

PRIVATE

June 19, 1970

Dear Margaret,

Here are some observations on the organization and internal workings of a LUMINARY sub-group such as the Landing Group.

There are two natural roles which may be called (a) design and (b) maintenance or testing. Of course these headings exaggerate the actual difference as there must be testing on the design side, and there should be opportunity to design on the maintenance side. As I must have made over-abundantly clear I am sure that the "leader" must be the person who has the chief responsibility for the program design -- in other words, for the landing, me.

Maintenance (b). The testing or maintenance role is as follows:

- (1) Preparation of test plans with the advice of the design leader and the LUMINARY group leader. The composition of routine level 4 and 6 test plans should be pretty easy by now as there is so much precedent.
- (2) Running these tests.
- (3) Close scrutiny of the test results. This is the most important part of the maintenance role and I believe where we have most fallen short so far. I don't think it's logical for someone other than the person who prepared a test to have the first responsibility for looking at it. I've never felt that carrying decks upstairs was a duty worth delegating. To say that looking at the routine tests is primarily the leader's job is to reduce the tester's job to very little -- a situation which I fear might suit the incumbent.
- (4) Referral of simulator bugs to the simulator people for solution.
- (5) Elucidation and fixing of minor program bugs. Here is the opportunity to do some design -- how much it is taken advantage of depends on the ambition of the particular personnel involved. By minor bugs I mean those within the capacity of the maintenance person to handle. Of course all bugs should be communicated to the leader and the leader should satisfy himself that the fix proposed in any case is valid.
- (6) Referral of major (more difficult) bugs to the design leader for solution or assignment to another design person for solution.
- (7) Maintenance at all times of decks for running current and recent on-line programs, available to others.

Design. The design role is as follows:

- (1) Interface with the testing person as indicated above. It is my thesis that this interface need not be so large as to preclude the design people (or the leader) from doing more advanced work.
- (2) Solution of major bugs -- either referred by the testing person or from outside -- or assignment of them to another

qualified person for solution. (3) Approval of all changes in the area although where confidence is very high this can be merely implicit. (4) Work on positive advances (as opposed to bug-fixing) originating with the design leader or anywhere else. This includes response to PCRs, work on off-line versions, and the political part of making advances. (5) Special testing projects as needed. (6) Liaison with program manager and non-MIT people such as SCB (sometimes), Price, LMS people, Grumman; astronaut training. (7) Liaison with GSOP people. Don Reinke's excellence makes this easier than it used to be. (8) Provision of checkout tools, to assist those running tests in recognizing abnormalities in behavior.

These are approximately the lines along which we have worked for a while, though they have not been so explicitly stated before now. The design people involved have been me and Allan Klumpp (and Covelli for the radar). Covelli will largely supplant Klumpp as he returns, I hope, because Klumpp wants to think about STS -- already Bob has worked with Allan on IMU bob. The testing people involved are Dave Moore and Sharon Albert. If you desire to make a constructive change in the Landing area I strongly suggest reversing their status, or at least equalizing it so that the burden can gradually be transferred. Working with me on ZERLINA Sharon has demonstrated a will and ability to perform the maintenance-testing role described above not yet -- after quite a long trial -- demonstrated by Dave.

See you soon, hope you're better,

A handwritten signature in dark ink, appearing to be the initials 'DM' or similar, written in a cursive style.

Copy to Bruce.