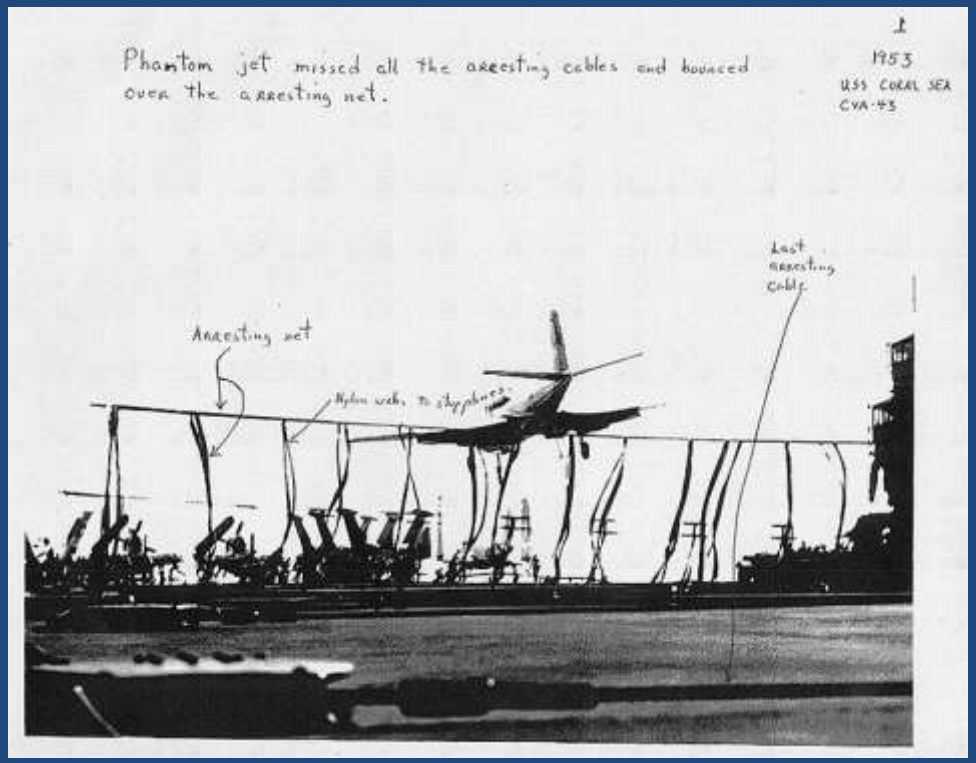
Barriers to Innovation



A Social History of Naval Aviation

CAPT Barney Rubel, USN (ret)

Dean, Center for Naval Warfare Studies

The hardest thing to do is to get an organization composed of smart, dedicated and patriotic people to not act stupid in the aggregate.

Agenda

- Distraction
- Resistance
- Preoccupation

Themes

- Struggle against outside challenges
- Corporate Culture
- Operational Environment

The Sociology of Innovation

- Informal organizations
  - Tribes
  - Cults
  - Baronies
- Goal of all is to protect something; i.e. resist change
  - Tribes: Identity and values
  - Cults: Ideology/doctrine
  - Baronies: Equities, status, perquisites

The Good Old Days

Naval Aviation 1.0
1911 - 1942

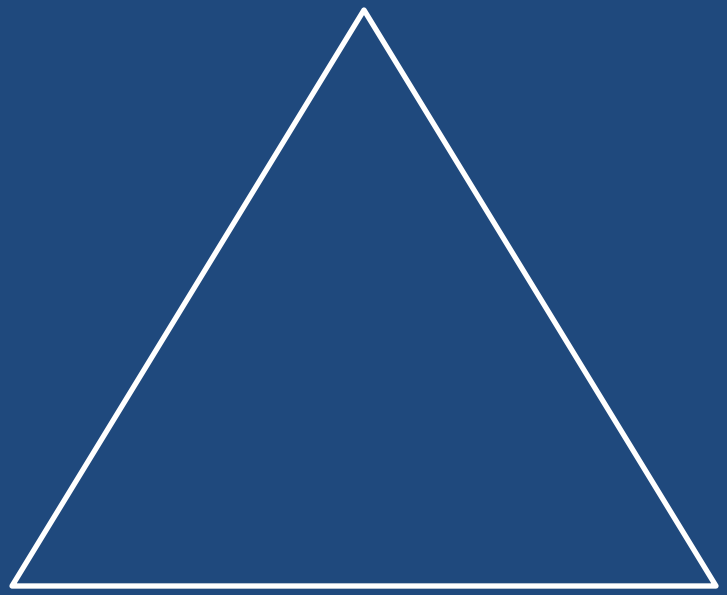
Characteristics of NA 1.0

- Open-minded and experimental
  - No established “baronies” protecting equities
  - Founding theory emanating from NWC
- Sub-specialty
  - Closed community not yet institutionalized
  - Permitted accession of senior battleship officers
- Focused
  - The US Fleet was in home waters and available for experimentation
  - Foreign developments provided impetus
  - General Board provided focus

Innovation Triangle

OPNAV

RADM Bill Moffett
BUAER



NWC

RADM William Sims

CAPT Joe Reeves

The Fleet

USS Langley

The Evolution of Carrier Aviation

From this…

…to this

Naval Aviation 2.0
1938-1945

Characteristics of NA 2.0

- Focused on execution
  - Problem-solving innovation at tactical and technical levels
  - Explosive growth
- Transition to a community
  - Loss of “one Navy” outlook
- Creation of legends
  - Success in battle gave power to ethics/values
  - Increased loss rates reinforced “no tomorrow”

Distraction

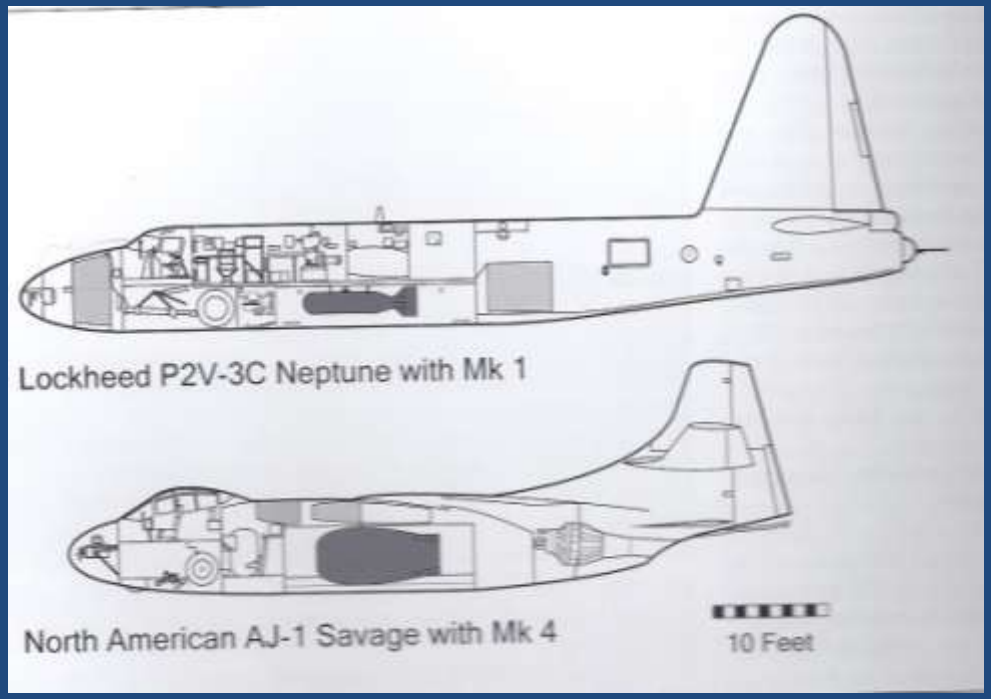
Post-war Threats

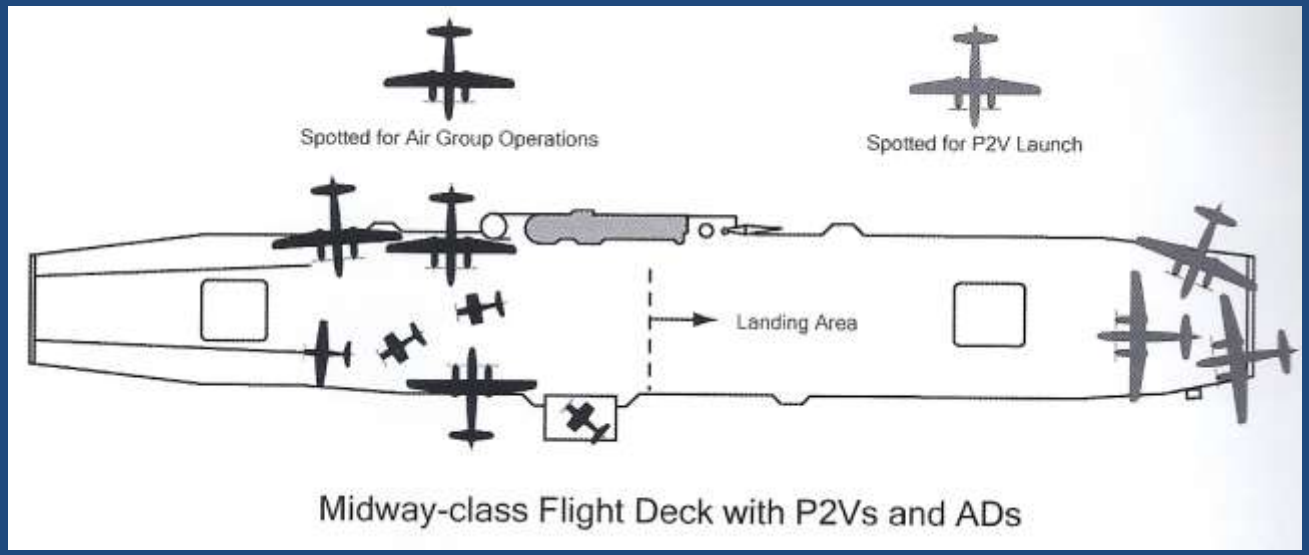
Attack from the Air

The Russians have little or no navy; the Japanese navy has been sunk, the navies of the rest of the world are negligible; the Germans never did have much of a navy. The point I am getting at is who is the big navy being planned to fight. There are no enemies for it to fight, except apparently the Army Air Force. In this day and age to talk of fighting the next war on oceans is a ridiculous assumption.

I see where some admiral on a carrier trip up around Greenland has announced that the voyage has proved that the larger carrier is essential to national defense in order to transport the atomic bomb. This is a false statement and assumption. There is only one airplane that can carry an atomic bomb; if they insist on an aircraft carrier, its flight deck will have to be 6000 feet long.

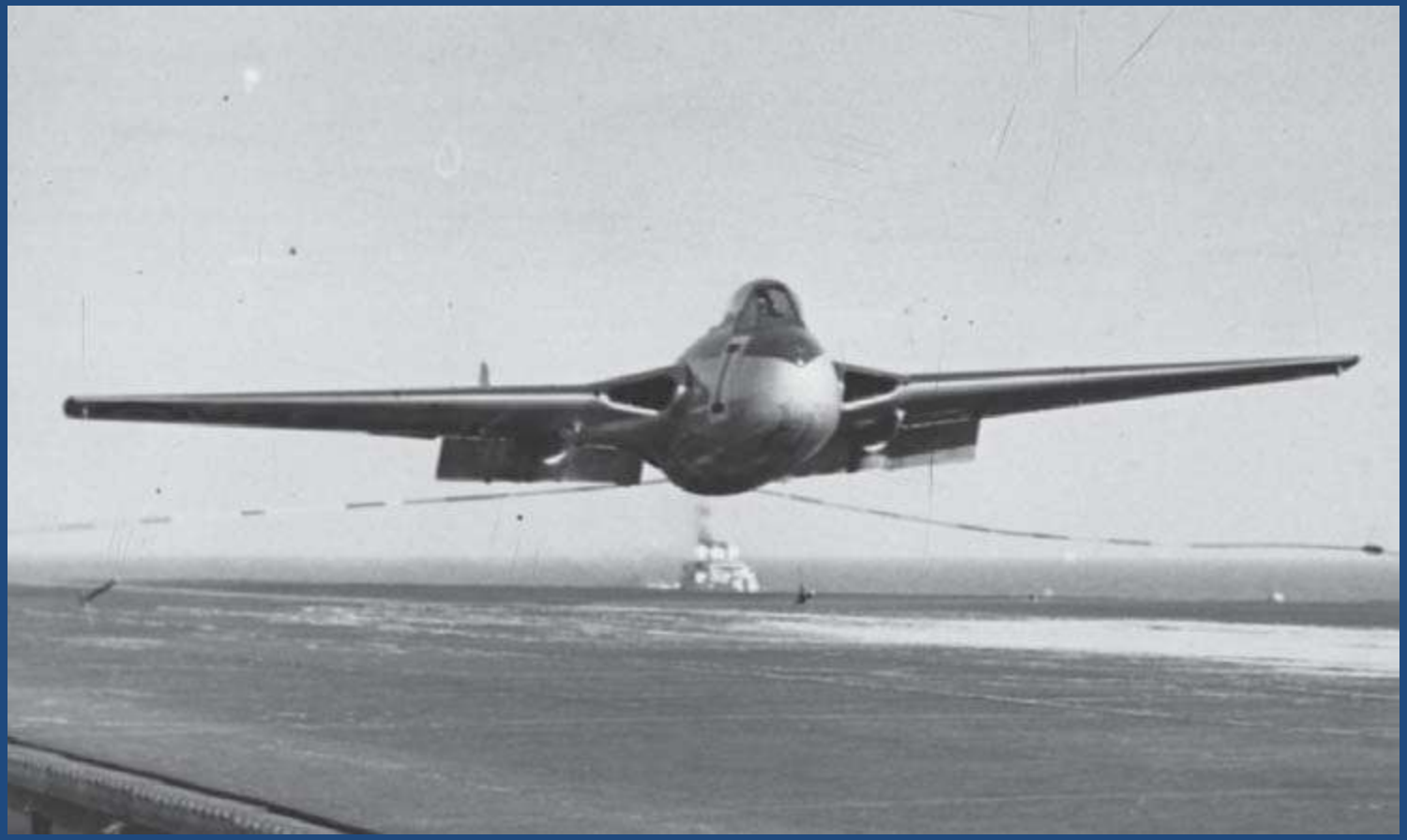
Carl Spaatz


Lockheed P2V-3C Neptune with Mk 1
North American AJ-1 Savage with Mk 4
10 Feet


Spotted for Air Group Operations
Spotted for P2V Launch
Landing Area
Midway-class Flight Deck with P2Vs and ADs

Navy Innovation 1948

Flex Deck



F-18C being readied for launch
by steam catapult

Why?

- USN focus: CV as a nuclear strike platform
- RN focus: CV as a convoy escort

- USN: Beset by challenge from USAF
- RN: Unification battle already fought

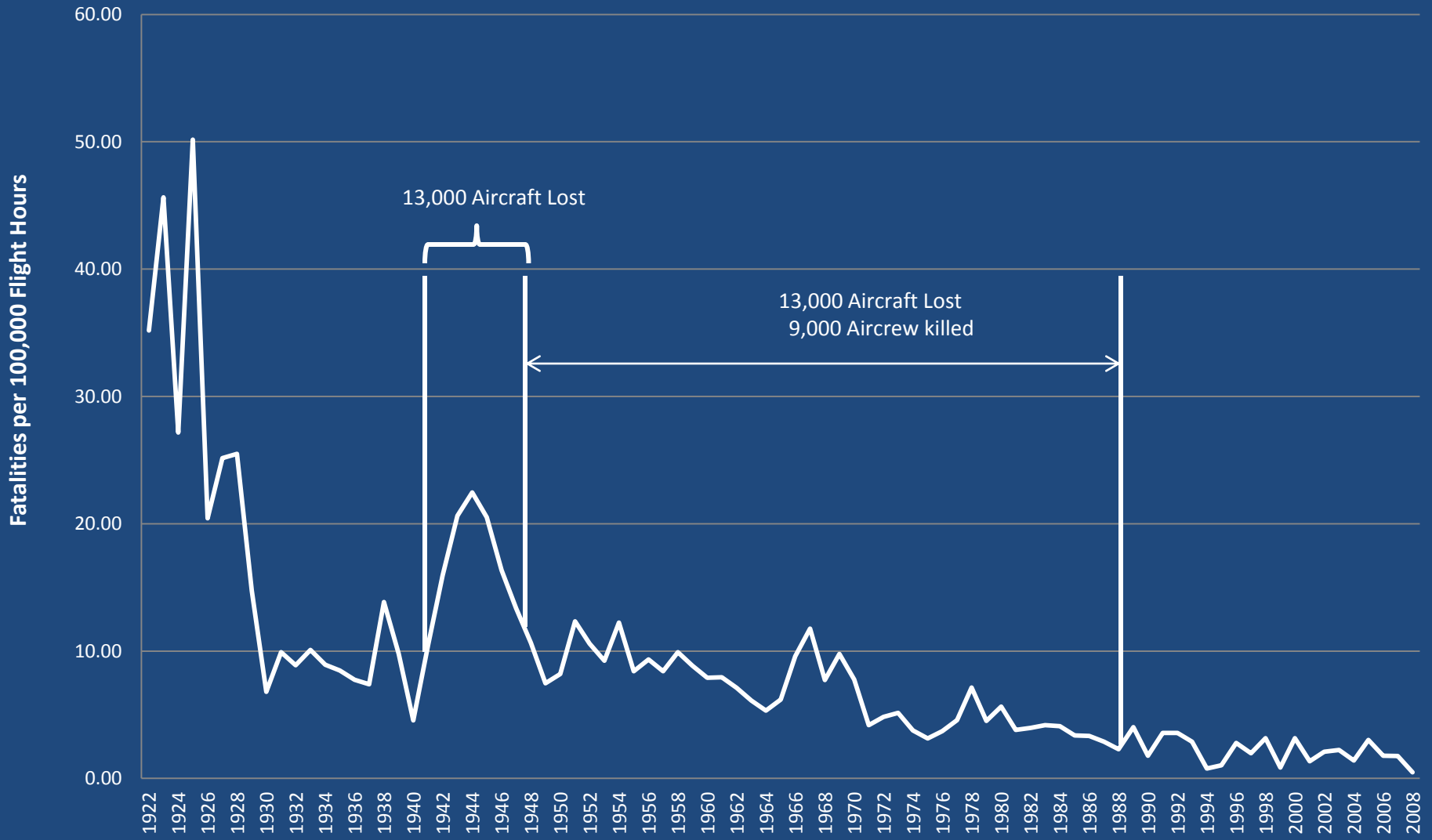
- USN: Sunk costs in hydraulic and explosive cats
- RN: Smaller establishment with fewer sunk costs

Resistance

Corporate Culture

- No Tomorrow

Naval Aviation Mishap Fatality Rate 1922-2008



Corporate Culture

- No Tomorrow
- Rugged Individualism
- Tribalism
- Struggle against the USAF

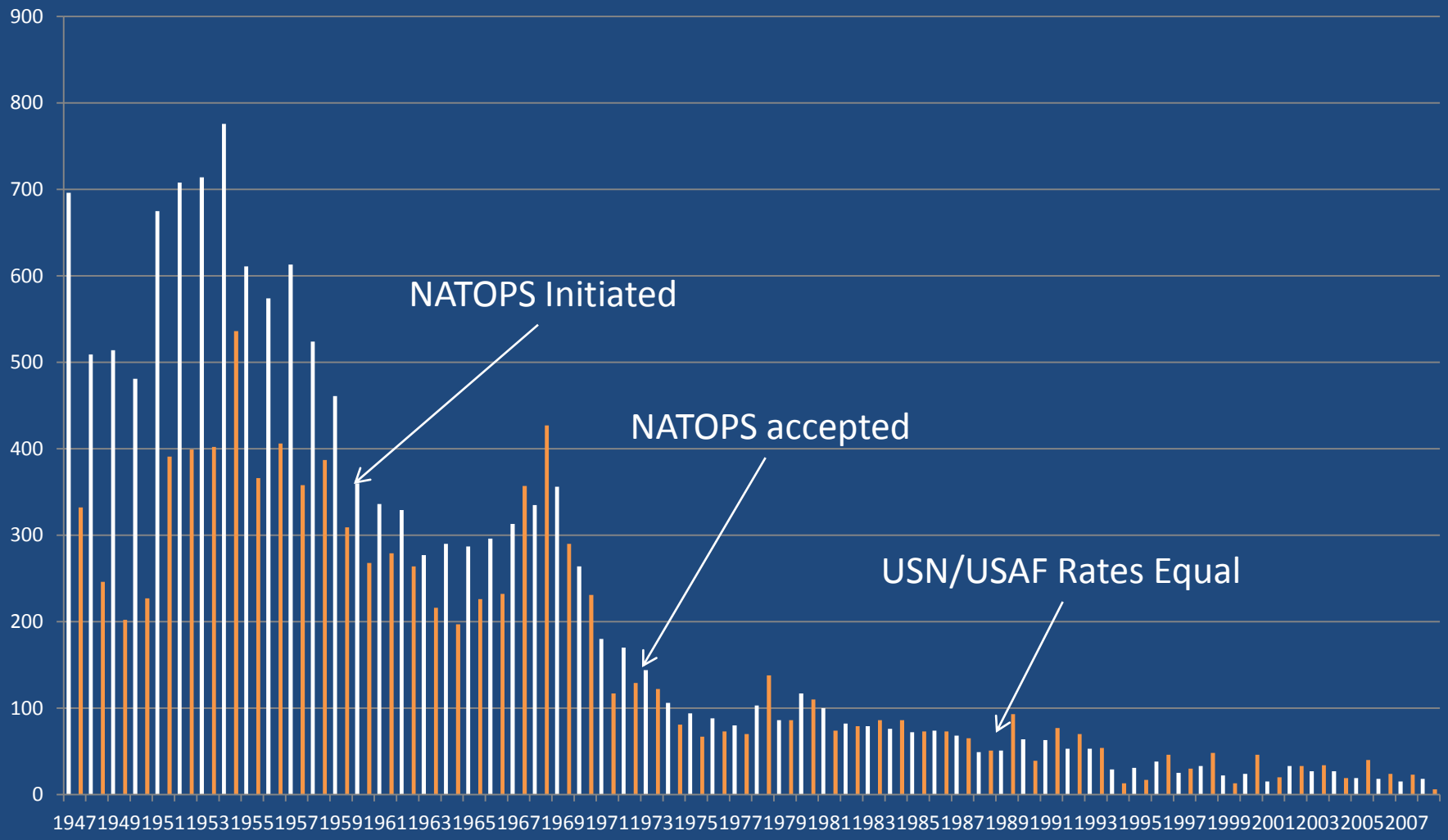
Naval Aviation 3.0

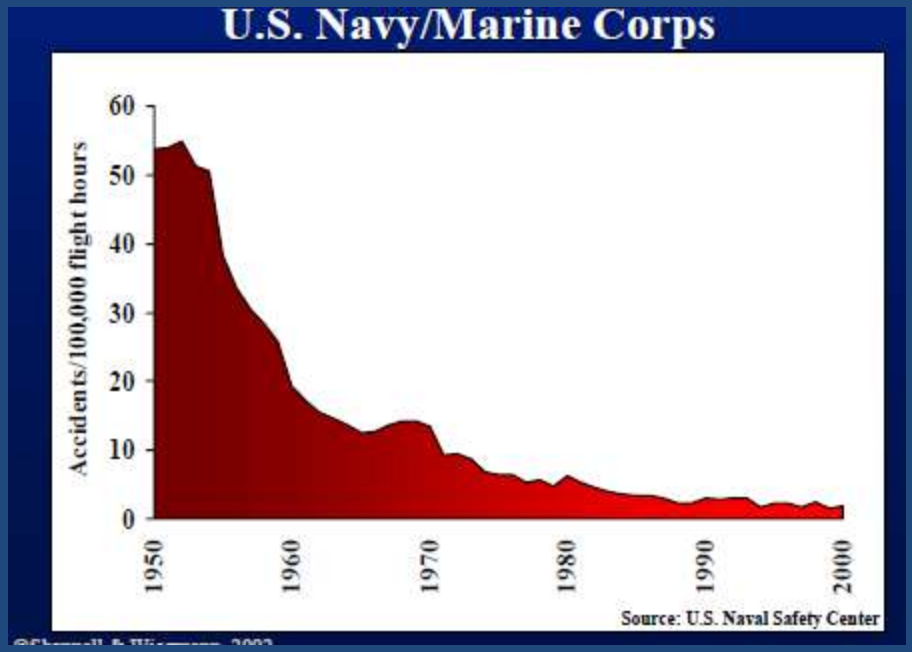
1945-1991

Characteristics of NA 3.0

- Initially distracted and pressured
  - Focus on big planes carrying nukes
  - Unification battles
- Specialist community solidified
  - Increased technical demands of aviation
  - Ascendancy of aviation
- Risk tolerant
  - The legends of NA 2.0 provided justification
  - Nuclear and bureaucratic Armageddon possible

Naval Aviation Aircraft Destroyed in Mishaps





Accident Rates

	USN	USAF
1950:	53	37
1960:	19	5
1970:	13	3
1980:	6	2
1990:	2	2

A Tale of Two Services

- Both suffering catastrophic accident rates in 1951
- Both founded safety centers
  - USAF: 500+ people
  - Navy: 25 people
- Standardization determined to be key
  - USAF: Immediate implementation and enforcement
  - Navy: NATOPS not started until 1961 and did not take until at least 1971
- Tribal elder culture governed naval aviation
- Naval aviation unwilling to learn from USAF

The Hornet in CVW-7

- Pitched as a force multiplier – seen as threat
- Resistance to cycle time adjustments
- Resistance to pylon storage
- Resistance to cap station training
- Resistance to night strike training

Naval Aviation 4.0

1991-????

Characteristics of NA 4.0

- Depressurized
  - Role of naval aviation accepted
  - No immediate threats
  - Stable professional structure
- Mature approach to risk
  - Technology and organizational changes mitigated the “no tomorrow” mindset
  - Budget competition
- Insular
  - Naval Aviation “Enterprise”
  - Platform oriented – “defend the carriers”

Preoccupation

The FBE Program

It is likely that the Navy would find value in narrowing the focus of the complex experiments, which will also include "not to interfere" demonstrations. Rather than try to do many things, at great expense and with insufficient designers, observers, or analysts, it would be better to focus on only a few initiatives and do them very well. There must be assurance that this limited number of objectives are all well designed (with overall priorities and the ultimate analysis in mind), thoroughly observed and documented, and comprehensively analyzed. Additionally, each formal Fleet Battle Experiment should be part of a continuing mosaic, designed to build mounting improvement in capability beginning with the highest priority processes over a number of years.

Fleet Battle Experiment Juliet
Final Reconstruction and Analysis Report

Naval Postgraduate School

FBE Problems

- Superimposed on a busy fleet
- Little additional personnel or resource support to the numbered fleets
- Stressed organizations are conservative and risk averse
- Institutional resistance to Cebrowski ideology
  - Immature information technology
  - Many cooks with many agendas

Lowering the Barriers

- Top level leadership sets the focus
  - Resurrect the General Board?
- Form an experimental staff
  - Depressurize the process: shield from operational and training responsibilities
- Wargame a lot
  - Partnership between N3N5, NWC, NWDC, NPS, MCWL, ONR
  - Institutionalize to produce coherency across service
- Concepts are not programs
  - They should be subjected to wide debate and discussion
  - Be careful of trying to manage concept generation

Naval Aviation 5.0?