

1 we have the four-page document, with the first page
2 dated July 12, 2001 and the last page being color
3 copies of two photographs, marked as Exhibit Number
4 4.

5 (Battin Exhibit No. 4 - Three-Page Letter Dated
6 July 12, 2001 with One-Page Attachment - was
7 marked for identification.)

8 (Discussion off the record.)

9 BY MR. HERMES:

10 Q. Dr. Battin, I have placed in front of you a
11 multiple-page document. Do you recognize that as
12 being the cover pages and the portion of the page --
13 and a portion of a book which you wrote, An
14 Introduction to the Mathematics and Methods of
15 Astrodynamics, Revised Edition?

16 A. Yes.

17 Q. And is that a revised edition that was
18 produced in 1999, sir?

19 A. Yes.

20 Q. Are you the sole author of this book or did
21 others contribute to it, chapters to it?

22 A. Sole author.

23 Q. On page 17 -- well --

24 MR. SWOPE: Referring to the page

1 numbers.

2 BY MR. HERMES:

3 Q. Page 17 of the book --

4 A. Yes.

5 Q. -- Arabic 17, there is a paragraph, the
6 third paragraph on that page, which begins, "One
7 day, when plotting a few of these Venusian
8 reconnaissance trajectories, I was impressed by the
9 proximity of the spacecraft orbit." Do you see
10 that, sir?

11 A. Yes.

12 Q. When was it that the plotting of the
13 Venusian reconnaissance trajectories took place when
14 you became impressed by the proximity of the
15 spacecraft orbit and the Martian orbit resulting
16 from the increased velocity induced during the
17 Venusian fly-by?

18 A. Don't know.

19 Q. Was that sometime within months of January
20 26, 1961 or was it sometime earlier than that? Can
21 you tell me that?

22 A. Well, yes, months.

23 Q. Can you tell me -- well, do you recall, sir,
24 whether in your book Introduction to the Mathematics

1 and Methods of Astrodynamics you included the
2 trajectory to which you made reference on page 17?

3 A. Yes.

4 Q. Sir?

5 A. Yes.

6 Q. On page 17, do you know where in the book
7 that trajectory is?

8 A. Yes.

9 Q. Where, sir?

10 A. I can find it.

11 MR. SWOPE: Let's just find it here.

12 THE WITNESS: It's not in there. It's
13 in here. It's way in the back.

14 A. It's page 433, Figure 9.5.

15 Q. And do I take it, sir, that the trajectory
16 to which reference is made and which is shown on
17 page 43 (sic) has a date in the upper left-hand
18 corner Feb. 20, 1963?

19 A. Oh, yes.

20 Q. All right, and what was it about this
21 trajectory that impressed you, sir?

22 A. The outer circle is the orbit of Mars, and
23 the launch is from the Earth, and the inner circle
24 is Venus. When you pass by the planet Venus, they

1 intercept on March 26, 1963. You're going to be way
2 out almost to the orbit of Mars before it returns to
3 the Earth on February 5, 1964.

4 Q. I think in one place, you referred to a
5 distance of 1.35 astronomical units --

6 A. Right.

7 Q. -- as opposed to the orbit of Mars being at
8 1.38 astronomical units; is that correct?

9 A. Right.

10 Q. Yes, sir?

11 A. Yes.

12 MR. SWOPE: Could we go off the record
13 just a moment?

14 MR. HERMES: Sure.

15 (Discussion off the record.)

16 BY MR. HERMES:

17 Q. Dr. Battin, I don't -- Mr. Swope has --

18 MR. SWOPE: Let me state for the record
19 that I asked a question about the conformity of the
20 dates when we were off the record between what's on
21 page 17 and what Dr. Battin has referred to on page
22 433 to try to keep some clarity to this record.

23 BY MR. HERMES:

24 Q. Now, sir, I think what I made reference to

1 was that you were plotting Venusian reconnaissance
2 trajectories, and you were impressed by the
3 proximity of the spacecraft in a certain way;
4 correct?

5 A. Yes.

6 Q. And does the figure on page 433 of your book
7 illustrate the trajectory which -- as to which you
8 were impressed?

9 A. Yes.

10 Q. All right.

11 MR. SWOPE: That is, just for the
12 clarity of the record, the trajectory to which
13 reference is made in the third paragraph on page 17?

14 THE WITNESS: Yes.

15 MR. SWOPE: Okay.

16 BY MR. HERMES:

17 Q. Now, you go on, on page 17, to say, "The
18 interesting possibility of a dual contact with both
19 planets seemed feasible, a kind of celestial game of
20 billiards." You made that statement, sir?

21 A. Yes.

22 Q. When did it occur to you that there was the
23 possibility of dual contact with both planets being
24 feasible for your celestial billiards?

1 A. When did that occur?

2 Q. Yes. When did that occur to you?

3 A. Well, it would be sometime after this
4 trajectory was calculated, which was in the -- would
5 be in the spring of 1959.

6 Q. Now, with respect to the possibility of dual
7 contacts with both planets, is it of relevance --
8 strike that. With respect to the possibility of a
9 fly-by of both planets, was the location of Mars
10 relevant at the time the spacecraft approached the
11 orbit of Mars?

12 A. I don't understand.

13 Q. Let's focus on page 433, sir.

14 A. Okay, right.

15 Q. Apparently the Figure 9.5 --

16 A. Yes.

17 Q. -- on page 433 refers essentially to a
18 certain period of time when the orbit of a
19 spacecraft approached the orbit of Mars; correct?

20 A. Right, right.

21 Q. And apparently when the spacecraft
22 approached the orbit of Mars --

23 A. Yes.

24 Q. -- Mars, in fact, was not at the location of

1 closest approach; is that correct?

2 A. That's correct.

3 Q. All right. In order to have a
4 multi-planetary fly-by, isn't it a fact, sir, that
5 you needed to know the location of Mars?

6 A. Well, you had -- yes, of course.

7 Q. All right, so that it wasn't sufficient, for
8 these purposes, that you simply had the spacecraft
9 approach the orbit of Mars; correct?

10 A. That's correct.

11 Q. Mars, in fact, had to be at the same
12 location as --

13 A. Had to be there, yes.

14 Q. And in connection with the work -- and in
15 connection with the calculation of the
16 multi-planetary fly-bys, the Earth-Venus-Mars-Earth
17 fly-bys, do I understand that at the time you did
18 the work depicted on page 433, you had not done a
19 calculation of the location of Mars?

20 I think you told me that Figure 9.5 on
21 page 433 was prepared sometime in the spring of
22 1959; is that correct?

23 A. That's right.

24 Q. And at that time, at least, you were not

1 thinking about multi-planetary fly-bys?

2 A. No.

3 Q. And at that time, you were not focusing on
4 the need, in order to have a multi-planetary fly-by,
5 that the spacecraft approach Mars in its orbit
6 rather than simply cross the orbit of Mars?

7 A. That's true, yes.

8 Q. And do I understand that it was not until
9 sometime in late 1960 or perhaps early 1961 that the
10 idea first occurred to you that you could have the
11 multi-planetary fly-by and use the gravity assist of
12 Venus to get the spacecraft to Mars?

13 A. That was a long sentence. How did it begin?

14 MR. HERMES: Could you read that back,
15 please?

16 (The reporter read back the portion requested.)

17 A. When it first occurred to me is obviously
18 something that I don't exactly know, but I do know
19 when this Earth-Venus-Earth trajectory was
20 calculated and when I plotted it, and it was in
21 1959, that you look at it and you can -- anybody
22 could look at that and say: Oh, you're coming close
23 to the Mars orbit. Wouldn't it be nice if Mars were
24 there?

1 I mean, that's the sort of little light
2 that goes on; and I don't know when that happened,
3 but it had to happen after I had produced this
4 Earth-Venus-Earth trajectory.

5 Q. But sometime before you actually attempted
6 to calculate the trajectory for the multi-planetary
7 fly-by; correct?

8 A. Yes.

9 Q. And do I take it that you cannot tell me
10 precisely when that occurred?

11 A. No.

12 Q. Your answer is no?

13 A. No.

14 MR. SWOPE: No, you cannot?

15 THE WITNESS: I cannot.

16 BY MR. HERMES:

17 Q. And you cannot relate it to a particular
18 year?

19 A. I can relate it to an interval.

20 Q. And the interval was what, sir?

21 A. Early 1959 to January 26, 1961.

22 Q. Did you recognize any particular
23 implications of that observation, that is, the
24 possibility of a multi-planetary fly-by, in that

1 interval period?

2 A. Could you say that again?

3 Q. Well, you observed apparently that the
4 spacecraft would approach the Martian orbit?

5 A. Yes.

6 Q. And I think in one of the prior answers, you
7 said words to the substance -- to the effect of
8 "wouldn't it be nice if Mars were there"; correct?

9 A. Yes.

10 Q. Did that observation on your point -- on
11 your part have any particular importance for you at
12 the time you first had it?

13 A. Yes.

14 Q. All right. What was the importance?

15 A. We were calculating round-trip trajectories
16 to Mars for a specific project that we were working
17 on, and the round-trip times were in excess of three
18 years.

19 This orbit from Earth to Venus back to
20 Earth was a little over a year total flight time, so
21 that if Mars were there, you could visit Mars and
22 get back to Earth, instead of in three years, you
23 could do it in a little over one year. That's why
24 it was important.

1 Q. What was the importance of the time
2 difference being one year possibly -- or
3 approximately one year as opposed to three years?

4 A. Because we were designing a spacecraft to be
5 launched to take a picture of Mars, and it was going
6 to have to operate all by itself with no
7 communication with the Earth. It would be very nice
8 to get it back in a little over a year rather than
9 having to wait over three years, especially if the
10 sponsor said we can't fund anything that's going to
11 take three years before we get it back.

12 Q. And do I understand, sir, in the late 1950s,
13 you, at the MIT Instrumentation Laboratory, were
14 working on Martian trajectories, sir?

15 A. Yes.

16 Q. And you were working in the context of
17 planning for a manned mission to Mars?

18 A. No, no.

19 Q. An unmanned mission to Mars?

20 A. Unmanned.

21 Q. Why was it that you were working on such a
22 mission?

23 A. After the Sputnik, which was in 1957,
24 October the 4th, it became clear that space was

1 going to be the next big thing; and if the
2 Instrumentation Laboratory was going to have any
3 role in this, we better get started.

4 So a few of us said let's put together a
5 project which we can fund with -- by the Air Force,
6 because the Air Force did have discretionary money
7 that we could do anything that was relevant to us to
8 do. So we designed this little spacecraft, and I
9 was the one responsible for generating the orbits,
10 the round-trip orbits to Mars.

11 That little spacecraft had an
12 interesting history. If you want to see it, you can
13 go over to the Draper Laboratory. A wooden model of
14 it is hanging from the ceiling. It's the most
15 famous spacecraft that never flew.

16 But we did work very hard on it, and we
17 were trying to put together a package to take to the
18 new NASA, which was just being formed; and this idea
19 of -- we didn't originally have Venus in our sights
20 because Venus was always covered with clouds,
21 whereas if we could take a picture of Mars, we could
22 take a picture of the surface of Mars.

23 After we had done an extensive
24 round-trip to Mars, I said, well, why don't we try

1 Venus and see what happens, and this is what
2 happened.

3 Q. The "this is what happened" at least
4 temporarily refers to the results you claim to have
5 achieved on January 26, 1961?

6 A. No, no. We were able to cut -- we could get
7 to Venus and back in about a third of the time as to
8 get to Mars and back.

9 Q. I see. That's because Venus was closer than
10 Mars?

11 A. No, it's just the way the mechanics works
12 out.

13 Q. Now, sensing the importance of the ability
14 to reduce a Martian mission from three years to one
15 year, sir, did you put that information in writing
16 in any particular place?

17 A. Yes.

18 Q. When did you do that for the first time?

19 A. It was in the spring of '61 when I was
20 preparing this Draper Anniversary volume and also
21 preparing notes for my class, which I taught for the
22 first time in 1961.

23 Q. Did you -- at the time you say that you
24 prepared those notes, did you view the possible

1 multi-planetary fly-by using gravity assist to be an
2 important development?

3 A. The -- it was an interesting development if
4 you were planning to actually fly that mission. It
5 only had a launch window of about a week and a
6 recurrence of about every six years. So you
7 wouldn't expect a sane person to say, well, let's
8 target that, and if we miss it, well, we'll wait
9 another six years to do it again.

10 Q. Isn't it a fact, sir, that when you first
11 wrote about this idea, you described it as an
12 astronomical oddity?

13 A. Yes.

14 Q. And you didn't think it was a practical
15 idea?

16 A. No, not that particular trajectory.

17 Q. At some point, did you come to regard the
18 possibility of multiple planetary fly-bys as
19 something other than an astronomical oddity?

20 A. To put that into context --

21 Q. No. Please answer my question, if you can,
22 sir. If you can't, please say so.

23 A. Say it again.

24 Q. At some point after you wrote this

1 particular trajectory was an astronomical oddity,
2 did you come to have a view that a multi-planetary
3 fly-by using gravity assist was not an astronomical
4 oddity?

5 A. I don't -- the question doesn't -- I don't
6 understand the question.

7 Q. All right. At some point, did you come to
8 understand that the Earth-Venus-Mars-Earth
9 trajectory, which you included in your lecture notes
10 for the Draper book, was something other than an
11 astronomical oddity?

12 MR. SWOPE: Object to the form of the
13 question. You may answer.

14 A. I think that whatever -- the terminology
15 "oddity" is not really, I think, a good description.
16 All I can say for sure is that the launch window was
17 about a week; and for practical applications, that
18 particular trajectory would not be useful. The
19 idea, though, that you could use another planet to
20 change the round-trip flight time was significant
21 for the future.

22 Q. The term "astronomical oddities" is your
23 term, is it not?

24 A. Probably. Sounds like something I would

1 have said.

2 Q. In fact, didn't you say, when you wrote the
3 notes that went into the Draper book, "It is sad to
4 report that these double reconnaissance trajectories
5 are little more than astronomical oddities"?

6 A. Yes.

7 Q. And that's what you believed at the time you
8 wrote that, sir?

9 A. Yes, and I would believe that today.

10 Q. Do you know whether or not those
11 astronomical oddities have been used for any purpose
12 in connection with multi-planetary fly-bys?

13 A. Yes.

14 Q. They have been?

15 A. Yes.

16 Q. Do you still maintain that they are
17 astronomical oddities?

18 A. Those were.

19 Q. Meaning the Earth-Venus-Mars-Earth?

20 A. Yes.

21 Q. At some point, did you come to understand
22 that other trajectories, not being
23 Earth-Mars-Venus-Earth trajectories, were not
24 astronomical oddities?

1 A. The term "oddity" was that here you have an
2 event --

3 Q. No. Please answer my question. I think my
4 question was: At some point, did you come to
5 understand that trajectories using multi-planetary
6 fly-bys that were not Earth-Venus-Mars-Earth
7 trajectories were not astronomical oddities? Can
8 you answer that yes or no?

9 MR. SWOPE: Or that you cannot answer it
10 yes or no. Would you like to have the question read
11 back?

12 A. I know what the question is, but --

13 Q. Are you able to answer my question as put to
14 you, sir?

15 A. No.

16 Q. All right. As you sit here today, given all
17 of your experience, do you think that
18 gravity-assisted trajectories from multi-planetary
19 fly-bys are astronomical oddities?

20 A. No.

21 Q. At some point, did you determine that
22 gravity-assisted trajectories from multi-planetary
23 fly-bys were not astronomical oddities?

24 A. I'll have to say yes to that.

1 Q. Do you know when?

2 A. When they started using them.

3 Q. Is it fair to say that you did not recognize
4 the use of gravity-assisted multi-planetary fly-bys
5 as something important at the time you wrote the
6 notes that referred to them as astronomical
7 oddities?

8 A. What I have said was that the two orbits
9 that I generated were astronomical oddities in the
10 sense that they occur only every six years and that
11 using them for a mission is not practical. The fact
12 that you could do it at all was remarkable or an
13 oddity.

14 Q. Do you equate "remarkable" and "oddity" as
15 having the same meaning?

16 A. Sure.

17 Q. Did you ever attempt to calculate
18 trajectories for multi-planetary fly-bys other than
19 for an Earth-Venus-Mars-Earth trajectory?

20 A. No.

21 Q. And is it a fair statement, sir, that in or
22 about August of 1961, your attention got directed
23 elsewhere?

24 A. Yes.

1 Q. And is it a fair statement that in or around
2 August of 1961, the attention of the MIT
3 Instrumentation Laboratory turned to developing
4 guidance systems for the NASA Apollo program?

5 A. That is correct.

6 Q. And that there was a contract which was
7 signed in or about August of 1961 to develop those
8 guidance systems?

9 A. Yes.

10 Q. And is it fair to say that you never
11 returned your attention to multi-planetary fly-bys,
12 at least for a period of some 30 years?

13 A. Yes.

14 MR. HERMES: For the record, we will
15 mark a series of pages from Dr. Battin's book, An
16 Introduction to the Mathematics and Methods of
17 Astroynamics, Revised Edition, as the next exhibit,
18 which is Exhibit 5, and we will attach to this a
19 copy of page 433 of the book as an additional
20 portion of that exhibit. Is that agreeable,
21 Mr. Swope?

22 MR. SWOPE: That's great. Thank you.

23 MR. HERMES: Thank you.

24 (A recess was taken.)

1 (Battin Exhibits Nos. 5 - Excerpt From An
2 Introduction to the Mathematics and Methods of
3 Astroynamics, Revised Edition; and 6 - Lecture
4 Notes on The Trajectory Problem As It Relates To
5 The Mission For Interplanetary Flight - were
6 marked for identification.)

7 BY MR. HERMES:

8 Q. Dr. Battin, I've marked as Exhibit Number 6
9 a multi-page document. Can you identify that
10 document, sir?

11 A. Yes, I can.

12 Q. What is it?

13 A. It is lecture notes for my new course, which
14 met for the first time in 1961; and it was -- it had
15 a dual application. It was for lecture notes and it
16 was also as a manuscript for the Dr. Draper
17 Anniversary volume.

18 Q. Now, I notice that one of the authors is
19 identified as Mr. Laning?

20 A. Yes.

21 Q. What contribution did Dr. Laning make to --

22 A. To this document?

23 Q. Yes.

24 A. Almost none.

1 Q. Now, if you'd go to page 49, sir.

2 A. Okay.

3 Q. There is a reference there beginning at the
4 top, "returning momentarily to the Venusian
5 reconnaissance trajectory"?

6 A. Yes.

7 Q. And then you go on, do you not?

8 A. Yes.

9 Q. And in the next -- that page, page 49, and
10 page 50 --

11 A. Yes.

12 Q. -- you refer to the Earth-Venus-Mars-Earth
13 multi-planetary fly-bys?

14 A. Yes.

15 Q. And those are the same fly-bys, are they
16 not, that are depicted on Exhibit Number 2, the
17 computer printout?

18 A. Yes.

19 Q. And Exhibit Number 3, which was the document
20 prepared in 2000 correlating the numbers on Exhibit
21 2 to the trajectories; is that correct?

22 A. They're all the same.

23 Q. All right, and your comment about
24 astronomical oddities appears on page 50 at the

1 beginning of the last paragraph on that page;
2 correct?

3 A. I guess so. Where? Page 50?

4 Q. Yes, sir, down the bottom, beginning of the
5 last paragraph.

6 A. Yes.

7 Q. And then the next two pages, 51 and 52,
8 are -- that's Figures 26 and 27 -- are identified as
9 double reconnaissance trajectories; correct?

10 A. Yes.

11 Q. Now -- and also if we go to page 44,
12 Dr. Battin --

13 A. Yes.

14 Q. -- Figure 21 --

15 A. Yes.

16 Q. -- is the Venusian reconnaissance trajectory
17 we referred to earlier --

18 A. Right.

19 Q. -- is it not? And that is the trajectory
20 where you noted the proximity of the spacecraft's
21 path to the orbit of Mars?

22 A. That's right.

23 Q. Now, with respect to pages -- the
24 trajectories referred to on Figures 26 and 27 on

1 pages 50 and 51 --

2 A. Yes.

3 MR. SWOPE: Excuse me, 51 and 52.

4 MR. HERMES: 51 and 52, thank you.

5 BY MR. HERMES:

6 Q. Did you draw those?

7 A. No.

8 Q. How were they produced?

9 A. They were produced by the publications
10 department at the Instrumentation Laboratory.

11 Q. Did you provide information to the
12 publication department at the Instrumentation
13 Laboratory from which those trajectories were
14 produced?

15 A. I certainly had to. They're not art --
16 they're not artist sketches.

17 Q. Do you recall what you provided to them?

18 A. I can't tell you, but I could guess. Is
19 guessing all right?

20 Q. Well, guessing is not all right.

21 MR. SWOPE: I would -- I'm going to
22 instruct you not to guess.

23 BY MR. HERMES:

24 Q. If you could give me your best

1 understanding, I will listen to it.

2 A. I would have had to, for each of these
3 orbits, give coordinates, which would be easy to do
4 if you've already got your computer laid out so that
5 it will compute positions as a function of time.
6 You could give -- you could indicate points so that
7 they could put a smooth curve through them.

8 Q. Do I understand, sir, that you have no
9 specific memory of what you gave to the publications
10 department?

11 A. No.

12 Q. My statement is correct?

13 A. Yes.

14 Q. You have no specific memory; correct?

15 A. That's correct.

16 Q. But it is your best judgment that what you
17 gave to the publications department was a series of
18 coordinates from which the trajectories could be
19 produced?

20 A. Yes.

21 Q. And do you know in what form the
22 publications department produced the trajectories?

23 A. Well, yes.

24 Q. What form was that?

1 A. They had a big poster, and they would take
2 yellow tape and sort of put it around so that the
3 orbits would stand out against the black background
4 and the -- I was sure because I was -- that these
5 not just be sketches, that they really be accurate
6 plots.

7 Q. Why was that?

8 A. Well, because a sketch is not -- if you've
9 calculated something correctly and precisely, you
10 don't want somebody to say, well, it looks like
11 that. This was done very precisely.

12 Q. All right. Were slides ever made of --

13 A. Yes, they were.

14 Q. -- these trajectories?

15 A. Yes.

16 Q. Were they made by you?

17 A. No.

18 Q. Again, it was made by the publications
19 department?

20 A. That's right.

21 Q. Did you ever have the original of those
22 slides in your possession?

23 A. Yes.

24 Q. How did that come to be, sir?

1 A. Well, what do you mean by the original?

2 Q. Well, I think I asked you the question "were
3 slides ever made of these trajectories," and your
4 answer was "yes"?

5 A. Yes.

6 Q. And my question, then, was: Did the slides,
7 original slides ever come to be in your possession?

8 A. Yes, I used them for my class.

9 Q. So you used them on a regular basis?

10 A. Yes.

11 Q. Year after year?

12 A. Yes.

13 Q. Do I understand -- by the way, do you still
14 teach the course at MIT?

15 A. Yes, I do.

16 Q. And do you still use those slides in your
17 course today?

18 A. No.

19 Q. Do you recall -- do you still teach the same
20 material reflected in Exhibit Number 6 today?

21 A. Yes, yes.

22 Q. And do you use other slides now?

23 A. No.

24 Q. Do you use any slides of Figures 26 and 27?

1 A. When these charts were made, I could order
2 them as slides, color slides, and then they would
3 say how many do you want us to make, and I'd give
4 them a number. They'd say would you like it in
5 black and white; and if I said yes, they would hit
6 black and white.

7 And so I just -- it was an over-the-desk
8 type thing. They would probably, my guess, make two
9 sets of slides; because when I retired from the lab,
10 I was going to turn them in, and they said no, no,
11 no, you keep them. They're yours.

12 Q. Do you still have the original slides?

13 A. Yes, yes.

14 Q. I notice here --

15 A. It's not just for these, but it's for all of
16 the other earlier papers. Slides exist for all of
17 those.

18 Q. I see. The terminology on Figure 26 and
19 Figure 27 that refers to them as trajectories, is
20 that your terminology?

21 A. Yes.

22 Q. Do you differentiate in your terminology
23 between charts and trajectories?

24 A. Well, a chart, I mean, is a big piece of

1 cardboard, and these things were created on this
2 piece of cardboard.

3 Q. So do I understand that a trajectory that's
4 depicted on a piece of cardboard is, in your
5 parlance, a chart?

6 A. I would call it that, yes.

7 Q. Not a trajectory?

8 A. Well, the trajectory is the trajectory. I
9 mean, I'm talking about the medium on which it was
10 created.

11 Q. All right.

12 A. I think these were pretty big things, 3 by 5
13 feet.

14 Q. Do you know whether they still exist today?

15 A. Probably not.

16 Q. Do you know when is it that you last were
17 aware that they existed, if you can tell me?

18 A. I think I only saw them once or twice,
19 because I mean, you'd go up to the desk and you'd
20 give them the information, and then they'd call you
21 when it was done. And it usually would take a few
22 days. They were constantly doing this, because
23 people were using these for the same purpose I was,
24 either to talk to, you know, seminars or to use in

1 briefing the customer.

2 Q. All right. Now, it's a fact, is it not,
3 sir, that Exhibit Number 6 was published in several
4 different publications?

5 A. Yes -- well, not --

6 Q. Can you answer that question? If not, I'll
7 ask you another one.

8 A. Well, yes, they were.

9 Q. All right.

10 A. They were used for these notes, and they
11 were also used in the Draper Anniversary volume.
12 It's not the same pages. This was a draft copy for
13 the typesetter who prepared the Dr. Draper
14 Anniversary volume.

15 MR. SWOPE: For clarity of the record,
16 when you say "this," you're referring to Exhibit 6?

17 THE WITNESS: Yes.

18 BY MR. HERMES:

19 Q. All right, but the language on pages 49 and
20 50 relating to the multi-planetary fly-by was
21 produced verbatim in the Draper book?

22 A. Yes.

23 Q. Which was published in 1963; correct?

24 A. Yes.