

# Dr Robert Bruce Lee AO

*Intelligence  
Knowledge  
Enthusiasm  
Energy  
Passion  
Optimism*



## Istanbul 1975: IATA 20th Technical Conference

- Dedicated to understanding ‘pilot error’ in accidents
- A first for an aviation industry conference:
  - These accidents are not the result of ‘negligence’ or ‘carelessness’ of the crew
  - Rather the byproduct of organisations:
    - ‘creating a situation where the probability of failure was high’.
- There are therefore better options than to simply blame the ‘offending crewmembers’.



## Istanbul 1975: IATA 20th Technical Conference

- Some of the topics discussed in working papers:
  - The changing role of the pilot
  - Handling pilot incapacitation
  - How to train crews to deal with ‘seldom or unforeseen’ events
  - Motivation for adherence to SOPs
  - Personality assessment and selection of flight crew
  - Psychological characteristics related to human error
  - Stress in aircrew
  - Aircrew fatigue / circadian rhythms
  - Flight crew coordination
  - Visual perception and approach and landing accidents
  - The man in the system



# The path towards systemic investigation

- **1989 (Lee meets Reason):**

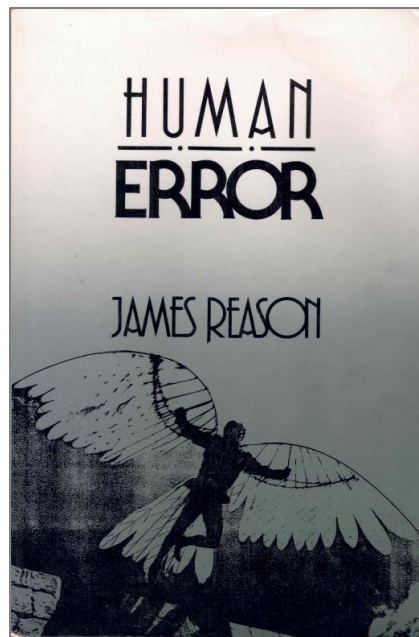
Prof James Reason presents to the XVIII Conference of WEAAP (Western European Association for Aviation Psychology), University of Sussex, Brighton, UK

- **1990:**

*Human Error* (Reason) published by Cambridge University Press

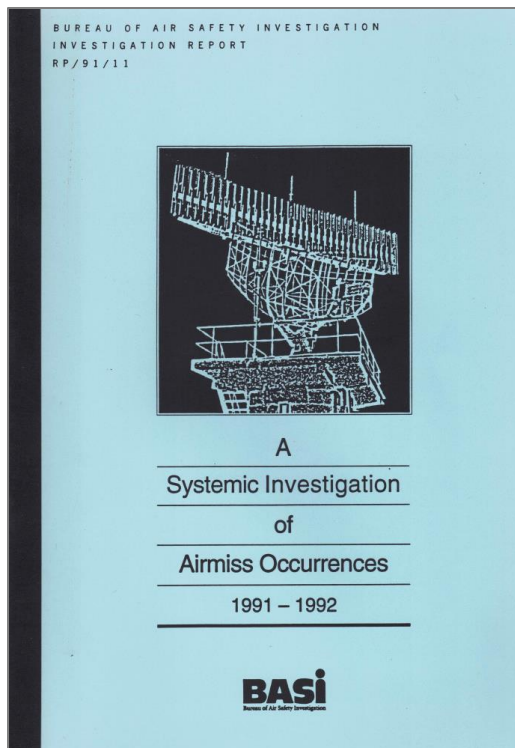
- **1991:**

Reason presents to the International Society of Air Safety Investigators (ISASI) 22<sup>nd</sup> Annual Seminar, Canberra, Australia



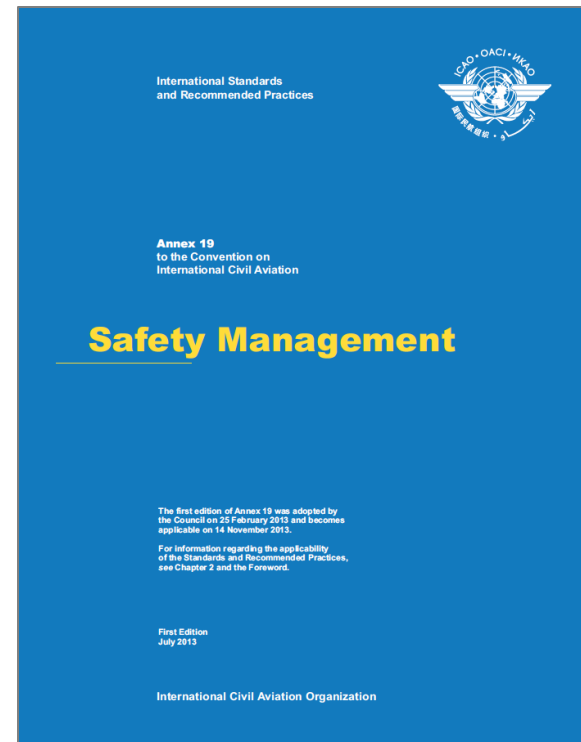
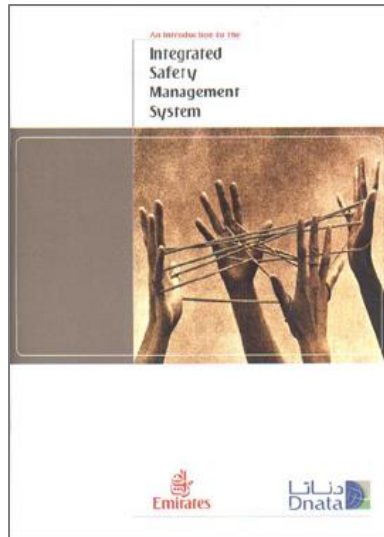
# The path towards systemic investigation

- **1994:**  
ICAO adopts the 'Reason Model' as a standard for systemic safety investigation (Rob Lee was a leading advocate of this approach)
- **July 1994:**  
BASI publishes the "Monarch report", the first systemic aircraft accident investigation, into the fatal June 1993 crash of a Piper Chieftain at Young, NSW



# From systemic to *systematic*

- **2002:**  
Dr Rob Lee and Professor Patrick Hudson develop and conduct the first *Integrated Safety Management Systems (ISMS)* training course at Singapore's SAA
  - By November 2017 they had conducted 30 ISMS courses (for more than 1,000 pax)
- **2006:**  
ICAO Safety Management Manual (SMM) Doc 9859 First Edition published
  - (SMM Third Edition published in 2013)
- **2013:**  
ICAO Annex 19 on Safety Management adopted (the first new ICAO Annex in 20+ years:



# Aviation psychology and Human Factors contributions to Flight Safety

- Flight Crew / ATCO / Cabin crew selection & training
- Human Performance Limitations
  - Perception/ Information processing/ SA / Decision Making
- Mental health and well-being
- Flight deck design
- Flight path management
- Cabin safety
- Crew Resource Management
  - Threat and Error Management
  - Non-Technical Skills assessment
- Maintenance Human Factors
- RPAS / UAS Human Factors
- Systemic safety investigation / Integrated SMS
- Fatigue Risk Management
- Startle / Surprise / Upset Prevention & Recovery Training
- Flight Crew Resilience



## Rob Lee's Legacy



- ATSB (via BASI)
  - Systematic and Systemic, globally respected
- Psychologists as HF Investigators
  - BASI / NTSB / TSB Canada / BEA (since the 1980s)
    - UK AAIB's first HF specialist appointed in 2018.
- Integrated SMS
  - Widely accepted and globally adopted
- Influenced the thinking of a generation of aviation safety professionals, globally, over 40 years...
  - pilots, cabin crew, ATCOs, Engineering & Maintenance, safety managers, FLTOPS managers, safety investigators, researchers...)





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