



Fly Faster

an audio play by

Jim McGovern



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Introduction

'Fly Faster' is a sometimes dryly humorous audio play about academic rivalry and the *feeling* of being dominated or repressed. The play also takes an irreverent look at some engineering, academic and commercial attitudes and practices. It may contain some technical terms!

Leonard Twiglet runs a propeller-propulsion research grouping, called APPEAL, from the Department of Aeronautical Engineering at the University of Selfridge. Professor Alex Graybell, the Head of the Department, leads a much stronger Jet Engine Research Consortium, JERC.

CAST

<u>LEONARD</u> <i>Twiglet</i>	Middle aged university reader
<u>ZEBEDEE</u>	Research student
<u>ALEX</u> <i>Graybell</i>	Middle aged professor
<u>TOMMY</u> <i>Corsicski</i>	Final year undergraduate
<u>ISABELLE</u> <i>Swan</i>	Final year undergraduate
<u>AMELIA</u> <i>Redhart</i>	Senior lecturer
<u>FRANCIS</u> <i>Whittler</i>	Senior lecturer
<u>LE BOEUF</u>	Professor at ENCIRC, France
<u>LARRY</u> <i>Foot</i>	Engineer at Armend Airpower
<u>SECRETARY</u>	
<u>ANNOUNCER</u>	
<u>STUDENT</u>	

Scene 1

- 1 ANNOUNCER: ‘Fly Faster:’ an audio play by Jim McGovern
- [BEGIN ‘HEAR ME FLY,’ PLAYED ON A HARMONICA,
AND FADE TO BACKGROUND LEVEL FOR SPEECH
2.]**
- 2 LEONARD: ‘Advanced Propeller Propulsion Engineering
Associates in Learning’ is quite a mouthful, but I
like the acronym ...
- [FADE OUT MUSIC COMPLETELY OVER SPEECH 3.]**
- 3 ‘APPEAL’—I wanted it to be inclusive.
- 4 I wanted to foster creativity and free thinking ...
but all I seem to get is rivalry and exclusion:
APPEAL versus JERC.
- [BARS 25 AND 26 OF ‘JUST LET ME FLY’ PLAYED
ON A HARMONICA]**
- 5 As I was walking across the concourse in
Selfridge Railway Station this morning a pigeon
swooped for a titbit on the ground.
- 6 It skidded for about a body length on the
polished floor. Its wings were already fully
stowed when it touched down.
- 7 As it slid, its two feet were flat on the floor and
its body seemed tilted backwards. All its weight
was on its heels and it was just like a kid on a
skateboard.

1 ... LEONARD: The pigeon wasn't doing it to impress. It may just have forgotten that the polished granite was slippery for its claws; but it was a station pigeon and I don't think so.

2 No ... I think the pigeon wanted the double satisfaction of the thrill and the titbit.

3 Am I asking too much?

BARS 25 AND 26 ARE PLAYED AGAIN.

4 I know propeller engineering is not the flavour of the month. In fact, most people see propeller propulsion of any type as something that belongs in history.

5 As an engineer I don't like to write-off any option, especially one, like advanced propeller propulsion, that can still offer real benefits.

6 But why should APPEAL be in *competition* with JERC?

[HARMONICA RENDITION OF BARS 17 TO 32 OF 'JUST LET ME FLY']

Scene 2

[TYPING ON A COMPUTER KEYBOARD. THE PHONE RINGS.]

- 1 ALEX: Yes.
- [ENCIRC IS PRONOUNCED AWN-SEERQUE]
- 2 SECRETARY: [OVER THE PHONE] A Professor le Boeuf of ENCIRC, France, would like to speak to you. He didn't give his first name.
- 3 ALEX: Thanks. I'll talk to him.... Alex Graybell speaking.
- 4 LE BOEUF: [OVER THE PHONE] Good afternoon, Pruff-ess-air Graybell. My name is le Boeuf. I am hinterested in ze conferawnce int-hightled G-A-err-say-S-zero-four.
- 5 ALEX: It's called JERCS-oh-four!—Jet Engine Research Consortium Symposium, two-thousand-and-four.
- 6 LE BOEUF: I see, JERCS-oh-four ... and you are ze directeur?
- 7 ALEX: I am the Head of Aeronautical Engineering and founder of the Jet Engine Research Consortium, JERC, and we are organizing the international symposium JERCS-oh-four, which will take place from the 21st to the 24th of June, 2004.
- 8 LE BOEUF: Where will it be?

- 1 ALEX: Here in the Aeronautical Engineering
 Department of US.
- 2 LE BOEUF: US?
- 3 ALEX: The University of Selfridge.
- 4 LE BOEUF: And who will take part in ze samposium?
- 5 ALEX: The symposium is for members of the Jet
 Engine Research Consortium and other world-
 class experts.
- 6 LE BOEUF: What top-eeks are included?
- 7 ALEX: The scope is very broad-ranging, but propeller
 propulsion technology is *excluded*.
- 8 LE BOEUF: I see. Here at ENCIRC we are working on jet
 engines in associ-a-cion with Airbush
 Industries. Is zere an application form?
- 9 ALEX: No, but if you are interested in participating I
 can transfer you to my colleague Dr. Amelia
 Redhart, who is the JERCS-oh-four coordinator.
- 10 LE BOEUF: Yes, I would be hinterested.
- 11 ALEX: Amelia can arrange for you to attend, or
 perhaps give a presentation. Our members are
 always interested in keeping up with
 developments involving Airbush Industries.
- 12 LE BOEUF: I see. Please transfer me to Dr. Amelia
 Redhart.
- 13 ALEX: Just a moment, I'll try now ...

- 1 AMELIA: **[OVER THE PHONE]** Amelia Redhart speaking ...
- 2 ALEX: Hello Amelia, Alex here. I have a possible
presenter for JERCS-oh-four on an outside line.
It's a Professor le Boeuf of ENCIRC France.
- 3 They are working on jet engines with Airbush,
so it might be interesting to have him give a
presentation.
- 4 AMELIA: Thanks Alex.

Scene 3

[FIRST VERSE OF 'JUST LET ME FLY' SUNG WITH HARMONICA ACCOMPANIMENT]

- 1 LEONARD: Alex, I was wondering if there have been any developments in relation to the propeller-testing wind tunnel for teaching?
- 2 ALEX: [CROSSLY] There's no point in asking me that again Leonard, because there are no funds available. You are the only one of my staff who is always complaining.
- 3 LEONARD: Sorry Alex, I'm not complaining!
- 4 ALEX: I'm glad to hear it—for once.
- 5 LEONARD: There's one other item I have been meaning to raise with you, but didn't get the chance.
- 6 ALEX: Well I'm very busy and I don't have time now. Can it wait till next week?
- 7 LEONARD: Actually no, Alex, I need to get your approval to attend a propeller propulsion conference in Paris from Tuesday to Thursday of next week.
- 8 ALEX: [DISAGREEINGLY] Ehhhh ...
- 9 LEONARD: I have arranged to swap lectures with my colleagues, so the students won't lose out.
- 10 ALEX: But we have project presentations next Wednesday. The roster was drawn up this morning and you are required to adjudicate.

- 1 LEONARD: Oh!
- 2 ALEX: **[WITH A SENSE OF RELIEF]** In fact, you're chairing one of the sessions.
- 3 LEONARD: Alex I'm sorry about that. When I set up the trip I didn't realize there would be a clash with the project presentations.
- 4 ALEX: Well then, don't go!
- 5 LEONARD: But Alex, I have already made an arrangement with Larry Foot of Armend Airpower—they're covering my conference fees and travel costs in return for a technical report on any items of interest.
- 6 ALEX: You'll have to sort that out Leonard.
- 7 LEONARD: I'll arrange for one of my colleagues to cover for me at the project presentations. That's not a prob...
- 8 ALEX: Leonard, adjudicating at the project presentations is an *examining function* and you are required to carry it out.
- 9 LEONARD: Yes Alex, I know that, but at this stage I have made the travel arrangements.
- 10 ALEX: No buts, Leonard.
- 11 LEONARD: The tickets are economy class and are not refundable ... and I can't see how I can get out of my obligation to Armend.

- 1 ALEX: **[STERNLY]** That's *your* problem Leonard. All I am saying is this: if you do not adjudicate at the project presentations you will be in *serious derogation* of your duty.
- 2 LEONARD: Yes Alex.
- [KEYBOARD TYPING WHICH CONTINUES THROUGH A HARMONICA RENDITION OF BARS 1 TO 4 OF 'JUST LET ME FLY' AND FOR A SHORT WHILE THEREAFTER.]**
- 3 FRANCIS: **[AS TYPING CONTINUES]** Hi Alex.
- 4 ALEX: **[TYPING STOPS IMMEDIATELY]** Morning Francis, Did you play yesterday, or was the weather too bad?
- 5 FRANCIS: We played nine holes in the rain and I spent the rest of the afternoon networking at the clubhouse. I had a few drinks with Bob Winstroke.
- 6 ALEX: **[ENTHUSIASTICALLY]** Yeah?
- 7 FRANCIS: He offered you and me a round at Weldon Park next Tuesday, followed by lunch in the Welbury.
- 8 ALEX: That's nice!
- 9 FRANCIS: I said I thought we could both make it and that I would confirm later with his secretary.
- 10 ALEX: Nice one Francis! I'll get one of the graduate students to take my tutorial with the fourth-years.

- 1 FRANCIS: I have the third-years at eleven on Tuesdays, but I've already covered enough of the course.
- 2 ALEX: No problem, just ...
- 3 FRANCIS: I'll offer the slot to Amelia or Leonard—otherwise I'll tell the class to study a revision handout. Is that OK with you?
- 4 ALEX: Francis, if you need to cancel a lecture or two just do it—there's no need to check with me each time.
- 5 FRANCIS: Right then, I'll put in the call to Bob Winstroke's secretary.
- 6 ALEX: Good. I'm just working on a paper for Athens, based on our last Bowring report. What do you think?
- 7 FRANCIS: That's a smart move, Alex. It's a good idea to go public now on our association with Bowring, but be careful not to go into specifics.
- 8 ALEX: The graphs will only show the trends, without any actual values.
- 9 FRANCIS: Sure! That's the way to do it.
- 10 ALEX: We've had a string of enquiries for our own JERCS-oh-four. You've been doing a great PR job Francis!
- 11 FRANCIS: Don't mention it.... If you need me I'll be in my office for an hour or so, putting some questions together for my Aerodynamics exam. It's a month overdue at this stage.

1 ALEX: Don't worry about that, Francis! I'll see you
 later.

Scene 4

[VERSE TWO OF 'JUST LET ME FLY,' SUNG WITH HARMONICA ACCOMPANIMENT. RINGING TONE, HEARD THROUGH A SPEAKER PHONE]

- 1 LARRY: [OVER THE PHONE] Armend Airpower. Larry Foot speaking.
- 2 LEONARD: Hello Larry, Leonard Twiglet here. How is Rita? Has she had the knee done yet?
- 3 LARRY: She's well, Leonard. She had it done a week ago. Still a bit sore, but the new knee-joint is working out fine.
- 4 LEONARD: That's the human face of engineering Larry—excuse the pun—It's all about helping *people*.
- 5 LARRY: It's true Leonard, when you think about it... That pun's OK with me, but keep away from feet.
- 6 LEONARD: Huh?
- 7 LARRY: We're sensitive! ... Never mind!
- 8 LEONARD: Everyone's sensitive Larry. I'm glad Rita's on the mend! Give her my regards.
- 9 LARRY: Yes Leonard, I will.
- 10 LEONARD: Larry, a problem has come up in relation to the Propeller Propulsion Conference in Paris next week.
- 11 LARRY: What is it Leonard?

- 1 LEONARD: I have to fulfil an examining function here and I can't get out of it.
- 2 LARRY: Don't worry about it Leonard. These things happen.
- 3 LEONARD: What I'm proposing is this: I'll stick with the existing travel arrangements, but I'll take a flight back from Paris on Wednesday morning and I'll fly back there again that evening.
- 4 LARRY: OK.
- 5 LEONARD: That'll allow me enough time to meet my examining obligations.
- 6 LARRY: I see, but it's a ...
- 7 LEONARD: I'm afraid I'll miss the sessions on propeller noise and variable geometry.
- 8 LARRY: That's OK Leonard.
- 9 LEONARD: You're very good Larry. I apologize for this.
- 10 LARRY: No prob...
- 11 LEONARD: At least I'll have the proceedings for the sessions I miss and I'll use those in preparing my technical report. Will that be OK with Armend Airpower?
- 12 LARRY: Sure Leonard.
- 13 LEONARD: Yes?
- 14 LARRY: We're very flexible at Armend!

- 1 LEONARD: Larry, I appreciate that very much. I'll be in touch after the conference. Bye.
- 2 LARRY: Thank you Leonard. Bye!
- [A KNOCK AT THE DOOR]**
- 3 LEONARD: Come in! ... Ah, Zebedee, how are things?
- 4 ZEBEDEE: Not good!
- 5 LEONARD: Have a seat.
- 6 ZEBEDEE: We've been testing the Firegoose-fifty-two engine for two weeks now and we thought we were almost done.
- 7 LEONARD: So, what happened?
- 8 ZEBEDEE: This morning Peter, the storeman, found a new fuel nozzle in a used-parts bin. We checked it out and discovered it should have been in the Firegoose.
- 9 LEONARD: I see.
- 10 ZEBEDEE: It looks like we slipped-up in preparing the engine. All five fuel-nozzles were to be changed, but we only did four.
- 11 LEONARD: That *is* a problem.
- 12 ZEBEDEE: We were so pleased with our results and now they turn out to be worthless.
- 13 LEONARD: I know exactly how you feel.... I'm sorry.... You'll have to change the nozzle and clean the engine generally before you can repeat the tests.

- 1 ZEBEDEE: I *knew* you'd say that!
- 2 LEONARD: It's true that your results are invalid. However, I suggest that you use the results you have to cross-check the new test results as you get them.
- 3 ZEBEDEE: Yeah.
- 4 LEONARD: The trends should all be the same since four of the five nozzles were operating to specification.
- 5 ZEBEDEE: [**GLUMLY**] I see what you mean. Instead of being *less* than useless, our results are *more* than useless! Or is it the other way around?
- 6 LEONARD: [**SOMEWHAT CHEERFULLY**] You have a way with words Zebedee.
- 7 ZEBEDEE: I could have taken a week off and gone fishing, or even two. I'm just sick at the thought of having to start over again.
- 8 LEONARD: I understand.
- 9 ZEBEDEE: I know right well that most of our results will be no different from the last ones. I understand the reasons: integrity and all that stuff ... but I just hate the duplicity.
- 10 LEONARD: I hate duplicity too ... but I think the word you meant was 'duplication' Look up 'duplicity' in the dictionary.
- 11 ZEBEDEE: [**CROSSLY**] OK Leonard, OK! It's fine for you!

- 1 LEONARD: Zebedee, an old professor of mine used to say:
 ‘In research we make nothing but mistakes,
 until we make our last.’ ... You’re a good
 researcher and a good engineer.
- 2 ZEBEDEE: I’ll start again tomorrow ... but I’m taking the
 rest of the day off and I’m going to a movie.
- 3 LEONARD: Which one?
- 4 ZEBEDEE: I haven’t decided yet, but it won’t be a disaster
 movie and it won’t have airplanes in it.
- 5 LEONARD: Enjoy it!
- 6 ZEBEDEE: Thanks Leonard.
- 7 LEONARD: By the way ... there’s been a complication in
 relation to the Propeller Propulsion Conference
 next week.
- 8 ZEBEDEE: What is it, Leonard?
- 9 LEONARD: I have to come back here on Wednesday to
 adjudicate at the final year project
 presentations, so don’t be surprised if you see
 me.
- 10 ZEBEDEE: OK.
- 11 LEONARD: I’ll be flying back to Paris afterwards and I’ll be
 coming home again on Thursday evening.
- 12 ZEBEDEE: That’s a lot of travel for a three-hour task ... and
 you’ll miss a lot of the conference. I’d be happy
 to do the adjudication for you!

- 1 LEONARD: Thanks Zebedee, but Alex has told me I have to be there in person—I'm chairing a session.
- 2 ZEBEDEE: It's a shame.
- 3 LEONARD: As it happens, Alex has been rostered for the same adjudication panel. Francis and Amelia are on it too. I'm the only one who's not from JERC.
- 4 ZEBEDEE: Then you really are needed—for balance!
- 5 LEONARD: Maybe so!
- 6 ZEBEDEE: Otherwise, any students who weren't doing projects with JERC could get a raw deal.... Bye then.
- 7 LEONARD: Bye Zebedee.

Scene 5

[FRONT AREA OF A LECTURE THEATRE. BARS 1 TO 16 OF 'JUST LET ME FLY' PLAYED ON A HARMONICA.]

- 1 LEONARD: [QUIETLY] It's 2:00 p.m. Alex. Should I wait another while for Francis to arrive?
- 2 ALEX: [QUIETLY] Francis phoned to say he couldn't make it, so we'll proceed without him. Go ahead Leonard.
- 3 LEONARD: [STILL QUIETLY] OK. [OUT LOUD] Ladies and gentlemen, welcome to the Final Year Project Presentations for two-thousand-and-three.
- 4 I would like to specially welcome the third year students who are present. You will have your turn next year and I'm sure you'll be impressed by the excellent project work that has been done by the final-years.
- 5 The adjudicators are Professor Alex Graybell, Dr. Amelia Redhart and myself, Leonard Twiglet. I'll take the presentations in the published order. Please be ready to come up immediately when I call out your name.
- 6 You will have eight minutes to make your presentation, followed by four minutes for questions.

- 1 ... LEONARD: I'll let you know when seven minutes have elapsed and I would ask you to finish-up within a minute after that.
- 2 Tommy Corsicski please.
- [A SLIGHT PAUSE AS TOMMY ARRIVES]**
- 3 TOMMY: My name is Tommy Corsicski. My project is entitled 'Advanced Fore Aft Rotors'—AFAR for short—and is supervised by Dr. Leonard Twiglet of Advanced Propeller Propulsion Engineering Associates in Learning, which is known as APPEAL.
- 4 This year, 2003, is likely to see the last scheduled flights of Contwine, the only commercial supersonic passenger aircraft.
- 5 It's well known that such aircraft are not cost-effective and have noise problems. Therefore, it seems, no direct replacement for Contwine is likely in the near future.
- 6 Clearly, wide-bodied subsonic jet aircraft have won-out in the marketplace.
- 7 However, there are good reasons to believe that wide-bodied, subsonic, advanced propeller-propulsion aircraft
- 8 ALEX: **[GASPS A COUGH THAT HAS THE SOUND:]**
Rubbish!
- 9 TOMMY: ... can provide strong competition, especially for short routes where the flying time is less than one-and-a-half hours.

- 1 ... TOMMY: This slide shows a new configuration of advanced fore aft rotors, which is being developed by Leonard Twiglet and other members of APPEAL. The main features of AFAR are the following:
- 2 Multiple fore aft rotors of progressively varying sizes are [FADE OUT] installed on each wing.
- [FIRST FOUR BARS OF 'JUST LET ME FLY,' ON HARMONICA]
- 3 [FADE IN] The podless construction allows shorter wings [FADE OUT] to be used.
- [BARS 5 TO 8 OF 'JUST LET ME FLY']
- 4 [FADE IN] In my project I have examined and quantified the main benefits of AFAR and calculated the ideal running speeds for lift-off, cruising and landing.
- [RINGING SOUND OF A GLASS BEING TAPPED WITH A SPOON]
- 5 LEONARD: Tommy, you have one minute left.
- 6 TOMMY: My main conclusions are:
- 7 Advanced fore aft rotors can provide 20% more thrust and 26% more lift than current-technology propellers.
- 8 In addition, noise levels should be about ten decibels lower than with *any* jet engine.
- 9 Thank you for your attention.

- 1 LEONARD: Thank you Tommy. I'll take some questions....
 Alex.
- 2 ALEX: Galesock and Windrox have written a review of
 aircraft noise abatement. Did you take that into
 account in your work?
- 3 TOMMY: No. I didn't come across that one ... but I have
 made use of an excellent review of aircraft
 noise by Brahms, Busby and Whistle.
- 4 ALEX: [GRUFFLY] You should get it through the library.
- 5 TOMMY: Yes, I'll do that.
- 6 ALEX: Why did you not show any engines in your
 slide?
- 7 TOMMY: My diagram shows that the fore and aft rotors
 are separately driven by hydraulic motors within
 the wing profile.
- 8 ALEX: [SOMEWHAT IMPATIENTLY] I know that, but
 engines are required and you haven't shown
 any engines!
- 9 TOMMY: I've focused on the advanced fore aft rotors.
 The engine or engines would be located
 elsewhere and I didn't look into that aspect.
- 10 ALEX: You can't just leave out the engines!
- 11 TOMMY: One hundred years ago, in December 1903, the
 Wright brothers had one engine that drove two
 propellers. In a sense, our design is going back
 to that concept—there can be multip...
- 12 ALEX: You still haven't answered my question!

- 1 LEONARD: Please let Tommy finish.
- 2 TOMMY: There can be multiple fore aft rotor sets per engine unit.
- 3 ALEX: **[IMPATIENTLY]** But you can't ...
- 4 LEONARD: Sorry Alex.... Thank you for that answer, Tommy. I'll just take one more question, on a different aspect.
- 5 AMELIA: I have a question.
- 6 LEONARD: Amelia.
- 7 AMELIA: It appears there are several innovative concepts in the description you have given of the advanced fore aft rotors. Have any patents been taken out?
- 8 TOMMY: No. My understanding is that no funds were available for patenting and that Dr. Leonard Twiglet took the decision to publish the details openly.
- 9 LEONARD: Yes, that's correct. Thank you Tommy.
- [LEONARD STARTS TO CLAP AND THE AUDIENCE JOINS IN.]**
- 10 LEONARD: Isabelle Swan please.
- [A SLIGHT PAUSE, AS ISABELLE ARRIVES]**
- 11 ISABELLE: **[PERKILY THROUGHOUT]** Good afternoon ladies and gentlemen, my name is Isabelle Swan. The title of my project is 'Fast Aircraft for Stratospheric Tourism.'

- 1 ... ISABELLE: My supervisor is Dr. Francis Whittler, who unfortunately can't be here today. I wish him good luck in the tournament at Selfridge Golf Club.
- 2 I would also like to thank Mr. Brendan Luheaven of Airlyce Stratotourism and Dr. Helga Engellicht of the Bowring Concepts Division for all their help and encouragement.
- 3 The work I am doing is associated with JERC and Dr. Whittler's feasibility study contract for a fast stratospheric aircraft.
- 4 Dr. Engellicht has been responsible for the development of the Bowring FAST design. This is sometimes referred to as B-FAST for Bowring Fast Aircraft for Stratospheric Tourism ... or just FAST for short.
- 5 This aircraft will fly at an altitude of thirty-seven kilometres, carrying four hundred and twenty one passengers. FAST will have two jet engines and one rocket engine.
- 6 In working on my project to come up with an improved aircraft concept for Airlyce Stratotourism I have been allowed to propose any changes I wished to the current B-FAST design and to investigate their implications.

- 1 ... ISABELLE: Therefore, I have called my modified design FASTER.... FASTER stands for Fast Aircraft for Stratospheric Tourism with Enhanced ROI.... ROI, of course, stands for Return on Investment.
- 2 FASTER would be capable of carrying one thousand and nineteen passengers instead of four hundred and twenty one.
- 3 This could be increased to one thousand three hundred and thirty six by further restricting legroom, reducing the oxygen level in the passenger cabin by 13% and adding some helium to counteract possible deep vein thrombosis.
- 4 I'm quite sure the tourists won't mind sounding like Donald Duck because of the helium. It might even add some levity to the experience!
- 5 There would be four jet engines instead of two and two rocket engines instead of one.
- 6 You could say that I have taken some of the Bowring concepts and made them even more Bowring ... but I don't mean to dwell on any particular manufacturer because they all have their own strategies to maximize ROI.
- 7 In my report I have presented analyses and calculations relating to structural integrity [FADE OUT] and the cooling of the airframe.

[BARS 1 TO 4 OF 'JUST LET ME FLY' ON HARMONICA]

- 1 ... ISABELLE: **[FADE IN]** In addition I have looked at the return on investment over the 10-year design-life of FASTER.
- 2 Of course, the ROI could be much higher if FASTER continued to be used *beyond* the end of its design life ... and did not experience any major technical malfunction or failure.
- [RINGING SOUND OF A GLASS BEING TAPPED WITH A SPOON]**
- 3 LEONARD: Isabelle, you have one minute left.
- 4 ISABELLE: In my project I have shown how a proposed aircraft design for stratospheric tourism could evolve further in the competitive marketplace.
- 5 FASTER could yield up to 71 cents per kilogram paying passenger deadweight hour—including all turnaround time. Thank you!
- 6 LEONARD: Are there any questions for Isabelle?... While you're thinking, I have just one quick question: what is the maximum g-force to which the tourists would be subjected?
- 7 ISABELLE: I didn't look into that aspect—I think it might be about 1.5 or 2 g.... That's probably as much as the airframe could withstand without breaking up.
- 8 LEONARD: Thank you.... Amelia.
- 9 AMELIA: Isabelle, have you carried out a literature survey on the topic of stratospheric flight?

- 1 ISABELLE: Yes. Dr. Whittler paid for a literature search that yielded one thousand titles, with abstracts.
- 2 AMELIA: I see. Very good Isabelle!
- 3 ISABELLE: I have about five hundred pages of printout with the details, but I haven't had a chance to look through it yet.
- 4 LEONARD: I'll take just one more question ... from the back.
- 5 STUDENT: [**QUITE LOUDLY**] Could you please clarify what you meant by the expression involving 'paying passengers' and 'deadweight'?
- 6 ISABELLE: That's the potential *profitability* in cents per kilogram paying passenger deadweight hour.
- 7 In simple terms it is the net profit that could be made per hour for each kilogram of payload associated with a paying passenger. This payload is the sum of the weight of the passenger and the weight of their checked-in and carry-on baggage.
- 8 LEONARD: Thank you Isabelle.... Please show your appreciation in the usual way....

[LEONARD BEGINS TO CLAP AND THE AUDIENCE FOLLOWS. FADE OUT.]

Scene 6

[AMELIA'S OFFICE. BARS 17 TO 24 OF 'JUST LET ME FLY' PLAYED ON A HARMONICA. A KNOCK AT THE DOOR.]

- 1 AMELIA: Leonard.
- 2 LEONARD: Sorry to disturb you Amelia. I've just had an incident with Alex and I needed to talk to someone.
- 3 AMELIA: Sit down Leonard. What happened?
- 4 LEONARD: Not much really, I suppose.... I knocked on Alex's door and walked straight in and told him that he had treated me very badly over many years. That's as far as I got. Alex roared at me: 'Get ... out ... of ... my ... office!'
- 5 I said 'OK Alex, but I think we need to talk about this and I'm ready to do that at any time.' He replied: 'You are pathetic! Get ... out!' and I left.
- 6 AMELIA: Did he say that?
- 7 LEONARD: Yes.... I trust you, Amelia ... and I know that Alex trusts you.... I don't know where to turn now.
- 8 AMELIA: We're all colleagues, Leonard, and I'll help if I can.

- 1 LEONARD: I like the people here at US, even Alex, although I don't like the way he treats me sometimes. And yet I feel crushed, stifled, suppressed. I just don't want to be here. It's not just now, it had been building up for quite a long time, but I didn't know it.
- 2 AMELIA: Is there anything you want me to do?
- 3 LEONARD: I don't think so. What could anybody do?... I didn't even know I had a problem.
- 4 AMELIA: I can see that there has been a break-down in communication, but I don't want to make any judgement about it.
- 5 LEONARD: Yes, I understand. I don't suppose I would want to either if I were in your position.
- 6 AMELIA: Alex has his own hang-ups.... We all do.... Maybe he sometimes feels threatened by you....
- 7 LEONARD: Why should he?
- 8 AMELIA: I don't know.... But if you could keep that in mind it might help you in your dealings with him. He's a good person.
- 9 LEONARD: I know that Alex has his good points and can be very supportive ... of some people.... It was only after an incident, involving the Minneapolis International Aeronautical Engineering Conference, last May, that something hit me like a ton of bricks and I felt flattened.... I lost all interest in everything to do with my job.

- 1 AMELIA: I remember that you attended the conference.
 What was that incident about?
- 2 LEONARD: Well I hadn't actually asked Alex for permission
 to attend—I find it hard to raise anything with
 him. He accused me of being absent without
 leave and I had to plead with him not to send off
 a letter he had drafted to the personnel
 department.
- 3 AMELIA: Would it help if I talked to Alex?
- 4 LEONARD: I don't know. I don't think so. It's probably much
 too late for that to make a difference. I have just
 read a book about assertiveness and I was
 determined to confront Alex, but I don't think it
 will get me anywhere—not at this stage. I feel
 like handing in my resignation right now.
- 5 AMELIA: Take your time to sort things out in your own
 mind and don't do anything rash.
- 6 LEONARD: Don't worry ... I'll count to ten and give myself a
 chance to calm down.
- 7 AMELIA: Think of your family as well, Leonard, and talk
 to Anne about it.
- 8 LEONARD: It has an impact on them. Anne has been very
 concerned about me since I lost all interest in
 being here and I fear it could affect the boys as
 well.

- 1 AMELIA: I don't know what the answer is—you will have to find that. Today is not a decision day for you. Any decisions you make need a calm mind and plenty of time to think them through.

I don't want to take sides, but fairness of treatment for everybody is important to me too.
- 2 LEONARD: Thanks Amelia. Thanks for your time and your advice.
- 3 AMELIA: You're welcome.

Scene 7

[ALEX'S OFFICE. BARS 17 TO 32 OF 'JUST LET ME FLY' PLAYED ON A HARMONICA. A KNOCK AT THE DOOR.]

1 ALEX: Come in.

[LEONARD ENTERS.]

2 LEONARD: Morning folks.

3 ALEX: Morning Leonard.

4 AMELIA: Hi Leonard.

5 ALEX: Have a seat on the sofa. [SOUND OF LEONARD SITTING DOWN ON THE SOFA] Amelia tells me you wanted to clear the air about some issues and that's why we have arranged this meeting. I'm here to listen to what you have to say. For my own part there isn't anything in particular I want to raise.

6 LEONARD: Thanks Alex ... and thanks Amelia. I think it is important to clear the air. I don't want to get into accusations and arguments. I'm only interested in moving forward in a positive way.

7 ALEX: I've no problem with that. As far as I am aware, we are all moving forward in a positive way.

- 1 LEONARD: I thought I might try to describe how I have felt, as distinct from what might have occurred or didn't occur.... I have found it difficult over the years to have a comfortable working relationship with you Alex.
- I know you probably don't agree, but I have felt that I have been treated less favourably than some of my colleagues or haven't had the same influence as they have had.
- 2 ALEX: **[WITH A VERY SERIOUS TONE]** I have always treated all of my staff fairly and impartially.
- 3 LEONARD: Well I just think that in some cases I haven't stood up for myself the way I should have.... Either I have let things go without comment and have felt frustrated or I have expressed my opinion and been criticized as a complainer ... I'm in a minority around here ... I'm not the only one, I know that ... but it's just that sometimes I just want to be treated the same as other people even though I am different....
- 4 What I'd like is that I could get on with you in such a way that we were both comfortable with.... Just a few little things could make a big difference. They wouldn't have to be big things to make a huge difference to me ... and they wouldn't make a huge difference to you either.

- 1 ... LEONARD: I know we never have enough resources to go around and I don't always see things the same way as you and some of my colleagues. If I had a sense that you could take me as you find me ... and not find too much fault with that ... and not feel that I was launching an attack any time I said something that you disagreed with or criticized you.... Because I don't always react well to being criticized myself.
- 2 AMELIA: I know that Leonard has felt very frustrated at times. Perhaps we're so deeply involved with JERC that we don't notice any difficulties that others who are not part of JERC may have. I think it all comes down to better communication.
- 3 ALEX: Well I'm a *team* player. I have supported Leonard in many ways and I have not got in the way of his research.
- 4 Leonard, you are free to do whatever research you wish and I don't meddle with that.
- 5 You do your job well and I recognize that, but I'm the one who has the responsibility of running the department.
- 6 AMELIA: I respect and value you both and if there's any way that we can make Leonard feel more at ease I would like to do that. Why don't you both shake hands and let's call it a new start.
- 7 LEONARD: **[SOUND OF LEONARD GETTING UP IMMEDIATELY AND TAKING A FEW BRISK STEPS TO ALEX'S DESK]** Yes, I'm glad to shake hands....

- 1 AMELIA: I have to go and meet one of my project students. Have my seat Leonard.... I'll leave you two to wind up the discussion.
- 2 ALEX: OK Amelia.
- [SLIGHT CREAKING OF A SWIVEL CHAIR AS AMELIA GETS UP AND LEONARD SITS DOWN]**
- 3 LEONARD: Thanks very much Amelia. **[EXIT AMELIA]**
- There is an area where I think we *definitely* should be collaborating. That's in relation to the Sprat and Whiteflea APU—the Auxiliary Power Unit.
- 4 ALEX: Well I'm not sure.... That's on hold at the moment.... I haven't been able to recruit anybody with the ability to work on it. Sprat and Whiteflea were to fund two research assistants, but they're hard ...
- 5 LEONARD: That's exactly it. You succeeded in getting Sprat and Whiteflea to provide the APU—that was a coup! I had tried very hard to get them to give us an APU for research and teaching and didn't succeed. Now *you* have it and it's just sitting there.
- 6 ALEX: That's not the case. The technicians will be setting it up shortly.

- 1 LEONARD: I once worked in a company that built auxiliary power units and I could get up to speed again very quickly. I'd be happy to work on that with you and train in the two research assistants. APUs are equally relevant to jet aircraft and propeller propulsion aircraft.
- 2 ALEX: That's fine.... If you're prepared to do that, I'm sure I can recruit two fresh graduate assistants.
- 3 LEONARD: That sounds very good. What I suggest is that I recruit one assistant and you recruit one ... we can work together on that ... for interviews and so on ... and that they are both paid from the Sprat and Whiteflea project.
- 4 ALEX: Aaaa ...
- 5 LEONARD: I'd just need a small budget to cover consumables for the testing programme ...
- 6 ALEX: I'm afraid the APU is part of a JERC project.... You can work with us and we will give you acknowledgement on any papers that we produce based on the work. The two graduate assistants would be part of JERC and the APU project is being managed by Francis and myself.
- 7 The budget has to remain entirely under JERC control. We did a lot of work to negotiate getting that APU from Sprat and Whiteflea.... I expect we'll find some suitable graduate assistants within a matter of months....

- 1 ... ALEX: If we need to, we can get the supervisory expertise from elsewhere within the consortium.

- 2 LEONARD: The way I see it, this could be a win-win situation for both of us.... It's just that ... there would have to be a *something* in it for me as well.

- 3 ALEX: It's in your own hands Leonard. It's *you* who will have to decide if you want to play ball ...

Scene 8

[THE MUSIC 'HEAR ME FLY' IS HEARD IN THE BACKGROUND, PLAYED ON A HARMONICA, AND WILL FADE OUT DURING THE EARLY PART OF THE DIALOGUE. AFTER A SHORT WHILE THERE IS A KNOCK AT THE DOOR.]

- 1 LEONARD: Come in.... Ah Zebedee!
- 2 ZEBEDEE: Hello Leonard. I like your new office!
- 3 LEONARD: Have a seat Zebedee.... I was delighted to hear you were calling-in to see me. Congratulations again on the conferral of your PhD. I really enjoyed the occasion, but we hardly had a chance to talk.
- 4 ZEBEDEE: Thanks Leonard for all your help and support. You were the best supervisor, a dab hand.
- 5 LEONARD: That's a *real* compliment.
- 6 ZEBEDEE: I guess I had it in the bag before you left. You made a great choice in nominating Professor Will Burdock of PIT as my external examiner.
- 7 LEONARD: Will is one of the highest authorities in the field of advanced propeller propulsion. He has very high standards and I would not have proposed him if I wasn't sure that your work was up to those standards.

- 1 ZEBEDEE: Will Burdock was the right man alright! I was delighted to meet him at the viva and to find that he had such a deep understanding of my thesis and the work I had done.
- 2 LEONARD: Yes, it would have been hard for Alex to veto my recommendation for such a highly qualified and respected external examiner from PIT. You can be very proud of *your* achievement.
- 3 ZEBEDEE: Amelia was great too as the internal examiner. The PhD viva was such a contrast to the grilling I had from Alex at the one-year progress-report stage.
- 4 LEONARD: I learned a few things in my long years as an academic. Some of them might come in handy here at the National Aviation Authority.
- 5 ZEBEDEE: I think you took everyone at US by surprise when you announced you were leaving for a job with the NAA.
- 6 LEONARD: I suppose I did.
- 7 ZEBEDEE: Perhaps you always wanted to work for the National Aviation Authority.
- 8 LEONARD: Actually, it's something I had never even considered. I expected that I would be staying at the University of Selfridge until retirement.
- 9 ZEBEDEE: How come, so?
- 10 LEONARD: I guess I wanted more than I had there.

- 1 ZEBEDEE: You're not greedy Leonard, and you're not unreasonable.
- 2 LEONARD: It was as though I needed double satisfaction, but it couldn't be. Maybe it was my mid-life crisis.
- 3 ZEBEDEE: What do you mean Leonard?
- 4 LEONARD: Quite suddenly I lost interest in being at US. That shocked me and surprised me and left me feeling helpless. I couldn't see any solution to the problem and I went through a difficult period.
- 5 ZEBEDEE: When was that?
- 6 LEONARD: Mainly since the Minneapolis International Compressor Engineering Conference.
- 7 ZEBEDEE: If you were having a difficult period, you kept it well under wraps, as I wasn't aware of it.
- 8 LEONARD: I got through that largely because of the support and patience of my family.
- We never know how prepared we are for what life may throw at us. Sometimes we can fly through the greatest challenges and sometimes a very little thing can trip us up—excuse the mixed metaphor and the cliché.
- 9 ZEBEDEE: I know what you mean Leonard. It's like hitting an air pocket at just the wrong moment.

- 1 LEONARD: Zebedee, I hope it never happens, but if you ever feel really, really low and can see no way forward, hold on there. Hold on by the minute, by the hour, by the day, by the month ... whatever time it takes. Hold on there at rock bottom and keep holding on until it begins to pass. Hold on through every, single, wave. Go through it for us ... all the people who understand in some way ... who care, but can't express or communicate that caring.
- 2 ZEBEDEE: [PAUSE] Message received and understood.
- 3 LEONARD: How did JERCS-oh-four-work out?
- 4 ZEBEDEE: It went very well! Francis and Amelia did most of the organizational work for it. At the end of the week Alex announced that there would be a new Bowring Engineering Laboratory for Jet Aircraft Research, BELJAR, and that Bowring were donating ten million dollars for it.
- 5 LEONARD: Alex did well; I have to hand it to him!
- 6 ZEBEDEE: Not only that, but through a Professor Le Boeuf of ENCIRC in France, who is now a member of the JERC consortium, Airbush are putting in four million euro for extra instrumentation.
- 7 LEONARD: Bowring and Airbush in one lab called BELJAR. That's just amazing! Bob Winstroke and the high flyers at Selfridge Golf Club must be highly envious.
- 8 ZEBEDEE: Well, it is a world-class achievement!

- 1 LEONARD: Yes, we can feel very proud of JERC.
- 2 ZEBEDEE: Francis did well too. Airmyleon has established
a new chair of Jet Engine Technologies at US
and he got it.
- 3 LEONARD: I guess Francis earned it with all his work for
JERC over the years.
- 4 ZEBEDEE: So, is that the end of APPEAL?
- 5 LEONARD: I'm afraid so at the University of Selfridge.
- 6 ZEBEDEE: The end of APPEAL!
- 7 LEONARD: ... but Lou Brelot of Quebec University has
taken the helm.
- 8 ZEBEDEE: Do you miss US and the Aeronautical
Engineering Department?
- 9 LEONARD: Yes I do.
- 10 ZEBEDEE: Perhaps you felt included-out and you couldn't
be yourself.
- 11 LEONARD: Perhaps.
- 12 ZEBEDEE: Sometimes it felt like that for the non-JERC
grad students. The JERC grad students could
be a rather condensending **[SIC]**.
- 13 LEONARD: 'Con - den - sending' ... that's a new word ...
'Condescending' is the usual word, but yours
comes from 'condense' and 'ending' ...
[DISTRACTEDLY] making small.... I'm rambling....
How's the fishing going?

- 1 ZEBEDEE: Great! I've been away on a few weekends recently. I love it.
- 2 LEONARD: You have patience and perseverance Zebedee. That's what gives you the edge.
- 3 ZEBEDEE: I try to get inside the minds of the fish and to understand their needs ... and their fears.
- 4 LEONARD: Well *that* will certainly give you the edge ... in your career.
- 5 ZEBEDEE: Some fish swim in shoals for support or protection and some, like us, seek out new waters on our own. That's OK isn't it?
- 6 LEONARD: It sure is! We don't have to swim with basking sharks if we don't want to ... or fly with them either!

[HARMONICA PLAYING 'HEAR ME FLY' AND FADE OUT]

THE END

Incidental Music

Just Let Me Fly

Music and lyrics by Jim McGovern

$\text{♩} = 142$ beats per minute

1 2 3 4 5 6 7 8
Just let me fly up high In - to the o - pen sky
Just let me be a bird I know it seems ab - surd

9 10 11 12 13 14 15 16
Up where the wild - birds soar Free - dom's what I ad - ore
Let loose is all I need Give me fresh air to breathe

17 18 19 20 21 22 23 24
Just let me fly a - way Don't hold me back to - day
Just let me zig and zag No need to shout or brag

25 26 27 28 29 30 31 32
Just let me fly Just let me fly Just let me fly
Just let me fly Just let me fly Just let me fly

Hear Me Fly

Music by Jim McGovern

$\text{♩} = 80 \text{ beats per minute}$

The musical score for 'Hear Me Fly' is written in treble clef with a 3/4 time signature. It consists of 16 measures, numbered 1 through 16. The tempo is marked as 80 beats per minute. The melody begins with a quarter note on G4, followed by eighth notes on A4, B4, and C5. Measure 2 features a dotted quarter note on B4. Measure 3 starts with a quarter note on A4, followed by eighth notes on G4 and F4. Measure 4 contains eighth notes on E4, D4, C4, and B3. Measure 5 continues with eighth notes on A3, G3, F3, and E3. Measure 6 has eighth notes on D3, C3, B2, and A2. Measure 7 features a quarter note on G2, followed by eighth notes on F2 and E2. Measure 8 contains eighth notes on D2, C2, B1, and A1. Measure 9 starts with a quarter note on G1, followed by eighth notes on F1 and E1. Measure 10 has eighth notes on D1, C1, B0, and A0. Measure 11 contains eighth notes on G0, F0, E0, and D0. Measure 12 features a quarter note on C1, followed by eighth notes on B0 and A0. Measure 13 has eighth notes on G0, F0, E0, and D0. Measure 14 contains eighth notes on C0, B0, A0, and G0. Measure 15 features a quarter note on F0, followed by eighth notes on E0 and D0. Measure 16 concludes with a quarter note on C0, followed by a double bar line and repeat dots.