

3-Jan-86 1pm. Talked to Marc on phone. Acknowledged receipt of two fedex listings of communications software. Complimented his 6502 programmer on good code. Confirmed visit for next week is still on. Discussed demo needs. Looks like a 'tape recording' of some line interchange will do just fine. They are going to install instrumentation on their end to capture such data. Talked about upgrade distribution. Looks like on-line stuff will work. Marc reiterated that their concern is who pays.

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7-Jan-86 all day. Had meeting with Marc and Janet. Introduced them to Randy and showed them balloon-o-matic, discussed communications problems. Introduced them to Gary and showed them early avatar animation and the cel editor. Introduced them to Aric, showed them the animation driver and discussed animation problems/solutions. Introduced them to everybody else (courtesy and cultural background info).

Spent morning discussing the big picture: what the components of their system are and how they interact, what the components of our system will be, how it all fits together. One of their concerns is how we balance the load when the number of users gets large. What they have to be able to do is spread the host's job over a bunch of separate computers running concurrently. Fortunately, our design makes this quite easy. In fact, it turns out that they will probably be able to use their existing software that that supports their room-oriented chat system as the basis for the host database handler.

Took them to lunch at the Ranch. They were suitably impressed and ooh'ed and ah'ed at all the right things.

Spent the afternoon discussing who had to do what to get the thing going. They will do the host remote procedure call object behavior lookup system (Looi). We will provide the object behavior software routines themselves. They will do the host-end object database software. We will specify the layout of the host database and actually provide the data to go into it. They will provide tools for entering this data into their system and for altering it once it is already there. We will provide advice on what these tools should be as part of the database specification. They will provide routines so that the object behavior code can get at the contents of the database easily. In the process of figuring this all out we redesigned the communications protocol and the object reference and naming scheme in order to solve some problems which Marc identified. The result is greatly superior to what we had before in every respect. Lots of ideas were generated and both Marc and Janet got real excited. They even started talking about the eventual need to do "MicroCosm II" (for fancier machines with faster communications) someday after MicroCosm is a big hit.

We talked intermittently about the game itself and the MicroCosm fantasy. We discussed the avatar and turf customization kits and what sort of interface to the system they would require. This lead Marc to raise the question of whether the players would be able to choose where their turves connect into the world. I had thought that the locations were fixed, but letting people fiddle with them in certain constrained ways enables a number of interesting things to happen, including a real estate marketplace and the formation of political alliances based on territoriality.

We discussed asynchronous events that can occur within the system. From our point of view, the two most significant are the arrival of mail in the player's electronic mailbox and the arrival of an on-line message from another player. We (LFL) need to discuss the extent to which we want to integrate the communications facilities of the MicroCosm fantasy world (mail, telephone)

with those of the Q-Link system. In particular, if somebody (who is not inside MicroCosm) sends you a mail message, can you read it from your MicroCosm mailbox?

We came up with a list of short-term things for each of us to do.

I am to define the basic layout and contents of the databases that will be required, to make a first crack at defining what kinds of low-level routines will be needed to interact with the database, and to think about interactive tools for constructing and modifying the world model that the databases contain. I'm also supposed to spend some time thinking about what sorts of statistics collection and usage monitoring hooks we want to embed in the thing.

They are going to start setting up the database structure itself based on my input. (They are going to use off-the-shelf database software for the bulk of it). They are also going to start hacking around a version of the "rooming house" software (that which handles "rooms" in their chat utility) to become a "region monitor" module. Part of this involves figuring out what sorts of asynchronous events within the system will be needed to make it work. They are also going to work on low-level routines for interrogating and updating the database. Also, Marc is going to send us information about the Q-Link load-file format so that we can have our Commodore 64 software load and run off of disk under Q-Link's control (i.e., when you select the "MicroCosm" menu item inside Q-Link). This will let me write a filter to make our object files compatible with theirs.

We went out to dinner at the Royal Thai, which they both enjoyed immensely, except that Marc accidentally ate a Thai pepper and had to chug water and hyperventilate for 15 minutes in order to survive.

Marc is going to CES and offered to take us out to dinner in Las Vegas while we're there. Also, there is going to be a giant west coast Commodore Users' Group meeting in San Francisco on February 6-7 (that's a weekend) which they are going to be attending. Marc is going to be on a panel along with representatives from all their competitors. He recommended we come to this meeting, if only to see what kind of people our hard-core customers are going to be.

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13-Jan-86 1pm On arrival found message that Marc had called. Called him back. Something about putting together dog & pony show for Clive Smith and Commodore bigwigs. Didn't go into details because haven't talked to sda yet about what it's all about.

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16-Jan-86 Sent off progress report describing activities in December.

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17-Jan-86 Sent off package with January 15 deliverables (object set document plus cover letter).

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17-Jan-86 Spent day putting together dog and pony disk for Clive. Sent it off via Federal Express AND uploaded to Q-Link so that Marc can retrieve it for insertion into demo Q-Link system. Talked to Marc on the phone twice, to

discuss upload and delivery arrangements for demo. He also confirmed receipt of December progress report and said a reciprocal report would be on its way soon.

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20-Jan-86 11am Called Marc and confirmed receipt of dog & pony demo. All seems to be well.

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20-Jan-86 noon Called Clive Smith's office to discuss demo disk. He wasn't in and will call back (or so his secretary said).

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21-Jan-86 2:45pm Called Marc, confirmed that he got demo disk working OK. He says direct database correspondence to Janet as she will be becoming the technical contact from now on as she comes up to speed on the project.

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21-Jan-86 Sent off database contents document with cover letter to Janet Hunter at Q-link.

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21-Jan-86 2:50pm Called Clive Smith, told him demo was on its way (he was pleased). He says he will send demo disk back to us when he is done with his D&P show, but that he would like a permanent copy for future presentations when we get around to polishing it up with the appropriate legal incantations and so on. He mentioned that he, Steve Cayce and sda will have to get together SOON to put out some kind of press announcement. He says the press is already snooping at the door and that Steve Cayce was approached at CES by a well-connected reporter who wanted to know what was going on between Quantum and LFL.

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28-Jan-86 Fedexed new copy of the communications protocol document (#14) to Janet Hunter.

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29-Jan-86 11:14am Phone conversation with Janet Hunter. She acknowledged receipt of protocol document. She will be starting work on database layout tomorrow, but will be gone on vacation all next week. After she gets back she'll be starting coding in earnest. I advised her to coordinate with Randy on the nit-picky communications details.

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4-Feb-86 Returned demo disk from Clive arrived in mail today.

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11-Feb-86 12:15pm Tried to call Janet Hunter. She was not there. Voice who answered (what a space case he was!) said she was back from vacation but not there today. I left a message for her to call be back.

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12-Feb-86 1:08pm Janet Hunter called. Said she has been out a couple of days with the stomach flu and apologized for being a little behind. Says she has laid out the preliminary database definitions and is now working on modifying the People Connection room processor to become a MicroCosm region processor. I outlined the sequence of events that I'd like to follow, namely: 1) get barebones region processor up and talking to the comm. line sending out messages that basically say "I'm alive". 2) get it talking the MicroCosm protocol so that it can say "I'm alive" to our C64 system. 3) handle the whole object oriented request dispatch operation with some dummy test objects. 4) start worrying about fitting in actual MicroCosm objects. She said that this would be fine. I told her to coordinate with Randy as far as getting the comm. stuff working goes. We agreed to keep in contact every few days for the time being. I will call her again on Friday. I then transferred her to Randy to talk communications.

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14-Feb-86 11:00am Tried to call Janet Hunter. She wasn't there. Left message to call back.

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14-Feb-86 afternoon Janet Hunter called back. Says everything is going fine. I told her we had tape ready to go and would be sending it out presently. She had some techie questions for Randy about communications, but he's not here due to weather, so we'll cover those another time.

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18-Feb-86 11:35am Called Janet Hunter. Explained about tape being delayed due to weather delaying our making a copy (as folks who would copy tape for us went home early). She said "OK, no problem". Says she is working on communications protocol software. I handed her off to Randy for techie-talk about that.

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20-Feb-86 1:45pm Called Janet Hunter. Told her about foulup with date on mid-February deliverables cover letter (it said January when it should have said February). She said no problem. Communications is ready for testing, though she says Randy should call her before he tries it so as to assure that she isn't simultaneously trying to run something incompatible. She said they got the tape and liked it a lot. Told her I'd be sending object manual sometime next week, and that it should give them a more concrete vision of what their system must do. She said that would be great.

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3-Mar-86 2:15pm Janet Hunter called. Just checking in as we hadn't spoken in a while. Long conversation. She has communications working and is now building the database. We discussed strategy for constructing the database. I described the object definition document. It seems like what we need is a face-to-face meeting to resolve various picky technical issues relating to the database, followed by a week or so of development work at their end, then an extended visit by me to which I come armed with the complete object definition document and spend several days madly hacking in PL/1 putting the objects into their system. I am trying to get the object definition document finished so she can look at it, but if I can't finish it in the next two or

three days we decided I should send her a few annotated sample pages just to give her an idea of the kind of thing I'm up to. We will probably schedule the f.t.f. meeting next week sometime. I am to get with sda and figure out how that should work (me going there or her coming here, timing, etc.). We briefly discussed deliverables, and I indicated that the mid-March stuff was on track except possibly for the demonstration of interaction with objects and the host, since that requires the host-database system which is not working yet. We discussed communications issues and I explained to her that Randy was out today with the flu but that we had received her new communications test disk that lets us boot up without needing two simultaneous Q-Link logins as the present arrangement requires.

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6-Mar-86 2:30pm Janet Hunter called. Long technical discussion. Told her sda had advised she come out here for next visit since I'd be going there for long visit. I raised possibility that we might be able to deal with issues via an extended conference call rather than a personal trip, and she thought that this would be a good idea both as a money saver and as a more productive use of our time. Says she thinks she will have a partial database engine (something we can talk to if not use outright) by Wednesday or Thursday of next week. We had an extended discussion of the sequence of events involved in the behavior protocol of messages exchanged between the Commodore 64 and the host. I also described the set of communications idioms I was using in specifying the object behaviors. We talked about what sorts of resources would be needed at their end and in particular she asked whether any objects had time-driven functions. The parking meter proved to be an example of such an object, and the day/night cycle also is under similar constraints. She thought that these would be no problem. I also discussed for the first time the jukebox/radio/stereo idea and she said she'd have to give it some thought to see how that would operate in practice. I am to try and get the damn object spec document done and sent off to her ASAP. This is going to be dicey given my time constraints over the next few days. We agreed that I will call her tomorrow morning before the Epyx winners' visit to update her on the prognosis for that.

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7-Mar-86 10:35am called Janet Hunter. Confirmed that I didn't get the object document done last night (we expected I wouldn't) and I told her I'd try real hard to get it done to have it in tonight's fedex shipment. She asked how Randy was coming with the communications software and I told her that he had it rewritten and was now getting ready to assemble and test it.

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12-Mar-86 11:50am called Janet Hunter. Asked her about reconsidering use of CRC for error detection and substituting a less computation intensive error detection scheme. She said this sounded OK to her but had rather far-reaching system ramifications, so she would bring it up with the other folks there. I told her how system integration was coming along (it's coming along fine). She had a couple of questions. One was about the integration of Q-Link's native mail system and on-line message system with MicroCosm. I told her I thought integrating OLMs wouldn't work (she agreed) but that integrating mail was probably both doable and desirable. I also explained my mail addressing scheme which she thought would be no problem. She also asked about the continuation/termination bit in the message protocol and requested a slight revision so that her communications processor can distinguish single-packet messages from multi-packet messages and the start of multi-packet messages from the rest. I told her that I'd discuss this with Randy and that one of us

would get back to her on it. She also said that she was starting integration of their terminal handler with the MicroCosm database processor there, and that we should soon be able to talk to a real process!

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17-Mar-86 1:50pm Janet Hunter called. Says she is ready to test and wants to know what sort of test objects to code up. I said I would talk to the guys here and get back to her ASAP. She also said she had finished going over the object specification document and had some questions about object containment, which I answered.

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21-Mar-86 11:10am Called Janet Hunter. Purpose of call was to cover various technical issues: 1) any progress on changing CRC to something less CPU intensive? Answer: she talked to the other folks there about it, there reaction was unenthusiastic. Basically, it can be done, but it won't be done anytime soon. More persuasive argument must be pursued. 2) How are the test objects coming? Answer: only a few hours from being testable. I told her we are ready to test anytime she gives us the relevant parameters. For the second level of testing (where the region descriptor tells what objects are present) she needs to know the format of the region contents vector. I am to get this for her. 3) Travel plans: how about me coming out first week in April? Answer: first few days of that week (Monday, March 31 to Wednesday, March 2) she is going to be on vacation. I don't need a lot of her attention while there, but what I will need I will need at the start of the coding session. It seems the best thing would be for me to fly out there Thursday, April 3 and depart the Thursday, Friday or Saturday of the following week. Some more coordination is still needed before we should start making airline reservations however. Also, their computers are now overloaded and they don't have a dedicated development system (which means they can only do development during off-hours). This is SUPPOSED to be remedied by then, but you never know (she is going to look into this too). 4) Tell me various specific details about the execution environment of the PL/1 code that will implement the object behavior. Answer: blah, blah, blah (various technical details). Additional topics: she would like a copy of our test disk to aid her in her own testing of the Stratus host. I said this should be OK and that I would speak with Randy about it. She is going to call back in a couple of hours when she gets the test objects working.

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25-Mar-86 11:00am Janet Hunter called. Had some questions about contents vector definition and the way the object containership relation operated. There was also a question about whether noids should be represented implicitly or explicitly in the region contents vector description. We discussed the technicalities at some length. I said I would discuss these matters with Randy and Aric and get back to her later today. Also told her about tentative travel plans (go out there Thursday, April 3, return Saturday, April 12). Asked her to writeup what she had about PL/1 execution environment of object behaviors so that I could do as much work as possible in advance, she said she would do this. Also asked her to look into setting up remote dial-in access for us to do development work on their machine, which she agreed to do.

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27-Mar-86 1:30pm Called Janet Hunter. Answered previous day's questions about object identification (we are going to put explicit noids in the contents vector for the time being, possibly going to implicit noids later once

everything works; I asked her to put instruments on the output channel so we could see how many bytes this was costing us, which she said she'd do), and about containership (we'll treat containers as a sort of all-or-nothing thing: if a container is open, everybody knows what's in it, so the host sends out a contents vector with every container opening, and when it's closed it's a black box: nobody knows what's in it). Also discussed mailer issues (how mail messages are to be formatted) and names. Janet asked the question, "do avatars have names?". My feeling is that they should, but what good are they? We can't use them for mailing because of collisions with Q-Link login names. I thought perhaps they could be "True Names" that are used to obtain magical power over others, but this idea needs further thought. Also, Janet is going to be faxing me a copy of a document, describing the PL/1 environment for programming objects, tomorrow morning some time.

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23-Apr-86 9:50am Called Janet Hunter. Two problems: listing not here yet and no Telenet access yet. She said she shipped listing regular UPS not realizing how long it would take and will reprint and reship via a faster route. She says the X25 mods to let us access their development system via Telenet are in place but she wants to test them before getting us involved. She will call me back this afternoon with the info as soon as she's had a chance to check it out.

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24-Apr-86 11:15am Called Janet Hunter. Several things: 1) Randy would like to have a direct access to MicroCosm disk for testing purposes, so that he wouldn't have to wait for the whole q-link login procedure every test run. Janet says this is in the works but won't happen soon. She also said that the problem with getting hooked to a computer that didn't have Microcosm is now fixed. 2) Randy would like to be able to send an INIT message instead of waiting for a HEARTBEAT message. Janet says they are working on this, but it involves changing the semantics of the INIT message so that it doesn't reset everything and log you off, so it'll be a few days. 3) I want Telenet access for debugging. She said they made the mods required to have this happen, tested it, and it didn't work. You could log in but you never got a command interpreter. This seems to be a Stratus problem and they are currently conferring with Stratus on the matter. 4) Listing: did she send a new listing? Answer: not yet. She printed a new copy last night and will send it out this evening if she doesn't hear from us to the contrary before then (i.e., because the first listing finally arrived). 5) RDL: she was in the middle of fixing something else for Randy, so she didn't want to talk about it now, but she'll call back later today.

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18-Jul-86 11:20am Called Janet. Discussed ongoing problem with bad data in Riddle file (the result of an off-by-1 bug in Slur). Concluded the easiest fix was just to generate a whole new Riddle file and send it. Janet is going to try to get a reliable file transfer utility working today. She is also going to try to get us finished rough documentation for the Twiddle utility. She asked if I could provide her with a list of unfinished components (i.e., ones that are in the system spec but which won't be in the beta test). Since I had to generate such a list for sda anyhow I said I'd fax her a copy of that. She also asked for a list of features which work in the C64 but not on the host. I am to try to generate that today also, but that is somewhat lower priority than the other list.

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22-Jul-86 1:10pm Call from Clive Smith. He is concerned about avatar customization and thinks that heads are not enough. He harranged me for several minutes on the subject, and then I explained why things were the way they were and that we were working on it but technical limitations seemed pretty strong at this point. He also said he had some comments on the manual, but had to take another call before he could tell me what they were.

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28-Jul-86 2:05pm Called Janet. Asked about Twiddle: has it been upgraded as we requested? Answer: she added create object function and fixed text handling. New twiddle.doc file describes new features. BTW, create object requests you to provide a new global object id, but if it's already used it starts searching from there until it finds a free one. She says the populopolis data has id's up to about 4830. We still need to be able to handle arbitrary objects. I suggested she could just point us to the table it uses to understand what objects it has, so we could revise it as needed when we create new classes. She said this is doable, but the format of the tables is kind of complicated, so she wants to write it down rather than trying to explain it over the phone. Also asked about teleports. She says the stuff should be working on her end, but she had a problem with the atm and tokens blowing up her C64 (I don't know why) so she wasn't able to test.

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31-Jul-86 Conversation with Janet. Gave her "wish list" items for Twiddle: a "display" command that doesn't actually display, multiple commands on a line, and a way to find all instances of a particular class. She will take these under advisement. Also asked for delete object command and she explained the way to do this is to move the object to region 98 or 99 (98=destroyed, 99=limbo). We need to add some new fields to the avatar and the region, which is problematic because those databases are hard to change. We need a "stun counter" field in the avatar, but we decided to use the "bus fare paid" flag since the bus system is dead. We need a "light level" value in the region, but we decided to use "width", since region width is currently a meaningless concept. I also pointed out that we will need to give her a teleport directory and asked for a convenient format to put it in (as a text file). She suggested each entry on a line: 20 char address, space, region number. She mentioned some problems with message transmission on paper write, which I said I would pass along to Randy. She also asked if we could have the cursor keys function in the text interface. I said that this wasn't hard, but the problem is the amount of memory that the code to do it would take. I said I'd take this up with Randy.

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1-Aug-86 11:00am Called Janet. She said she was busy with a local disaster and she'd call back in about a half hour.

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1-Aug-86 11:30am Janet called back. I had several things to talk about: there seems to be a bug that causes the avatar's bank balance to get sent wrong. She said she'd investigate. I warned her to avoid the pawnshop interior as a couple of the objects have been changed to knick-knack styles that she doesn't have on her disk. I asked if ship Tuesday/arrive Wednesday for beta-1 delivery was OK, she said yes. I told her our plans for the new-user customization interaction and that it would require a minor change to the login protocol. She thought this would be fine. We agreed I would write



up the protocol spec and fax it to her asap. I asked about the status of mail and message systems. Mail is about ready; the major thing that needed to be done was paper "write" to the database. She asked about the message system. We argued about whether it should be possible to have multi-packet messages. This presents a problem for their internals, but we could construct the user interface to fake it and use separate messages internally. She still didn't like this because of the timing problems and the load caused by such easy multiple invocations of the name-lookup process. I said I'd talk it over with the guys. She also pointed out a potential problem with message packets intermingling with contents vector packets. We also talked about file transfer techniques. She has a few more tricks up her sleeve, but she was too busy to get into them right now. She said she'd call back later this afternoon to try out file xfer.

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1-Aug-86 3:50pm Janet called. She called to give me the go ahead to test file transfer again, but first I had some Twiddle problems: it won't let you enter negative numbers (parser doesn't recognize the minus sign), she needs to recompile the class name list as I can't recompile it since I don't have the right path aliases on my account, and it does funny things if you enter a blank line. She said she'd take care of these. We then tried transferring a file. I read her the last 10 lines of the file over the phone and she said she'd unpack the data, check it out, and get back to me.

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1-Aug-86 4:45pm Janet called. File transfer didn't work. We are going to try hopping via the well, which she can access via Uninet and we can access via uucp. I gave her the info on accessing it and said I would find out what we had to do to use it.

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6-Aug-86 6:00pm Called Janet. We had tried to test and discovered that not only were all the Habitat processes down, but our Q-Link processes were not running either. Had to verify that it was OK to do a start\_monitor. She said go for it. Explained I had Ghu spec written and would fax to her tonite or tomorrow morning and that I'd be in touch first thing tomorrow to talk about coordination of remaining tasks.

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7-Aug-86 12:10pm Called Janet. Told her I was faxing her spec today for "Ghu" (God's Handy Utility) (ref task #21), and that I would write up a spec for the version update facility (task #9) and try to get it to her tomorrow morning. Brought up subject of integration of new-user facility (task #14). She says she got my fax describing it, that it seems simple and straight-forward to her and she foresees no problems. She asked us to send her a disk with as much of it working as we could provide without anything on their end for it to talk to. I said I'd try to get it to her today, if possible (it might not be). I told her to coordinate work on it with Randy, since he's the one who needs to get it going on our end now. We also spoke about the "orientation in change region" problem (task #22) and agreed on a protocol for handling it. It turns out that this protocol also takes care of the general case of region entry daemons, so it will also knock away half of task #24. Here is what we will do: change\_region currently is called with the desired new x and y coordinates for the avatar to receive in the new region. These have been changed to be a direction number and transition type number (i.e., an indication of whether you are walking, teleporting, or what). change\_region will pass these

through, together with the orientation of the region departed from, and call a procedure that I will provide called `region_entry_demon` with these as parameters. I will put this procedure in `"helpers.pll"`. Brought up the file transfer problem. Explained that I have established a reliable method of sending files to the Well. Told her to get their account set up on the Well pronto. We now have a second account there for this purpose, which they may be able to use, but it would be billed to us so I'm not sure sda will go for that. She had some questions about compilation errors she'd hit trying to merge her version of the test system there with ours. It turns out that these related to obsolete objects that have been removed (e.g., telephone and fare box) and the proper strategy (as she had correctly guessed) was to simply remove any references to these things. She also said we need to recompile *\*everything\**, so this would be an opportune time to change the references to `region.width` to `region.light_level`. She had a question about assigning mailboxes to new turves: how do we know what mailbox goes with what turf? We figured out that Genesis can handle it as long as we guarantee that the Riddle file always declares the mailbox object before declaring the turf region, which we can do. They were supposed to send us a Q-3 disk yesterday, but they ran into some sort of problem and are sending it today instead. Finally, we discovered that we can't call into their system from Telenet because it says "70339L NOT OPERATING". She said she'd talk to Tom (their network guy) and get back to us.

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7-Aug-86 12:30pm Janet called back. Said to try Telenet link again. I did. It works now.

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8-Aug-86 1:27pm Janet called. `Regionproc` in `rundir` now reflects changes for new features, requires Q-3 to work right. `regionproc.pll` is this new version, `regionproc.8-86.pll` is old version, in case we want to go back, `regionproc.orientation.pll` is new version that calls entry daemon. She also says she can't open the door in her turf, we will look into it.

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10-Aug-86 3:30pm Janet called. She thought delivery would be Tuesday morning, not Monday morning! Called to tell of testing problems: Marc's avatar can't walk, she can't get out of her region (#1002) because she can't open the door. We had already known of these from note on the system. Turns out her problem was due to a bug in the C64 adjacency check (which we have fixed) and that Marc's was due to a problem in their database initialization, causing his stun count to be set to some large number.

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14-Aug-86 10:54am Janet called. Asked about changes in database that cause things to change size. Only cases are new 2-byte token and chair (couch, bed) objects that are now containers. I complained that system didn't seem to recognize the chair as a container, she said this was odd and she would investigate. She discovered that region #1082 points to itself, which crashes `change_region`. This is a mistake in our data (I fixed with `Twiddle` while we were talking), but I will change our `goto_new_region` routine to check for this as a special case. I asked Janet if she could use a map, she said yes, so I will send her a copy. They don't like the region transition sound effects, but other than that they *\*love\** the sounds. Overall they seem pretty happy with the present state of the system.

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14-Aug-86 12:29pm Janet called. Turns out problem with chairs was that the new chair (bed, couch) structs hadn't been recompiled, so the database engine was confused. She discovered this because she tried to compile them into her system and got a syntax error! I fixed while we were talking. We will try again. I explained that the chair stuff had been taken out of the C64 software since we had been unable to test it.

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18-Aug-86 5pm Janet called. We discussed the bug list they faxed to us today. In summary: item 1 (apparent spurious change\_region requests) has already been fixed; item 2 (unfriendly results from disk errors) we will work on; item 3 (hitting lots of gesture keys quickly hanging the C64) we are aware of and we have a fix in the works; item 4 (teleport needs prompt) will be addressed by the "HELP" key function providing better instructions -- the \*is\* an audio prompt, but you are not in a \*mode\* per se, so the teleport can't provide a text prompt; item 5 (teleport PUT being funny) turned out to be a case of mistaken command entry -- the user thought he did a PUT when he actually done a DO -- blinking command icon (instead of blinking cursor) should handle this confusion; item 6 (another teleport PUT glitch) turns out to be a choreography problem, which we will fix; item 7 (teleport left in active state) is a case of "that's not a bug, that's a feature", but again the HELP key should straighten it out; item 8 (strange object crashing on DO teleport) turns out to be another choreography glitch; items 9 and 10 (token problems) seem to be database foulups, but we will investigate; item 11 (confusion about the fact that avatars can grab things from each other and hand things to each other) -- well, that's the way it works, manual should comment however; item 12 (you can't ID an avatar if you're holding something) will be fixed by the HELP key, which will pick up the ID avatar function in the case where you are pointing at an avatar; item 13 (typing long ESP message and getting kicked back into People Connection) turns out to be a case of keyboard aliasing with the stupid C64 keyboard matrix, unfortunately the string ":", if the two characters are pressed simultaneously (as can happen if you are typing fast), can alias to SHIFT-RUN/STOP, the command to kick you back into People Connection. What we will do is disable the return-to-People-Connection function when you are typing into the text buffer; item 14 (system hangs if you swap disks \*before\* typing SHIFT-RUN/STOP to return to People Connection) is a design issue -- in general, we cannot guarantee what will happen if you switch disks at arbitrary times when you are not supposed to. In this case, we may want to check to see that the object disk is in anyhow, just to be safe; item 15 (problems removing heads) relates to a broader problem, that people are completely confused by the GET/PUT operation of heads and clothing -- we will redesign if we can to make it more intuitive; item 16 (problems GOing through a doorway) only one user had this problem -- Janet thinks it was his imagination, as do we; item 17 (users being able to GET things in the Pawnshop) is due to the fact that we have yet to install the giant sheet of invisible glass to protect the objects; item 18 (chainsaw doing "flying mailbox" impression) is because she has an out of date copy of generic\_THROW.pll; item 19 (odd behavior on DO jukebox) is because the jukebox is unfinished -- she will remove them from the database. In other matters, I repeated for her the information about getting onto the Well, confirmed that our expectations as to the procedure for setting up test accounts for our people is correct, and found out how to use Twiddle on the production database. There turns out to be a flag that you can give Twiddle that overrides its default database name (the test system is the default). The only rule is that you can't mess with the production database after 3:30pm their time.

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20-Aug-86 12:03pm called Janet. Asked what's up? She had two items to discuss: she couldn't get onto the Well, as Uninet just got eaten by Telenet and they've got the nodes all messed up. It appears that things will continue to be messed up into October, so that will be a problem. However, they have obtained a copy of Kermit for the C64, and they can transfer files from a C64 to their computer, so we'll try that. We need to get them a dial-in account on Kessel; I said I would arrange for this and get back to her asap with the info on how to. She also wanted a complete explanation of the specific details of the new head/clothing/marsupial-avatar/spray-can user interface design, which I gave her.

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20-Aug-86 3:42pm called Janet. Gave her info on dialing up Kessel directly. Her login is 'quantum' and she has accounts on both Kessel and Moth. We may have to do some shuffling to figure out how to get kermit on this end into the correct mode, I will investigate.

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25-Aug-86 3:02pm called Janet. Told her I'd be gone and when, asked her to pass this along to Marc. Her only concern was that she wanted to have long conversation with me about Oracle/God utilities, which we agreed we'd do tomorrow. She also said that making region 504 daylight fixed the customizer problem they'd reported to Randy earlier.

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26-August-86 11am. Talked with Janet. We discussed today's disk shipment (which they got just fine, by the way). Janet wanted to reconfirm a change we had made to the TelePort that needed to be matched with a change in the regionproc (she already knew about it, she just wanted to double check). We agreed to try to switch over the test system to Q-3 to match the production system asap. She will coordinate doing this with Randy. We talked about some more database errors that needed fixing (some turf regions were missing doors!) and I gave her the info to fix it. She says we need more turf regions in Popolopolis to accomodate the size of the beta-test group PLUS Q-people PLUS LFL people. She estimates 300 turves are needed (there are currently 120). I said we would take this up as a matter of high priority, and would try to have the city all ready by Friday. She also mentioned a few details that need to be taken care of, such as making sure all the turves are seeded with copies of the newspaper. She had a question about the status of the HELP facility. I explained that the machinery was in, though the specific help messages for the different classes would need to be generated. I told her I'd set it up tonight so that at least the identify-avatar function worked via the HELP key (I have now done this, by the way) and that I'd set things up so that Randy or Aric could put in specific help messages for specific classes of objects with a minimum of muss and fuss (also done). She asked about the rate at which we should feed funds into folks' bank accounts. She says the scheme of paying on the basis of login hours is a big no-go with their lawyers. I'm a little hazy on the details. However, paying a certain amount each time you login (but no more than once per day) seems to be OK. We decided to try T100 per day to start, and to adjust it up or down as experience dictated. She wanted to know if they should put "Lucasfilm's Habitat" or just "Habitat" on the games menu. I ran over and asked you and then told her the former. She asked me to set up an alternate version of class\_avatar on the host that would echo talk messages through the host rather than expecting the C64 to echo them locally (done). She asked about policy for sweeping up avatars who are turned

to stone. We decided we could set up "hotel" regions that don't get swept up as often so that people could logout away from home without worry, and we adopted a convention for indicating this in the database descriptions of the regions. She also brought up the thing I already discussed with you about Charlie having gotten on and said some ill-considered remarks about Habitat that got their users all in a tizzy.

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26-August-86 12:55pm. Marc Seriff called. HE was very concerned about getting the Beta test going, and wanted to know when we'd have the regions set up. I told him we were working on a number of realms for adventuring, but that we'd just learned about the need to enlarge Populopolis today. Told him that we were shooting to have the enlarged Populopolis in by Friday. He also said they had some concerns about the manual and wanted to know who they should contact about manual changes. I said the relevant person was me: just tell me what you want changed and I'll get you a revised edition asap. This seemed to throw them a little, as they weren't prepared to give the changes right away. They said they'd call back in an hour or two with specific changes.

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26-August-86 3:50pm. Call back. The person who called this time was Kathy, whose last name I forget. She's their communications and documentation person. She had a bunch of changes, but to my surprise they were all very minor, mostly being typos and grammatical boo-boos. They had a few things they wanted explained slightly differently, especially in things talking about their system, but nothing major. They also thought the order of the chapters should be slightly different and I concurred with their proposed reorganization. I said I would make the changes and get them a new copy asap. They asked if I could make today's Fedex deadline. I said it was possible, that I'd try, but it was likely that I wouldn't be able to if other things came up. They left me to work on it in hopes I'd get it done in time. I've made the changes now, but various interruptions pushed me well past 5:30 by the time I was done, so it'll have to go out tomorrow. I'll leave it on Mary's desk -- I've already sent her a message asking her to drop it into a Fedex packet for me. If you want a copy, you can get it from her, unless you catch me first.

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26-August-86 4:45pm. Janet called again. She said they'd duped the disks and now were getting mem-faults all over the place. She is now concerned about memory size... I explained that this is what the capacity-handling facility is designed to deal with, but she's still concerned. In any case, she described the regions that were causing the problem, and they shouldn't be, so Randy and I got on (on the production system) and went into the offending regions ourselves (with even more stuff) and had no problems. Our working hypothesis is that the person who duped their disks (who was not Janet this time) screwed it up and got something confused. At any rate, they have bad disks. I don't know if their original is bad or not. We will work on that first thing in the morning. By the time we verified that the regions were ok, everyone had left in Virginia and I couldn't raise Janet at home.

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3-September-86 1:05pm. Called Janet. They are concerned about memory capacity handling. They want to arrange a conference call shortly to discuss the issue. Told Janet names and files for revised Populopolis. She asked me

to double check the "owner" property to make sure that Turf regions were being flagged as such. She also asked for a small sample Riddle output file that described a region with containers with things in them, so she can try to figure out what Genesis is doing wrong. I also described to her my idea of how memory capacity handling should work. She said that she needs to have the data tables to do the capacity monitor. I said I would make it a high priority. Then she said she'd be gone next week (unavoidable personal stuff, much like my WorldCon trip). I said I would make it a HIGH priority and would try to have tables ready tomorrow.

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3-September-86 1:33pm. Marc, Janet & Steve Case called. This is the conference call alluded to in my previous conversation with Janet. They are concerned about memory capacity handling. I said that the key is to install the capacity monitor and then design the universe so that there aren't obvious bottlenecks where full regions can blow stuff up. Marc is afraid this is going to have a disastrous effect on game play. I explained that I thought that we could work around it -- that this would simply be another design constraint in the setup of regions. They were dubious. I explained that we too were concerned, but what can be done beyond what we are already doing. I said we would work on it, but the main thing was that they needed to push ahead with the capacity monitor. They asked when we would have the additional regions set up. I said that we had the new Populopolis stuff just about ready and that it would be all set today. They had a few other minor things. Anne Artmeier wanted to know if I had gotten the fax they had sent about minor changes to the manual (I had) and if there were any problems with the changes they had requested (there weren't). I said I'd try to get the revised edition out today, but that it would certainly go out tomorrow if not today. Marc also asked what needed to be done on their end that wasn't being done. I said that other than getting the capacity monitor working, the only thing that was really hanging us up was the lack of a direct file transfer mechanism from us to them. I explained for him briefly the history of the problem and what we had tried to do about it. He said he would think about it.

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4-September-86 11:30am. Janet called. She's having trouble with remote login. I said I would investigate. I also gave her the specific information on where to upload the revised data files for Populopolis from.

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4-September-86 3:30pm. Called Janet. Asked how she was faring with remote login. She's still had no luck. We can't figure out what is going on since David Vezie, Randy and I have all been able to use it successfully from a variety of phones and modems. I gave her the info on where to obtain the data tables for the capacity monitor which I promised I'd generate. She said she hoped she could get to it tonight as she is disappearing tomorrow at noon (their time) and won't be back until the Saturday before the press conference.

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