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**The Inside Story and Legacy of Dryden**

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# THE ROLE OF THE JUDICIARY IN AVIATION SAFETY

## The Inside Story and Legacy of Dryden

by

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ABSTRACT: The *Commission of Inquiry into the Air Ontario Crash at Dryden, Ontario* was appointed in 1989 just days after a tragic accident in which twenty-four were killed. The Government of Canada called on Mr. Justice Virgil P Moshansky of the Court of Queen's Bench of Alberta, a licensed pilot, to conduct the inquiry. His mandate was to inquire into and report on the contributing factors and causes of the crash, and to make such recommendations as he may deem appropriate in the interests of aviation safety.

This paper reviews systemic conditions preceding the accident, details unique challenges facing what became the most exhaustive judicial review in aviation history, cautions that current conditions are perilously familiar, and proposes permanent roles for the judiciary in organizational approaches to aircraft accident investigation and international aviation safety enhancement.

On March 10, 1989, a snow-laden Air Ontario Fokker F-28 jet began its takeoff in a driving snowstorm on slush-covered Runway 29 at Dryden, Ontario. After two attempts to lift-off, nose-high and unable to gain altitude, the aircraft crashed 950 metres from the runway end, killing 24 of the 69 persons on board. The apparent cause of the crash was a build up of ice and snow on the wings of the aircraft.

The Commission of Inquiry into the Air Ontario Crash at Dryden, Ontario was appointed just days after the tragic accident and given a mandate to inquire into and report on the contributing factors and causes of the crash.

This paper discusses arguably the most exhaustive judicial review in aviation history whose findings profoundly changed the ways in which aviation accidents are investigated. Lessons learned are then applied, as an example, to both legislation recently proposed in Canada and to proposals for internationalising judicial roles in aviation safety.

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## **1. DRYDEN COMMISSION OF INQUIRY**

### **1.1. General**

1.1.1. Canadian Aviation Safety Board (CASB) investigators were at the accident site within hours of the Dryden crash. However, intense public controversy raged in both Canada and the United States over CASB handling of the December 15, 1985 Arrow Air DC-8 crash at Gander, Newfoundland in which 248 US military personnel and 8 civilian crew died. The CASB Dryden inquiry had barely got underway when it was halted by the Minister of Transport, who opted for a public inquiry. On March 29, 1989, the Government of Canada, facing mounting public criticism over the Arrow Air debacle, replaced the CASB with a Commission of Inquiry under the Inquiries Act to investigate the Dryden accident.<sup>1 2</sup> The CASB Chief Investigator and most of his team were seconded to the Commission, providing valuable service, and the Board was dismantled in 1990.

1.1.2. Using a Commission in this way is rare and was done to restore credibility to the aviation accident investigative process in Canada.

### **1.2. A new accident investigation philosophy**

1.2.1. Preliminary evidence pointed to the crash resulting from an attempted take-off with contaminated aircraft surfaces. Prevailing CASB accident investigation methodology would likely have concluded that the probable cause was pilot error.

1.2.2. Prior to Dryden, air carrier management happily accepted that pilots shoulder blame for up to 90% of accidents. This position – embraced commonly by industry and the regulatory authority – tended to shield airline operations from regulatory scrutiny. However, the Captain's reputation as a careful and competent pilot made it difficult to understand his ill-fated decision to take off in those

circumstances. This triggered the notion that other factors within the aviation system were involved and ought to be investigated.

1.2.3. CASB investigatory philosophy sought to identify probable cause which, in its singularity, disregarded (or at a minimum, downplayed) other contributory factors. I felt this approach defeated the objectives of accident investigation which is not to fix blame but rather to prevent future occurrences.

1.2.4. It was clear that this was an exceptional opportunity for an in-depth review of the entire Canadian aviation system. A decision was made, over the objections of counsel for the regulator and the carrier, to launch a system-wide investigation of all factors contributing to the crash.

1.2.5. Thus, the flawed decision to take off with contaminated wings, clearly a pilot error, became only the starting point of the Dryden Inquiry. Intensive public hearings over 20 months literally tore apart the Canadian aviation system. Contributing factors were found not only in the cockpit but also in the carrier's Boardroom and its operations, the offices of the regulator as well as in faulty and inconsistent government policies. The Dryden Inquiry was one of the first large-scale applications of a systemic organizational approach to the investigation of an aviation accident.

### **1.3. Establishing credibility**

1.3.1. Credible investigation must be independent and dignified (without appearing elitist), transparent and without constraint. Most importantly, it must be perceived by the public as free from vested influence.

1.3.2. My first experience with CASB practice occurred shortly after my appointment when I, together with my Counsel and expert advisors, met in Ottawa with the

outgoing CASB Executive to arrange handover of initial investigation records to my Commission. I was taken aback by the counsel of a senior CASB member suggesting that I undoubtedly would wish to massage investigator reports and witness interviews, which he made clear was CASB practice. The term “massage” in this context meant to me manipulation of accident investigator findings to fit an agenda, which later events suggested was not to unduly disturb the aviation industry’s comfort with its own performance.

1.3.3. Frankly, coming from a judicial background where one seeks to ascertain truth rather than subvert it, I was appalled by this advice and dismissed it out of hand. With such questionable ethics, it is small wonder that the CASB and Arrow Air accident investigation were discredited.

1.3.3.1. *Independence and dignity.* At first, the Privy Council Office in Ottawa advised that the Inquiry would be established as a departmental investigation under Part II of the Inquiries Act, under the auspices of the Minister of Transport to whom my Commission would be directly answerable. I immediately objected, recognizing that Transport Canada Civil Aviation<sup>3</sup>, as one of the integral components of the aviation system, would be a subject of the Inquiry since I intended to probe possible related failings on the part of the regulator. I insisted upon and obtained agreement from the Government for my Commission to be constituted under Part I of the Inquiries Act, reporting to the Governor General in Council, to assure its independence, dignity and public profile as an objective body.

1.3.3.2. *Transparency.* Transparency is an essential element of credibility and to this end, I ensured that Commission hearings were public and open to the media, that daily briefings were provided, and that I and my advisors were available for interviews when requested. Extensive national

and local television, radio and print media coverage generated massive interest and focused public attention on Canada’s aviation system. Eventually, this pressured both government and regulator to act on recommendations made in my reports.

1.3.3.3. *Freedom from constraint or influence.* The Commission mandate, obtained from the government as a condition of my accepting appointment, was not limited to investigation of the Dryden accident but included all components of the aviation system with a charge to make recommendations in the interests of aviation safety generally.

## 1.4. Challenges to the Commission

1.4.1. Upon the Commission being organized and headquartered in Toronto, I dispatched senior investigators to Ottawa to seek production of all Transport Canada records related to Air Ontario and its F-28 operations, as well as certain Transport Canada witnesses identified as critical to the Inquiry. Rebuffed by Transport Canada management, the Commission investigators returned to Toronto virtually empty-handed.

1.4.2. At this point, the power and value of a Commission of Inquiry became very apparent. Only after giving notice to Transport Canada that I would issue subpoenas to senior management to appear before the Inquiry were the requests granted, although not completely. Transport Canada refused to release 24 documents and sheltered them from Commission review, citing provisions of Section 39 of the Canada Evidence Act.

1.4.3. A certificate issued by the Clerk of the Privy Council stated that these documents contained confidences of the Privy Council for Canada (an elaborate term for Cabinet secrets) but revealed nothing as to their nature. It is not unreasonable to assume that this claim to confidence originated with Transport Canada. Is it conceivable that this was done to withhold evidence of

regulatory mismanagement or Cabinet-level interference? We will never know since the documents remain a state secret.

1.4.4. Apart from invoking state secrets provisions of Section 39 of the Canada Evidence Act, Transport Canada continued efforts to confine the Dryden Inquiry to the facts of the accident itself, as opposed to a system-wide investigation. Counsel for Transport Canada alleged that I was going beyond the terms of my mandate and threatened to seek a Federal Court injunction unless I backed off. I elected to continue to interpret my mandate broadly. These demands to limit the scope of my Inquiry, after it had barely begun, came to the notice of the national media. Senior Transport Canada officials, in their wisdom, ordered threats of legal action against me withdrawn and an era of relative cooperation with the regulator ensued, for the eventual good of all.

1.4.5. The counsel for Air Ontario challenged my intention to name in the Final Report individuals found culpable of contributing factors to the crash. Air Ontario brought action against me in the Federal Court of Canada seeking an injunction requiring that I make only generic findings in my Final Report and that I be prevented, firstly, from making findings of misconduct against any individuals and, secondly, from naming any individuals found culpable. I did not intend to make findings of misconduct against any individuals but I did intend to make adverse findings against individuals where justified by evidence. I would report findings fairly and accurately but could not do so without identifying individuals, entities and organizations - at all levels of responsibility - who had been afforded full benefit of the principles on natural justice during the Inquiry. The Inquiry was adjourned while the issue was tried in Federal Court on an expedited basis. The outcome was favourable for the Commission. The Air Ontario action to muzzle me was dismissed and many names appeared in my Final Report.

1.4.6. The Canadian Air Line Pilots Association (CALPA) had full standing before the Commission. Counsel for CALPA, supported by Counsel for Air Ontario, brought an application to prevent calling five Air Ontario pilots as witnesses to discuss post-crash statements made to their company Safety Officer related to the airline's F-28 operations. The applicants claimed the statements were privileged, based on confidentiality. The evidence of these pilot witnesses was critical to the conduct of a full Inquiry and, after considering legal argument, I ruled that safety must trump confidentiality. The pilots were required to testify.

1.4.7. Finally, it was industry's turn to take a run at me and my Commission, viewed by many in the industry as an outsider threat to the status quo. This hostility was exemplified in remarks by the Principal and Chief Pilot of a business jet charter operation in Calgary published in *Aviation Canada* in 1991, in which he criticized the clean wing regulation, enacted by Transport Canada based on recommendations contained in my Second Interim Report dealing with the ground de-icing of aircraft. He described the new law as a "crook" and stated that "there is a lot of nonsense about contaminated wings emanating out of the offices of the Department of Transport for the past few months". He concluded his article by stating "... we should at least be hoping that we have learned a few lessons from it all... the inevitable waste of time, money and effort inherent in judges and lawyers becoming involved in matters better handled by someone who understands the problem". Naturally, I regarded the latter statement as a personal shot, but in a way it was useful as it illustrated that we had some distance to go in order to combat ignorance and achieve a heightened awareness in the aviation community of all aspects of the wing contamination issue.<sup>4</sup>

1.4.8. The foregoing is some, but not all, of the inside story never before publicly told of how my Commission's role was expanded - against widespread

opposition - from that of simply investigating the Dryden crash into a comprehensive probe of the state of national aviation safety generally.

## **1.5. Prominent findings**

1.5.1. Over a period of three years, a myriad of serious system-wide safety problems were exposed, many of which had been neglected by successive governments, the regulator and the air carriers for decades. Ultimately, the probable causes of the Dryden accident were found to be pilot error and systemic failure of the air transportation system. I will now discuss a few of the more prominent findings.<sup>5</sup>

1.5.1.1. *Inadequate aviation legislation.* The Inquiry found that pre-Dryden Transport Canada operated with antiquated and inconsistent Air Navigation Orders and Air Regulations which were out of touch with reality and essentially unchanged for 40 years or so. As an example, effective regulations were not in place to provide for safe introduction of new jet aircraft, such as the F-28, to Air Ontario's fleet which comprised only propeller-driven aircraft.

1.5.1.2. *Inappropriate financial emphasis.* Air Ontario managed to get away with serious operational deficiencies primarily because government's twin policies of fiscal restraint and deregulation of the airline industry greatly diminished regulatory oversight. A pre-Dryden plea for funding by the Assistant Deputy Minister, Aviation, for what was described as absolute minimum regulatory oversight activities to assure public safety was summarily dismissed by the Program Control Board and cut by 80%.<sup>6</sup> Not one individual on the Control Board at the time had an aviation background. Decisions directly affecting aviation safety were based solely on financial considerations.

1.5.1.3. *Insufficient human resources.* Pre-Dryden, the shortage of qualified air carrier inspectors was so critical that

all long-haul domestic and international in-flight aircrew monitoring and surveillance had been suspended. The Inspectorate had been depleted to about 1200 inspectors, some 400 below the minimum required to properly oversee air carrier operations. After the introduction of airline deregulation, most remaining Aviation Inspectors were assigned to desk jobs processing new airline certification applications. Cost-cutting virtually eliminated support staff as well. In one Regional Office, 29 Aviation Inspectors shared one typist. Inspectors, earning commensurate salaries to monitor air carrier operations, were reduced to typing new air carrier certification reports.

1.5.1.4. *Inadequate regulatory oversight.* A cursory Transport Canada audit of Air Ontario five months before the Dryden accident did not even examine the airline's F-28 implementation program. On January 20, 1989, the Acting Chief of Air Carrier Operations issued a prophetic warning to senior Transport Canada management that air carrier inspection was "no longer able to assure the Minister of the safety of large air carrier commercial air services in Canada and that a major accident was inevitable in this country". This warning was rebuffed by senior management as "inflammatory". Seven weeks later, at Dryden, Ontario, 24 people paid with their lives. Lack of regulatory oversight had left Air Ontario virtually to its own devices, allowing it to set its own inadequate safety standards and enabling it to get away with unconscionable safety, management and operational deficiencies, all of which contributed to the crash.

## **1.6. Recommendations**

1.6.1. The Dryden Inquiry culminated in a four-volume Final Report containing 191 major recommendations for change. Transport Canada implemented many significant aviation safety improvements based on this Report, including a new Aeronautics Act and Canadian Aviation Regulations (CARs), in the main harmonized with the US Federal Aviation Regulations (FARs) and the European Joint

Aviation Requirements (JARs). This was a tremendous undertaking which had been avoided for decades by various governments

1.6.2. A narrow selection of major improvements arising from the Dryden Inquiry includes:

- Prohibition of hot refuelling of aircraft with passengers on board<sup>7</sup>;
- Regulatory enshrinement of the *clean wing* concept, prohibition of take-off with contaminated wings, and development of new, advanced ground de- / anti-icing fluids, equipment and procedures<sup>8</sup>;
- Establishment of the University of Quebec, in co-operation with the US Federal Aviation Administration (FAA), as the North American Center of Excellence in de-icing technology; and
- Mandated human factors requirements for *ab initio* and flight crew training.

1.6.3. Ground de-icing of aircraft in winter weather is now a familiar sight at Canadian airports whereas pre-Dryden, it was an infrequent curiosity. Heightened awareness, both nationally and internationally, of the dangers of wing contamination is one of the most important legacies of the Dryden Commission. The clean wing rule is a clear statement that in Canada, aircraft will be operated within their full performance capability at all times.

## 1.7. Dryden Commission Implementation Project

1.7.1. At the request of Transport Canada, I served for three years in a precedent-setting advisory capacity to the Dryden Commission Implementation Project (DCIP), attending frequently in Ottawa to consult with officials and the 12 Task Groups established to implement virtually all 191 recommendations. In 1995, Transport Canada converted these Task Groups into a permanent advisory body known as the Canadian Aviation Regulatory Advisory Council

(CARAC), another first. I am confident that the Dryden Commission precipitated major and permanent changes to the face of Canadian aviation, ultimately benefiting the flying public and air commerce.<sup>9 10</sup>

## 2. JUDICIAL ROLES IN CANADIAN AVIATION SAFETY

A period of progressive safety advances followed the release of the Final Report on the Dryden crash. What major issues remain unresolved? Have the Dryden precursors reappeared? Why did they arise? Does the judiciary have any further role in aviation safety?

### 2.1. Unresolved issues

2.1.1. *Oversight.* During the Dryden hearings, the question of who speaks for the public in aviation safety issues was often raised. The public still continues to be without direct representation in aviation concerns. When the system breaks, the executive branch of government determines causality and identifies violations of legislative branch requirements. No one accountable to the public acts to establish the basis and appropriateness of these requirements and as to whether executive branch actions are sufficient and competently performed.

2.1.2. *Confidentiality and secrecy.* In 2001, my co-author Capt Don Van Dyke, then Secretary of IATA's Classification Working Group wrote "Confidential reporting schemes – when run by clearly independent non-state authority agencies, provide a valuable 'last resort' safety net. They can often reveal problems that would otherwise remain hidden, particularly in cultures (airline or regional) where admission of errors to management provokes punitive measures or humiliation. Unfortunately, these schemes do suffer from certain limitations. Reporters and investigators are often unaware of significant aspects known only to airline safety managers. Their ability to resolve problems on their

own is sometimes limited by their dependence on State agencies.” (Van Dyke, 2001)

2.1.2.1. I remain strongly of the view, and recommended, that a Commissioner of Inquiry be empowered to determine *in camera* whether a claim to Cabinet confidentiality under Section 39 of the Canada Evidence Act outweighs the public interest in the open conduct of an Inquiry and in the proper administration of justice. I understand that the ongoing Commission of Inquiry into the Air India disaster has encountered similar problems of non-disclosure and secrecy.

2.1.3. *Causality.* The Transportation Safety Board of Canada (TSB) is mandated *inter alia* to make findings as to causes and contributing factors. The difficulty with which this achieved is well-known, often requiring reliance on reluctant witnesses and obfuscated evidence.

2.1.3.1. Access to certain witnesses may even be prohibited. Under sections 9 and 10 of the Canadian Transportation Accident Investigation and Safety Board Act (1989) (CTAISB Act), the Minister may subpoena an investigator to appear and give evidence. However, the investigator may ask that the subpoena be quashed, arguing section 32 of the CTAISB Act that: "Except for proceedings before and investigations by a coroner, an investigator is not competent or compellable to appear as a witness in any proceedings unless the court or other person or body before whom the proceedings are conducted so orders for special cause".

2.1.3.2. Further, section 33 of the CTAISB Act reads: "An opinion of a member or an investigator is not admissible in evidence in any legal, disciplinary or other proceedings." No portion of a report that expresses an opinion of the investigator may be relied upon.

2.1.3.3. In any event, the findings are not binding on the parties to any legal, disciplinary or other proceedings.

2.1.4. *Regulation and promotion.* Many government aviation authorities operate with a dual mandate to regulate and to promote the industry. This dichotomy has often favoured commercial concerns evidenced, for example, by regulator reluctance to take early emergency action in the case of faulty DC-10 cargo doors or to mandate installation of high-flammability fuel tank inerting systems. Powerful commercial interests insist that safety initiatives be firstly proved cost-beneficial but this may not be the sole metric needed or the most important.

## 2.2. Effectiveness of the Judiciary

2.2.1. It can be argued that the judiciary is uniquely positioned to resolve these issues. A Commission of Inquiry under the Inquiries Act, unlike an investigative body such as CASB or its successor TSB vests in Commissioners:

- All the powers of a superior court judge;
- Freedom and independence from political or governmental influence;
- Authority to:
  - Order the production of documents;
  - Subpoena witnesses, including those in high government office, to appear;
  - Compel witnesses to testify under oath;
  - Hold uncooperative or evasive witnesses in contempt;
  - Open formal hearings to the public, unlike investigative bodies which generally perform their duties away from public view; and
  - Facilitate cross-examination of witnesses, under oath, by skilled counsel.



2.2.2. The taking of an oath on the witness stand and cross-examination are tried, true and powerful instruments for getting at truth. The penalties for perjury are severe. None of these powers are available to investigative bodies which do not require sworn evidence from witnesses. I believe that a Commission of Inquiry headed by a Superior Court Judge is, by far, the most effective instrument for comprehensive investigation of a major aviation accident or for a national aviation system review.

### 2.3. Dryden precursors resurrected

2.3.1. Pressing economic conditions, diminished regulatory oversight, and inadequate aviation legislation preceded Dryden; these symptomatic precursors seem again to be with us.<sup>11</sup>

2.3.2. *Economic conditions.* Post-9/11, economic malaise, war, terrorism and oil have each played their part in challenging aviation to make a fair and reasonable profit. Restructuring, cost-cutting, outsourcing and off-shoring are some of the approaches taken to restore economic health.

2.3.2.1. Governments are no less challenged to be frugal, some responding with more cost-cutting agility than others. Corporatization, delegation, user-pays protocols, privatization, and even outright derogation are example methods used to reach budget goals.

2.3.2.2. Based on its interpretation of a scheme called Safety Management System (SMS), Transport Canada's approach has been to download to operators responsibility for setting and enforcing their own aviation safety protocols, thus enabling the federal government to shed both the cost and the burden of safety accountability.<sup>12 13 14</sup>

2.3.3. *Diminished regulatory oversight.* Because of recurring chronic under-funding by the government, Transport Canada has effectively dismantled its regulatory

oversight structure by systematically depleting, through attrition and suspended hiring, its inspectorate despite continued growth of aviation.<sup>15</sup> In April 2006, Transport Canada cancelled its National Audit Program, one of its most important oversight activities. In December 2007, it will cease conducting pilot proficiency checks (PPCs).<sup>16 17</sup>

2.3.4. *Inadequate aviation legislation.* The third part of the pre-Dryden triad is now materializing. Transport Canada has for several months attempted to push through Parliament a poorly-crafted proposal called Bill C-6 to legislatively impose an SMS scheme on all Canadian carriers, regardless of size.<sup>18</sup>

2.3.4.1. Transport Canada's role under SMS will be to support the air carrier accountable manager by advising on appropriate responses to contraventions. However, the final decision on any enforcement issue is to be the responsibility, not of Transport Canada, but of the accountable manager. Not surprisingly, the proposed legislation is applauded by the Air Transport Association of Canada (ATAC), the aviation lobby, as it will relieve the prospect of regulatory inspectors conducting surveillance, monitoring, spot checks and audits of air carrier operations. The aviation industry embraces this scenario as operators, not Transport Canada, will set and enforce their own safety standards and acceptable levels of risk. The obvious question is whether or not this is in the public interest.

2.3.4.2. There is widespread opposition to Bill C-6, not because of SMS which deservedly enjoys support, but because of Transport Canada's attempt to introduce it without accompanying effective regulatory oversight. Other notable shortcomings of the Bill include:

2.3.4.3. **Reduced redundancy** – In defending Bill C-6, the Minister of Transport and Transport Canada senior management maintain that SMS merely adds another layer of

safety to the existing regulatory framework, making aviation safer. While SMS clearly shows promise, the reality is that its introduction by Transport Canada is accompanied by effective and concurrent dismantling of a tried and proven safety layer: regulatory oversight. When the Global Positioning System (GPS) was introduced into aircraft cockpits, no one suggested that altimeters should be removed because their function was redundant. Throughout the history of flight, safety has been secured through redundancy. Closing out (or even altering) a prior system to make way for a new unproven system flies in the face of accepted wisdom. It will likely yield unexpected and unwanted results, as Transport Canada's own internal risk analysis has warned.<sup>19</sup> Common sense dictates that SMS should supplement, rather than replace, regulatory oversight.

2.3.4.4. **Squandered resources** - In public statements on SMS, Transport Canada officials omit reference to the fact that instead of monitoring and inspecting carrier operations and conducting pilot proficiency checks, the greatly diminished aviation inspectorate will be relegated to inspecting reports of internal audits produced by operators themselves under SMS.

2.3.4.5. **False premises** - Transport Canada has for some time declared itself a world leader in introducing SMS, repeating the mantra that Canada has one of the safest aviation systems in the world, as if this is enough to ensure that this will be the case under the Bill C-6 initiative.<sup>20</sup> However, no other country is introducing SMS without the parallel requirement for regulatory oversight by their aviation authorities.<sup>21</sup> If Canadian aviation is one of the safest in the world, it is in large measure because of properly-funded and effective regulatory oversight and enforcement for a number of years after Dryden. Without traditional hands-on regulatory oversight, it is simply delusional to assume, as Transport Canada is apparently doing, that "airlines with good safety records will continue to be safe".

2.3.4.6. **Abdicated regulatory responsibilities** - In November, 2006, Transport Canada instructed its aviation inspectors not to initiate any further enforcement investigations into regulatory contraventions and to close all open cases against SMS certificate holders. Showing what some might call disdain for Parliament, Transport Canada did not wait for Parliamentary approval of Bill C-6 before proceeding with implementing aviation SMS.

2.3.4.7. **Insufficient whistleblower protection** - Bill C-6 provides for a system of employee reporting to the Accountable Manager of safety problems or contraventions but does not provide sufficient whistleblower protection.

2.3.4.8. **Unrealistic implementation schedule** - Transport Canada is already in the second year of a three-year implementation timetable, while Bill C-6 is still in Parliamentary limbo. The timeline is unrealistic for two main reasons:

- Firstly, it is naive of Transport Canada to think that SMS can be fully implemented by operators in a time span of three years. Numerous aviation experts say that this is simply impossible; that the cultural changes required will take many years.<sup>22 23</sup>
- Secondly, the SMS concept is laudable but only if accompanied by an effective, parallel, adequately financed and up-to-strength aviation regulatory inspectorate providing hands-on oversight. This critical element is missing from Bill C-6 and further time will be required to amend the bill appropriately.<sup>24</sup>

2.3.4.9. **Reliance on biased reporting** - It has to be a major concern that Transport Canada will rely on the carriers themselves to discover and report violations or weaknesses in their system, not to Transport Canada, but to the carrier's designated Accountable Manager. As I stated at

the House of Commons Standing Committee for Transportation, Infrastructure and Communities (SCOTIC) hearings, “it’s like putting the fox in charge of the hen house.”

2.3.4.10. It would appear that Bill C-6 has died on the Order Paper as the Federal government has announced that a new session of Parliament will begin on October 16, 2007.<sup>25</sup> Nonetheless, our purpose in presenting this discourse is to describe how focus on a specific initiative (such as SMS) can be used to legislatively subvert proven aviation safety elements and to call us all to stand ready to oppose similar attempts. As Mr. Justice C.S. Margo once said “Like liberty, the price of aviation safety is eternal vigilance.”

## **2.4. Oversight and safety performance linked**

2.4.1. Lack of regulatory oversight is cited by many authorities and academics as a causal influence on aviation accidents.<sup>26 27 28 29</sup> Transport Canada’s own international aviation branch concluded that a substantial portion of Canadian crashes analyzed had a root cause of “lack of regulatory supervision.”<sup>30</sup>

2.4.2. Linkages between deficient regulatory oversight and poor aviation safety performance are by no means unique to Canada. Australia<sup>31 32 33</sup>, Ghana<sup>34</sup>, Russia<sup>35</sup> and the United States<sup>36 37 38</sup> are but a few of the States in which these linkages have been identified as contributory factors in high-profile aircraft accidents. Economic pressures have led to white-collar crime and violations of regulations among both regulators and the regulated. Inadequate legislation and enforcement has often failed to avoid subverted innovation (i.e. industrial espionage, etc) and technology (i.e. pirated parts, etc).

2.4.3. In 2000, IATA adopted the role of the regulator as a causal influence and contributory factor in aviation accidents (E11), defined as “Failure by cognisant

authority to exercise regulatory oversight or lack thereof” (Van Dyke, 1999a, 1999b).

2.4.4. Conversely, effective regulatory oversight has been shown to be a successful intervention in preventing accidents.<sup>39</sup>

## **2.5. Conclusions regarding judicial roles in Canadian aviation safety**

2.5.1. We contend that the primary role of the judiciary in aviation safety is to hold the system accountable to the public.<sup>40</sup>

2.5.2. Having regard to the documented systemic problems in the aviation industry which have been surfacing for some time now, I am of the view that, eighteen years after the Dryden crash, another *wake-up call* to Transport Canada is overdue. I would strongly recommend that the federal government assume a pro-active approach to taking the pulse of aviation safety in this country, before another major air disaster occurs, as is being predicted by many responsible and informed individuals in the aviation industry. I firmly believe that, in the short term, the most effective way to check the organizational vital signs of any nation’s aviation system, proven by the Dryden Inquiry and the Dubin Inquiry which preceded it, is to appoint without undue delay a Commission of Inquiry headed by a superior court judge to conduct such a review and to make appropriate recommendations.

2.5.3. Furthermore, for the long term, the federal Government, in carrying out its primary responsibility to assure the safety of the Canadian public, should pass legislation requiring, as a matter of law, a periodic review of the safety of the nation’s aviation system every decade or thereabouts, to be conducted by a Commission of Inquiry headed by a superior court judge. The judiciary is in a unique position and peculiarly suited, for the reasons which I have already outlined, to act as a public watchdog and to conduct

such a review in an objective manner, free from bias and outside influence, and to make credible recommendations for change where necessary.

2.5.4. I strongly suggest that the time has come for a Judicial Commission of Inquiry to be appointed to investigate the state of aviation safety in Canada.

### 3. INTERNATIONALIZING DRYDEN'S OUTCOMES

Canada, quite rightly, is regarded as one of aviation's model States which other nations often seek to mimic. (Margo, 1981). In this context, it would be of inestimable value to internationalize certain of Dryden's outcomes.

#### 3.1. The State and aviation system safety

3.1.1. Principle of *jus cogens* in international law

Article 53 of the Vienna Convention on the Law of Treaties 1969 ("Vienna Convention") defines rules of *jus cogens* as peremptory norms of general international law recognized by the international community of States as a whole as norms from which no derogation is permitted "and which can be modified only by a subsequent norm of general international law having the same character."<sup>41</sup>

3.1.2. A basic State responsibility is to ensure the safety of its citizens, including all those who travel by air, through diligent regulatory oversight of carriers which it has licensed. Can the State legally and morally divest itself of its responsibility for assuring public safety by delegating regulatory oversight of air carriers unto the carriers themselves? I am firmly of the belief that it cannot. This critical responsibility of government simply cannot be delegated to private operators. Such devolution of regulatory oversight is a colossal abdication of governmental responsibility. I submit that it not only is contrary to international law but also to long-established practices of

States which have major aviation industries. Moreover, it runs contrary to the best interests of the air-traveling public and potentially puts their lives at risk.

#### 3.2. The regulator and aviation system safety

3.2.1. *Responsibilities.* The regulator must *inter alia*:

- Give primacy to the safety of air navigation in carrying out its functions.
- Conduct comprehensive aviation industry surveillance, including assessments of management decisions related to aviation safety and their impact at all levels;
- Regularly review the civil aviation safety system in order to monitor its performance, to identify related trends and risk factors and to improve the system;
- Monitor and implement international safety enhancements.

3.2.2. *Delegations and authorisations.* While the regulator can delegate its functions and powers associated with the regulation of air navigation, it remains responsible and accountable, particularly in the context of aviation safety.

3.2.3. The use of delegations and authorisations can have a number of advantages, including decentralisation of decision-making and devolution of tasks to operational staff having high levels of technical experience and expertise (ATSB, 2002).<sup>42</sup> However, overuse of delegations and authorisations results in deskilling of the regulator's inspectorate.

#### 3.3. The judiciary and aviation system safety

3.3.1. At the conclusion of the Dryden Inquiry, Dr. C. O. Miller, former Director, Bureau of Aviation Safety of the US National Transportation Safety Board (NTSB), commented that every nation should test the safety of its aviation system every 10 years or so with a major Inquiry to check its vital signs. I share Dr. Miller's view, echoed by

Professor James Reason, Manchester University in England, renowned aviation psychologist and expert in human factors and aviation accident investigation.<sup>43</sup>

3.3.2. Currently, judicial review of aviation system safety is solely at the behest of government (legislative or executive), usually only when the system is broken. There is no mechanism by which the judiciary can act either proactively or regularly to mitigate significantly adverse aviation safety conditions.

3.3.3. Hopefully, the benefits of periodic and regular judicial review of national aviation system safety have now been made clear. There is an equally obvious need to institutionalize this process internationally.

### **3.4. Public international law and aviation system safety**

3.4.1. The International Civil Aviation Organization (ICAO) is a specialized agency of the United Nations charged under the Chicago Convention with codifying the principles and techniques of international air navigation and fostering the planning and development of international air transport to ensure safe and orderly growth.<sup>44</sup> ICAO also defines the protocols for air accident investigation followed by transport safety authorities in signatory States.

3.4.2. Being a treaty between the Contracting States, the Convention and the 18 Annexes form part of public international law.<sup>45</sup> Thus, at the international level, the Convention and the Annexes establish the structure, principles and (in many cases) the minimum standards that Contracting States are expected to apply in their own domestic aviation laws.<sup>46</sup>

3.4.3. The system of aviation safety regulation established by the Convention is not without drawbacks. In

short, implementation of International Standards is mandatory for Contracting States under international law (subject to any notified differences) while the implementation of Recommended Practices is directory (in effect, simply encouraged). The actual task of implementing either is the task of the individual Contracting States through their domestic legal systems. Therefore, the rules with which operators must comply will not be directly those articulated in the Convention or its Annexes but rather the domestic laws of the individual sovereign States.<sup>47</sup>

3.4.4. Although the Chicago Convention recognizes national sovereignty, it expresses no opinion on power (or enforceability). In this regard, ICAO has a judicial function. The Council of ICAO is empowered to rule on disputes involving interpretation or application of the Convention or its Annexes. Enforcement of the Convention is founded on the power to suspend an airline from international operation (Article 87) or to deprive a state of its voting power (Article 88). Disputes may be settled by reference to the Permanent Court of International Justice or a special arbitration tribunal (Article 86).

3.4.5. ICAO (2006a) is concerned that the civil aviation authorities in some States are improperly established and resourced and that:

- There are insufficient qualified technical personnel and insufficient oversight of safety;
- There are no or inadequate civil aviation regulations; and
- There is minimal evidence of government commitment to civil aviation concerns.

3.4.6. In discussing planned Transport Canada regulatory initiatives, a 2005 ICAO safety oversight audit of the civil aviation system of Canada concluded that “The proposed changes would require air operators to implement

safety management systems in their organizations, which could lead to the early identification and resolution of potential problems and safety risks. The expected result of this initiative would be the improvement of safety practices fostering stronger safety cultures within the civil aviation industry.” (ICAO, 2006b).

3.4.7. Clearly, this conclusion was reached absent the many opposing arguments contained in this paper. This may be a glaring example of how one ICAO audit protocol may not fit all States.<sup>48</sup> It may also underscore a need for ICAO to familiarize itself with the consequences of national regulatory actions prior to making such favourable audit findings.

3.4.8. ICAO (2006a) recognizes that, in implementing International Standards, a State’s laws and regulations must be framed in legal phraseology but also written in such a way that they can be used by the staff of the regulatory authority and the general public they serve. It is likely that judicial review would accurately report the fidelity with which domestic law of a sovereign State reflects ICAO intention.

### **3.5. Conclusion**

3.5.1. I respectfully submit that there is a strong case to be made for the adoption by the Council of ICAO of a Standard or Recommended Practice calling upon Contracting States:

- To each appoint a Commission of Inquiry headed by a superior court judge to conduct periodic judicial review into the state of national aviation safety and related regulatory infrastructure; and
- To report findings to the respective government, as well as to ICAO.

3.5.2. I suggest that for ICAO to take such a step would mark a major and landmark turning point in the international quest to create and maintain as safe an aviation environment as is reasonably possible for the world’s air travelling public.

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## NOTES

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<sup>1</sup> P.C. 532, 29 March 1989.

<sup>2</sup> Subsequent Orders in Council relating to this inquiry are as follows: P.C. 679 and P.C. 680, 20 April 1989; P.C. 625, 29 March 1990; P.C. 1187, 20 June 1991; P.C. 1845, 26 September 1991; P.C. 2591, 30 December 1991; and P.C. 668, 2 April 1992.

<sup>3</sup> Alternatively, for purposes of this paper, "Transport Canada" or TCCA

<sup>4</sup> Alluding to having flown for 43 winters in a variety of aircraft, he stated "...as a result of Dryden, we have been witness to a wild over-reaction to the event by various parties who shouldn't have been involved in the first place..." "There is no doubt whatsoever that over the years, airplanes have been flown without incident with ice and snow on the wings, and probably on some occasions with humongous quantities aboard." He continues "It seems incredible that we in Canada would come up with this clean wing concept. We've had to cope with ice and snow for several months each year ever since we started using the airplane... all this agonizing over contaminated wings does a great disservice to the Canadian air transport industry".

After hearing the testimony of numerous pilots, it became obvious that this writer was not alone in demonstrating abysmal ignorance as to the dangers of wing contamination and the extreme limitations in the protection offered by Type I de-icing fluids then in use. The Chief Pilot for Air Ontario, for example, testified that he believed that he had 45 minutes to one hour protection in freezing conditions against re-freezing, after de-icing with Type I fluid, when he really had about one minute. Numerous other pilots had similar false impressions.

Dr. C.O. Miller, former Director, Bureau of Aviation Safety, NTSB, an aeronautical engineer, pilot, internationally recognized expert and consultant in aviation safety matters, and special advisor to my Commission, responded to this article in a letter to the Editor writing: "I've reviewed too many accident investigations, seen too many flight test reports and been party to too many professional discussions on this issue, to question, in any sense of the word, the insidious and serious nature of the hazard as typified by the Air Ontario Dryden case. Pilots who think they can rationalize their way around this phenomenon based upon their experience and judgment are an accident waiting for a place to happen. Pilots who have perhaps hundreds of lives dependent upon their skills including decision making, have absolutely no business playing a probability game based mainly on their own personalized and rationalized experiences ...his disdain for current knowledge about wing contamination effects, suggest he's going to end up in the 'crock' himself one of these days. Let's hope he doesn't take others with him."

<sup>5</sup> The report of the Commission comprises two interim reports and a final report tabled in the House of Commons on 8 December 1989, 11 December 1990 and 26 March 1992, as Sessional Papers 342-4/13, 342-4/13A and 343-4/17.

<sup>6</sup> One upper-level Transport Canada manager testified that he ceased passing on to senior management the requests by front-line Inspectors for more resources because "it was not career-enhancing to continue to do so."

<sup>7</sup> Prohibition of hot refuelling of aircraft with passengers on board, a most dangerous practise prohibited in the United States but at the time not prohibited by Canadian regulations. I immediately issued an urgent Recommendation No. 1, in my First Interim Report to Transport Canada, which stated: "That the Department of Transport prohibit refuelling of an aircraft with an engine operating when passengers are on board, boarding or deplaning." Transport Canada, to its credit, acted promptly to do so.

<sup>8</sup> The second part of my mandate enabled my Commission to not only investigate the Dryden crash but peripheral aviation safety concerns as well. A severe winter storm completely shut down Pearson International Airport in January 1990. My attention was drawn to very serious winter weather departure lineups and delays as well as aircraft ground de-icing concerns during a surprise visit to Commission Headquarters by the Chief of Air Traffic Control, Toronto. Commission investigators returned from Toronto Airport with alarming findings of major safety problems, too numerous to mention but including the use of very primitive de-/anti-icing fluids and technology.

Numerous recommendations for change were immediately made to Transport Canada by way of my Second Interim Report. This resulted in speedy enactment by Transport Canada of new aircraft ground de-icing regulations, and the introduction of revolutionary new ground de-icing procedures, which I regard as the crown jewel of the Dryden Inquiry. These have been adopted internationally and represent a landmark improvement in aviation safety. These included regulatory enshrining of the 'clean wing' concept and the prohibition of takeoff with contaminated wings and the development of new, advanced de-icing fluids providing much greater hold-over times after application. There were significant advances in de-icing technology and methods at major airports in Canada, including new gate-hold procedures in bad winter weather, dedicated de-icing bays; the mandatory inspection of aircraft surfaces by Transport Canada inspectors just prior to take-off in bad winter conditions, last minute runway departure-end de-icing application in severe winter conditions; new state of the art de-icing trucks and equipment at major airports, and regulations requiring the cabin crew to bring aircraft surface icing concerns to the attention of the flight crew and requiring the flight crew to deal appropriately with such concerns, before takeoff. Based on my recommendations, advanced Type II de-/anti-icing fluids were introduced into Canada for the first time, during the course of the Inquiry, in place of the almost useless and primitive Type I fluid then in use.

Transport Canada subsequently embarked, as recommended, on an unprecedented program of funding research into the entire subject of ground de-/anti-icing technology and practises, including wing icing detectors and glycol recovery systems. These major changes moved Canada from an aircraft ground de-/anti-icing backwater to the leading edge of aircraft ground de-icing technology internationally. Pearson International now can boast of having the largest and most technologically advanced aircraft ground de-/anti-icing facilities in the entire world.

<sup>9</sup> David P. Wightman, Assistant Deputy Minister, Aviation at the time of the Dryden Inquiry, an extremely able and dedicated public servant, who as a witness at the Inquiry, and who assumed the overall direction of the Dryden Implementation Project (1992-1995), stated: "This Inquiry is probably the most in-depth look

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at the operations of Transport Canada, the Aviation Group, and the Regulatory side of it, specifically, that we've ever had." On May 10, 1995, he wrote: "In looking back on the last six years, I consider it fortunate that you were instrumental in delivering the kind of 'wake up call' that every large bureaucracy needs from time to time, especially one so closely linked to public safety as Transport Canada Aviation. I think that we were able to make a difference in aviation safety, thanks to your encouragement, and I derive considerable satisfaction from the fact that aviation achieved in 1994 the best safety record that we have seen for many a year. My thanks to you."

<sup>10</sup> Professor James Reason of Manchester University in England, world-renowned aviation psychologist, aviation safety consultant and expert in aviation human factors stated: "this is the most exhaustive accident inquiry report I have ever seen". The authors of the book "Beyond Aviation Human Factors, Safety in High Technology Systems" published by Avebury in Aldershot, England in 1995, wrote: "The Dryden Report, as it has become widely known, is an accomplished exercise in accident investigation and prevention from a systemic as well as from the organizational perspective. The value of the report lies behind the post mortem lessons... What makes the report a turning point in contemporary aviation safety are its premortem lessons, The investigation of Air Ontario 1363 represents one of the first large scale applications of a systemic organizational approach to the investigation of an aviation accident".

<sup>11</sup> During a seven-month probe by The Hamilton Spectator, The Toronto Star and The Record of Waterloo Region, investigative reporters analysed more than 50,000 incident reports made to Transport Canada and obtained through an Access to Information Act request. The results appeared in a Special Report titled "Collision Course" published as a series of articles in June 2006.

The data show an aviation system susceptible to a wide array of problems, including hundreds of events involving loss of in-flight separation between aircraft, two aircraft on the same runway at the same time, navigational errors, procedural errors, mechanical malfunctions, unsafe takeoffs and landings, and serious operational errors on the part of pilots, air traffic controllers and mechanics.

"There will be a serious accident. It's just a matter of time," says veteran aviator Ken Green, who retired in March after a 33-year career as a commercial airline pilot with Air Canada. His concerns are echoed by other aviation experts.

Transport Canada data show a steady increase in the number of alleged violations of Canadian aviation regulations such as improper maintenance checks and pilots taking off or landing without air traffic control authorization. The regulator, which has the power to discipline pilots, airlines and air traffic controllers under the Canadian Aviation Regulations, recorded 1,251 alleged breaches in 2004 alone, up 79 per cent from 2001.

It all comes against a backdrop of worsening aviation safety statistics.

According to the Transportation Safety Board of Canada, the number of fatal aircraft accidents was up 48 per cent from 2004 to 2005, from 27 to 40. It was the largest number of fatal crashes since 2001 and resulted in 61 deaths."

"We have a lot of occurrences like you see in the reporting incident data," says Captain Brian Boucher, an Air Canada pilot and technical safety chair of the Air Canada Pilots Association. "What we have now isn't working safely."

"Robert Thurgur, president of the Canadian Air Traffic Control Association, says chronic short-staffing in the nation's control towers has compromised the delicate work of managing planes in the sky. 'I think there's a very strong influence on costs. It's not as safe a system as if safety came first and costs came a distant second,' he says." (Vallance-Jones, Cribb, & McMahon, 2006, June 3).

"Many safety problems have been found only after they killed people, leading to so-called "tombstone improvements."

"Transport Canada says it doesn't see any disturbing overall trends in mechanical problems since 2000. But a joint investigation into airline safety ...found the same kinds of maintenance problems can crop up time after time -- with no permanent fixes. (Vallance-Jones, Cribb, & McMahon, 2006, June 10).

"Four Air Canada Jazz mechanics who spoke out publicly about safety issues with company planes were suspended without pay for two weeks and warned to keep quiet in the future, sources inside the airline say.

Their published comments included allegations that they feel pressure to cut corners on maintenance work and to release planes for service that may compromise public safety." (The Hamilton Spectator, 2006, September 12).

I believe the Jazz aircraft landing on it's belly a few weeks ago in Toronto seems to vindicate these mechanics..

"Transport Canada continues to allow bad-weather landings that would be unheard of at U.S. airports, despite repeated warnings that planes and lives are at risk."

"Landings are guided by 'approach bans,' which set minimum standards for visibility to ensure pilots don't make unsafe landings because of pressure from their employers to stay on schedule, overconfidence in their own flying skills, or inexperience.

The existing (Canadian) approach ban is terribly inadequate," said Bob Perkins, air safety co-ordinator of the Air Line Pilots Association and a veteran commercial pilot. "People are just doing approaches when they shouldn't be."

"Canadian regulations for landings are so lax that Air Canada insists its pilots obey the company's own, tougher rules." (Cribb, Vallance-Jones, & McMahon, 2006, June 14).

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“Experts -- pilots, mechanics, airline workers and people who study aviation data -- warn significant changes must be made to prevent a major catastrophe.” (Cribb, Vallance-Jones, & McMahon, (2006, June 3)

<sup>12</sup> The SMS initiative touted by Transport Canada’s senior management and the Minister of Transport as a panacea for all that ails the aviation industry is driven by cost-cutting. The Director General, Civil Aviation admitted as much in a speech to the Canadian Aviation Safety Seminar in Vancouver on April 20, 2005, when he advised, quite to the contrary to what is being said for public consumption, that the number of inspectors in Transport Canada's inspection service would be cut by 46% by the year 2013. Speaking of “Goals and Objectives,” he stated: **“A risk based safety oversight program will be established where targeted interventions achieve observable and measurable results within progressively stricter financial resource imperatives.”** Clearly, **“within progressively stricter financial resource imperatives”** can only mean one thing: progressively reduced funding of the aviation regulatory directorate enabled by the predicted 46% reduction in the number of aviation inspectors by 2013. No matter what words are employed to obscure this fact, the result speaks for itself.

<sup>13</sup> “SMS is being driven by Transport Canada's need to reduce costs, say many industry insiders. The budget for aviation safety regulation is expected to drop from \$265 million in 2003-04 to \$243 million by 2007-2008.”

“Transport Canada's Director of Civil Aviation, Merlin Preuss, acknowledges that resources are a factor in the adoption of SMS as 46 per cent of the department's workforce will be retired or eligible for retirement by 2013. “Replacing these employees, let alone adding to the current workforce, to continue the current oversight regime given the current and predicted workforce demographics, is not feasible,” he said in Halifax.” (Cribb, Vallance-Jones & McMahon, 2006, June 17).

<sup>14</sup> A senior official of Transport Canada wrote (on July 23, 2007) to a professional engineer at Calgary who had previously written to the Transport minister expressing his concerns about the divestiture of regulatory oversight from Transport Canada unto the carriers under Bill C-6. That official’s letter has been passed on to me and I quote from it: “I should note that SMS regulations are not about self-regulation or deregulation. Nor is the introduction of SMS regulations about reducing the number of inspectors or cutting costs.”

Instead of engaging in such obfuscation, contradiction and double talk, it is time for Transport Canada to come clean and admit up front in its public statements that cost cutting, and not a concern for public safety, is the driving force behind its Bill C-6 version of SMS with its obvious abandonment of hands-on regulatory oversight of air carrier operations.

<sup>15</sup> Apart from cost-cutting objectives, Transport Canada’s support of Bill C-6 to avoid certain oversight responsibilities raises the spectre of a current and allegedly insoluble shortage of aviation inspectors to perform traditional regulatory oversight. I suggest that this is a problem of its own making, by allowing depletion of the inspectorate over the past several years, and not without warning. Mr. Justice Charles Dubin who headed a 1981 Commission of Inquiry into aviation safety in Canada stated “enforcement should play a very significant role in an aviation safety program...it is presently not doing so”. Transport Canada was again warned 15 years ago, in my Final Report on the Dryden crash, to beef up the regulatory inspectorate force in order to meet the challenges of the expanding aviation industry. In recommendations MCR 110 to MCR 117 I recommended, inter alia, that adequate resources be focused on surveillance and monitoring of the air carrier industry with emphasis on in-flight inspections and unannounced spot checks; that surveillance of air carriers be established as a non-discretionary task; that Transport Canada establish a contingency policy to meet unusual resource demands without jeopardizing adequate staffing of inspection and surveillance functions; that it establish improved staffing and recruitment programs to enable filling aviation regulation staffing requirements on a high-priority basis, and that it fast-track staffing requirements. Unfortunately, none of that is now occurring and conditions mimic the pre-Dryden scenario.

<sup>16</sup> It is significant that the current deterioration of Canadian aviation safety, documented in the “Collision Course” newspaper series, coincides with Transport Canada’s progressive reduction in the number of aviation inspectors since Dryden.

<sup>17</sup> “Captain Raymond Hall a 33-year veteran Air Canada pilot, says that the current climate in Canadian aviation reminds him of periods prior to the Dryden crash...”

“I think a serious incident is looming. It’s just a matter of who, where and what form it will take... that causes the public to take concern with the laissez-faire attitude of both the regulatory authority and airline management that mandates or tolerates the squeezing of resources and necessarily impinges on flight safety”.

“Pilots, mechanics and Transport Canada insiders interviewed for this series agree safety has slipped and the SMS plan could weaken it further.”

“This is the worst thing they could do,” says a senior mechanic with a major Canadian airline who spoke on the condition of anonymity. “The bottom line is Transport Canada needs to show their presence. The public deserves it. Transport Canada is sitting in the bush.” (Cribb, Vallance-Jones, & McMahon, 2006, June 17)

<sup>18</sup> In the Canadian context, bills have no force or effect unless and until they are passed by both the House of Commons and Senate, receive Royal Assent, and come into force. (Padova, 2006).

The SCOTIC held four months of hearings with respect to Bill C-6, many aspects of which were, in their original form, travesties. I was privileged to be invited to appear before the Committee and did so on February 28, 2007. The Committee made a number of good recommendations for amendments to the Bill C-6, mainly based on strong representations made at the hearings by various witnesses and aviation groups, as well as widespread media criticism of Transport Canada’s SMS initiative, and forceful prodding by some Opposition members on the Committee.

<sup>19</sup> Under the Access to Information Act, Canwest News Service on April 13, 2007, obtained a Transport Canada internal risk assessment study, completed in March, 2006, which warns of increased risk to the flying public as a result of introducing SMS without effective regulatory oversight of air carrier operations. The report states “Safety problems could be overlooked, airlines may not comply with federal aviation regulations and trained inspectors could lose the necessary

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skills to conduct large-scale safety audits if the department's audit program is reduced.” This internal study contradicts Transport Canada’s and the Minister’s repeated public pronouncements that there will be no reduction in the number of aviation inspectors, that regulatory oversight will continue, that the SMS initiative under Bill C-6, will advance aviation safety by “adding another layer” of safety, and that aviation safety will not be compromised.

<sup>20</sup> Cliff Edwards, former Senior Advisor of Air Safety for Shell Aircraft International (SAI) spoke in 2005 on *Aviation and the Illusion of Safety*. He noted that, subsequent to the Apollo 204 Command Module Pad fire, it was recognized that NASA’s predictions of the future were based on its *rose-tinted* past. He stated that this ‘illusion of safety’ is beset by the following *false beliefs*:

- Airlines with a good safety record will continue to be safe;
- Instructions and procedures for safe operations are in place, well read, understood, remembered and systematically used;
- Responsibility for safety can be devolved to line managers;
- Trained, experienced employees are immune to errors; and
- It is sufficient that from time to time leaders talk about safety and its importance”. (Edwards, 2005).

<sup>21</sup> While I was in Dubai, United Arab Emirates in May 2007 on a speaking engagement at an International Federation of Air Line Dispatchers’ Associations (IFALDA) conference, I heard delegates from all over the world expressing astonishment about Transport Canada’s current push for the imposition of mandatory SMS on all air carriers with concurrent divestiture of traditional regulatory oversight and responsibility for enforcement unto the carriers themselves.

<sup>22</sup> The Inquiry of Lord Justice W.D. Cullen into the 1988 Piper Alpha oil production platform disaster in the North Sea made a strong recommendation in 1990 that offshore operators be required to introduce SMS. Beginning in 1994, Shell Aircraft International (SAI) became engaged in aviation SMS, becoming an acknowledged world leader in its implementation. After 13 years, SAI estimates that its aviation SMS implementation is only at a 70% completion stage.

<sup>23</sup> The following excerpt is from an e-mail received from a Senior Transport Canada Inspector (name withheld for obvious reasons) on April 16, 2007: “There’s nothing wrong with the SMS concept, but the implementation is fatally flawed by the timetable. Cultural change of that nature takes a generation to effect. (think automobile seat belts).” “We’re demanding that our operators produce an effective system in 3 years. It’s not possible, and the resources to monitor and assess these activities (and they’re trying with variable efficacy) have of course been taken from other oversight activities, accommodating the promise to senior TC management that the introduction would be resource neutral. “One layer has been sacrificed to initiate oversight of another layer, which is many years from achieving any meaningful level of reliability. In the current and foreseeable market, with the low yields and resultant narrow margins, safety will continue to play second fiddle...a close second, but second to the balance sheet - that’s the Accountable Executive’s first responsibility, to the shareholders, via the Board.”

<sup>24</sup> Bill C-6 was introduced by the previous Liberal government and shelved when they lost the last federal election. Transport Canada senior management apparently convinced the new Minister of Transport of how wonderful the SMS idea was and how much money it would save the government by downloading Transport’s regulatory oversight responsibility and accompanying cost, unto the carriers themselves. The government, presumably wanting to be seen as doing things, grabbed the Bill off the shelf and ran with it, without considering the ramifications.

<sup>25</sup> Responding to intense pressure from Opposition members of SCOTIC and numerous witnesses who appeared before SCOTIC, the government introduced on June 15, 2007 an amended version of Bill C-6 incorporating a number of recommendations which would have set ground rules for regulation of SMS at airlines, including “continuous monitoring”. Three days later, almost inexplicably, the government backtracked and deleted from the Bill some safety-critical amendments, no doubt a result of industry pressure.

<sup>26</sup> Inadequate redundancy, slipshod maintenance, and a near complete lack of regulatory oversight set the stage for the fatal crash of Alaska Airlines Flight 261 twinjet, according to pilot and mechanics union analyses. Their blunt commentaries were submitted to the US National Transportation Safety Board. (IASA, n.d.).

<sup>27</sup> The January 2000 crash of Alaska Airlines Flight 261 in California, the February 2000 crash of Emery Worldwide Airlines Flight 17 in California, the Swissair SR111 MD-11 crash in 1998, and the May 1996 ValuJet Flight 592 crash in the Florida Everglades, to name a few, **were determined by the NTSB to have resulted from a lack of regulatory oversight of repair stations or air carrier maintenance programs.**

<sup>28</sup> On March 24, 2007, the Wall Street Journal published a front-page article on the dangers posed by airlines licensed in one State but operating from another State in order to escape oversight, a practice (known as *flags of convenience*) similarly suffered by the maritime industry. (Michaels & Cullison, 2007, March 17).

<sup>29</sup> “Implicit in all of this is the need for an adequately staffed and funded and effective regulatory oversight of the airline industry by the Regulator, which, as an arm of government, is charged with the responsibility for the safety of the air travelling public.” (Abeyratne, 2003).

<sup>30</sup> Hugh Danford, former Civil Aviation Inspector, Transport Canada, testified before SCOTIC on May 14, 2007: “I joined the work group called the TRINAT, which was an initiative by TC’s international aviation branch. The group was made up of representatives from Canada, the U.S., and Mexico. We were tasked with analyzing 276 crashes to determine root causes. The breakdown was twenty for Canada, seven for Mexico, and the remaining files were from the U.S. **Of the 20 Canadian crashes, 25% had a root cause of “lack of regulatory supervision”.** This was not our interpretation; this information was quoted from TSB reports....One of the crashes we reviewed in the group was the Davis Inlet crash on March 19, 1999, TSB report number A99A0036. As a result of the crash, **the TSB issued recommendation A01-01, which stated: The Department of Transport undertake a review of its safety oversight methodology, resources, and practices...to ensure that air operators and crews consistently operate within the safety regulations. This was the most important recommendation since the Moshansky commission.”**

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<sup>31</sup> In discussing significant latent failures associated with CASA's regulatory operations, ATSB (2001) reported that "...the surveillance of airline flight operations was deficient", recommending that "CASA consider widening its existing skill-base with the Compliance Branch to ensure that CASA audit teams have expertise in all relevant areas, including human factors and management processes."

<sup>32</sup> ATSB (2002) reported that the "...system for continuing airworthiness of Class A aircraft was not as robust as it could have been, as evidenced by... inadequate regulatory oversight of a major operator's continuing airworthiness activities...". "The investigation identified a need for the regulatory basis for continuing airworthiness requirements of Class A aircraft to be better defined..."

<sup>33</sup> The investigation also identified contributing safety factors relating to the regulatory oversight of Transair by the Civil Aviation Safety Authority (CASA). In particular, CASA did not provide sufficient guidance to its inspectors to enable them to effectively and consistently evaluate several key aspects of operators' management systems. These aspects included evaluating organizational structure and staff resources, evaluating the suitability of key personnel, evaluating organizational change, and evaluating risk management processes. CASA also did not require operators to conduct structured and/or comprehensive risk assessments, or conduct such assessments itself, when evaluating applications for the initial issue or subsequent variation of an Air Operator's Certificate. (ATSB, 2007).

<sup>34</sup> TSB of Canada investigation of the 2004 crash of MK Airlines B747-244SF at Halifax concluded that the regulatory oversight the Ghana Civil Aviation Authority (GCAA) conducted on MK Airlines was not adequate to detect serious non-conformance to flight and duty times, or ongoing non-adherence to company directions and procedures. (TSB, 2006).

<sup>35</sup> Russia has five regulatory bodies. Duties overlap and at least two both regulate airlines and investigate their crashes. Often the only conclusion they can agree upon is pilot error, leaving the deeper causes of a disaster unexplored. (FSI, June 17, 2007).

<sup>36</sup> The US Government Accountability Office (2005) reports that FAA's oversight process is hindered by certain program weaknesses and human capital management challenges and that most inspection activities are not prioritized based on a structured risk assessment process.

<sup>37</sup> At the time of the SR111 disaster, FAA procedures in place to oversee the delegation of authority to a Designated Alternation Station (DAS) for Supplemental Type Certificate (STC) certification did not ensure that anomalies could be identified and corrected. Further, the FAA review process to accomplish the oversight function was unlikely to discover anomalies, as it relied on being notified by the DAS of any change to the scope of the project. (TSB, 2003).

<sup>38</sup> In his statement regarding the Alaska Airways Flight 261 crash, NTSB Member John J Goglia said "This is a maintenance accident. Alaska Airlines' maintenance and inspection of its horizontal stabilizer activation system was poorly conceived and woefully executed. This failure was compounded by poor oversight." (NTSB, 2002).

<sup>39</sup> In the *Joint Resolution Regarding Criminalization of Aviation Accidents, 17 October 2006*, the Flight Safety Foundation (FSF), Royal Aeronautical Society (RAeS), Académie Nationale de l'Air et de l'Espace, Civil Air Navigation Services Organization (CANSO), European Regions Airline Association (ERA), Professional Aviation Maintenance Association (PAMA), and the International Federation of Air Traffic Controllers' Associations (IFATCA) recorded "The aviation system and air disaster victims and their loved ones are better served by resort to strong regulatory oversight and rigorous enforcement by national and international authorities..."

<sup>40</sup> TAM Linhas Aereas In the wake of the crash of an Airbus A320 operated by TAM Linhas Aereas which overshot the runway at Sao Paulo, Brazil on July 17, 2007 killing all 187 people on board, and at least 12 on the ground, President Lula da Silva appointed Nelson Jobim a former Chief Justice of Brazil's Supreme Court, as defense minister to tackle a 10-month aviation crisis that produced two major accidents and pushed air travel to the brink of collapse. "In the (aviation) sector you can't take decisions based on party origins," Jobim said. **"We have to reevaluate the entire system."**

<sup>41</sup> The Vienna Convention on the Law of Treaties was adopted on 22 May 1969 and entered into force on 27 January 1980, in accordance with Article 84(1). (Official Publication in United Nations, *Treaty Series*, vol. 1155, p. 331.) It is generally accepted that jus cogens peremptory norms are to be interpreted as restricting the freedom of States to contract while *voiding* treaties whose object conflicts with norms which have been identified as peremptory.

<sup>42</sup> The regulator usually may issue delegations and authorisations in relation to the various powers it holds. In effect, a delegate becomes an agent of the regulator with respect to the powers delegated to them and a function or power so delegated, when performed or exercised by the delegate shall be deemed to have been performed or exercised by the authority. An authorisation confers on an entity a right to do something which, without that authorisation, the person would not have the right to do.

<sup>43</sup> Professor Reason wrote "Safety like health has two faces. There is a negative face that is all too easily measured by incident and accident data, and a positive face that relates to an organization's intrinsic resistance to chance combinations of human failure and bad conditions. "Since we can never entirely eliminate these accident-causing factors, the only achievable goal is to attain a maximum level of 'safety fitness' and then stay that way. This must be done by making regular checks on the organizational vital signs".

<sup>44</sup> The *Convention on International Civil Aviation* ("The Convention"), signed on December 7, 1944 set forth the purpose of ICAO:

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"WHEREAS the future development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world, yet its abuse can become a threat to the general security; and

WHEREAS it is desirable to avoid friction and to promote that co-operation between nations and peoples upon which the peace of the world depends;

THEREFORE, the undersigned governments having agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically;

Have accordingly concluded this Convention to that end."

<sup>45</sup> Public international law operates to create rights and obligations between sovereign states. However, it cannot impose obligations or confer rights directly on private (that is, non-State) persons or bodies. This function is, broadly speaking, the role of the domestic (often called 'municipal') law of individual States.

<sup>46</sup> Under Annex 6 (Operation of Aircraft) to the Convention, the State in which the operator has its principal place of business must certify that the operator is competent to carry out international air transport operations. Under Annex 8 (Airworthiness of Aircraft), the State in which the aircraft is registered must certify that the aircraft to be used meets airworthiness requirements.

Where there are aspects of the standards to which Contracting States have not conformed, they are obliged to notify differences. This arrangement is currently ratified by 190 Contracting States.

<sup>47</sup> Unfortunately, this distinction between international and domestic regulation is clouded by the ever-increasing overlay of regional regulation in some parts of the world, most obviously in Europe.

<sup>48</sup> "There has been a prevailing approach to the way activities in global aviation are conducted that has been shaped in large part by manufacturers of technology and the largest customers. The industry's standards and practices have been shaped via competitive deregulation, professional interest groups and resource-rich investment in technology. The outcome of this influence and investment is the outstanding safety record that civil aviation now enjoys. Despite this overall success, some regions of the world do not enjoy the same high safety record as others, prompting the inquiry as to why. International standards and practices should be equally relevant, equally applied, equally enforced, and equally affordable around the world. However, the ICAO Universal Safety Oversight Audit Program has demonstrated this is not the case. Regional accident rates vary around the globe, suggesting that the prevailing model of aviation practice may not be equally applicable around the world. Understanding these variable safety statistics more completely was the impetus for this document, since the widest understanding of those local or contextual factors affecting specific contexts may be the key to further progress in global aviation." (ICAO, n.d.)