Massachusetts Institute of Technology

Strategic Planning Activity
on
Aerospace Medical and Human Factors Challenges
&
Celebration Honoring

Dr. Charles M. Oman
Director of the Man-Vehicle Laboratory
on his 65th Birthday

Thursday, March 5, 2009

MIT
Marlar Lounge
Room 37-252
12:00pm

Buffet Lunch Noon

Program

Welcome and Planning Goals 12:50pm
Professor Laurence R. Young
Apollo Program Professor of Astronautics and
Professor of Health Sciences and Technology, MIT

Panel 1

Aviation Human Factors 1:00pm
Chair
Professor Thomas Sheridan
Professor Emeritus in Mechanical Engineering and
Aeronautics and Astronautics, MIT
Senior Fellow at DOT Volpe Center
Chief System Engineer for Human Factors at FAA

Participants:

Professor Mary (Missy) Cummings
Associate Professor
Department of Aeronautics and Astronautics & ESD, MIT

Dr. James Kuchar
Assistant Group Leader, Surveillance Systems
MIT, Lincoln Labs

Dr. **Judith Bürki-Cohen**
P.I., FAA/Volpe Flight Simulator Human Factors Program
Behavioral Safety Research & Demonstration Division
Human Factors Research & System Applications Center of Innovation
USDOT-RITA-Volpe Center-RVT-81

Dr. Greg Zacharias
President and Senior Principal Scientist
Charles River Analytics, Cambridge, MA

Panel 2 2:00pm

Sensorimotor Challenges in Space
Chair
Professor Dava J. Newman
MacVicar Faculty Fellow
Department of Aeronautics and Astronautics
Director TPP, MIT

Participants:

Dr. Jacob J. Bloomberg
Human Adaptation and Countermeasure Division
NASA, Johnson Space Center
Associate Team Lead for the
National Space Biomedical Research Institute's Neurovestibular Team

Dr. Inessa Kozlovskaya
Professor and Chairman
Department of Sensorimotor Physiology and Countermeasures
Institute of Biomedical Problems, Moscow

Professor William H. Paloski
Department of Health and Human Performance
University of Houston

Dr. Jeffrey P. Sutton
Director
National Space Biomedical Research Institute (NSBRI)

BREAK *3:00pm-3:30pm*

Panel 3 3:30pm

Earth and Clinical Applications
Chair
Dr. Conrad Wall, III
HST , Affiliated Faculty
Associate Professor of Otology and Laryngology,
Harvard Medical School, MEEI
Research Affiliate, Department of Aeronautics and Astronautics, MIT

Participants:

Dr. F. Owen Black
Senior Scientist
Director of Neurotology Research
Legacy Clinical Research and Technology Center, Portland, Oregon

Dr. Daniel Merfeld
HST, Affiliated Faculty
Associate Professor Otology & Laryngology
Harvard Medical School, Director, Jenks Vestibular Physiology Lab, MEEI

Dr. Lewis M. Nashner
President and CEO of NeuroCom

Dr. Ted Smith
Vice President, Patient Engagement at The Health Central Network

Panel 4 4:30pm

Astronaut Perspectives on ISS and Lunar Exploration
Chair
Professor Jay C. Buckey, Jr.
Professor of Medicine, Dartmouth Medical School
Adjunct Professor of Engineering
Thayther School of Engineering, Dartmouth, Hanover, NH

Participant:

Professor Jeffrey Hoffman
Professor of the Practice
Department of Aeronautics and Astronautics, MIT
Director, Massachusetts Space Grant Consortium

Dr. Stephen K. Robinson
NASA Astronaut

Reception and MVL tour 5:30-6:30pm

Attendees Include

Anton Aboukhalil
Brenda Baker
Owen Black
Jacob Bloomberg
Jay Buckey
Dan Buckland
Judith Burki Cohen
Divya Chandra
Missy Cummings
Chuck Czeisler
Carlo DeLuca
Dorit Donoviel
Kevin Duda
Jessica Edmonds
Kevin Frary
Bob Goeke
Vicki Goldberg
Laurence Harris
Jeff Hoffman
Barbara Hoffman
Paul Houpt
Susan Houpt
Faisal Karmali
Bill Kimball
Linda Kimball
Inessa Kozlovskaya
Jim Kuchar
Andy Liu
Steve Lockley
Roger Mark
Doug Marmon
Maryann Marmon
Dan Merfeld
Lew Nashner
Alan Natapoff
Dava Newman
Cherry Oman
Katie Oman
Peter Oman
Bill Paloski
Brenda Paloski
Chris Platt
Megan Riley
Steve Robinson
Angus Rupert
Robert Schor
Mark Shelhamer
Tom Sheridan
Rachel Sheridan
Ted Smith
Jeff Sutton
Jeff Taube
John Tole
Ian Waitz
Conrad Wall
Jennifer Wiseman
Larry Young
Greg Zacharias
Liz Zotos
Manny Zotos

HISTORY of MVL

The Man-Vehicle Laboratory (MVL) at the Massachusetts Institute of Technology, Cambridge, Massachusetts, is located within MIT's Kavli Institute for Astrophysics and Space Research (MKI). Founded in 1962, MVL's goal is to better define the physiological and cognitive limitations of pilots and passengers of aircraft and spacecraft, and to optimize overall human-vehicle system effectiveness and safety. Research is interdisciplinary, utilizing techniques from manual and supervisory control, estimation, signal processing, biomechanics, cognitive psychology, artificial intelligence, sensory-motor physiology, human factors, and biostatistics. Students are from the Department of Aeronautics and Astronautics, and also the Departments of Electrical Engineering and Computer Science and Mechanical Engineering, and the Harvard-MIT Division of Health Science and Technology. The Laboratory was founded in 1964 by Professor Yao Tsu Li, and Directed by Professor Laurence R. Young from 1965-1989. The current Director is Dr. Charles M. Oman. Participating faculty include Dr. Oman, Prof. Laurence R. Young, Prof. Dava J. Newman, and Prof. Jeffrey A. Hoffman.

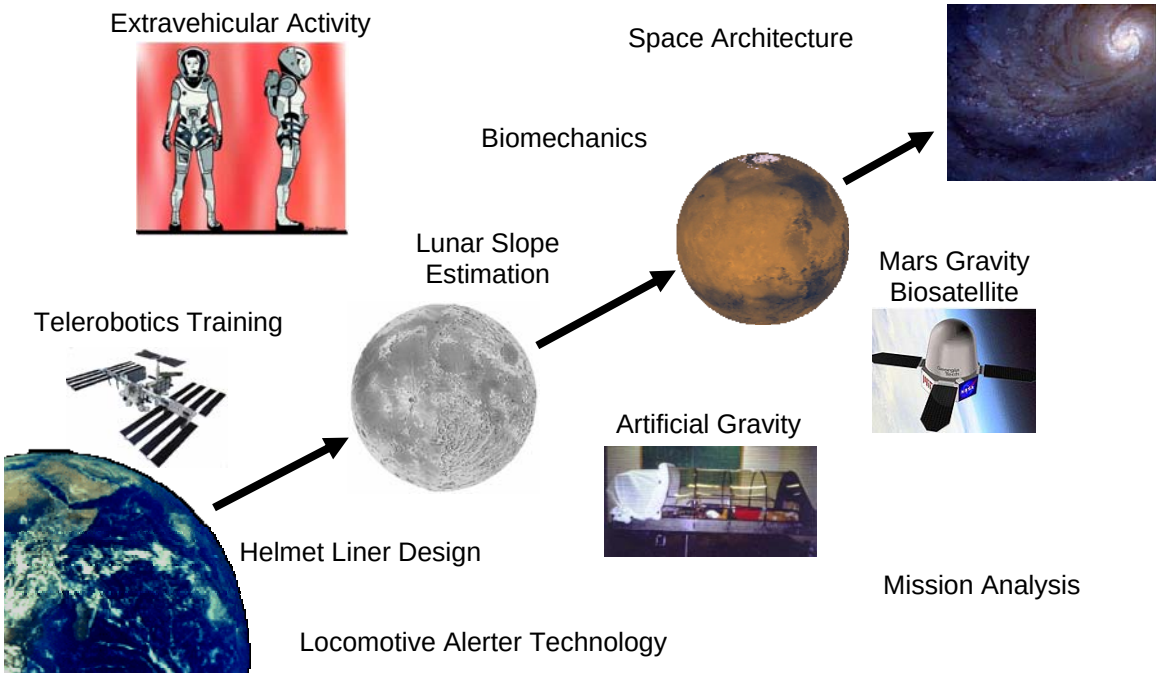
Mission

- To lead human exploration and prepare engineers for excellence in the design and analysis of human systems by inspiring and training scholars in aerospace bioengineering, physiology, and human factors.

Vision

- Human spaceflight provides important challenges and opportunities as well as excitement to students and researchers. We strive to better define the physiological and cognitive limitations of pilots and passengers of aircraft and spacecraft, and optimize overall human-vehicle system effectiveness and safety.

MVL Research



Inside KC-135 0g Byron Lichtenberg, Larry Young, Chuck Oman, SL4 Training 1984

Inside KC-135 0g Doug Watt, Chuck Oman, Larry Young
prep for Spacelab 1, July 1, 1980

KC-135 0g Bob Renshaw, Larry Young, Chuck Oman,
Anthony Arrott, Doug Watt, 1984

NASA JSC on Console – Spacelab 1 – Larry Young, Chuck Oman, 1983

Owen Garriott, NASA MS, Chuck Oman Spacelab 1
Sled Training, 1979

Chuck Oman, Dr. Otto Lowenstein, Larry Young

Ulf Merbold , ESA PS, Chuck Oman, Mike Lampton , US PS
Spacelab 1 training at MIT
February 1979

A TRIBUTE TO CHUCK OMAN – ON HIS 65TH BIRTHDAY

By Prof. Larry Young, MIT March 5, 2009

In the earliest days of the Man-Vehicle Lab, which Doc Draper encouraged us to pursue over the objections of the Visiting Committee, Prof. Y.T. Li and I were anxious to accept any breathing graduate student who pretended to know some control theory, might not object to biology, and liked to fly. It was a no-brainer to accept Chuck Oman, president of the Princeton Flying Club and a student of the renowned Court Perkins and Dunstan Graham. We had a lot of strong personalities and colorful characters as students in those days. But it was only Chuck from those days in the sixties, the preppy from Princeton with his mop of blond hair, descendant of US Navy leaders, with a passion for sailing, and his easy to like personality, who stayed at MIT on the faculty for his entire career. And why? Well, very simply, in addition to being very smart (everyone was very smart in that crowd – that was merely the ante to get into the game my ex-wife Jody used to say). Chuck had one other very critical attribute:

He was interested – in EVERYTHING. We would discuss the optimal speed to walk through the rain to minimize the soaking you would get. We would speculate on the causes of spatial disorientation in the famous "Haunted Swing" which we tried out in Bremen. Amazingly, we would have in-depth political discussions, with BOTH of us on the political left! We became friends as well as research partners –from his Master's thesis on modeling vestibular adaptation to prolonged rotation, through his fishy PhD investigation of the lateral line organ, with Larry Frishkopf, up through his adventures in space which continue to this day.

After getting his doctorate from MIT he joined the faculty of our Aero-Astro Department and also began teaching in the new Harvard-MIT Division of Health Sciences and Technology, where he was appointed the Helmholtz Associate Professor. Moving on to concentration on research, Chuck rose to become a tenured Senior Research Engineer and, since 1992, the Director of MIT's Man-Vehicle Laboratory. His scientific and engineering specialization covers aerospace physiology and human factors, vestibular physiology, human spatial orientation and navigation, motion sickness, flight simulation and virtual environment technology. He has taught all of our courses in biomedical engineering and human factors in Aero-Astro and teaches the HST medical students all that most of them will ever know abut the mechanisms of balance.

His publication record, of over 100 papers, started in 1969 with a paper with me entitled "Model for vestibular adaptation to horizontal rotation" in Aerospace Medicine and continued to his most recent ASEM abstract last Spring, entitled "To the Moon Alice? Sensorimotor Risks of Lunar Exploration Missions".

Chuck was intimately associated with space flight experiments in the Spacelab program - from the very first SL-1 in 1983 through the very last Neurolab mission in 1998, and was co-I or PI on six Spacelabs and a planned Space Station experiment.

For his many contributions he has collected numerous honors and symbols of recognition. He was elected to the International Academy of Astronautics and served NASA faithfully, both on its Biological and Physical Research Advisory Committee and as member and later Chair of the NASA Space Station Utilization Subcommittee, for the National Space Biomedical Research Institute, he was one of the founding Team Leads and, as Sensorimotor Adaptation Program Team Leader since 1997 is the longest serving of all. He was active on the International Space Station - Human Research Facility Science Working Group, and chaired its Neurosciences and Human Factors Subcommittees. He was a founding member of the Editorial Board of the Journal of Vestibular Research. Chuck organized two international Symposia on the Role of the Vestibular Organs in the Exploration of Space, one in Portland, Oregon, in 2003, and another in Noordwijk, Holland in 2007, both of which led to special issues of JVR which he edited. Most recently, at the NASA Human Research Program Investigators' Workshop in Houston last month, he was presented the Laurence R. Young Award for Space Life Sciences.

On behalf of your colleagues and friends, students all of us, we salute you, Dr. Oman!

Sponsors

National Space Biomedical Research Institute

Massachusetts Eye & Ear Infirmary
Jenks Vestibular Laboratory

Department of Aeronautics and Astronautics

BOOK OF LETTERS

FOR

CHUCK OMAN

MARCH 5, 2009

ADDENDUM

Contributors

Anton Aboukhalil
Daniel Buckland
F. Owen Black
Jacob Bloomberg
Jay Buckey
Ren Curry
Carlo De Luca
Kevin Duda
Jessica Edmonds
Sasha Efremov
Laurence Harris & Others
Miwa Hayashi
Bill & Linda Kimball
Ludmila Kornilova
Inessa Kozlovskaya
James Kuchar
Byron Lichtenberg
Andy Liu
Fred Mast
Dan Merfeld
Katie
Peter
Mark Shelhamer
Ted Smith
John R. Tole

Volpe:

Judith Burki-Cohen
Kim Cardosi
Kivya Chandra
Collen Donovan
Dan Hannon
Heidi Howarth
Drew Kendra
JordanMulter
J.K. Pollard
Stephen Popkin
Thomas Sheridan
Mary Stearns
Don Sussman
Michelle Yeh
Michael Zuschlag

Doug Watt
Larry Young
Liz Zotos

Dad,

Happy 65th and congratulations on such success that an *entire day* of aerospace medical and human factors challenges can be organized in your honor. I'm so grateful to you for lighting the spark of learning in me – I'm sure many many people here today feel the same way. From showing Peter and I how the space shuttle works, to reminding me that the wind blows clockwise around a high, it's always been important and inspiring to me how much you love your work. May we continue to have ample opportunity to discuss oceanic photoluminescence and Buys Ballot's law.

Love you,

K

Dad,

Happy 65th Birthday. It is exciting to be here in a place with so many people who all have a different reason to celebrate your impact upon them. I am and continue to be thankful for having someone so close to me that I can so greatly admire--someone with high moral character, someone who has never wavered in love for his family, someone who is passionate about his work, and as everyone here knows, someone who always knows the answer to your question (although sometimes we just don't know, as you tried to make 5 year old Peter understand). For what everybody here knows about you, and for that which has been special to me, I am always proud to say that you are my Dad.

Love
Peter

Feb. 2, 2009

Dear Chuck:

Walter Rosenblith once told me that if a professor has one student as good as himself he is even, and if he has two he is away ahead of the game. Well – you and Lew and Syozo put me way ahead early in my career – and for that alone I am grateful.

But most of all I appreciate the way you share the enthusiasm for the thrill of discovery and the satisfaction of design that has made the MVL such an enjoyable place to work all these years. Since you showed up at MIT right after Princeton and began spinning subjects and modeling adaptation – through all of our space adventures – your keen observations have been combined with the shear fun of dealing with explanations of common (and uncommon) illusions. Do you remember going to the golf cart show-room in Swampscott to measure the dynamic response of the carts? (I drove and called out the time while you leaned over the back and made chalk marks on the floor. (We ended up building our first "space sled" instead.) I recall our visit to the "haunted swing" in Bremen. And there was the AsMA meeting in Anaheim when we were given free admission to Disney World an hour before opening and you led me on a tour of all of the E rides which Cherry never wanted to ride (including two visits to Space Mountain). And our wonderful tests of tying your feet together and swinging you around on the KC-135 zero-g parabolas as a candidate substitute for the cancelled sled on Spacelab 1. (It didn't work.) Your discovery that your contact lenses stuck to your eyes after skiing in the rain led to our space flight procedure for stabilizing lenses for our ocular torsion measurements. You and I gathered what was among the largest collection of (empty) airline barf bags, partly to demonstrate the importance of motion sickness research, but mostly for fun.

You convinced me that I could learn celestial navigation from your copy of Dutton and that I would find Bermuda OK, even though I fixed Newton, Mass at 10 nm east of Provincetown at first. And you and Cherry became "extended family" for us.

For your professional partnership, for your leadership of the MVL and your wisdom in guiding the NSBRI, and for over forty years of friendship (so far) I am very grateful.

Happy Birthday.

Larry

March 5, 009

Dear Chuck,

I wish you all the best in the years ahead. I have been fortunate to work with you in the MVL these 9 years and look forward to many more. As we say in Greek – Chronia Polla – on your 65th Birthday. (Translation – Many Years to You –)

All the best,

Liz

Dear Chuck,

I came to MIT aspiring to work at the MVL and dreaming of conducting spaceflight-related vestibular research. At the time, NASA's budget ax was falling left and right, not making the pursuit of these ambitions very easy. However, you kindly welcomed me into the MVL and presented me with a project sponsored by the US DOT Volpe Center, which was to become the focus of my Master's thesis. All I knew was that the project had to do with "fatigue" and "trains", and somehow with "circadian rhythms" and "blue light". It had seemingly nothing to do with space! I had no clue what to expect when I signed up for it, but you told me, "If you throw your hat over the fence, you must go and get it." And I am so glad I did! Looking back, I must say that it was a truly rewarding intellectual journey! I have learned a great deal about conducting multi-modal research, with immediate and practical application to diverse areas of transportation, and not only to railway or aerospace.

I would really like to thank you, Chuck, for your wonderful tutelage. With your brilliant mind, unvarying enthusiasm and boundless passion, you have continuously challenged me to think broadly, to look at things from different angles, and to keep asking the important questions. You gave me outstanding guidance and phenomenal support, and constantly provided remarkable feedback. On top of all that, you have been an extremely kind and generous mentor. I will never forget how during our Cab Characterization Study you drove all the way to Worcester to give me a ride back home just so that I don't have to wait for the train and return to Boston at 1 am. You are a true gentleman and a scholar. Working with you has been a genuinely enjoyable journey, and I really do not know how to ever thank you! And I truly mean every single word I wrote.

Thank you for the ride, and I wish you a very enjoyable and prosperous journey ahead in all of your endeavors, with much health and exciting research!

Thank you for continuously and unselfishly giving of yourself to your students, and for making a significant difference in their lives!

Sincerely yours,

Anton

Anton Aboukhalil
MIT Aero Astro SM Thesis SM 2006

F. Owen Black, M.D.
Director, Neurotology Research
Legacy Clinical Research & Technology Center
P.O. Box 3950
Portland, OR 97208-3950
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Facsimile: (503) 413-5348
email: fob@neurotology.org

8 February, 2009

TO: Charles M. Oman, PhD

On the Occasion of your 6.5th decade on earth.

Dear Chuck:

Your first 'introduction' to me was your 1969 paper: Model for vestibular adaptation to horizontal rotation. Aerosp Med. 1969 Oct;40(10):1076-80. At the time, I was an NIH Fellow at the University of Florida. This and your subsequent publications have wrought many inspirations during my career as a neurotologist. Specifically, your ideas have been instrumental in my decision to pursue approaches to clinical problems from a systems physiology perspective. As evidence of the importance of this decision, I was very successful in obtaining sustained NIH support for research projects for more than 20 years, including a Jacob Javits Award. Thank You!

If my chronologically advantaged memory is accurate, I first met you personally during one of the many NASA sponsored 'conclaves'. But my most vivid memories of our personal contact was as a member if the NASA IML-1 Shuttle Flight Team. Interrupted by the tragic Challenger loss, our 'technology' was woefully out of date by the time our experiment was flown. I recall that some of your innovative recommendations played a key role in 'saving the science day' for this flight. (Would love to reminisce this experience with you some time.)

I also recall that your contributions were 'delivered' in a manner that should emulate or exemplify how to lead a team. You have subsequently demonstrated your keen leadership abilities as the leader of the NSBRI Sensorimotor Team. Your contributions to the Vestibular and related research communities are evident to anyone who has access to PubMed.

May I join the many and varied colleagues and friends in wishing you a very happy 65th birthday and you will no doubt know that your future has a 'place in the sun'.

With warmest regards,

Owen

F. Owen Black
Senior Scientist and Director
Legacy Clinical Research & Technology Center
Portland, OR

Dear Chuck,

Best wishes on your 65th birthday! Throughout the years you have provided outstanding leadership for those of us in the “space business”. Your incredible depth of knowledge of all things NASA and just about everything else continually impresses me.

Your long and productive tenure is space science was captured nicely in the series of Spacelab team photos that hung from the wall in Bldg. 266 at JSC. Your smiling face populated the photos from the early years (polyester leisure suits abound) to the more contemporary photos (somewhat fewer leisure suits). You have been such as innovator and positive force in our unique field of endeavor. I have been very lucky to have been able to work with you over the years from Neurolab through to the present with our NSBRI activities. From all the folks in the Neuroscience Laboratories at JSC we extend our heartfelt congratulations on your birthday!

Warmest regards,

Jacob

Jacob Bloomberg
Neurophysiology Laboratory
NASA Johnson Space Center
NSBRI Sensorimotor Adaptation Team Associate Lead

DARTMOUTH MEDICAL SCHOOL
Jay C. Buckey, Jr., M.D., Professor of Medicine
Department of Medicine • Dartmouth-Hitchcock Medical Center
One Medical Center Dr. • Lebanon, NH 03756
TEL: (603) 650-6012 • FAX: (603) 650-6013

Charles M. Oman, Ph.D.
Massachusetts Institute of Technology
Department of Aeronautics and Astronautics
Man-Vehicle Laboratory
77 Massachusetts Avenue, Room 37-219
Cambridge, MA 02139-0247

February 5, 2009

Dear Chuck,

All the best to you on your 65th birthday. But you don't look 65 to me.

It has been great working with you over the years. Looking back, we have had the chance to be a part of some remarkable missions in the U.S. space program. I particularly enjoyed our joint KC-135 flights and working together on the Neurolab experiments.

Your work has been a key component of the research program all though the Shuttle and Spacelab program and now into the ISS years. The experiments you have been a part of have laid a strong foundation of neurovestibular knowledge in space medicine. And, I'm betting you will still continue to add to this foundation.

Have a great birthday, and look back with pride on what you have accomplished (with the understanding, of course, that there's more to come).

Sincerely,

Dear Chuck.

Happy Birthday! I would like to thank you for the many years of mentorship and guidance you have provided since I came to MIT in 2004. I know that I am likely one of the more recent relationships wishing you well on this joyous occasion, but I believe you are one of the longest academic relationships I am honored to have, as I still regard you as a valuable mentor and friend. A lot has changed since you called my up and offered me a Research Assistantship during the waning days of my senior year at Georgia Tech, but I am glad that you called. I know where I am today, and where I go in the future, will be due, in no small part, to the significant beneficial impact you have had on my life and academic career. I look forward to another 65 years that I can count on your guidance and expertise.

With Warm Regards and Thanks,

Daniel Buckland

MIT Aero Astro SM thesis student 2006
HST MD Program

February 9, 2009

Chuck,

Happy Birthday! We can't believe the number—when we met you some twenty years ago, a *sensory conflict* ensued—can this be the famous Oman, so young and trim? And handsome and smart—isn't that exactly what my friend "Annie" is looking for? Oh no, he is taken already, with kids to boot—of course!

Well, there was no match for Annie, but a great match for us. Without you, our FRASCA would fly way too smoothly; it took a sailor's skill to model realistic turbulence. And not only did you lend us your own creativity and expertise, but steered the best students our way—Yongki, Miwa, and lots of undergraduates too. Their hard work, technical knowledge, and scientific insight were critical to many of our projects. Your energy and encouragement inspired all of us to do our best.

Chuck, together we have weathered waters ranging from smooth before 9/11 and slightly choppier since—but with you on-board we managed to *stay alert* and fend off *motion sickness* and *fatigue!* We hope that there is clear sailing ahead for us together and for you wherever the winds will blow you.

With many thanks and best wishes,

Your friends from the Volpe Center's

Behavioral Safety Research & Demonstration Division
Human Factors Research & System Applications Center of Innovation

Judith Bürki-Cohen
Kim Cardosi
Divya Chandra
Colleen Donovan (now FAA)
Dan Hannon
Heidi Howarth
Drew Kendra
Jordan Multer
JK Pollard
Stephen Popkin
Thomas Sheridan
Mary Stearns
Don Sussman (retired)
Michelle Yeh
Michael Zuschlag

This O-Man

This O-Man, He Played One,
Yachting is something he does for fun.

This O-Man, He Played Two,
His research is rigorous through and through.

This O-Man, he played Three,
Your ears must feel what your eyes do see.

This O-Man, he played Four,
Developing vertical displays and much more.

This O-Man, he played Five,
His research does keep folks alive.

This O-Man, he played Six,
Sending us his best student picks.

This O-Man, he played Seven,
His experiments soar into the heavens.

This O-Man, he played Eight,
He cares about trains, both passenger and freight.

This O-Man, he played Nine,
For tired train drivers its rise and shine.

This O-Man, he played Ten,
We hope he'll stay with us ‘til *the end*.

Chorus:
With a Mit-Ctl paddywill,
And so much more to boast,
This O-Man deserves a toast!

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January 22, 2009

Dr. Charles M. Oman, Director
Man-Vehicle Laboratory
Room 37-219
Massachusetts Institute of Technology
Cambridge, MA 02139

Dear Chuck,

I'm delighted to write a letter on your 65th birthday. Larry asked all of us to comment on your contributions. I find that difficult to do in detail since I have been "away" for so long., so this will be more of a recollection of times past.

I remember coming into the Lab as a guy who knew nothing about hardware. You were a graduate student and were very helpful in educating me in the practical aspects of hardware (low impedance on the output of a device, high impedance on the input to a device, etc.). In fact, those experiences pushed me into doing things for the 16.31 class that had never been done before, such as (1) demonstrating the sampling sidebands with a sine wave generator into our PDP-8, then outputting to a speaker, and (2) having the students build and test their compensator designs using op amps and RC circuits as part of a homework assignment.

Before long I also learned that you knew a whole lot about a **lot** of things: it didn't matter whether it was hardware or software, theory or practice, flying or sailing, hair cells or cockpit human factors, or anything in between those extremes. You are jack-of-all-trades but a master of **all**. I must tell you it was kind of intimidating to watch you at work.

Although I have been "away", I did catch up with your career arc, by reading your bio on

http://mvl.mit.edu/neurovestibular/other_sites/chuck1/!oman.html

This was the first Google hit I got, but not the only one. This bio shows you have done an incredible amount of great work since I left, but this document is dated 1988!!. (I tracked it down on your server.) What have you been doing since?

You should be very proud of your accomplishments. I am.

Chuck, with best wishes for continued success in whatever you choose to do,

Boston University

NeuroMuscular Research Center
19 Deerfield Street
Boston, Massachusetts 02215, U.S.A.

Tel: 617/353-9756
Fax: 617/353-5737
E-mail: *cjd@bu.edu*

Carlo J. De Luca, Ph.D.

Director of NeuroMuscular Research Center
Professor of Biomedical Engineering
Research Professor of Neurology

1 February 2009

Dr. Charles M. Oman
Director, Man Vehicle Laboratory, MIT
77 Massachusetts Ave
Cambridge, MA 02139

Dear Chuck:

I was surprised to learn that you are approaching your 65th birthday. When I last saw you in October, you looked more like 55. Time has been kind to you.

I am pleased to be included in your birthday celebration. I congratulate you on this occasion and wish you all the best as you enter the post 65 phase of your life. I am please to have been associated with you for the past two decades. I was witness to the growth of your extraordinary career as a research scientist and to the service you selflessly gave to the research thrust of the Life Science program of NASA. I am not sure which of these two achievements deserves the greater glory. Illumination of the performance of the vestibular system when exposed to microgravity is a stellar accomplishments that brightens the path for future work in this field, and enhances the ability of future space explorers to pierce deeper into the scientific darkness of space. Coping with the Byzantine bureaucracy and the at-times flagrant behavior of NASA for over three decades requires personal traits of angelic proportions. Regardless which dominates, your achievements have been out-of-this-world.

I also want to take this opportunity to thank you for your friendship during our many years of collaboration. You and Larry were most gracious in bringing me and my associates into the NASA fold. I think back fondly to the SLS-1 and SLS-2 missions. I especially appreciate the fact that you always made us feel welcomed and a part of the team. My colleagues, students and I at the NMRC owe you a debt of gratitude.

So.... what does a youthful, energetic research scientist, who did not invest his retirement funds with Bernie Madoff, do after age 65? I have visions of a sailboat in the turquoise waters of the Caribbean.....Please note that my contact info has not changed!

Warmest regards and very best wishes,

Carlo

Happy 65th Birthday Chuck! In addition to birthday wishes, I want to thank you for your inspiration and guidance in my graduate education and subsequent career path. As you may recall, we first met in March 2001 during the graduate student open house (classic New England "wintry mix" weather). Before meeting, I knew that I wanted to be involved in human spaceflight, but your enthusiasm as well as your integral part in the MVL's history reinforced my desire. That desire became tangible when you gave me the opportunity to conduct research on your project – and VOILA…I was here. From S.M. thesis advisor to Ph.D. committee member to Co-Investigator, your advisement, encouragement, expert knowledge, critical reviewing, and mentoring have helped me grow my professional skills. To reflect on your advisement and mentoring, here are two excerpts from my theses, acknowledging your thanks:

> *S.M. Thesis*
> Chuck, thank you for giving me the opportunity to work on this project. If I got here and "VOILA," a thesis appeared, this process wouldn't have been nearly as fun. At times when I felt lost in the research, you provided words of encouragement and guided me back to where I needed to be. There is nothing quite like being "perceptually equivalent."
>
> *Ph.D. Thesis*
> Big thanks to Chuck Oman for introducing me to the MVL and its history of human spaceflight experiments. From my Day 1 at MIT, his support and enthusiasm have made it a great pleasure to work with him. He has this incredible ability to give you mid-course corrections to keep you on track with simple suggestions. It's comforting to know that an expert in human navigation knows how to keep you from getting lost.

Here's to a Happy 65th Birthday, and many more!

Sincerely,

Kevin Duda

MIT SM & PhD

Dear Chuck,

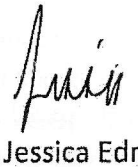
Happy 65th birthday!

During this celebratory time, I'd like to recognize the great influence you have been on your students. As you are undoubtedly aware, MVL is one of the most appealing labs to join in the Department. This is in part due to the exciting work that is done there, but also due to the stellar mentors available to MVL students.

Though I have not been fortunate enough to be one of your researchers, I can say that you are known by your students as someone with "lots of ideas". I have seen this personally in your ability to steer our conversation to new ideas in Journal Club and our many lab talks, and to generate organizational direction for the lab as a whole. You also have great respect for your students, allowing and encouraging them to grow intellectually through publications, presentations at conferences, and on-site research – and always ensuring that the work they turn in is their best possible work. I have very much enjoyed being a member of the lab and am proud to have been mentored by you and the rest of the MVL faculty – any successes that we students enjoy are certainly attributed in large part to you.

May you continue to inspire and lead many lucky students. Happy birthday!

Sincerely,



Jessica Edmonds
MVL SM 2005, PhD 2008

March 4, 2009

Dear Chuck,

With the happiness and surprise I knew that you will celebrate unbelievable date 65 years tomorrow. With very warm feelings I remember our meeting in September 1976 at MIT when you, bright and young professor, explained me the dynamics of semicircular canals in your office.

It was fine and surprising time for me to see the other world, open people, your beautiful country to make acquaintance with many brilliant scientists, and you are one of them, to know so much in the field where I work now. With the warm feelings Irene and me remember the party at your house in January 1977 with Alan Natapoff and other yours friends (we keep the photo of this event). Each quest brought the food cooked by himself and Irene cooked the Russian dish which you called "Siberian Meatballs".

The time runs quickly:.More then 32 year passed rapidly since that time. So long period influence on the people very often and I was very happy to see you and charm Sherry last time at Larry home and to note that it doesn't concern you both.

Dear Chuck, Irene and me wish you many happy and healthy years together with Sherry and your family, we wish you also love, prosperity and luck.

With the kind feelings

Your friends Irene and Sasha

Prof. Efremov A.V. Ph. D, Dr. of Sc.
The dean of aeronautical school,
Head of dynamics of flight and control department
Moscow Aviation Institute, Moscow, Russia

Dear Chuck:

Happy 65th birthday to you! This is quite a mile stone that certainly calls for a celebration. And, I am delighted to see that you are still going as strong and passionate as ever. I would like to thank you for your patience and faith that you exhibited over the course of my graduate education at MIT. I am forever grateful for them. I can only imagine...but, trusting a young student like me who has not yet proven much must be not an easy thing to do! I feel I was very fortunate to have your guidance throughout my Ph.D. process. Sometimes, I can't help wondering if our ancestors' paths came across in Japan, and having you as my thesis advisor may have anything to do with that. Well, if so, my ancestor must have done a really good thing!

As a proud former Ph.D. student of yours and an MVL alumna, I wish you great happiness and prosperity in this very special year and all the following years to come.

Sincerely,

Miwa

2/2/09
Miwa Hayashi
MIT SM & PhD
NASA Amer Research Center

Letter from Prof. Laurence Harris on the occasion of Chuck's 65th birthday celebrations and the "Aerospace Medical and Human Factors Challenges"

Dear Chuck

On behalf of your colleagues and friends at York University, I am delighted to congratulate you on the event of your birthday. Although it would seem that we are all getting older, it really did sweep us off our feet to learn that you were approaching your 65th. There must be something about exploring microgravity that keeps one young. Perhaps the fountain of youth is simply the application of appropriate forces (or lack thereof) on the body over a prolonged period? Or could it be from those sailing excursions to the Bahamans or from the extensive set of parabolas on the Vomit Comet?

Of course, in order to obtain the breadth and depth of your contributions to our understanding of the effect of weightless on human perception there must have been a considerable number of years of effort. But 65! Really? Why it only seems like yesterday that the Neurolab team conducted its experiments on STS-90 -- although apparently that was over ten years ago. At least our joint work under NSBRI on Visual Orientation, Navigation, and Spatial Memory Countermeasures was more recent than that.

Working with you on the effects of microgravity on human perception has brought a rush of blood to our head and butterflies to our stomachs for many years. It has been a genuine pleasure working with you over the years and we are all looking forward to many more years of effective collaboration. We'll keep the centrifuge spinning as there are many more interesting questions to ask and problems to solve. But for today at least, enjoy your 65th.

On behalf of your colleagues and friends at York, and especially the Neurolab and BISE teams including Michael and Heather, Richard, Jim, Ian, Teresa, and Rob, have a very Happy Birthday!

Yours truly,

Laurence & others

PS: I am looking forward to attending your event on March 5th. Love to Cherry.

February 22, 2009

Dear Chuck,

We have known you for many years as a friend starting in the fall of 1981 when our daughters, Katie and Julia, began Nursery School together. The girls were three years old then and now they are thirty! Soon after our sons, Andrew and Peter, arrived and these two have both passed the quarter-century mark. We recall a lot of good times together between then and now.

We have known you as a proud father, a loving husband and a devoted son. We have also known you as a soccer coach and as the Winchester Boat Club's Commodore. We were also spectators together: alongside the pool, on the sidelines of the soccer field, and even peering through binoculars on Mystic Lake, and so on. We also know you, albeit a little bit less, as a scuba diver, and an avid sailor and competitor who has completed the Newport to Bermuda race several times.

We joined the Winchester Boat Club in the same year. You were there as the children reached certain milestones, such as earning their "badges" in swimming, beginning sailing lessons, and competing in regattas at various yacht clubs. We have always been grateful for the tactical advice you freely gave regarding sailing to both us as parents (how to get a boat onto a trailer and then tow it on Rt. 93 during rush hour) and to our children (even though your children were competing in the same race).

Julia and Andrew remember you in these roles, as well. Julia remembers pictures of you over your desk in your "space suit." Andrew told us how recently, while driving along Quincy Shore Drive, he recalled the special time when you piloted a motorboat that towed Peter and him, as a formidable skipper-crew tandem in your N-10, from Hingham to Squantam for their next regatta. Andrew also remembers the Kimball-Oman outings to Bisutecki Restaurant, Christmas gift exchanges and his first trip to Fenway for Peter's birthday.

More recently, we have gotten to know you in other roles: as a ballroom dancer, a cruise vacationer, and as father-of-the-bride. The dance lessons in particular have had us laughing together… and along the way maybe we have improved a little despite the occasional memory lapses of our previous lessons!

"Life is good" as they say. We wish you much for your 65th birthday and career celebration. You have much to be proud of both personally and professionally. Keep on dancing!

Love,

Bill & Linda Kimball

March 4, 2009

Dear Chuck,

Please, accept our best congratulations with your wonderful jubilee which you celebrate at the peak of your powers, success and recognition.
You belong to the glorious cohort of people whose life is devoted to only one aspiration - to explore SPACE!
These are your brilliant aptitude, industry and persistence that made your dream come true.
Your nature reveals well-balanced features of an astronaut, an excellent investigator, a talented mentor of young men and a person keen on what he is doing. It is so nice that your main pursuit is space and space vestibular physiology where your efforts have become the most valuable possession.

Dear Chuck, may we wish you many years of successful work in space and new discoveries in neurovestibular sciences.

On behalf of all Russian colleagues

Sincerely yours,
Inessa Kozlovskaya
Ludmila Kornilova

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
LINCOLN LABORATORY

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Area Code 781
981-7429
kuchar@ll.mit.edu

30 January 2009

Dr. Charles M. Oman
Senior Research Engineer
Massachusetts Institute of Technology
Cambridge, MA 02139

Dear Chuck,

It is with great pleasure that I wish you a very happy 65th birthday!

This is also a wonderful opportunity to reflect on your many contributions at MIT. You have always remained enthusiastic, fully engaged, and ensured top-notch quality in your research and teaching, setting a wonderful example for following generations like myself. I personally wish to thank you for being an excellent mentor and colleague while I was first a student and then a faculty member on campus. In particular, I will always remember the excitement you instilled through hands-on activities for students using the Microsoft Flight Simulator, handling in-flight emergencies in the United B737 simulator, collaborating in setting industry standards through groups like SAE G-10, the guidance you provided to graduate students, and making one of my last teaching experiences at MIT, the Human Factors course, a real pleasure.

So, happy birthday Chuck, and all the best for the future!

Sincerely,

James K. Kuchar, Ph.D.
Associate Group Leader, Surveillance Systems

Happy Birthday Wishes for Chuck Oman from Byron Lichtenberg

Chuck, I would like to wish you a very happy 65th birthday, and let you know that I'm sorry that Tamara and I can't be there in person. Fortunately for me, the Congress agreed to extend the retirement age for commercial airline pilots to 65 last year, and I am still working and have a trip on March 5, the celebration day.

I really enjoyed the time we spent together, although it was stressful times, it was also very exciting times. I especially remember all the training sessions that you managed for our crew of Spacelab-1, the contests that we had and the ways you inspired us to do our very best to perform the MIT experiments.

I appreciate the mentoring you did during my doctoral studies and the friendship and common interest we have in aviation and space flight. Without the knowledge, reputation and experience of the MVL, I doubt that I would ever have been associated with space experiments and space flight.

We certainly had good times at the many IWG's all around the world, the meetings, congresses, and training sessions. I especially remember one night in CA during our preflight baseline data collection activities where we had a dinner to celebrate the conclusion of yet another successful session. The camaraderie and connection that all shared was a very special time.

While I have not been that close to the MVL in many years, those memories will be with me always. I have followed your rise to Director of the MVL and am glad to hear of the continued close collaboration with manned space flight.

All our best wishes to you and your family for continued success and happiness as time marches on.

Byron

Massachusetts Institute of Technology

Andrew Liu
Research Scientist

Man Vehicle Laboratory
Building 37–219

77 Massachusetts Avenue
Cambridge, Massachusetts
02139–4307

Phone 617–253–7758
Fax 617–258–8111
Email amliu@mit.edu
http://web.mit.edu/amliu/www/

March 5, 2009

Dear Chuck,

Happy Birthday! This big celebration seems to be an ideal time to tell you of my appreciation and enjoyment of working with you for the past ten years. Has it really been that long ago since you stopped by the Nissan CBR lab to chat about joining the Man Vehicle Lab? At that time, you asked me if I wouldn't mind trading in the nice office and furniture to work at MIT. Well, seeing that I've spent ten years in a windowless office should tell you that the trade was worth it!

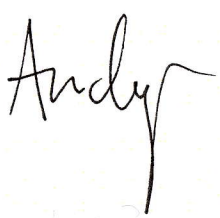
For me, our collaboration has been very stimulating and rewarding. I have valued your mentorship over the years and feel that all aspects of my scientific work have greatly benefitted from your guidance. Your advice, suggestions, and gentle prodding (when necessary!) have helped me to grow professionally and expanded my own knowledge into new and exciting directions. Your ability to see both the larger picture of where projects and ideas could or should go while also rolling up your sleeves to get into the nitty-gritty details of programming, hardware and troubleshooting failing laptops has always amazed me.

I have also been deeply impressed by the breadth and depth of your range of interests and expertise as well as the passion you have to learn more about them. To have worked such a variety of basic and applied research topics ranging from spatial memory to fatigue and from space telerobots and lunar landers to freight trains has kept the work fresh and stimulating. Furthermore, your ability to transfer some of that passion and enthusiasm to your colleagues and students is inspirational. I believe these qualities set an example for the rest of us in the MVL and help make it such a stimulating environment. I feel quite fortunate to work here.

On a more personal note, Brenda and I are also extremely grateful for your patience and latitude as we've strived to manage family and careers. The luxury of being able to work from home when kids are sick, take off a little early for their various activities or slide meetings around to accommodate call schedules has certainly made our lives much easier and less stressful.

I look forward to our continued collaboration for a few more years!

Sincerely,



b
UNIVERSITÄT
BERN

Charles M. Oman, PhD
Director Man Vehicle Laboratory
Massachusetts Institute of Technology

Bern, 2. February 2009

Dear Chuck

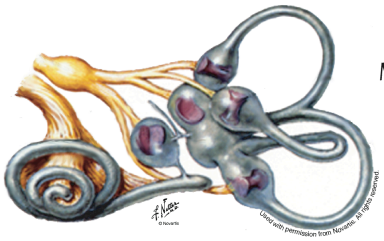
Your birthday is quite easy to remember, at least for me. This one, however, is special! I want to take this opportunity to thank you very much for the most valuable input you gave to my work since i had the chance to spent some time in your lab. These memories are so precious to me and I often find myself mentally travelling back in time and indulge in heavy daydreaming activities.

I wish you all the best for your future and in the many years to come

Yours

Fred

Prof. Dr. Fred Mast, Ordinarius der Universität Bern
Institut für Psychologie, Leiter der Abt. Kognitive Psychologie, Wahrnehmung und Methodenlehre
fred.mast@psy.unibe.ch



Daniel M. Merfeld, Ph.D.
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Harvard Medical School

Associate Professor
Otology and Laryngology

Massachusetts Eye and Ear Infirmary

Director
Jenks Vestibular Physiology Laboratory

February 5, 2009

Hi Chuck:

Happy birthday! Congratulations on 65 well-spent years! May we have the opportunity to celebrate many more years to come.

Our collaborative efforts have now extended from the Fall of 1984 when I showed up at the MVL as a naïve graduate student to today as the slightly less naïve Director of the Jenks Vestibular Physiology Laboratory. Where does the time go?

While the experiments, interests, and goals have varied over that time, there are some constants. For example, modeling has always been and remains an important part of our collaboration. I still remember when, roughly 20 years ago, you challenged me to develop a model that includes an explicit internal model. The limited extent to which I met your challenge has helped me define my career. The contributions of such well-defined challenges cannot be overstated.

Another constant interest is space physiology – specifically the effects of gravitational changes on human spatial orientation. What began as contributions as a graduate student to the D1 investigations grew to include a full collaboration on SLS-1 and SLS-2. How can one forget trips to Frenchies and the high desert and Houston and the Kennedy Space Center and …? And our common interests in space physiology continue till this day. (Gosh, I really hope that pending manual control proposal is funded!)

Among your many traits that I appreciate is your curiosity. You've always relished understanding new problems, new approaches, and especially new ideas. It seems to me that with your sense of curiosity you blend your open mind with a necessary dollop of healthy skepticism. Another characteristic that I appreciate is your seemingly boundless energy – both mental and physical. Your energy breeds enthusiasm in many of us in contact with you.

I sincerely thank you for all you've done over the years. Since I hope and think our collaborative efforts will continue for many years to come, I am going to stop here before this turns into something that sounds like a eulogy. I truly look forward to keeping our collaborative efforts alive over the next decade or two.

As always, I wish you and yours all the best.

Sincerely,

THE JOHNS HOPKINS UNIVERSITY
SCHOOL OF MEDICINE - DEPTS OF OTOLARYNGOLOGY & BIOMEDICAL ENGINEERING

2-210 Pathology Bldg.
600 N. Wolfe St.
Baltimore, MD 21287-6921

2 February 2009

Charles M. Oman
Director, Man Vehicle Lab
MIT
Cambridge, MA 02139

Dear Chuck:

On the occasion of your 65th birthday, I've been reflecting on some of the things that I learned from interacting with you during my time at MIT (1982-1990) and in the years since. Three things stand out in my mind.

The first is the extensive breadth and depth of knowledge that you bring to a problem. In this you set a high standard – one that an occasional student will try to circumvent, to his or her detriment.

Second, I have always been struck by the fact that, in your research work, you've tackled head-on the most difficult of issues (motion sickness, orientation perception) and tried to bring a sense of order and quantitative analysis to them. Those less courageous (is that the right word?) would avoid these areas, and many still do.

Finally, it's good to see that, despite the vagaries of research support for space life sciences, your enthusiasm remains high. That is the third and perhaps most important thing that I can say I've learned from you.

Sincerely,

Mark Shelhamer
Associate Professor

March 5, 2009

Dear Chuck,

I'm sure you are as proud and surprised as we all are on this occasion. Your sixty-fifth birthday reminds us not only that you are an old man, but presents an occasion to recall earlier, more economically promising times! So in that spirit, and in the dreaded holiday form-letter format, here are some of those memories shared on the condition that you'll seriously consider giving me the opportunity to write a sequel on your 95th birthday.

On my first visit to MVL in 1987, I was sent on an errand by Conrad Wall to raid the sled room for some odd parts for the new vestibular lab under construction at MEEI. I recall the walls of posters, the mission photos and the 1946 Link Trainer connected to what I think was a DEC PDP-7. Not knowing better, I assumed that this was what the bleeding edge of aerospace human factors research looked like. I will say that this short succession of visits gave me the opportunity to meet some of the grad students of the day (Merfeld and Shelhamer) while they toiled on this state-of-the-art equipment. Through them, I would hear your name in the salty language of the sleep deprived. You were present in your absence in the high standards you set for your students and the engineer's engineer approach to building lab equipment - where brains would make a budget stretch farther and create an authentic connection to the research. That was the first lesson you taught me as a young liberal arts college student and one I have shared in a wide range of settings far from academia.

We would next cross paths while I was a graduate student at Miami University where Don Parker would reinforce those early lessons and hold your work as what happens when engineers play psychologist –never mind that he was one of those Cold War era psychologists playing engineer. When it came time to put together my comprehensive exams, your work and the works of the Lab filled the list. Shaped by my early visits to your lab and having spent so much time with the published works of the group, I remember telling Don that, while it might be easier for me to slip into a space center post as a human factors psychologist, I stubbornly saw only one next step. I wrote to you in the winter of 1992 about the prospects of a post-doc in your lab the following fall. You wrote back with the perfect blend of "thank you for your interest" and "there are no funds at this time but if you were able to secure some, we would be delighted to have you." These kinds of notes are a lawyer's dream because they illustrate perfectly the break between the spirit and the letter of the law. In retrospect, I think the spirit was in fact a polite "no" but there was enough literal room to read "yes!" (with some minor caveats about money). So in this way, you were kind enough to humor me while I wrote an Office of Naval Research grant to fund such a post-doc. The grant was not awarded.

Then I showed up in your office in the fall of 1992 to start my unfunded post-doc.

At this point, any reasonable person would ask: what would I do if I were Chuck, staring at this person? I suspect most people would have advised me to "come back when you have that support we discussed." But not you. That day we walked together to Don

Sussman's office at the Department of Transportation Volpe Research Center on the edge of campus. I sat in that office and listened as you made the case that this might be the perfect circumstance to get more aviation human factors work done right here in Cambridge. While we waited for the hiring process to kick into gear, you introduced me to Claudio Stampi and I worked on psychological human performance issues for the Exxon Valdez court case. Had I showed up on any other doorstep that September, my life would have taken a dramatically different course. Not only did you make the time and take some risks, but you taught me a valuable lesson about the true meaning of kindness and what it means to care for those less experienced but with ambition. I try hard to use this lesson too as a father and a manager.

Fast forward to balancing an aviation human factors project on civil GPS ILS navigation and a grant proposal for Neurolab with the regular trek to campus to work on projects with the likes of Ephraim Katz and Winfried Teiwes. As I recall, you invited me into the bevy of Neurolab proposal efforts with the promise that much of my dissertation could be "copied and pasted" into the proposal...and so it was. With that proposal in the mail and a lucrative job offer in the private sector in Chicago, I headed west assuming that our time was at a close.

Then the phone rings at my desk in Saint Charles, Illinois with your voice on the other end, telling me that our Neurolab proposal received a high score and we will be driving equipment requirements for the Virtual Environment Generator. As you'll recall, we worked it out so that if I told Andersen Consulting clients that I was some sort of rocket scientist, they would "release" me as needed to support the mission and still overpay me as their employee. So our time was not at a close. Over the four or five years that encompassed the mission work, there are so many salient memories that range from the dangerous (recall your after-effects of ScopeDex post-KC flight and falling asleep at the wheel of our rental car at a traffic light) to the reckless (Pe-Te's Cajun BBQ House). More importantly, you helped me tremendously as I grappled personal challenges, and you were always a cheerful and welcoming presence in my life. What a blessing. Since that mission, we've made regular efforts to get together and share meals and stories with your better half by your side. Your advice on raising children and on the essence of patriotism in challenging times has made me a better person and I cannot thank you enough.

I learned over a decade ago never to assume our time is at a close and I often imagine a day when I might return to Winchester with my family and simply pick up where I left off those years ago. Though we'd be a bit older, we would embody the expression you taught me: gray hair for the look of wisdom and hemorrhoids for the look of concern!

Until then, HAPPY BIRTHDAY!

Ted Smith

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540-937-5850
john.tole@evergreenshade.com

February 6, 2009

Dr. Charles Oman
Director
Man Vehicle Laboratory
Room 37-219
Massachusetts Institute of Technology
Cambridge, MA 02139

Dear Chuck,

A wide-eyed novice venturing into the first floor of Building 37 in 1968 would have encountered a lumbering mechanical beast guarding the main entrance to the Man Vehicle Lab. At first glance, the NE-2 seemed not so much a machine to be controlled as a flesh-eating monster to be feared. How were the trepidations of callow graduate students to be assured? How were they to pass, Indiana Jones-like, the many and varied trials that lay ahead? But, to paraphrase that timeless sage, A.E. Neumann, "Not to worry!"

What should the wondering eye of the timid soul encounter, but, hidden away beyond that simulator, a cheerful and witty fellow with a blonde, Beatles-like mop together with an equally happy office mate with an immense grin and the most peculiar name, Pitu. It quickly became clear that these two were the masters of this place for they could operate the Teletype and its mysterious paper tape reader. More importantly, they knew the paths to the sailing pavilion, the Twenty Chimneys, and that warm refuge from the strains of graduate life, the dining room at Ashdown House,. If this unlikely but astute pair had this level of control over their environment, then what could new initiates fear. Indeed, let the fun begin!

Even in those days, the technical feats of the MVL were almost beyond comprehension. A 3-D wire-frame cube circling and bobbing on an oscilloscope screen under manipulation of that new contraption: a joystick! Could this have been Chucky-O's inspiration perhaps, for Noel Van Houte's simulation of a VSTOL and its landing display on the hybrid computer (featuring PDP-8 #98 with 4K of core). Think of it: swapping aircraft dynamics on and off of DECTAPE in real time! The credit default swap jockeys of today should have a fraction of that finesse!

Gyro-stabilized motorbikes, all manner of aircraft simulators, traffic situation displays and collision avoidance systems, to say nothing of a "very complicated model" of human orientation from a supreme Japanese gentleman named Yasui, and the flipping of eyeballs out of sockets through a variety of whirling and twirling (what else) machines, all with armchair convenience

of one's choice of motion-sickness bag. The list of feats in those early days goes on and on. Their legacy continues to this day.

Many have reaped the myriad benefits of association with the lab and the influences "…of Professor Young and Jacob Meiry" and a host of others. Some have flown both friendly and hostile skies. A few have even touched the stars. The achievements are widespread, varied, and significant for all who eventually navigated past the jaws of the not-so-nefarious-after-all NE-2 monster.

But the careful observer will note that, beyond the accomplishments and memories there has been an unwavering underlying constant. Each aspirant, be they rocket-man, bioengineer, or human factors factoid, was grounded in the inspiration and support of the MVL's caretaker over these many years: that floppy-haired 'fifth' Beatle of the bioastronautics super-combo, 'The One', who has always known all the chords in the Man-Vehicular repertoire.

Think of it, this is the fellow who disclosed that flying with dentists is unwise under most any circumstance, but particularly cases in which tooth docs were not RECENT! And who, after this discovery, still had the audacity to fly the KC-135 not once, but repeatedly, just to get the feel of his work. What kind of comet did you say that was? Indeed this same One could spin fish, cats, or humans into the most delightful of smoothies with one hand while simultaneously talking to DEC about flip chips or NASA ground control about the progress of Shuttle experiments, always with a grin and a tweak of the moustache. But always, behind the flashing teeth and good humor the lingering and vital essences: full measures of wisdom, guidance, and kindness.

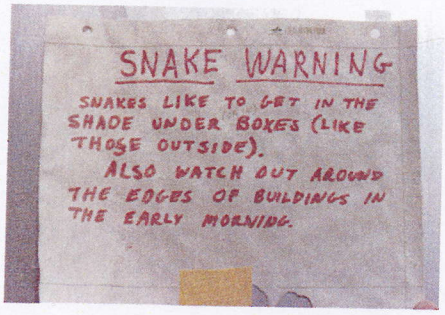
Men controlling machines: a pursuit nearly old as mankind: Icarus testing his wings; Zulu maneuvering the Enterprise under Kirk's command; Lindbergh traversing the ocean with little more than a wing and a prayer; Li building airplanes in caves; 'Sully' landing on the Hudson as calmly as a routine touchdown on 4R. Someday it may all be accomplished via voice or thought, with no mortal hand on a throttle and some future Spock at the bio-helm. Who knows, even the ancient and venerable vestibular system may give way to evolution. But whenever and however our notion of 'manual' control evolves, it is inevitable that the Man Vehicle Laboratory will be there to play a crucial role in the ageless balance of 'Man et Manus'. The legacy and adventure of Li, Young, and Oman, et.al., continues unabated.

From the day you showed us that the huge old Mercury simulator was to be cherished rather than feared, you have served extremely well all of us who dared to cross the threshold between man and machine. We salute your leadership, your friendship, and your example! With good health and continuing vision, and yes, most assuredly, with the unforgettable shock of hair and the effervescent grin, may you guide the Starship MVL for another 40 years or more!

With admiration and gratitude,

John R. Tole
S.M., 1970, Sc.D., 1976

To Chuck Oman, with whom I was able to share the experiences of Spacelab missions, the SMA, converted warehouses at Edwards, hot and humid days at Ellington, KSC landings and a mutual interest in flying and sailing.



To Chuck Oman, whose models of motion sickness and profound knowledge of that topic changed the direction of my career.

Happy 65th birthday and all the best in the future!

p.s. I'll be reaching the same milestone next September. You'll have to tell me what it's like.

Doug Watt

Dinner Remarks

I. Introduction

P A. Introduce selves

K B. Many of you have known him even longer than we have!

K C. Larry asked us to give you a little slice of life at the Omans

II. Childhood: Any answer to any question

P A. Always ready with an answer or lengthy (but interesting) quantitative explanation

1. What is infinity?

2. How come birds can fly?

3. How far away is the sun (only asked when Dad was away - Mom eventually wrote the answer down)

K B. When we got to school

1. Some of this stuff started to make sense

2. Always encouraged our intellectual curiosity

C. Now that we're grownups

P 1. Call him up when you're at Best Buy

K 2. Count on him to know what to do when your impeller melts on the boat that's not really yours

III. Extracurricular

- growing up sailing on Ld. Sound

K A. Many of you know that I share my father's obsession with sailing
- shared his love of the sea with us
- commodore of the WBC
- continues to take part in ocean racing

P B. Scuba diving

1. something he'd done as a young man, relatively recently returned to it

2. underwater photography

3. travel

C. Genaeology

P 1. interest in history

2. both the Omans and the Huesteds

IV. Conclusion: looking ahead

A. Lewis and Clark Trip

K

1. geneaology related

2. ends in Seattle!

B. Cruises & diving

P

1. Curacao, Bonaire, BoraBora, etc

C. more neurobiology

1. so happy to come to work every day

2. loves what he does,

3. loves working with such a diverse, energizing group of colleagues.

thanks!

Alan Natapoff:

Chuck,

Congratulations, Happy Birthday and Happy Milestone.

I have always found pleasure in the calendar, but today it baffles me. It tells that you were born into a world in which scientists lined up to use any adding machine that could take square roots, and in which MIT had to promise to support punch cards until the last user gave up the ghost. The typical student had computing power, but it was a wooden instrument invented before Newton was born. Almost no one had seen a digital computer outside of captivity.

The calendar tells us, too, that you have given decades to our lab, but it is hard to believe that there has been enough time for that. The theologian Tertullian proclaimed, “I believe because it is impossible.” Today, at last, I can feel his theological poetry.

One of our students said, amazed, when told of this occasion and the number that went with it, "Yes, I saw that, but I thought it must be a misprint."

You have been associated with the Man-Vehicle Laboratory since Lyndon Johnson was president, before personal computers and the

internet. Then "posthaste" meant speedy and now translates to "snail mail." From the time when a mythical Bionic Woman won an Emmy, to our own era, in which three out of four consecutive secretaries of state have been real women and the fourth was a Yiddish-speaking African-American general from the city you were born in.

You have been here at MIT from “In the Heat of the Night” and “Guess Who’s Coming to Dinner” to a world of *President* Obama. When the world was watching “The Graduate”, you *were* a graduate. When the world was watching "A Man for All Seasons", you were becoming that man.

In your time here, Cherry blossomed in your life, and you have raised a talented, athletic son and a talented radiant daughter devoted to the art of light. You have given generations of students an example of scientific fastidiousness, dedication to clarity, and invincible, wide-ranging curiosity.

And, you have carried all of that lightly, with the sunny, optimistic defiance of challenge that navigates around riddles. Once there were signs near JSC saying "Houston know-how and Texas can-do." Exactly.

Your students--like birds trained by sound recordings from birth to sing prodigious songs beyond their species--go through the rest of

life thinking that it is normal for all mentors to be generous and encyclopedic. Good luck to them--but good fortune to *their* students.

Your namesake, Sir Charles Oman, the great historian of the last century, wrote memorably about military history that ranged over continents and thousands of years. Some day you may write your own memoirs—of scientific battles and engagements of your curiosity with the world, over land (as in locomotives), sailing the sea, flying, and in space. It is only in your lifetime that such a tetrathlon has even been possible.

If your saga were made into a movie, you would be played by Brad Pitt, and Cherry by Angelina Jolie--for face validity. The screenplay would be written by David Mamet--a Cambridge author who will surely insert some cinematic noir to keep the narrative credible.

In the meantime, we are fortunate to have had you and I have forgiven the besotted calendar for its distortions. As Douglas Southall Freeman, the Pulitzer Prize biographer of Robert E. Lee wrote, "I have been .. privileged to have lived over a decade in the company of a gentleman." Yes, indeed, but make that *four* decades.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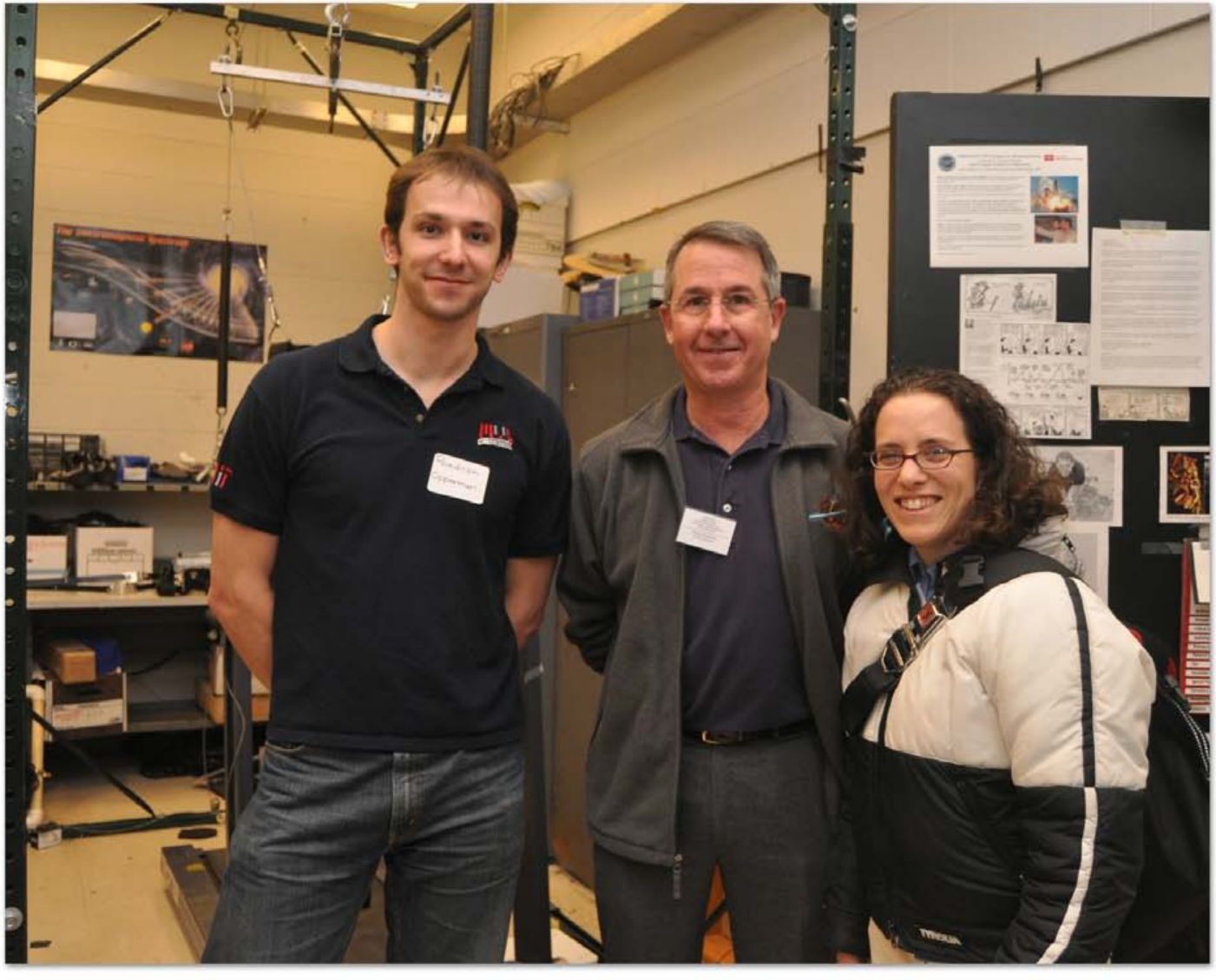

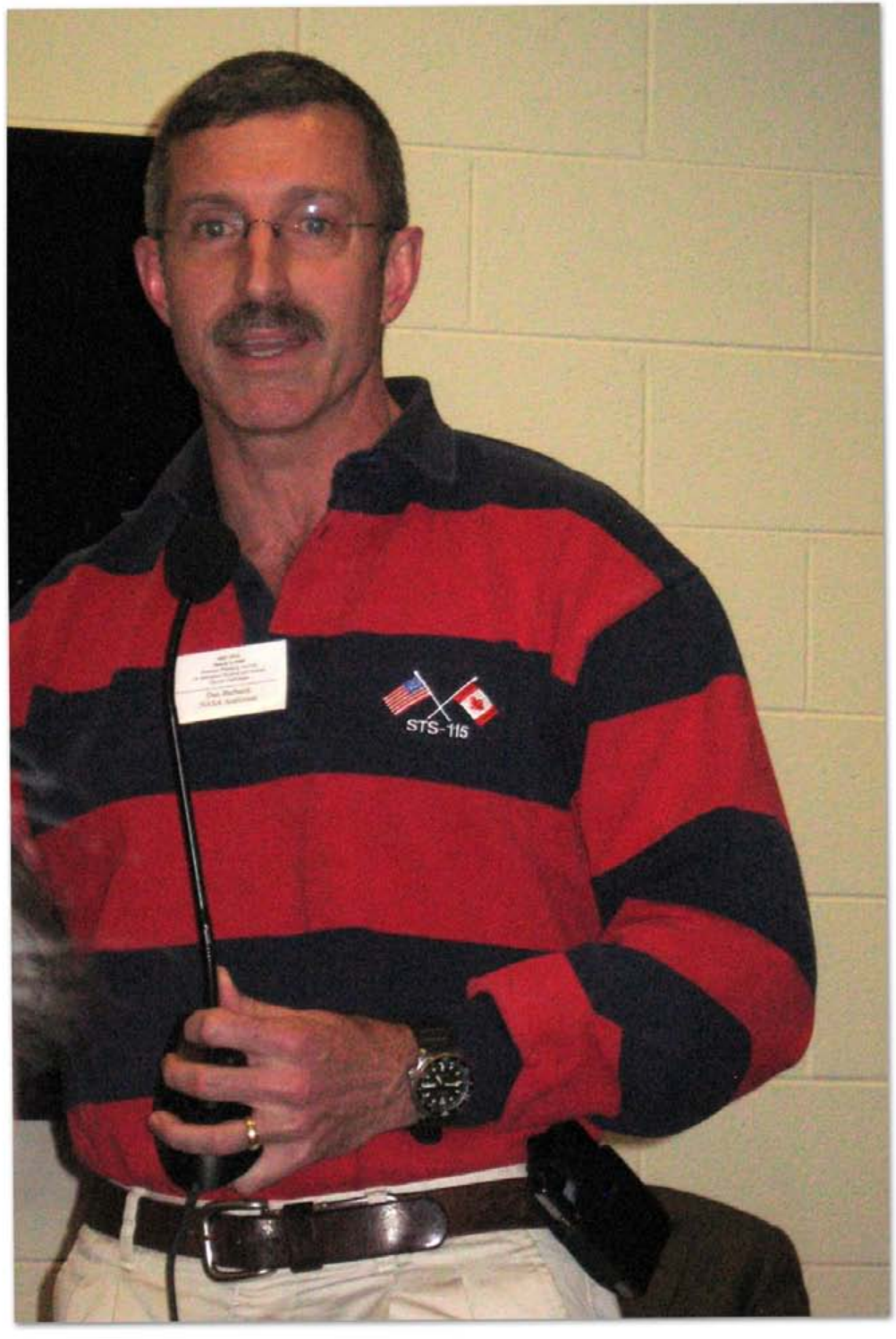
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