



INVITING DISASTER

Red Flags and Telltales: Spotting Signs of Risky Behavior

James R. Chiles
Author, *Inviting Disaster*

May 9, 2016



Outline of Talk

I. Overview

II. Red Flags of Deception and Risk-Taking

III. Winding Up

Sharp, Observant People Save Lives Daily



**“There's no hold that can't
be broke”**



Gen. Robert M. Littlejohn

A Book with 13 Common Patterns, Crossing Time and Technology

In which error, bad design, fatigue, and
poor leadership combined

A Book with 13 Common Patterns, Crossing Time and Technology

In which error, bad design, fatigue, and
poor leadership combined

To fracture complex, high-energy systems in
startling ways

A Book with 13 Common Patterns, Crossing Time and Technology

In which error, bad design, fatigue, and
poor leadership combined

To fracture complex, high-energy systems in
startling ways

Knowing these patterns helps prevention
and crisis management ... avoids *vu jade*

Most Systems Haven't Failed Catastrophically

But sometimes that's just because stress and corrosion haven't opened a big enough crack yet



Since All Systems have Weak Points ...

... A “Crackstopping”

Organization Knows to Catch
System Fractures Early

Crackstoppers on the Grid: Direct-Current Interties



Crackstoppers in Programming

- Timeouts
- Circuit Breakers
- Bulkheads
- Fail Fast
- Handshaking
- Test Harness

Release It, Michael Nygard

Subject Today

- Go beyond error and malfunction to explore deliberate ***risk-seeking by insiders, including leaders***
- Can warning signs be detected early enough to be useful?



Outline of Talk

I. Overview

II. Red Flags of Deception and Risk-Taking

III. Winding Up

That Ol' Red-Flag Simile

- Commonly used to argue that leaders ignored clear signs of trouble
- **Red lanterns, red flags and “torpedoes” on the rails meant danger – so engineer should slow or stop**



INVITING DISASTER

Flags and Torpedoes



... And Telltales

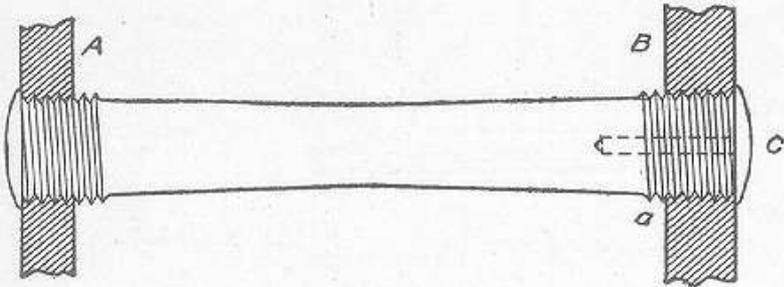
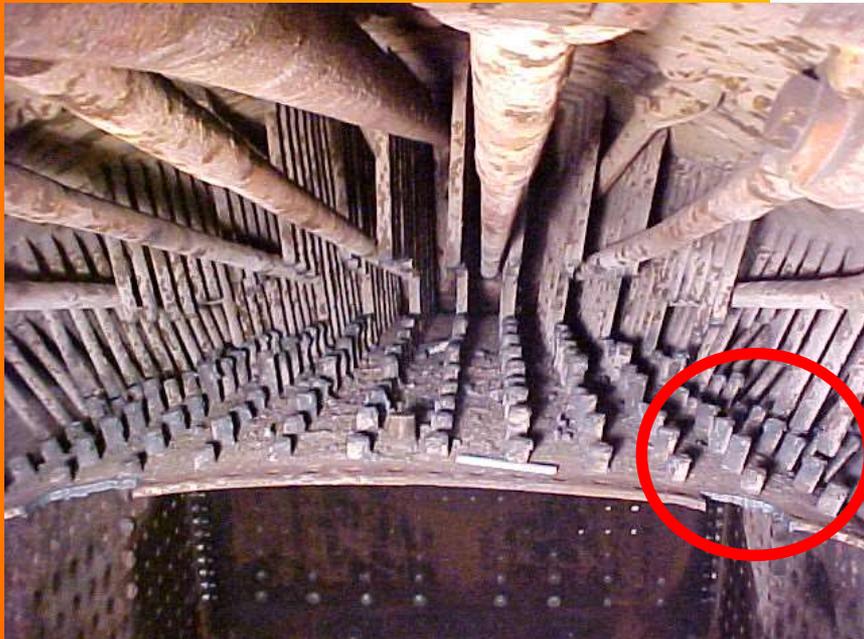


Fig. 40. Screw Stay-Bolt.



Red-Flag Sampler

- Under-capitalized banks
- Money laundering
- Procurement and contracting schemes
- Medical fraud
- Jumpered alarms and bypassed safeties

Bright Red Flags of Embezzlers at Work

- Loyal bookkeeper in a small business
- Works late, yet never complains
- Avoids audits and bank reconciliations
- No vacations
- Lives well



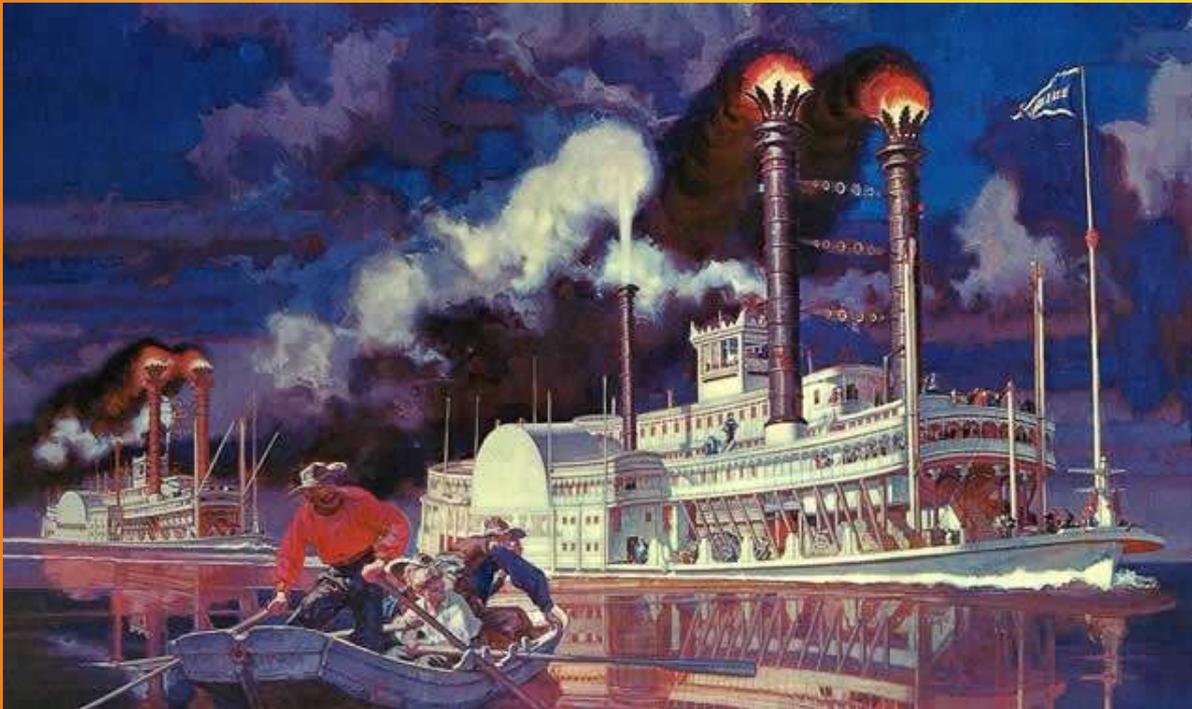
Red Flags of “Extrasensory Inspection”

- Inspection reports avoid narratives - provide only checklists and photos
- Problems noted are minor and vague
- Lots of inspections per day, fees are low
- Certifications are hard to verify, signatures illegible

Countering Paper Fakers

- Unannounced spot checks
- Use enlightened common sense: *"What I'm seeing just doesn't happen honestly"*
- Special tactics: Continuous auditing and SAS-99 "red team" methods that use forensic experts to sniff out vulnerabilities
- Take early action to close the gaps, before hiring
- Fakers adapt, so expect new schemes

Red Flags of Risk-Seeking Behavior



It's Easy to Name and Blame a Villain



- More important: Who hired and supervised him?
- Did they fail to act on early signs of poor judgment, and if so, why?

Meet NRTL

- Narcissistic, Risk-Taking Leader
- Leads team into risky settings for selfish reasons – **says it's "good for morale"**
- Needs a *cheer-group* to be happy
- Insists he's an expert – so rules don't apply
- Rude to subordinates who challenge or question

Red Flags at Fairchild



- 1991: Cold War is called off for USAF Strategic Air Command – big impact
- Bases like Fairchild AFB will close or change – high officer turnover
- Still, hotshot pilot Bud Holland gets chances to strut his stuff in a B-52

Arthur A. "Bud" Holland

- After 22 years in USAF, very skilled at *handling* BUFFs in extreme attitudes
- But has lost *judgment* part of good airmanship – despite his title: Chief of Standardization and Evaluation, 92d Bomb Wing
- He wanted to roll a B-52



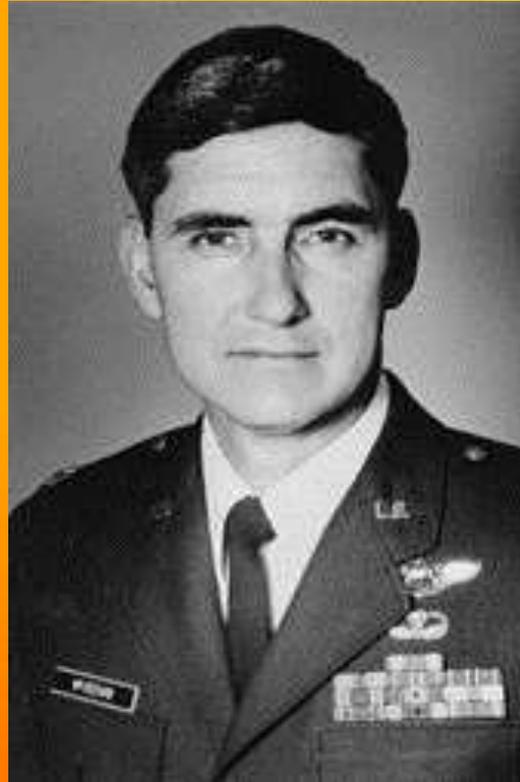
Plenty of Red Flags, but Nobody in Command

- 1991-94: Commanders changed rules to allow Holland to fly certain banned maneuvers in air shows
- He broke those too – and commanders knew it
- Angry protests by crew members had no effect

Holland Was Toxic to Safety Culture

- Their concerns ignored, crewmen lost trust and fell into angry fatalism: “Just wait, you'll see”
- Also Holland inspired less-skilled pilots to emulate his death-defying moves – led to two close calls

One Officer Tried to Head Off Disaster



June 24, 1994

- Second practice for June 26 airshow
- Holland was pilot in command of *Czar 52*; four souls on board
- On approach, with KC-135 on runway - *Czar 52* started a missed approach
- Rather than perform standard climbout, *Czar 52* started steep left turn around control tower

USAF Rules Limited Extreme Fly-By Maneuvers

- At least 500 ft above ground level
- Airspeed at least 30% over stall speed
- Bank angle no more than 30 degrees

But an “Ace of the Base” Gets to Do Whatever He Wants

At altitude of 250 ft, *Czar 52* banked
60 degrees, then 95 degrees

INVITING DISASTER



NRTL Behavior: Why?

- Hard-wired trait, or bred by circumstance - See *Why Men Take Chances* (1968)
- NRTLs value benefit much more than avoided risk – unlike most of us
- Benefits? Cheers, **adrenaline, “I do what nobody else can do”**
- Believe the risk is under control



More NRTLs Lie Waiting

- Where managers struggle to find and supervise people for boring but critical jobs involving powerful vehicles
- When no one enforces what Admiral Hyman Rickover called the “discipline of technology”
- Where people love to hear the escapades of somebody bigger than life

Social Media and NRTLs: Love at First Byte

- Vehicle operators pursuing risky moves, seeking approval from those near and far
- As in highmarking
- Nerf Wars in a car
- Street racing





Outline of Talk

I. Overview

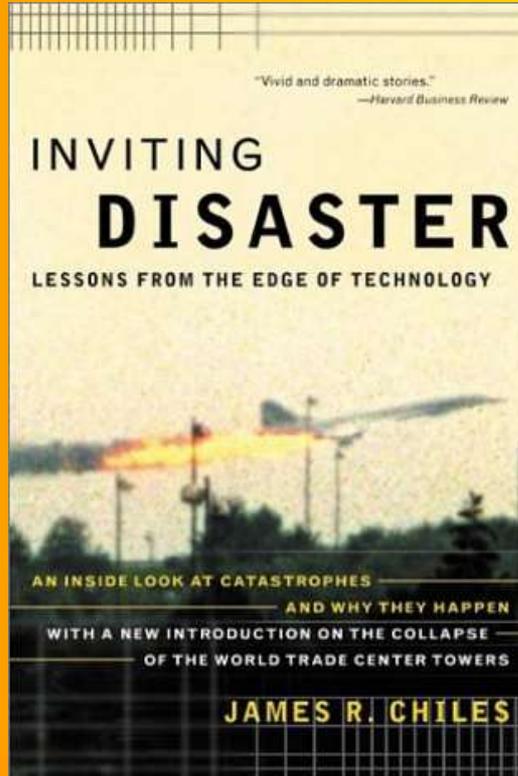
II. Red Flags of Deception and Risk-Taking

III. *Winding Up*

Green Flags of a Safety-Centered System

- *Andon* (full stop) tools in place, and used
- Organization follows “Golden Rule” crew-matching principles
- Tribal memories are vivid
- Leaders aren't scared to hear bad news
- Followup is prompt and aggressive

INVITING DISASTER



disaster-wise.blogspot.com



INVITING DISASTER