses commands like "GO NORTH" and "TAKE BOTTLE" and assigns a meaning to them within the universe of the game. This was developed to a much more sophisticated level in Zork, making it possible to issue commands like: "TAKE BOTTLE AND GO NORTH, THEN EAST".

This possible dependency on natural language processing concept also points to the early seventies, and makes 1967 less probable.

But the information that really pin-points the date is the inspiration from the role-playing game *Dungeons & Dragons*, also stressed by J.C.Herz. *Dungeons & Dragons* was a game created by Gary Gygax and others:

"D&D as a game is the end product of a simultaneous upsurge in fantasy, prompted by such books as Tolkien's *Lord of the Rings*, and in wargaming of the traditional sort, with armies of metal models fighting on table tops according to strict rules. The table-top battles were ususally of historical periods - Second World War, Napoleonic or medieval - but some gamers introduced armies of dwarves, goblins and elves, among others, into ancient period games. The Wargames Research Group added a fantasy supplement to their Ancient Wargames rulebook.

In Wisconsin, Gary Gygax and others published *Chainmail*, a book of medieval period rules with some fantasy elements. Together with David Arneson, Gygax began a campaign in a dungeon called *Greyhawk*. The rules were published as *Dungeons & Dragons* by Gygax's company, Tactical Studies Rules (T.S.R.). The first printing in 1974 was sold out in a year, and the game spread in popularity via universities, games conventions, science fiction conventions and suchlike, and was selling as rapidly as many family games by the end of the 1970's." (John Butterfield, Philip Parker & David Honigman: *What is Dungeons and Dragons.* Puffin Books. Penguin. Harmondsworth. 1982. P. 9)

A game of Dungeons & Dragons takes place on a map created by the Games Master. A group of players, taking on the roles of a group of explorers, like a fighter, a magician, a thief etc. embodied in creatures like hobbits, dwarves, elves and humans, explore the world and the map is revealed (by the GM) as they go along. The aim is to explore the world, gather treasures and gain points by handling situations like overcoming obstacles and fighting "monsters". The world of the first D&D games was normally a vast system of underground caves or catacombs - showing directly the influence from Tolkien's first fantasy adventure *The Hobbit* (1937) (rather than the *Lord of the Rings* (1952-54)) .

Adventure is also about exploration of a cave system, gathering treasure and getting points by overcoming obstacles ("puzzles"), and the world has some medieval tinge - but not a strong one. There is no team of explorers, but only one - the player. The proliferation of opponents ("monsters") normally met in a game of D&D is mainly absent. The main opponents are some dwarves and a pirate (underlining the temporal ambiguity of the game). An occassional troll and dragon are found, as well as some elves, but on the whole the "dungeon" of *Adventure* is strangely empty of population. The computer functions as the Games Master, revealing the map as the player explores it, controlling the opponents, registering the score etc.

Part of the charm of the game are the anachronisms and intertextual refe-

rences, a feature that was to be very strong in most of the early text adventure games. The dwarves, the troll and the dragon point to a medieval fantasy world, while the pirate belongs to the swashbuckling adventures of the 17th and 18th century. The lamp use to light the way in the cave system is driven by batteries and the battery may be replaced by using coins in a vendor machine hidden in and underground maze. The dwarves that have created the cave system has printed magazines written in dwarvish, and they leave dangerous sections with signs of "Under Construction". A plant is able to perform like the beanstalk in the fairy tale of Jack and the Beanstalk, and the magic words FEE FIE FOE FOO are also taken from a fairy tale. A magic wand will create a bridge when waved at a certain place.

Actually when reading J.C.Herz' characterization of the game (p. 10-11) one wonders whether she has played the game at all or is only guessing at the contents from a superficial description, making the game much more D&D-like than i actually is. She may actually be confusing the game with some primitive graphic games that were found on UNIX-computers in which the theme of a monster-ridden, treasure-filled cave system is very strong. Games like *slash*, *hack*, *castle* and *dungeon*. (The description by de Geus et al have the same fault, but they obviously have played the game though not recently).

But if the alleged relation to *Dungeons & Dragons* is to be taken seriously, as also Gary MacGath wants us to in the extract given above, this - taken with the reasoning about a latest date - seems to narrow the possible dates to the period of 1974 - 1976.

And even if we believe that the authors had experience with D&D before the actual publication of the rules in 1974, say from 1972 or 1973, this is still a far cry from 1967. This indicates that the period of creation has to be set somewhere between 1972 and 1976.

What does the best available evidence show?

Some nice people have recently established a special Web presentation on the *Colossal Cave Adventure*, and this includes a short historical note: "Here's where it all began ... "
<http://people.delphi.com/rickadams/adventure/a_hsitory.html> (accessed 22.08.1999)

This information is based on contact with the authors themselves, primarily Don Woods who is still active in the business. <WWW>

The page informs us that the development of *Adventure* was never a joint effort (confirming the statements of Gary MacGrath). The game was developed at first by Willie Crowther and issued into the "public domain" of

computers in universities and research institutions. Here a copy was found in 1976 by Don Woods, at the time working in the Stanford Artificial Intelligence Lab (SAIL) at Stanford University. According to the testimony, he contacted Crowther by sending an e-mail to every computer then on the Internet (about a "handful"), started a correspondence and got his permission to greatly expand the program. Don Woods was - like many others at SAIL - a reader of Tolkien's *Lord of the Rings*, and added a lot of Tolkien features to the game, like the description of the underground volcano, based on Tolkiens Mount Doom, as well as trolls and elves.

The code was then ported from FORTRAN to C for UNIX by Jim Gillogly in 1976. It was distributed as freeware by DECUS (the Digital Equipment Corporation user group), and it was rumoured that new installations lost weeks of programmer time when the game arrived. In 1981 Jim Gillogly ported the game to the new IBM PC with the help of Walt Bilofsky (the founder of the company later known as Mindscape). The game figures in several fiction and non-fiction books about the period. Tracy Kidder in *The Soul of a New Machine* (19??) says that the game was used to test new hardware because it covers such a broad range of programming functions.

Later the game was ported or rewritten for several platforms, and several expanded versions exist. One is by Don Woods himself from 1995, called version 2.5.

The information from Don Woods fixes the date of the final version of the "original" game to 1976. But what about dating Crowther's contribution? The story states that "In 1972, William Crowther and his wife Pat were working for Bolt, Beranek and Newman in Boston, otherwise known as BBN. Will was developing the assembly language routers used in creating the ARPAnet."

The text actually implies that the game was created at a later time, but the date 1972 seems to have stuck, so that e.g. Hans Persson gives this date in his *Adventureland* Timeline.

The story is that Crowther and his wife were "cavers" in their spare time, exploring systems of caves in Kentucky. They actually created a computer map of the system. And that Crowther was also a regular player of *Dungeons & Dragons*. Crowther and his wife divorced at some unscecified time and in the aftmath of this Crowther created the game to entertain his two daughters. But also to recreate for himself the experience of "caving" which he had then stopped. He used many features of the actual cave system that he had explored and mapped, including rooms with names like the "Hall of the Mountain King", and the "Twopit Room".

So here we have the direct link with *Dungeons & Dragons*, but also an

explanation of the fact that a lot of features in the computer game must have other sources, for instance that it is more like a peaceful exploration of an intriguing cave system than a "sword-and-sorcery" simulation. But the link to *Dungeons & Dragons* also fixes the possible date, since *Dungeons & Dragons* are explicitly mentioned, and that title was not used until the publication in 1974. So 1975 as stated by Gary MacGrath is a highly propable dating, and it is unlikely that the game was created earlier than 1974.

Concluding remarks

Based on the evidence available to me at the time, I put the date as 1975 in an article written in 1987 and published in 1989: Peter Harms Larsen & Niels Erik Wille: "De to musketerer - tyve år efter. Om pragmatik og pragmatisk analyse, med to illustrerende cases: Fiktion og Faktion." In: Bente Holmberg, Britta Olrik Frederiksen & Hanne Ruus: *Forskningsprofiler.* Gyldendal. Copenhagen. 1989 (Pp. 158 - 192). The article is about the study of language use as a linguistic discipline - Pragmatics - in Denmark, and my case is about the pragmatic features of the typical dialogue of a text adventure, using *Adventure* as an example. ("Case 1: Dialog med et fiktivt "jeg" - om adventure-spil" / "Case 1: Dialogue with a fictive "I" - on adventure games" Pp. 163 - 176, bibliography p. 192).

It had taken some effort to establish this dating, using more or less the same reasoning as above (apart from the use of later information). Among other things I did not put any stress on the gap between Crowther's and Woods' efforts, though this was mentioned briefly in some of the sources, mainly in the introduction included in the game itself.

The reasoning behind the dating was not documented at the time, since nothing in the article depended on the dating. (I just wanted it to be right). But when one of my students cited the dating of the Morrisons (from 1994) in a thesis in 1997, I of course objected, and in order to convince him that I was more right than the Morrisons I went through the whole process again. In the end he gave in and put the date as 1975. So of course I reacted again when reading the book by J.C.Herz - an otherwise exciting experience - and finding a date that to my thinking was 8 years too early. Things move fast in the world of computers, and if this was really true the gap af 10 years between *Adventure* and *Zork* was somewhat astonishing.

This time I have decided to document my reasoning and publish it. Partly as a demonstration of the complications and uncertainties that are ofter hidden behind a simply stated date in a reference work or scholarly work. Partly to show how to go about critically checking the "facts" given, even in an on the whole credible presentation by professionals. That is why the subtitle of this article is "An excercise in source criticism".

Roskilde, August 1999.

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