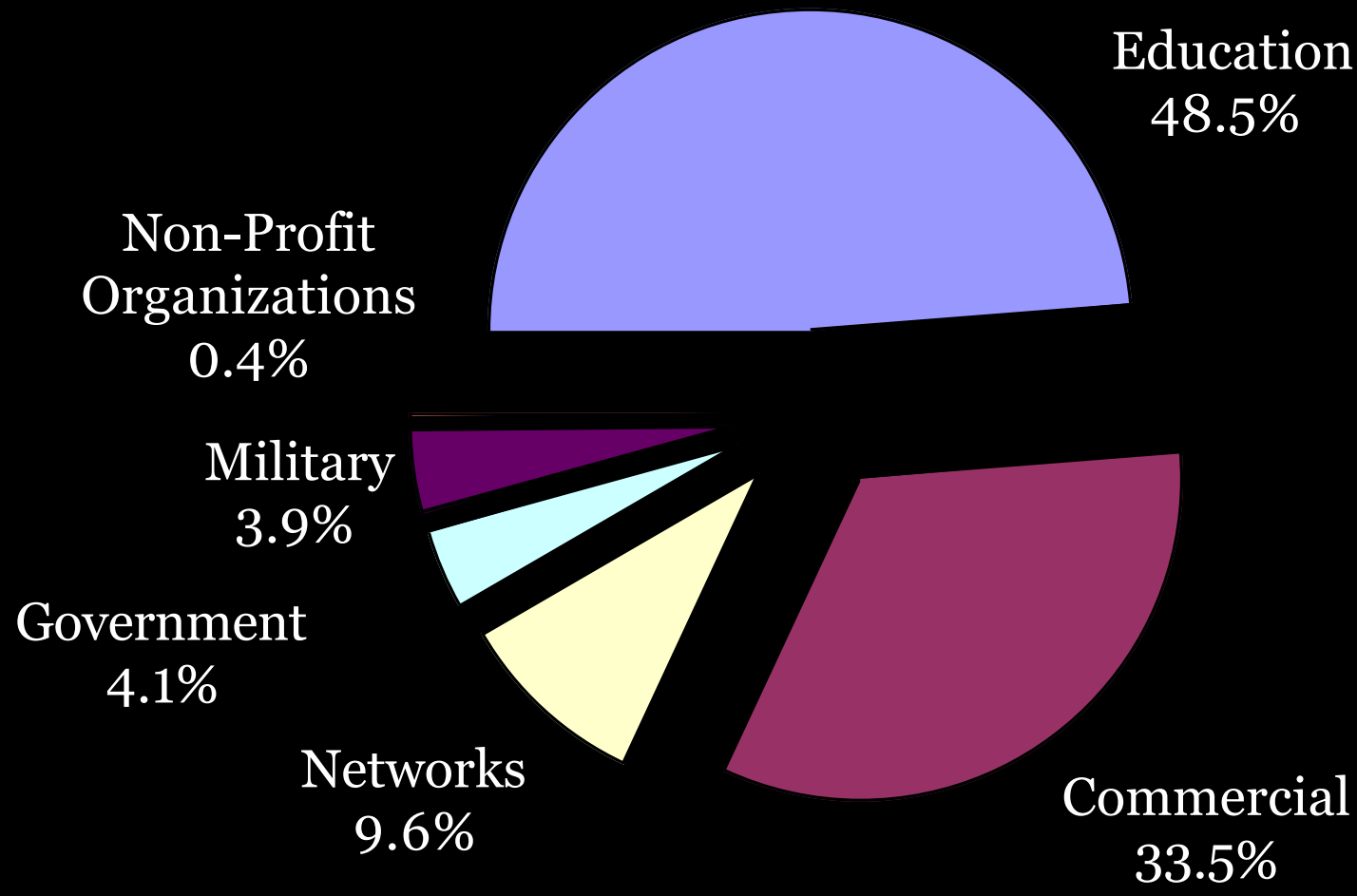
What to Expect from ETDs:
If you build it, they will use it.

Gail McMillan (gailmac@vt.edu)
director, Digital Library and Archives
University Libraries, Virginia Tech
for CASE WESTERN RESERVE UNIVERSITY
Sept. 21, 1999

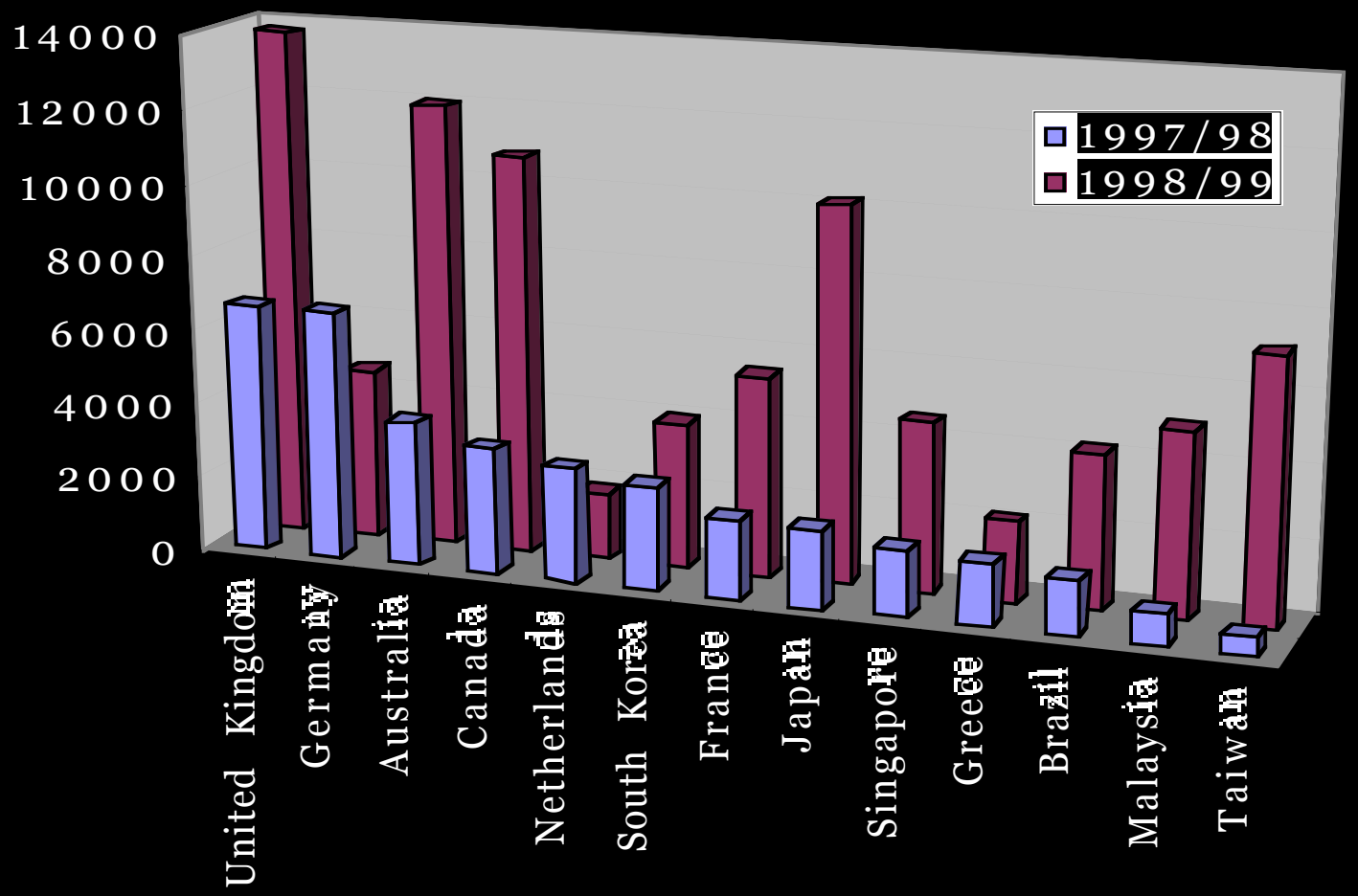
Virginia Tech

Access to ETDs from USA: 1998/99



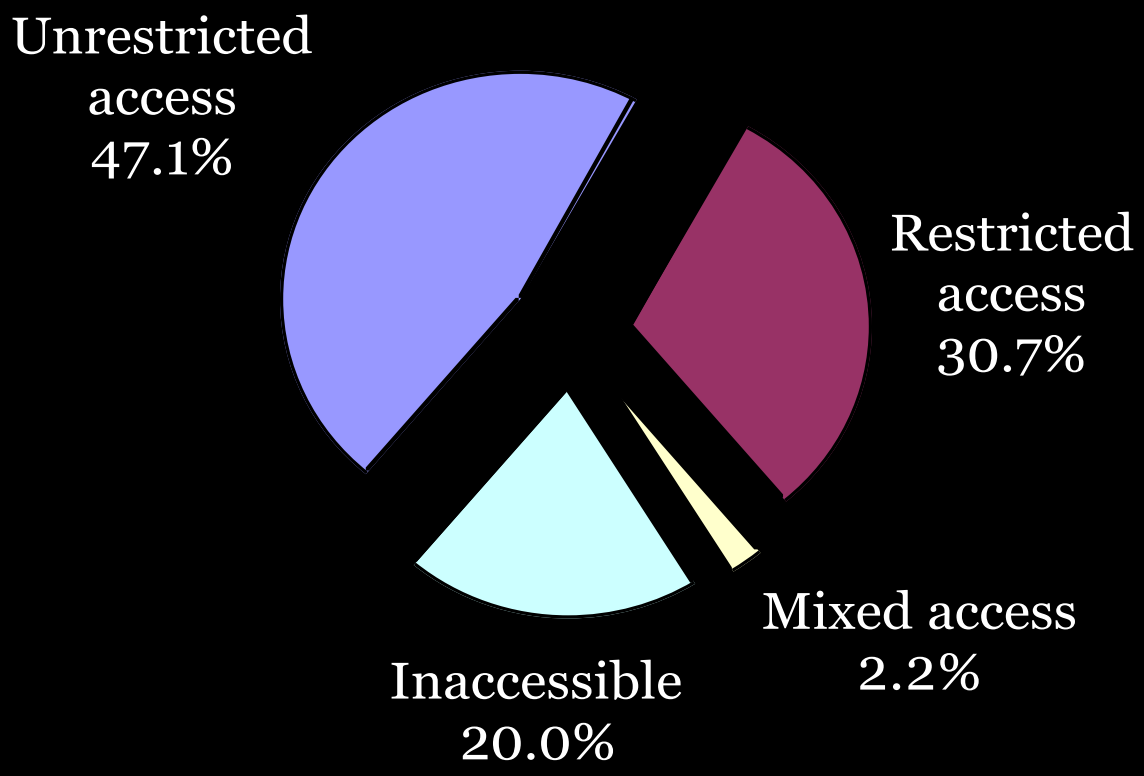
Virginia Tech

International Access to VT ETDs



Virginia Tech

What are authors making available?
2046 VT ETDs



Virginia Tech

Contemporary Turkish Coffeehouse Design Based on Historic Traditions

Timur Oral

MS, Interior Design
College of Human Resources and Education
April 1997

Virginia Tech

All the King's Horses: Delta Wing Leading-Edge Vortex System Undergoing Vortex Breakdown: A Contribution to its Characterization and Control under Dynamic Conditions

Norman Schaeffler

PhD, Engineering Mechanics
College of Engineering
April 1998

Virginia Tech

an end to the ‘other’ in landscape architecture: poststructural theory and universal design

David Orens

Master of Landscape Architecture
College of Architecture and Urban Planning
April 1997

Virginia Tech

ETDs: Library Goals

- Improve library services
  - Better turn-around time
  - Always available
- Reduce work
  - catalog from etext
  - eliminate handling: mailing to UMI, bindery prep, check-out, check-in, reshelving, etc.
- Save space

Virginia Tech

ETDs: Library Responsibilities

- Server: maintenance and archiving
- Improve access to information
  - Public access
    - Web and public catalogs
    - Internet workstations
- Introduce users, train authors
- Future

Virginia Tech

ETDs Stimulate Discussion!

- Archiving
  - Digital format only
  - Frequent back-ups
  - Copies on multiple servers at multiple sites
  - Collaborate to mirror sites
- Copyright remains with authors
  - Retain their rights
  - Permit library to store and to provide access
  - Give publishers similar permissions
- Publishers

Virginia Tech

ETDs and Publishing

- Authors have ambitious publication plans
  - 85%: articles, proceedings, chapters, books, etc.
- 43% of surveyed alumni published
- How many encountered resistance from publishers because ETD was online? Zero.

Virginia Tech

Lessons Learned from ETDs

- Implementation of new formats slower than expected
  - still text oriented
  - new graduate students can plan for ETDs
- If you build it, it will get used.
  - access exceeded expectations
  - disappointing that 20% are inaccessible
- No longer experimental
  - surprising increase in number and diversity of NDLTD institutions implementing ETDs
- Remarkable increase in exposure to graduate student research done at Virginia Tech

Virginia Tech

A CONTEMPORARY TURKISH COFFEEHOUSE DESIGN BASED ON HISTORIC TRADITIONS

by

Timur Oral

Thesis submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in

Housing, Interior Design, and Resource Management

APPROVED:

Jeanette Bowker, Chair
Muzaffer Uysal
Eric Wiedegreen

April 16, 1997
Blacksburg, Virginia

Keywords: Turkish, coffee, coffeehouse, tradition, culture, franchising, shop design

Figure 7. Polychrome wall tile application and pottery samples of Iznik (Atil, 1980).

Figure 8. Sample Turkish carpet and kilim motifs. The upper two samples are kilims, and the

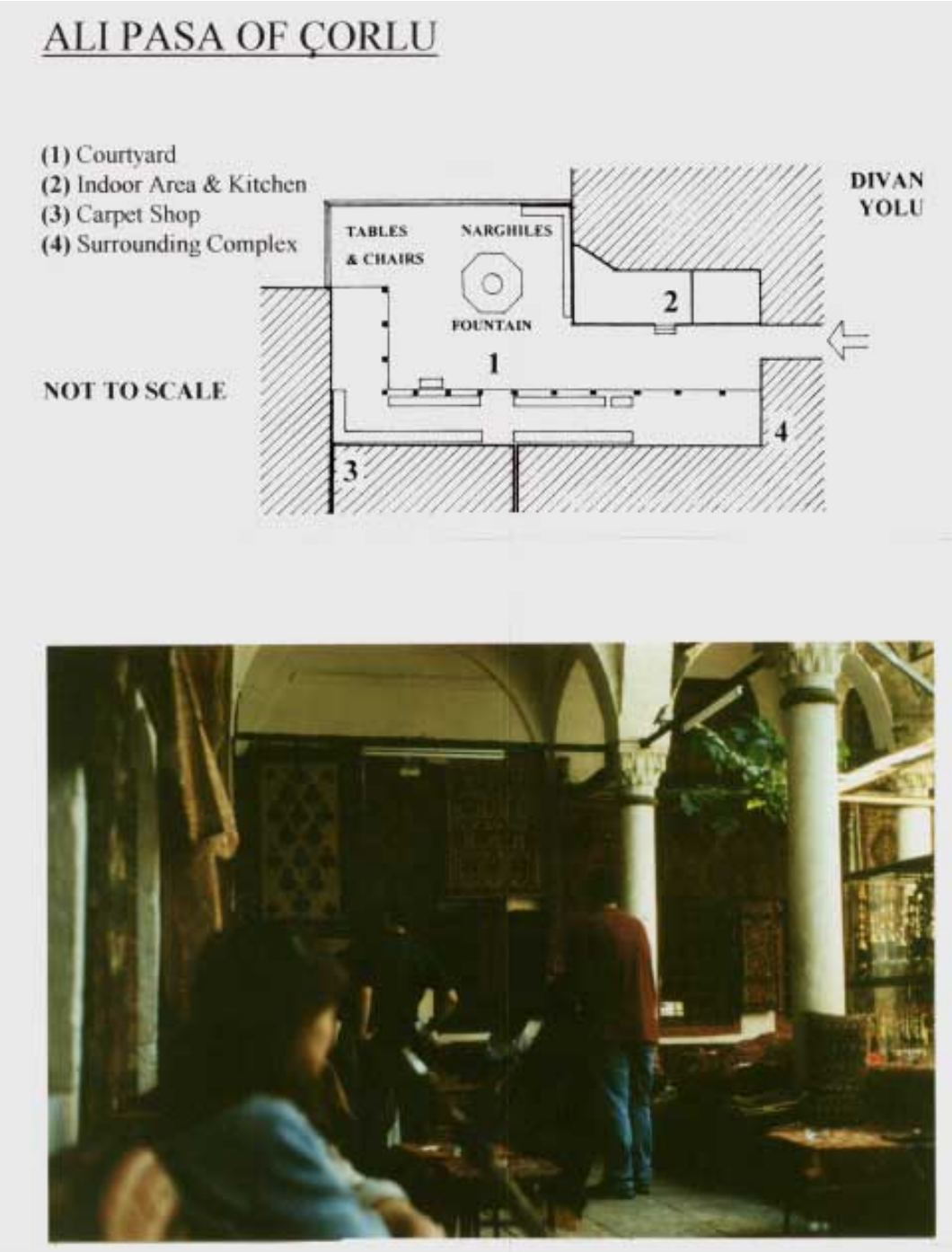


Figure 19. General view and floor plan of *Ali Pasa of Çorlu* coffeehouse.

ALL THE KING'S HORSES:

The Delta Wing Leading-Edge Vortex System Undergoing Vortex Breakdown: A Contribution to its Characterization and Control under Dynamic Conditions.

By
Norman W. Schaeffler

Dissertation submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY
IN
ENGINEERING MECHANICS

APPROVED:

Demetri P. Telionis, Chair

Roger L. Simpson — Ronald D. Kriz

Muhammad R. Hajj — Dean T. Mook

April 20, 1998
Blacksburg, Virginia
The United States of America

Key Words: Delta Wing Aerodynamics, Vortex Breakdown, High Angle of Attack Control
Copyright ©1998, Norman W. Schaeffler

CHAPTER 1: INTRODUCTION

When a uniform stream encounters a delta wing at a positive angle of attack, the flow attaches to the windward side of the wing. A line of attachment is formed coincident with the centerline of the wing and the flow is diverted either to port or starboard. Boundary layers develop on the windward side of the wing, originating at the line of attachment and developing as the fluid moves towards the leading edge. Upon reaching the leading edge, the boundary layers, unable to negotiate the sharp corner of the wing, separate and form two free-shear layers. These free-shear layers in turn, organize themselves on the leeward side of the wing into a symmetric pair of counter-rotating vortices. The existence of these two vortices is the essence of the delta wing flowfield. The vortices induce axial velocities within their cores on the order of two to three times the free-stream velocity and support circumferental velocities approaching two and a half times the free-stream velocity. These large axial velocities generate an incremental lift for the wing, usually referred to as vortex or non-linear lift. The vortex strength and hence, the axial velocity induced in the core, increases as the angle of attack increases, but only up to a point. Above a critical angle of attack, a fundamental change in the structure of the vortex occurs and the high axial velocities within the core can no longer be sustained. The axial velocity decreases, the vortex grows in diameter and the circumferental velocities correspondingly decrease. The vortex has “broken down”.

1.1 Delta Wing Aerodynamics

The typical airframe application of the delta wing is the jet fighter. The requirements for a high-performance “supermaneuverable" fighter aircraft dictate a blend of high supersonic cruise ability and optimal low speed control. It is for the former reason that the delta wing is the planform of choice. The latter requires a wing with excellent low Mach number flight characteristics, a well-known weakness of delta wings. The presence of the

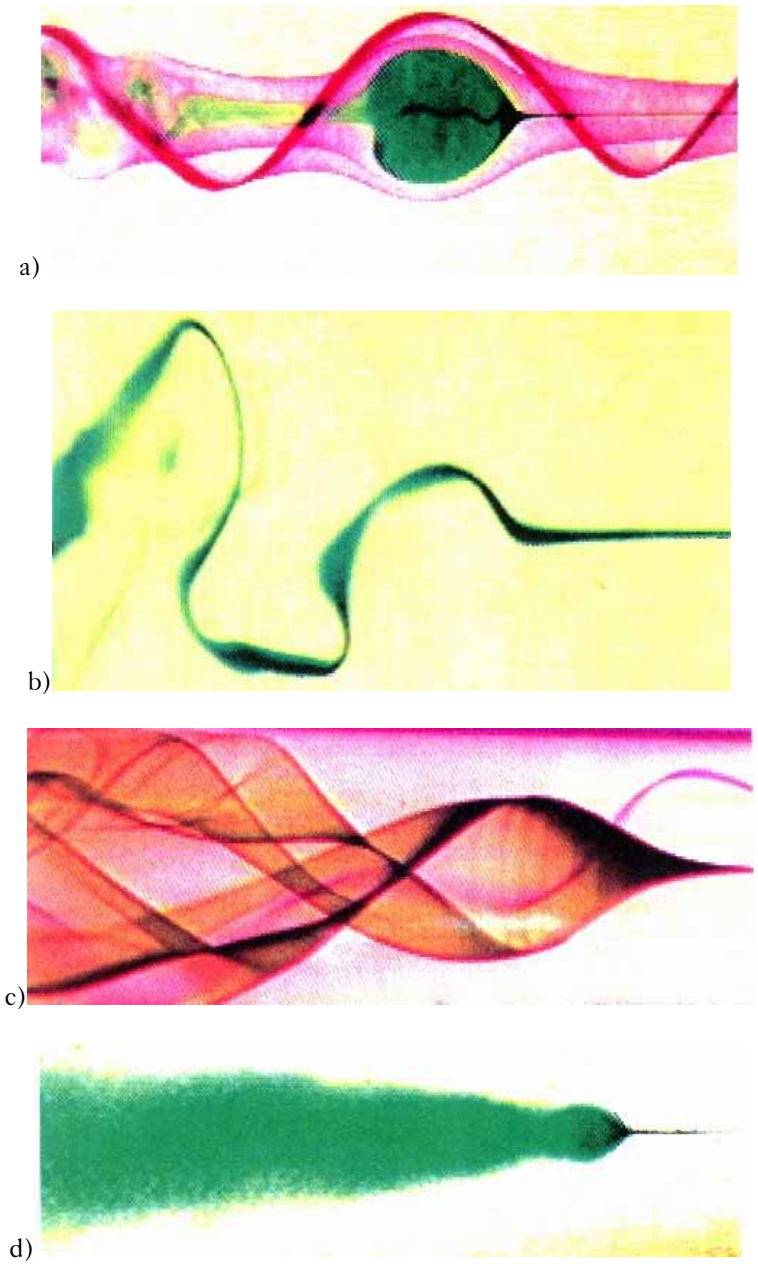
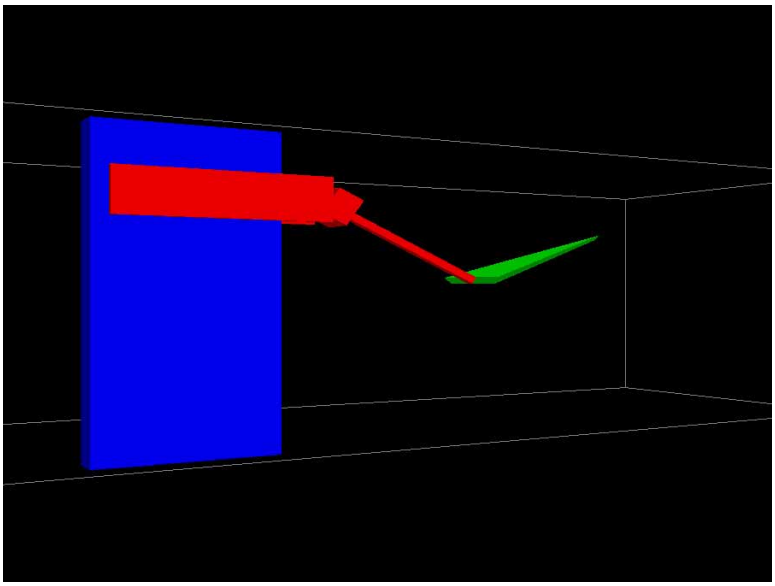


Figure 1.2: The four types of vortex breakdown as defined by Sarpkaya. a) bubble, b) spiral, c)double helix, and d) conical. Vorticies are visualized by the use of dye. Photographs are from Sarpkaya (1994).

valid. Since access to the raw voltages sent out of the D/A board was lost, a different technique was required to deploy the flaps with the new motion file format, dubbed the General Motion File format or the GMF format. The new system involved using a hardware counter to count a clock train from the DyPPiR control computer. This clock train was in sync with the D/A conversions of the command signals. The counter was pre-set with a value and triggered the flaps once that count was met.

So the reader can gain a better understanding of the physical arrangement of the DyPPiR, Media Object 1.1 presents a computer-generated image of the DyPPiR, which is from a piece of software used to test motions for the DyPPiR, the DyPPiR Simulator. The image is a link to a Quick Time Virtual Reality (QTVR) movie of the DyPPiR as it appears in the DyPPiR Simulator.



Media Object 2.1: The DyPPiR as seen in the DyPPiR Simulator used to test motions. The blue rectangle is the pylon, the red objects are the carriage and sting, and a green delta wing of 1.00-meter chord is attached at a 50° offset. Grey lines represent the bounds of the tunnel. All objects are drawn to scale. Click the image above to access a QuickTime Virtual Reality (QTVR) movie of the DyPPiR Simulator. Click here to see the DyPPiR execute a manuever.

However, bubble paths can be seen in the right vortex also and they could only get in there through periodic rapture of the separatrix between saddles S'_1 and S_3.

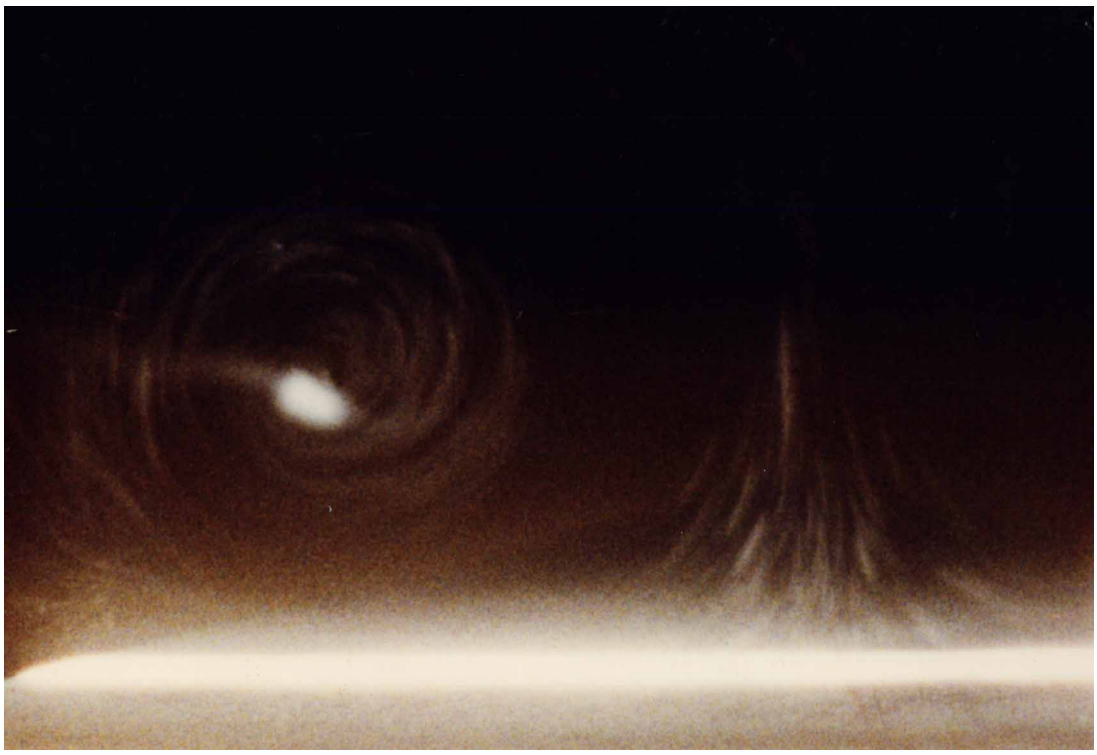


Figure 3.11: Visual evidence of the unstable nature of the saddle-to-saddle connection between the two delta wing vorticies.

The image in Figure 3.11 was the inspiration for the development of a new visualization technique for the leading-edge vortex. It would be informative to look at a sectional cut similar to that in Figure 3.11, but with the particle traces within the “light sheet” color coded as to the origin in the flow of the streamline that the particle trace is part of. By color coding the starting location of each streamline we can identify how fluid particles, or streamlines, which originate at the leading edge or anywhere upstream are incorporated into the structure of the leading edge vortex. Several start sites for the streamlines are selected. By varying the viewing plane, the "light sheet", it can be seen how different parts of

4.2.2 Experimental Conditions for Cavity Flap Deployment during a Maneuver

Experiments involving cavity flap deployment were conducted in two facilities, namely the Virginia Tech Stability Wind Tunnel and the ESM Wind Tunnel. This permitted testing over a range of Reynolds numbers from 10^5 to 10^6.

In the Stability Tunnel the Black model was equipped with a set of deployable cavity flaps. Two Bimba 1.125-inch bore pneumatic actuators were installed in the model. A clevis and linkage connect the actuator to a lever arm, which is connected directly to one of the flaps. A hole was machined through the wall of the model to allow the lever arm to pass through and connect to the flaps. Mechanical drawings for the flaps and all the linkage parts are contained in Appendix A. The flaps themselves are hinged along the bottom of the model and when not deployed, are stowed flush along the side of the model. The cross section of the wing is virtually unchanged with the flaps stowed. Photographs of the flaps deployed and stowed on the Black model can be seen in Figure 4.19.

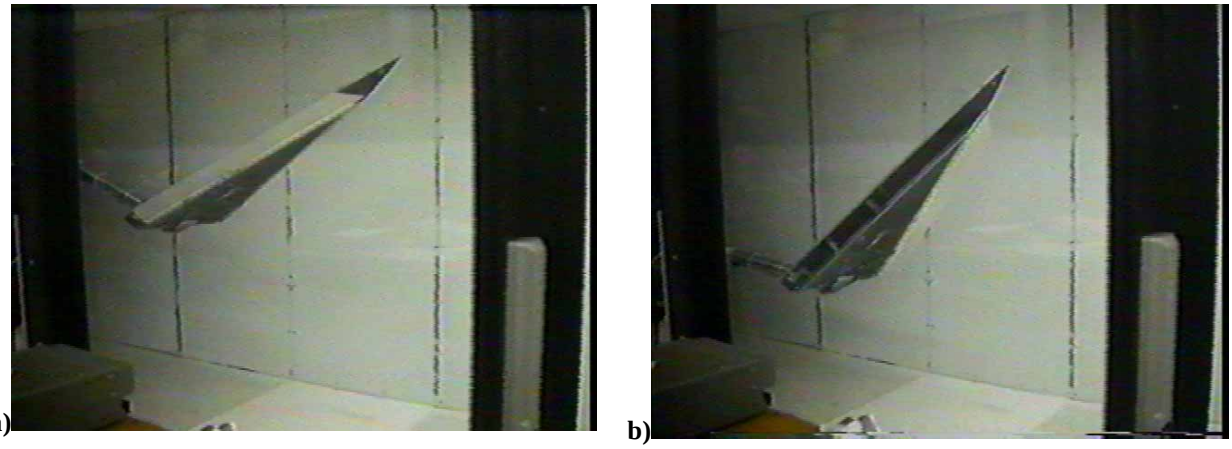
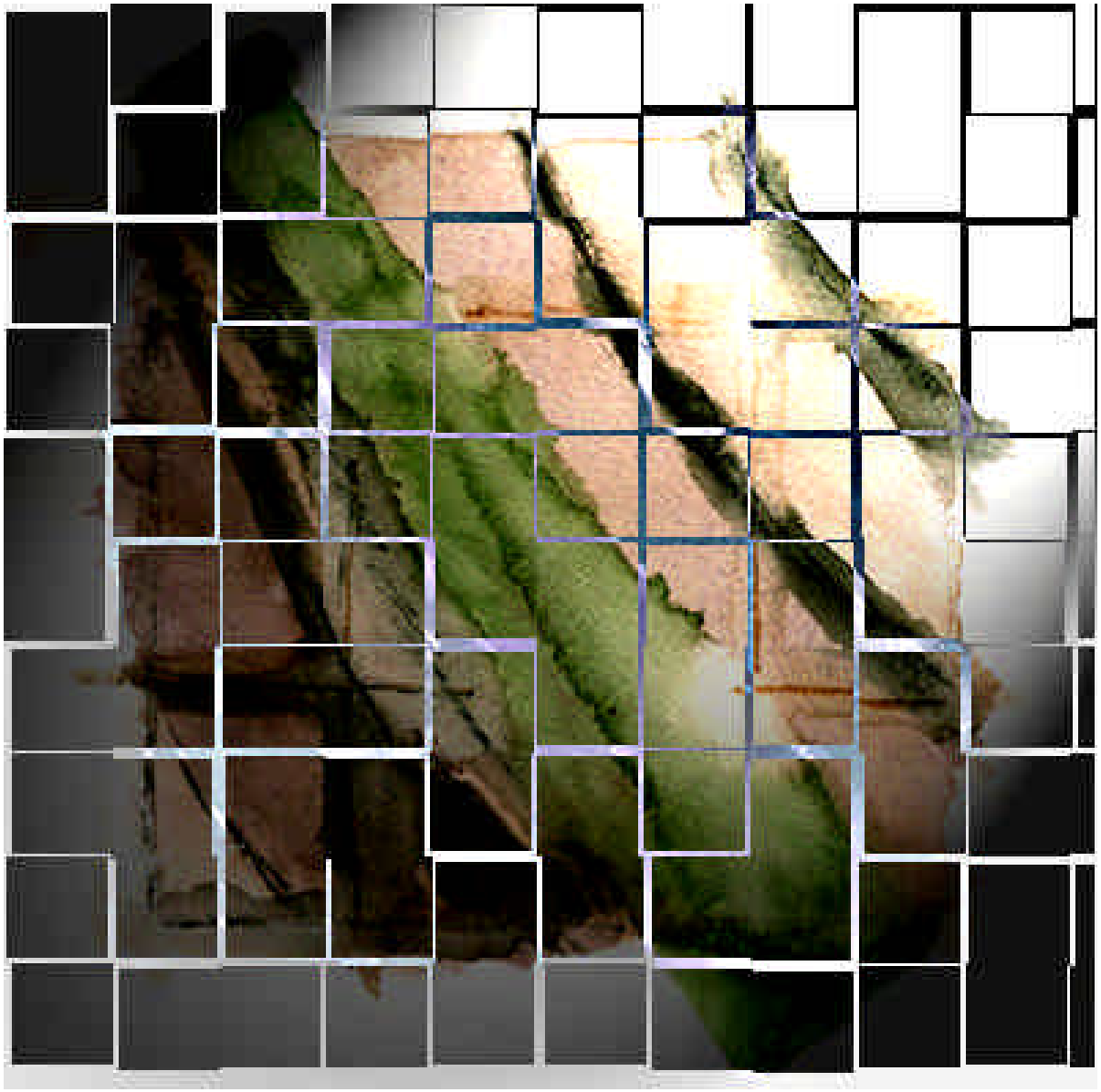


Figure 4.19: Video captured images of the Black model mounted on the DyPPiR with its cavity flaps, (a) stowed, and (b) deployed.

The pneumatic hoses that feed the actuators come out of the model through a hole in the trailing end of the model. The hoses are then secured to the sting and brought back out of the tunnel to the control valves. The control valve assembly consists of a bank of three-way



an end to the ‘other’ in landscape architecture: poststructural theory and universal design

d a v i d m. o r e n s

an end to the 'other' in landscape architecture: poststructural theory and universal design

by
DAVID M. ORENS

Thesis submitted to the faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

MASTER
OF
LANDSCAPE ARCHITECTURE

Approved:

Dean Bork, Chair

Terry Clements **William Green**

April 30, 1997
Blacksburg, Virginia

Keywords:
Design Theory, Cultural Theory, Accessibility, 'Disability,'
Segregation, Deconstruction

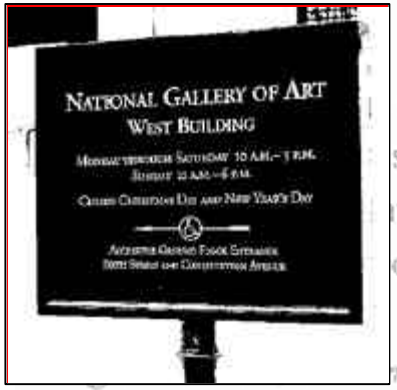
Copyright 1997, David M. Orens

Chapter 1 ***Introduction: The shifting paradigm…***

Accessibility in landscape architecture and architecture is too often only approached in terms of its formal implications. How can this landscape or this building, we ask, be brought into compliance with the accessibility codes, or be initially designed as 'accessible ?'[1] These texts are an attempt to expand the limits of that conception, to engage the social and cultural agencies which influence our concept of accessibility. This is, inevitability, no less of a fiction than the current approaches to accessibility, and it is difficult to propose that what is written here is in opposition to some current way of thinking – as if I, or it, could ultimately transcend the conditions of the 'reality' from which it develops. Nor can I say that I have located all of the 'right' problems, although such an activity is definitely on the agenda – to challenge the complacent and the regressive, to question social conditions, to resist the structures and institutions that serve the powerful and perpetuate powerlessness. But, as author Lynn Tillman says, "I must contribute daily, involuntarily, but in small and big ways toward keeping the world the way it is" (Critical Fiction 2-3).[2]

- agency
- fiction
- text.1

1.1



1.2

[1] Throughout the text, single quotes are used to suggest a questioning of the concept within the quotes. These "scare quotes" as writer Susan Wendell calls them are intended to bring to the reader's attention those concepts or ideas that the 'author' believes are in need of examination and critique. They are many times words used in everyday language which have come to have certain implications that the author intends to challenge and they are many times concepts which can have negative implications associated with them. They are also occasionally used as quotes within direct quotes and unless otherwise noted should be taken as such when they appear within directly quoted material.

[2] This discussion of the positioning of the author is based on a commentary by Tillman in Critical Fiction / Critical Self. Says Tillman, "I am wary or shy of proposing my fiction as written in opposition to, or to pronounce that I write differently, as if I – or it – could transcend conditions of birth and development – its and mine -- and was somehow able to escape them. Or even that I knew, and the writing could locate, the right problems. It's certainly on my agenda – to challenge the complacent, to question the nation, familial, racial and sexual arrangements, to resist structures and institutions that serve the powerful and perpetuate powerlessness. But as I wrote of the narrator in my novel Motion Sickness – an American moving from place to place in foreign lands – 'I must contributor daily, involuntarily, but in small and big ways toward keeping the world the way it is.' (The question of agency haunts the novel.)" (2-3).

as ‘other’ and considered outside the norm of society. “Accordingly landscapes become documents of power, palimpsests reflective of different value systems and dominance, position, and influence of different social groups within them.”[3] Landscapes, in which significant portions of society are treated as second class citizens, still exist. While, with the advent of the ***American’s with Disabilities Act*** (ADA) of 1990 and principles of Universal Design, the built environment as a whole has become dramatically more accessible, separate, and far from equal, types of ‘accommodations’ still exist.

3.1

Universal Design can be characterized as an emerging philosophy in accessible design, which advocates the creation of products, buildings and environments that are accessible to the broadest range of people, without singling out any specific group for special treatment. As a basis for design, it promotes an integrated environment in which issues of accessibility are seen as part of the overall design scheme and not separate accommodations. *‘Separate but equal’* is generally considered unequal when it comes to discrimination based upon race or religion. However, separate is exactly what many, if not most, ‘handicapped accessible’ accommodations continue to be. Universal Design argues at a very basic level that such separate accommodations are an inadequate solution to the problems of accessibility. Although the concept has a strong civil rights component, it can be understood not only in the context of the ‘handicapped,’ but as an issue relevant to society as a whole.

- ‘accommodation’
- able
- ‘disabled’
- integrated
- ‘handicapped’
- equivalent
- experience

3.2

Universal Design aims for a better designed environment for everyone, not just a small portion of society. Said Gordon Mansfield, former chair of the **Architectural and Transportation Barriers Compliance Board**, “Universal Design is ‘an approach to design that acknowledges the changes experienced by everyone during his or her lifetime. It considers children, old people, people who are tall or short, and those with disabilities. It addresses the lifespan of the

3.3

[3] In “Private Worlds and Public Places,” Matthews and Vujakovic explore the issue by examining the extent to which wheelchair users must overcome barriers in the urban environment. p. 1069. See also David Sibley, “Outsiders in society” in Inventing Places.