

Supplementary Submission

26 March 2001

To: the Transport & Industrial Relations Committee
on: the Civil Aviation Amendment Bill No 2

A: Introduction

1. This is the personal submission of Dr Peter Dodwell, specialist in occupational & aviation medicine. The earlier summary is superseded by this.
2. I appreciate the opportunity to appear before the committee to speak to my submission. I can be contacted at -- **Mobile: 021-878-001; Office: 04-386-3559.**
3. As a specialist in both occupational medicine and aviation medicine with intimate past experience in the drafting of civil aviation legislation [biographical details in **Appendix I**], I can say that there are many sound reasons for opposing the Bill. These relate to matters of both science and good governance.
4. I oppose this Bill, with some very minor exceptions summarised in **Appendix III**. A full list of Recommendations appears as **Appendix II**.
5. I oppose the Bill because it has been presented to Parliament with unseemly haste, and contains items which do not have a transparent logical relationship to the Scott-Gorman Report on which it purports to be based [see **Appendix VIII**].
6. I also oppose the Bill because it is based on a flawed Report containing thinly veiled and false *accusations* against myself. It is obvious to the most casual observer of aviation matters that these accusations are levelled against myself personally as the former Principal Medical Officer (PMO) of the Civil Aviation Authority (CAA). Professors Scott and Gorman (the Professors) as well as the Director of Civil Aviation (the Director) have until this point denied me the right to Natural Justice, in that I have not had an opportunity to respond to their criticisms.
7. I was given no opportunity (prior to the surprise announcement of the Report and the Bill on which it is based) to respond to the above accusations, to present an oral submission to the professors, or even view their draft report, prior to 20-2-2001.
8. I will be accompanied by legal counsel at my oral presentation.

B: Executive Summary – Main Points & Recommendations

1. General - Very Few Clauses (CA Amendment Bill No 2) Supported: Recommendations are in **Appendix II**. A summary of the few *useful* parts of the Bill is in **Appendix III**. None of this is urgent, but provided Parliament focuses on these bare essentials there should be no problem in getting it right quite quickly.

Appendix VIII pinpoints three “Trojan Horses” (clauses inserted by CAA which bear no relation to recommendations of the SG report, appear to have been inserted for obscure reasons, and which are detrimental to the rights of individuals targeted by them). These are --

- An unreasonably restrictive definition of “medically unfit” [in 27A]; [recommendation **5b**]
- An apparent attempt to withdraw support from doctors appointed as the Director’s agents in protecting aviation safety [27G. (6)]; [recommendation **5b**]
- A lack of protection for “whistleblower” professionals, while increasing their vulnerability to legal challenges [27D (3)]. [recommendation **1a**]

I ask to speak to the above details as a Supplementary submission later, if the Bill is to be retained rather than rejected.

The remainder of my submission gives reasons for *rejecting the Bill in its entirety* until it can be considered more carefully. Most of it seems totally unnecessary. The overall effect is of misleading “urgency” from misunderstandings and errors in the Scott-Gorman Report. The most serious are addressed first.

2. Allegedly Flawed AMA Examinations & Lack of Audit:
The SG Report suggests that a key finding is on the conduct of examinations prior to the appointment of doctors as AMAs. The report suggests the system was “compromised from the outset” [SG Report, p20], and implies misconduct by those managing the AMA examination, via a lax system which unleashed unsafe doctors on the unsuspecting public. This exam was conducted in a professional manner. Details were not examined by the professors, who seem to have drawn conclusions from a single letter [SG Report, p20]. **Appendix IV** describes the subsequent AMA audit process and why this was incompletely developed. These reasons were overlooked in the SG Report.

International “best practice” regarding appointment and subsequent support of AMAs and DMEs is exemplified by the FAA system. A similar system was in place until 1997 in New Zealand, but has been allowed to lapse with resultant chaos. A system of appointment based on “best practice” must resume. [recommendation **2a**]

3. Resource Problems of CAA Medical Unit:
Central Unit: This is the most serious matter, as there is evidence the medical unit of CAA has been in the process of collapse. I advised the Director with increasing urgency over a ten-year period that the unit could not be effectively managed with the resources provided. Despite these warnings, resourcing was allowed to decay gradually until it reached its present crisis. [recommendation **3a**]

Independent Review: Currently pilots can go to the independent Aviation Medical Review Board, but this is under threat by the restructuring proposed by Scott & Gorman. The proposed “routinising” of an advisory panel available to AMAs/AMEs as suggested by the SG Report and Air NZ submission is no

substitute for independent review of difficult cases. [recommendation **3b**]

Human Factors: This topic is introduced in E: General Points, Section 1(b). **Appendix VI** indicates a number of *other urgent matters*, brought to the attention of the Director of Civil Aviation over the last eight years, which were set aside. These relate to *alcohol* (as noted in the submission of Dr Hochberg), *fatigue*, and the approach of CAA to *Human Factors* in general. There are a number of neglected CAA functions relating to both medical and Human Factors matters which are best managed under a combined unit. [recommendation **3c**]

Centralisation: The Bill follows a strong call, in the SG Report, for centralisation of the more routine parts of the medical certification process. These were decentralised under the AMA scheme following 1992. The medical functions of the CAA have gone through a cycle of centralisation/decentralisation on approximately a ten-year basis for many years and a further turn of the cycle offers no solution to recent problems. [recommendation **3d**]

Recruitment, Selection & Supervision of Medical Staff: Since the professors emphasise the importance of AMA applicants meeting exacting criteria prior to appointment, they will no doubt support the concept that selection criteria are even more important at higher levels in the system. CAA Personnel Licensing Unit has positions carrying greater administrative responsibility than is involved in the routine assessments delegated to AMAs. Yet CAA has administered poorly its *recruitment and selection of Medical Officers*, and has followed this by *inadequate supervision & support, not meeting current legal requirements*. [recommendation **3e**]

The Retrospective Clause: *Under 27N it appears a potential misuse of retrospective legislation to “smooth over” the consequences of this mismanagement.* If assessment decisions have been invalid, they should be rendered valid via case-by-case review by an experienced, vocationally-registered and properly-appointed PMO or SMO who then would issue replacement CAA Medical Certificates. Any “*retrospective*” clause should be just interim, to avoid disruption during such a case-by-case review. [recommendation **3f**]

Ultra Vires Power for Director (*CA Amendment Bill No 2, p11, section 6(2) power of Director to “undertake medical assessments”*): This contradicts CAA’s criteria for appointment of registered medical practitioners to conduct medical assessments, introducing a new power of the Director to *act as though he were a registered medical practitioner*. This is contrary to the Medical Practitioners Act 1995. [recommendation **3g**]

Further to the above dysfunctional organisational behaviour, **Appendix VII** demonstrates *poor communication and a defensive, “guild-like” attitude* of the CAA regarding the free and frank discussion of scientific and administrative issues. This fails to follow the example of “**best practice**” exhibited by the FAA, and does not support the SG Report’s Executive Summary item 11 (*under the heading “Defective System”*). The behaviour displayed by CAA Personnel Licensing staff has at times reached the level of an *abuse of a position of power, and of improper interference in the independence of private professional practice*. This is best illustrated by the example of what has come to be known in the industry as the affair of the “**Gagging Letter**”. This deprives the CAA medical system of an important resource for stability, collegial support, and scientific progress [recommendation **3h**]

4. Status of Medical Certificate, & Certificate of Appointment as AMA/DME, as an "Aviation Document":
The major misunderstanding embodied in the Bill permeates numerous clauses, inserting unnecessary words. Ironically, its stated intention is to **clarify meaning**. This relates to the meaning of "**Aviation document**" in the Civil Aviation Act, discussed in other submissions to the Select Committee.

Clarification is possible with a fraction of the verbiage offered in this Bill, in a way which would keep New Zealand more closely linked with the procedures adopted by the FAA (on which New Zealand's Aviation "Rule Part" system is modelled). [recommendations **4a, b, c, & d**]

5. Exaggerated Urgency of SG Report:
The Bill was presented on the basis of claims in the SG report of an **imminent safety problem**. These claims are exaggerated and urge unnecessary haste. A careful, considered approach is needed, to set aviation safety on track for the 21st century without "speed wobbles". **Appendix V** shows that the alleged "emergency" is an exaggeration, and **Appendix VI** shows that more important Human Factors matters have failed to achieve urgency in the last ten years. The SG Report must be set aside and re-investigated with true independence [recommendation **5a**] and the major parts of the Bill not supported by sound evidence must be set aside [recommendation **5b**].

The present problems are relatively minor in comparison to those in Appendix VI, and do not require allocation of vastly increased resources. The only urgent problem is systemic: CAA requires managers with sound communication skills and commitment, with the competence to recognise and appoint competent aviation medical specialists, and the competence (via such specialists' advice) to identify correctly the priorities of safety management. This will avoid the Minister being given faulty advice about priorities, as has occurred in recent months. [recommendation **5c**]

6. Scientific Flaws of SG Report:
The Report's *scientific* flaws have been well summarised in the submission of the Aviation Medical Society of Australia and New Zealand. I support the finding of the society's submission, that the SG report is so seriously flawed in terms of its science as to be worthless as a basis for any sort of urgent or major changes in the complex system set up in New Zealand to preserve "*aviation safety at reasonable cost*". [recommendation **5a**]
7. Economic Flaws in the SG Report & Amendment Bill's Introduction:
The Scott-Gorman Report contains no Cost Benefit Analysis, and its proposals are not costed at all. To offset what appears likely to be greatly increased expenditure, the SG Report offers no saving in lives lost or damage incurred (accidents). It appears merely to offer increased *control* (not increased safety) at *unreasonable cost*. This committee needs to ask whether the Bill is actually about *power* rather than about safety... A proper CBA is required before any changes are legislated with major cost implications. [recommendations **5a, 5b, 5c**]
8. Danger Signs in the SG Report & Amendment Bill's Introduction:
Appendix VIII supplements the Society's submission by looking at the signs in the SG report, which a non-scientist, and particularly an astute politician, will recognise as the smoke signals of a biased report. [recommendations **5a, 5b, 5c**]

9. Conclusion & General Recommendations:

Though the report raises important *questions* about the administration of medical certification it provides few useful *answers* that had not already been clearly stated to the Director without effect. In particular, the Review Team (one of whom is an occupational physician) should have been able to look at more than just questions of physical health of individuals plus the lack of Human Factors solutions in the New Zealand system (Executive Summary item 22 of the SG Report), but also to have considered seriously **the “health” of the organisation called the CAA**. This last item was one of the terms of reference of the review team, and yet no evidence is given in the report of the issues which the team examined, or of their analysis, in order to produce the glowing brief testimonial (*Executive Summary, item 11*) about the exemplary behaviour of the CAA medical unit and its PMO.

The answers to the medical certification crisis do not lie in scientific debate, but come from answering questions about mismanagement. These issues would have been readily revealed if the professors had talked to the former PMO (as the single person with the greatest experience of the problems in the AMA scheme).

That they failed to do so, overlooking the faults of those who had commissioned the review (using phrases such as “*for whatever reason*” – p25), confirms that the setting up of this review team was *compromised at the outset*. This in turn has compromised the present Bill.

General Recommendations

[Specific recommendations appear in **Appendix II**]

- a) The **bulk of this Bill must be discarded**, pending a more careful consideration of adjustments which may be necessary, including a competent **Cost Benefit Analysis**. It is likely that appropriate adjustments can be achieved within the existing rule structure.
- b) **Professionals must be appointed** (at all levels of the CAA, including the Director) **with appropriate qualifications, experience, & competence**. They must also be committed to the published mission of the CAA “*Safety at reasonable cost*”, on which the present CAA culture appears to have lost focus.

As noted at the beginning, no matter how competent an occupational physician may be, it can prove impossible to solve identified problems without the full commitment of the management of the organisation. The AMA scheme, which was an innovative plan based on a sound cost-benefit analysis and viewed with positive interest and some envy by overseas authorities, has been hindered by a *lack of management commitment within the CAA*. Therefore -

- c) There must be a **full and independent inquiry into the management of the Civil Aviation Authority** in relation not only to **medical certification** but also its core business of **managing the contribution of Human Factors to aviation safety**.

C: Main Points –

1. Important General Concepts

(a) Evolving Safety Standards:

Absolute safety: There are no absolutes regarding medical standards of fitness. The only absolute aviation safety would be to ground everyone. But CAA has the mission of “**safety at reasonable cost**”. Hence, the current standards of CA Rule Part 67 must not be considered carved in stone. The ICAO-based principle of **flexibility** is essential to these concepts.

Medical standards first arose in a time when flying was much more dangerous than it is now, and when little medical knowledge existed. The resulting standards were an educated guess, and the results continue to evolve as knowledge progresses. ICAO medical standards are in many cases 40 – 50 years old, because it takes 50 member states’ support for a change to occur. Certain individual member states (notably the USA, UK, Canada, Australia and NZ) are closer to the scientific “cutting edge” than the ICAO standards encourage.

Road vs Air: In general, flying is very safe in NZ (compared with *driving* for example). Paradoxically, we accept *daily reports of multiple fatalities on the road*, yet worry in a disproportionate way about *an isolated example of an elderly private pilot crashing with his friends aboard*. We accept that insulin-dependent diabetics can drive a car without there being any law against this, yet see no contradiction that a private pilot must not have insulin-dependent diabetes. There is much to be learned about our biases by comparing driving and flying. It was clear to me 20 years ago that Land Transport perhaps needed some tightening, but that aviation could afford to relax in terms of “*safety at reasonable cost*”.

The 1% “Rule”: It may surprise the Committee to learn that the so-called 1% “rule” *arose out of this possibility of cautious relaxing of standards*. It was demonstrated that airline safety (in terms of accidents caused by cardiac collapse) *exceeded the stringent engineering standards of aviation safety by about 100 times*. This led to agreement that the *earlier rulings of the 1970s were too strict*, and that airline pilots who had successful coronary artery bypass graft surgery could be returned to flying. The same might well prove so for other medical standards.

For example, in the mid-1990s the FAA introduced the idea (contrary to ICAO standards) that *pilots on insulin for diabetes* could be returned to flying, and CAANZ looked at this with cautious interest, measuring it against the “1% rule”.

Such cautious change had to be introduced gradually, and was based always on being able to demonstrate its safety via an “**evidence-based medicine**” approach. In other words, a previously-proscribed condition is considered “*unsafe*” until proven “*safe*”. This progressive relaxation was occurring right up to when I left CAA in 1998. It depended for its progress on **freedom of scientific debate**.

Then something seems to have drastically changed in 1999, as observed by industry (see **Appendix V** re statistical evidence). This led to the current outcry.

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(b) Human Factors:

There are two aspects of occupational medical training and practice which are poorly understood outside the profession: -

- **Occupational medicine** is not just about the *health* of individuals. It is also about their *behaviour*, and how this contributes to their strengths and their weaknesses. The aviation community generally understands this issue under the name of “**Human Factors**”, although unfortunately many within CAA seem to feel expert in this issue. Education in Human Factors works best in a trusting doctor-patient relationship [recommendation **1a**]
- **Occupational medicine** is not just about *individuals*. It is also about populations. Together with the first point, this has particular relevance to the “**health**” of an **organisation** in terms of whether it is functioning well or is dysfunctional.

Both of these features of occupational medicine mean that occupational physicians are not merely doctors. They are trained to understand good management practice, including good communication, and to recognise disorders in both.

Surprisingly, the SG Report gives scant regard to these crucial concepts, and this is a major weakness of the Report. Despite its secondary objective (2.1 in the Terms of Reference), there is a lack of detailed evidence and no more than superficial comment regarding the function of the CAA “medical unit” (now a part of Personnel Licensing unit), in the light of criticism from industry.

Sometimes an occupational physician has to advise managers of painful truths about their organisation. However, experts on occupational medicine have often observed that **regardless of the competence of an individual occupational physician, it is sometimes impossible to resolve identified problems without the full support of the management of the organisation.**

Like any good occupational physician, I have always tried to do what was best for CAA, in as friendly and positive a way as possible. But my suggestions have often been misconstrued as “criticism”. Although this submission contains some painful truths, it is intended to be constructive.

2. Allegedly Flawed AMA Examinations & Lack of Audit:
The Report summarises on p6 that “...**a small group of medical assessors have no formal training in aviation medicine**”.
- This must refer to the CAA’s own **Central Medical Assessors**, a group being phased out in the transition from the old system. Only **one** (a specialist physician with many years experience of assessments) remained in 1998 from the original group of three. *It is an example of bias of the Report that this one doctor merited exaggerated mention in its Executive Summary.*
 - If others have been appointed as CMAs since 1998 this has not been formally announced. Perhaps the professors mean that the current PMO made appointments without a pass in the procedures examination, since the report states that the exam has not been run since 1997. If so, this would be comment on *recent CAA practice*, rather than on a compromise “*at the outset*”.
 - I note that *Dr Callaghan the current PMO has never sat or passed this procedures exam, and has therefore never been an AMA*. The professors must presumably view this oversight by CAA as a particularly serious compromise of the present system, yet it is mentioned nowhere in any analysis of current in-house practices of the CAA. This has implications for the proposed *centralised* system, to avoid its being compromised from the outset...

On p6 the Report says “*Some AMAs were appointed despite failing to meet the **initial criteria** set for the CAA entry examination...*”

- Yet the **examinees** were doctors who had already met the first criterion of holding a highly specialised tertiary qualification (the Diploma of Aviation Medicine).
- A further criterion was to “**have completed the (Volume 1) procedures course successfully**”. The *SG Report p20, bullet point 3, misquotes this criterion*. This “*procedures course*” was just a closely-supervised introduction to how the CAA would administer the issuing of medical certificates, and was not an academic examination.
- It was followed by close supervision to ensure satisfactory results.

(a) DEVELOPMENT OF AMA PROCEDURES COURSE & EXAMINATION:

- There was pressure, both from industry and from within the CAA, to get AMAs appointed and have the system running.
- As with the FAA system of AME appointment, the purpose of the “procedures course” was not an *academic* exercise. It was to be a “top up” to either a university Diploma (AMA-1) or Certificate (AMA-2) – just a practical exercise to ensure that the AMA was reasonably familiar with the new material in the Manual’s Volume 1. This was a new exercise for all of us, so there were no guarantees that Volume 1 was flawless, and the process would be a learning experience for both trainees and trainers. We expected the process to identify practical problems, needing to be fixed “on the fly”.
- As experts in Human Factors Dr Griffiths and I were aware that learning is best achieved by doing. We proposed that CAA would maintain close contact with AMAs even after they had successfully completed the Procedures

Course. This would be partly to guide them when required, and *partly to detect problems early* (see later under Audit & Quality Assurance).

The Medical Manual describes this obligation of CAA, and the submission of Dr Hochberg and others has shown how it has been neglected in 1999-2001.

- It should therefore be obvious that the question of passing or failing an exam at this time was not going to be a particularly useful indicator of future performance. Subsequent audit and monitoring was going to be far more important.
- It is strange that any person intimately involved with aviation safety and with Human Factors could believe that *with a mere procedural examination* there would be any dramatic difference (in terms of aviation safety) between a candidate passing with a threshold of 85% and a candidate passing at 80%. Far more valuable is the identification of those candidates who are weaker and those who are stronger.
- The NZALPA submission gave the example of a pilot being found at a flight test as being procedurally “*nonstandard... but not unsafe*”, followed by remedial action. With this concept in mind, we ensured CAA would follow the weaker candidates closely after their appointment as an AMA-1.
- The SG report (*and news media, with comment by the Director – copy available*) stressed the “*adjustment*” of candidates’ marks before deciding whether they had passed. Scaling is a common practice in academic exams, an arbitrary adjustment for variations in difficulty of questions, to avoid unfairness to examinees.
- Nevertheless, we did not adopt the approach of scaling results. To identify questions which might be defective (for example, ambiguity of either the question or of the material in the Manual) one technique used involved going through the examinees’ papers and assigning preliminary marks beside each question (noting whether this mark amounted to a pass or a fail for that question). After this “*first pass*” all of these results were recorded in a table so that it was possible to identify particular “*outlier*” questions (questions which all examinees answered correctly or which all failed). Other questions generally showed more of a scatter. This analysis helped us decide whether questions were a useful indicator of ability, and also identified defective questions or defects in the manual.
- We encouraged candidates to add comments to their exam paper if they felt they had identified a faulty question. This too was extremely useful.
- With the first sitting of the exam there were a number of faulty questions, and this led to appropriate adjustments in the marking. *There was nothing more sinister about the adjustments than this.* Other submissions to the Select Committee corroborate this, I understand. **Dr Faris** in particular should have been aware of this explanation for adjustments in the exam he sat in 1994.
- There were two or perhaps three candidates who failed the first exam, even after adjustments. In my recollection, these candidates were asked to present themselves again for re-examination with the next intake of applicants (as was proper procedure). This continued to be our practice.

C: Main Points

- Provided I have access to the material on which they based their conclusions, I will be happy to answer any additional points which the two professors might care to put to me regarding the conduct of these exams. Despite the constraints at the time the result seems both practical and professional.
- After some further paperwork, I issued a **Certificate of Appointment** under delegated power from the Director. This was the first time that *anyone* within the CAA (apart from perhaps the Deputy Director) had been given the delegated power to sign such a Certificate, and was a landmark decision in terms of improving the efficiency of the CAA. Prior to that time the Director had the task of signing all such documents, but it was realised that this was unnecessary workload for him. *It appears a significant indication of his trust in my competence that he was willing to delegate this power to myself in 1993.*
- It was noted (in 1993, as I recall, prior to the first intake of AMAs) that there was a **defect in the law as gazetted**. This meant that a medical certificate issued by the PMO or SMO was not valid, unless perhaps done under delegated power via the exemption provisions of Part 67.15. This was solved via the “quick fix” of **appointing PMO and SMO as AMAs**, which thus conferred power to issue certificates under 67.09. The same was done with any **acting MO** (such as Dr Griffiths in 1997). This could be done without the need to pass the AMA exam, since equivalent qualifications, experience, and (in the case of the SMO) close supervision existed.

For completeness, I attach **Appendix IV** to outline those elements of Audit & Monitoring which **were** put in place during 1994 – 1998, and the reasons that a more full system of audit was not facilitated by CAA. The SG Report skimmed over these reasons, via the vague words “*for whatever reason*” on p25.

The SG Report supports the findings of a flawed audit process which included rapid evolution from a collegial “learning process” to a punitive and precipitate judgmental process. Greater balance needs to be shown by a Safety Authority. The CAA must only take strong action when faced with clear and reasonable evidence which it can immediately show in writing to the client (who is the object of the safety action).
[recommendation **1b**]

I was also asked by the Select Committee to give some background regarding **ISO9002 certification**. This appears towards the end of Section 3 which follows.

3. Resource Problems of Medical Unit:
I advised the Director with increasing urgency over a ten-year period that the Unit could not be effectively managed with the resources provided. Despite these warnings, the resourcing of the Unit was allowed to decay until it reached its present crisis. The professors would have learned about the problem swiftly and accurately if they had consulted me.

(a) History of Resource Problems

During the late 1970s [sic] a recruitment and retention problem of Medical Officers within the CAD medical unit was identified. The solution followed these steps.

- First came the **decentralisation** to 3 Regional Offices in Auckland, Wellington, and Christchurch. This widened the pool from which to obtain **Regional Medical Assessors** for the routine medical assessment caseload.
- Secondly, the **Ministry of Transport** formed an alliance with the **Department of Health**, which was tasked with recruitment and retention of Medical Officers. The strategy included linking salaries with those of other salaried governmental medical officers (both specialist and non-specialist) under the control of the *Higher Salaries Commission*. Careful attention was paid to career paths, to interchangeability between Transport and Health, and to the problem of professional isolation.
- Thirdly, it was recognised that the long-time previous Principal Medical Officer (Dr Gordon McDougall) had been a **specialist in aviation medicine** whereas his successor (Dr Stuart Wilson, a specialist in occupational medicine), was *not*.

Therefore it was decided to recruit, under bond, a younger doctor who was to undergo specialist training in occupational and aviation medicine via Ministry funding. That trainee was myself. I joined the Ministry in 1981.

- In 1982 Dr Wilson wrote a position paper on the resources required by the medical unit [**copy available**]. He proposed increasing medical officer numbers to 3 (a PMO, and 2 SMOs), and this was adopted with the arrival of Dr Robin Griffiths late in 1984.

During the time that there were **three full-time medical officers**, the PMO (with the encouragement of the Director of the time) introduced 2 important bodies to assist him in managing aviation medical matters.

One of these was to become the **Aviation Medicine Review Board**, an independent body whose chairman was appointed by the Director. During the 1980s this served to clear a backlog of difficult Special Assessment decisions and for the first time allowed pilots *an independent technical forum for testing the scientific validity of assessment decisions*. This body continues to exist to this date, with its procedures specified in AC67, but is under threat with the proposed restructuring. I support its retention, as highlighted by the NZALPA submission [recommendation **3b**]

However, once the residue of cases were cleared, it became very unusual for the Review Board to convene. *A more efficient arrangement developed whereby the chairman of the Review Board would be approached by an aggrieved pilot and would act as*

a mediator assisting the pilot in better using the lower levels of the assessment system. Judging by recent events, the Review Board may have been about to become busy once more, although it appears that the professors (and Air New Zealand in its submission) see no place for such a democratic and open forum for scientific debate

The second body was more short-lived. This was the **Aviation Medicine Advisory Committee** (AMAC), a body of Aviation Medicine Specialists, including the PMO, which was set up to consider a variety of issues relating to aviation medicine so as to assist the Director via the PMO. Issues covered included *fatigue, survival after aircraft ditching, standards relating to use of oxygen and breathing equipment, air ambulances, and of course standards relating to medical certification*. In the early 1990s, when this body might have been of assistance in developing Part 67, the Director disbanded it. *AMAC exemplified collegial support of the PMO, and avoided the development of the "ivory tower syndrome"*. Its disbandment was greeted with dismay, and would increase the professional isolation of the CAA medical unit.

The two SMOs were to achieve specialist status at the end of 1986, but meanwhile Dr Wilson resigned at the end of 1985. Dr Griffiths succeeded him as PMO in early 1986, leaving a vacancy for the second SMO position. By 1987 *this vacancy had proved impossible to fill, despite two promising applicants from overseas (one from Britain one from Canada), neither finding the salaries sufficiently attractive compared with their home countries*. Dr Wilson returned as an SMO on a part-time basis. The position remained difficult to fill with an aviation medical specialist, so that in 1989 once more an occupational medical specialist was recruited who had some experience in aviation medicine (Dr Nigel Ashworth). Although he did a magnificent job, greatly enhancing communications between CAA and the outside world during his seven-year tenure, *this situation was still only a stop-gap since he was already at retirement age*. A proper career path had been lost.

A number of serious disruptions began, in close succession, just before the arrival of Dr Ashworth. These affected the whole of CAD (not just the medical unit). Major economies in government departments led first to closure of the Regional Offices and **centralisation** of the Ministry of Transport within Aurora House. It is impossible to emphasise sufficiently the suffering which was inflicted on public servants during this phase.

At the time (which included the freeze on wages and salaries) it therefore seemed a relatively minor matter that *the alliance with Department of Health was severed, and that Medical Officer salaries were removed from the governance of the Higher Salaries Commission. Both these changes were pivotal*. The CAA (a body whose top management had never had experience of managing medical staff) was now entirely responsible for salaries and career paths of its medical staff.

Finally, in 1987 there had been the **Swedavia-McGregor report**. A highlight of this was the submission by Dr Griffiths of the AMA Scheme (at that time termed the "*super-DME Scheme*"). Dr Griffiths left CAA to develop and manage the Diploma in Aviation Medicine course, a foundation of the AMA scheme. A low point of this Swedavia-McGregor report (vigorously contested by myself) was the erroneous perception that the medical unit of that time was *only involved in medical certification matters*. The items considered by the Aviation Medicine Advisory Committee, mentioned earlier, give an impression of the scope of work. Because of this misperception, the report concluded that medical certification could be run with a staff of **1.5 Medical Officers** as well as a reduction of clerical staff. I vigorously opposed this,

anticipating the collapse of the Medical Unit. During 1999-2001 I take no pleasure in being vindicated.

In the climate of the times, of a desperate push for economies, the Ministry attempted to implement all of these economies immediately, ignoring the implications of added workload during the transition, and of the other functions of the Medical Unit.

At the last minute, I persuaded the General Manager of the time (Mr Brian Lynch) to **retain 2 full-time Medical Officers**. Nevertheless, as part of wider reorganisations which disrupted the whole organisation between 1988 and my departure in 1998, the medical unit endured five *major shifts of premises and a similar number of reorganisations*. All of this occurred while attempting not only to keep existing systems running, but also to design and implement a new **decentralised** system which would be a world first (the AMA scheme). These successive reorganisations gradually pushed the Principal Medical Officer position down the management tree (from an initial situation in 1987-1988 when the Manager Aviation Medical Services (PMO) had been one of a half-dozen top managers with direct access to the Director). At the time that I left CAA, the PMO position was separated from the Director by two layers of management, and the current PMO is separated by three layers.

With the move to Aviation House **the medical unit's official responsibilities for health and safety of CAA staff** were removed, and given to the personnel section. Despite this, a succession of variously troubled staff continued to see the value of a talk with one of the medical officers (particularly Dr Ashworth) without this having official recognition within CAA. Morale within CAA plummeted, and (to the credit of management) there were two major efforts at analysing these internal problems and attempting to improve the "*corporate culture*". The second of these led to the formation of a small team of dedicated individuals to coordinate and provide leadership for some internal healing. This was the **Next Steps Team**. The Director personally selected the members. My own appointment seemed to show recognition of the *importance of an occupational medical perspective in this process*, and despite severe resource difficulties I accepted the task. Although the Team was achieving valuable changes (particularly in encouraging commitment from top management, and providing a focus for a slow improvement of morale), it was disbanded in 1997 with its mission incomplete. [recommendations **3c & 5c**]

Another of the functions of the medical unit lost with the move to Aviation house was **responsibility for providing medical input into accident investigation**. This function had been taken away with the departure of Dr Griffiths, who continued a part-time attachment to the **Transport Accident Investigation Commission** (TAIC). In the mid 1990s TAIC announced it would no longer investigate every single accident (apparently basing this decision on *prioritisation of resource use*). Hastily, CAA decided to pick up the shortfall despite the implications this had in terms of priorities, training and resources. Staff with no prior background in the medical, paramedical or human factors disciplines were dispatched to pick over and photograph the grisly remains at remote accident sites with no prior involvement of medical unit expertise in the planning and management of the exercise. Other details related to this particular problem appear in **Appendix VI**. At the time that I left CAA in 1998 a draft **Service Level Agreement** between the PMO and the relevant section of CAA remained unresolved, along with the relevant resource allocation, although CAA accident investigations had been proceeding for many months. I understand that my

successor as PMO (Dr Callaghan) was actually attending accident sites during 1999-2000 despite what appear to have been even more severe resource problems within the medical unit after my departure.

A further feature of the reorganisation and downsizing was that on occasion *the PMO was given no choice but to accept three **clerical staff** members whose performance had been a problem in another area.* This was no way to run a professional unit, and led to prolonged and unpleasant damage-control exercises before the unsuitable staff-members were dispensed with one by one over a number of years. Proper control over recruitment of clerical staff was not established until the mid-1990s.

Proper control over recruitment and retention of **medical officers** has never been re-established. By 1993 Medical Officer positions within CAA had lost salary relativity with their external colleagues by approximately 30%. *When Dr Ashworth retired in 1996 it was impossible to fill the SMO position even with a specialist occupational physician.* As an emergency and “temporary” measure I had to recommend engaging a *part-time doctor* (4/10) to “fill” the full-time SMO position. This was Dr Tony Hochberg. Like his predecessor, Dr Hochberg did an excellent job as far as these limitations permitted. However, neither of these two doctors was of significant assistance with the more complex duties of the Principal Medical Officer in relation to *standards development, assistance with accident investigation, or matters of aviation medical or human factors policy.*

Amidst all these resource difficulties, the PMO was expected to develop and manage the **AMA scheme**. In 1992 CA Rule Part 67 became law, and in 1993 Advisory Circular (AC 67) was promulgated. This finally made the AMA scheme official and laid down the procedural infrastructure for the appointment of AMAs. Considerable pressure was brought to bear to have the system visibly operational, and this was achieved in early 1994.

A necessary prerequisite for the introduction of the scheme was a two-volume “**CAA Medical Manual**”. This involved massive rewriting of what had previously been called the “*Manual for Designated Medical Examiners*”. For reasons, which should be obvious from its old title and the additional powers which would be vested in AMAs, this manual would require considerably more procedural detail than previously. Most of the procedural material was to be in a new **Volume 1**, published in August 1993.

Volume 2 was to contain largely clinical material regarding medical decision-making on fitness to fly in relation to specific medical conditions. Again, this would require considerably more detail than previously in view of the autonomy being granted to AMAs. Volume 2 suffered serious delays because of the above resource problems.

The last chapter on volume 2 published by CAA remains chapter 3: Cardiology, which was completed during my tenure and published in 1996. When I left CAA in 1998 I pointed out to Mr Richard McFarlane that here was an ideal opportunity for completion of the remaining chapters, and offered my services for this purpose. The offer was ignored.

My successor, Dr Callaghan, has published no new chapters, although there has been some visible activity in terms of redrafting. This included engaging the services of a doctor who had worked as a Central Medical Assessor ten years previously, who was not a specialist in aviation medicine, and who was one of the “**...small group of medical assessors [who] have no formal training in aviation medicine**”. This was *not* noted in the SG Report.

Attempts were even made in 1999 to obtain advice from existing AMAs on a very rough first draft of certain chapters of the manual, but this drew no significant response because no recompense was offered for the massive amount of proof reading and comment which would have been required. When one tries to obtain professional advice on complex matters while paying nothing, and offering little support in return, the outcome is predictable.

In Section 2 it was noted how (despite the above difficulties) the AMA procedures course and exam was implemented with a partially complete Medical Manual, AMAs were appointed, and a partial audit and monitoring programme was set-up.

*The ongoing failure by CAA management to provide appropriate resources for the development of the Medical Manual was a fatal flaw for the subsequent development of the **audit programme**, and would lead to serious difficulties in 2000 when the audit programme was nevertheless implemented by my successor without completion of more than the first three chapters (out of 11) of volume 2. An audit programme requires a procedures manual against which performance can be measured.*

Finally, I record with some pride that despite these resource difficulties I was able successfully to lead the Medical Unit through the process of **ISO 9002 accreditation**, which was completed one month before my departure in July 1998. A predictable finding of the certification body was that the CAA Medical Manual needed to be converted to a “controlled document” by the time of the CAA’s first ISO 9002 audit in mid-1999.

It was also noted that records of the Medical Unit’s in-house procedures had been under development by me from the bottom up. This meant that at my departure there was very little record of special assessment procedures to guide my successor. In previous years this need had been met via an apprenticeship approach, with careful coaching of each new Medical Officer over a two-year period.

Although I had given CAA the required three months notice, there was a marked delay before the PMO position was advertised and I was not invited to advise regarding my replacement or assist with her coaching. Problems arising from this will be described later. I understand that a year later at the follow-up ISO9002 audit certification was withdrawn. Since I was not asked to complete the above corrective actions, these were no doubt part of the reason for the loss of ISO9002 certification.

*There then followed the **10-month period with the PMO position vacant**. Meanwhile, the SMO position (which had been vacant since 1996) was still being tended on a part-time basis by Dr Hochberg and no announcement was made of an appointee to the PMO position on an acting basis (although at some point Dr Hochberg began signing his letters as acting PMO). I believe that I had left CAA on an amicable basis, and I had indeed offered, in my letter of resignation and personally, to assist CAA during any period of difficulty. This offer was warmly received by the recently-appointed Manager of Personnel Licensing, Mr Richard McFarlane when I spoke with him, but subsequently was completely ignored.*

During those ten months Dr Hochberg engaged me as an external consultant, and I provided him with infrequent written advice regarding particularly

problematic special assessment cases. I understand (via Dr Hochberg) that **Mr McFarlane** had resisted this use of my services.

It is my understanding that ***the SMO position (which was readvertised again recently) remains vacant, and now the PMO has also resigned.***

The serious and increasing difficulties in filling these positions should send loud signals confirming the credibility of the resource problems I have described here. I regret the length of this explanation, but these are details which will not be obtainable from other sources and it is vital that these problems are addressed in a decisive and appropriate manner.

Lacking these details, the SG report and its recommendations provides only superficial solutions.

(b) Centralisation of Medical Certification:

The Bill in part follows a strong call, from the SG Report, for **centralisation** of the more routine parts of the medical certification process. These were decentralised under the AMA scheme following 1992.

The medical functions of the CAA have gone through a cycle of centralisation/decentralisation on approximately a ten-year basis for many years. Ten years appears to be the maximum span of bureaucratic memory, and a further turn of the cycle offers no solution to recent problems.

- My own records only go back as far as the late 1970s, when a recruitment and retention problem of the centralised medical unit of the then Civil Aviation Division led to a decision to decentralise to 3 Regional Offices under the control of the then PMO (Dr Gordon McDougall).
- In the late 1980s this decentralisation was reversed to a completely central system once more.
- In 1994 the decentralised AMA system began to take effect;
- Now in 2001 we have an urgent call to recentralise once more.

The haste of such a recommendation after a mere 6 years gives the impression of “speed wobbles”. In my professional opinion, a system such as medical certification can be made to work efficiently (regardless of whether centralised or decentralised). It merely requires appropriate resourcing along with commitment from management

Most important, in my opinion, is the poor timing of this proposal. I believe that ***the proposed centralisation via abolition of the AMA scheme at this critical point would intensify the present problems and precipitate the collapse of the CAA medical unit.***

(c) Recruitment, Selection, & Supervision of Medical Officers: Bearing in mind the importance the professors put on having applicants meeting exacting criteria prior to appointment, they will no doubt support the concept that selection criteria become far more important at higher levels in the system.

Yet the professors have overlooked the way the CAA has administered its in-house **recruitment and selection of medical officers**. These are positions carrying far greater administrative responsibility than is involved in the routine assessments delegated to AMAs.

For this reason, since the 1980s, the medical officer positions were carefully structured in terms of experience and qualifications required. There was also an effort to ensure a career path and appropriate training. A similar hierarchical structure existed in the AMA scheme (*for example, that an AMA must have been functioning successfully for 12 months as a DME*).

Similarly, it would be essential for an applicant for the PMO position *to have had direct experience of being an AMA within the New Zealand system* (or an equivalent appointment in an overseas civil aviation administration). The lack of such experience would be less of a problem in an applicant for the SMO position.

I note that Mr Peter O'Brien for CAA has confirmed to the Select Committee that not only did Dr Callaghan have no prior 12-months experience as an AMA, but CAA overlooked the legal loophole necessitating that she be appointed an AMA, and also failed to put her through the same AMA procedures examination which the professors felt had been "compromised" in previous years.

In view of Dr Callaghan's lack of appropriate experience, ***this appears the most serious example of compromise of the exam process yet brought to light... a failure to even conduct the examination, while permitting the "applicant" to exercise the powers of an AMA, at the highest level of responsibility, in the absence of a Certificate of Appointment!*** It had the effect of rendering invalid perhaps all certificates issued by Dr Callaghan in 1999-2001!

With respect, a specialist in aviation medicine could have had some modest effect in preventing the mismanagement demonstrated here. Had I been consulted by CAA to assist with the transition, I would have pointed out this difficulty.

The Medical Practitioners Act 1995: I have explained that the PMO position has been a *specialist position* since at least the 1970s. Under the old Medical Practitioners Act this meant that the PMO **was required** to be recognised by the Medical Council under what used to be the **Register of Specialists**, as well as holding a higher qualification in aviation medicine such as a diploma or Masters degree. Under the previous structure of government departments the title Principal Medical Officer implied that the holder was a registered specialist, and if a non-specialist at any time had to *deputise* this person was designated "*acting* Principal Medical Officer". The lower position of Senior Medical Officer was also a specialist position (for example, Dr Ashworth 1989-96), but non-specialists could hold that of Medical Officer (for example, Dr Hochberg 1996-2000).

Under the new Medical Practitioners Act 1995 the equivalent of the old “registered specialist” is the holder of **Vocational Registration** in a specific field other than General Practice. It is now more difficult to “spot the specialist”, but in Occupational Medicine/Aviation Medicine the required qualification is Fellow of the Australasian Faculty of Occupational Medicine (**FAFOM**) or equivalent.

At the time that the present PMO was appointed **these criteria for experience and qualifications appear not to have been met** (indeed, it appears that Dr Callaghan will not be sitting her final exams for FAFOM for another year or two), and she would thus have been *more suited to appointment as Senior Medical Officer, under the direct supervision of a Vocationally-Registered specialist in the PMO position*. The above points are not a criticism of Dr Callaghan, but of the management team responsible for her appointment.

There may also be important implications regarding responsibility of whoever was the specialist providing her General Oversight while under training for the specialist qualification of FAFOM. It is my understanding that this person may have been Professor Des Gorman during the crucial period when the above decisions were made, which raises serious questions regarding liability for errors which Dr Callaghan may unwittingly have committed. A suitably experienced, vocationally-registered aviation medicine specialist (in the correct meaning of this term) might have been better able to guide the trainee through these difficult waters.

It appears a potential misuse of retrospective legislation [CA Amendment Bill No 2, clause 27N] to “smooth over” the consequences of the above mismanagement. If assessment decisions have been invalid, they surely should be rendered valid via case-by-case review by a vocationally-registered and properly-appointed PMO or SMO who then would issue replacement CAA Medical Certificates. Any “retrospective” clause should be merely interim, to avoid disruption during such a case-by-case review. [recommendation 3f]

As from July 1st 2001, the situation, which has existed in CAA regarding the PMO and subordinate Medical Officers, will become legally untenable under the requirements of the Medical Practitioners Act. On that date a doctor with only General Registration working in a specialised field such as occupational medicine/aviation medicine must be under the direct supervision of a specialist in that field (i.e. someone holding Vocational Registration in Occupational Medicine), preferably working within the same organisation as described above. This type of supervision is termed **General Oversight**. Over the last year, CAA has engaged the services of a number of doctors whose qualifications would in the future require that they have General Oversight of this sort.

Despite these clear requirements of the Medical Practitioners Act, the SG report at section 6.3 invents a novel definition of “**aviation medicine specialist... as someone who is preferably vocationally registered in occupational medicine, internal medicine and/or public health medicine, and who must have a postgraduate qualification and relevant experience in aviation medicine**”. The report makes no distinction between the position of PMO and the 2 Deputy-PMOs. This appears to be designed to entrench the situation which has existed for the last two years and yet conflicts seriously with the above **requirements** of the Medical Practitioners Act 1995.

In such a specialised field as aviation medicine, particularly within the sensitive area of government policy and its regulation, it is quite impractical

for its top medical position to be supervised by “remote control” via a specialist based in Auckland. The PMO must be fully vocationally registered and experienced in the field, and qualified **to provide General Oversight to doctors in subordinate positions, both within the CAA and in any external system of medical examiners.**

Leaving aside the legalistic nature of these requirements, the practical implications should be evident to this Select Committee. You have heard numerous submissions describing a lack of proper oversight of the AMA system, which has been allowed to fall rapidly into disrepair over the last two years. I submit that this has been a direct consequence of incorrect procedures of recruitment and selection within the CAA. In saying this I am not implying fault on the part of the appointee, but of the appointers.

The solution to the recruitment crisis is not for CAA to lower its sights by redefining “*aviation medicine specialist*”.

It seems a self-evident principle that **higher management within CAA must have sufficient competence to be able to recognise competence in technical specialists being considered for appointment within CAA,** despite working in a different field of expertise.

4. Medical Certificate as "Aviation Document":
The committee has heard submissions on whether a CAA Medical Certificate *ought to be* an Aviation Document (as defined under the Act). Some of these arguments may have merit in terms of the rights of individuals and the workability of the system.

However, before departing for a new destination we should first be clear of our present position. The opinion expressed by the CAA is that *the present Act does not confer the status of Aviation Document on the CAA Medical Certificate.*

It is my opinion, following discussion with lawyers, that the CAA is wrong. This question has never been tested in a court of law, and a judicial ruling would be helpful, but in the meantime it is not difficult for the Committee to review this. I quote the definition of Aviation Document below (the highlighting is mine): --

"...aviation document" means any licence, permit, *certificate*, or other document *issued under this Act to or in respect of any person*, aircraft, aerodrome, aeronautical procedure, aeronautical product, *or aviation related service*..."

It appears quite obvious from this definition that a CAA Medical **Certificate** issued under the **Act** (via Rule Part 67) to a *person* who happens to be a pilot or air traffic controller *qualifies under this definition*, as does a **Certificate** of Appointment issued to a person who is a doctor appointed as an AMA or DME.

The simple consequences of this clear definition then flow on to providing for a number of powers of the Director in other parts of the Act. These include variations on the exact powers which the Director is attempting to "resurrect" via the CA Amendment Bill No 2. The Bill purports to "*correct*" a lack of powers of the Director to control these two types of document.

This "problem" is presented as an "**emergency**" because of the perception that it leaves the Director exposed. Part of its alleged urgency is that it is presented as *though newly-discovered*. The truth of the matter is that as PMO within the CAA I raised the problem of this perceived "defect" regarding the Medical Certificate in 1992 [**copy available**] before Part 67 even became law. I suggested that this was just a problem in perception. Nevertheless, if the problem was at the time believed to be real rather than imaginary, the Rules & Standards team and Legal Section of CAA *made no attempt over the following eight years to amend the definition of "aviation document" in the Act* (despite my invitation that they should do so). The present attempt to fix the perceived problem still fails to address this definition and so appears irrational. Instead it inserts a statement *contradicting* the definition, as amendment 27A(2). Orwell would have described the logic displayed as "doublethink".

If this were a medical matter, the complex and contradictory provisions of the Bill in relation to the concept of Aviation Document would amount to calling out the "crash trolley" to a patient who was in good health. This confused thinking permeates numerous clauses in the Bill, and pads it with unnecessary words. Ironically, its stated intent is to *clarify meaning* regarding the status of the CAA Medical Certificate in law.

If the Medical Certificate was not an aviation document, it would follow that a pilot unhappy with a medical certification decision *would not have access to appeal via a District Court*. A simple test of the situation would have been for the pilot to lodge a request for appeal. This question would then have been subjected to a court

ruling, and the matter would have been resolved. Unfortunately, during my tenure of ten years as PMO no one was sufficiently aggrieved with my decisions to take such action (even though I would have welcomed this).

The Reasons behind this? - In the face of such a clear definition, the question arises: *why have such strenuous efforts been made to circumvent it?*

During the process of the development of Part 67, two reasons were given (though not in public documents). Both related to the *convenience of the process within CAA*, rather than any important safety meaning for the travelling public.

- One was that at the time the process of producing an Instrument of Delegation was cumbersome, and included the Director personally signing each associated document (in this case the Certificate of Appointment of doctors appointed as AMAs or DMEs).
- The second was the newly-created routine process called the “**Fit & Proper Person**” test. This is a cumbersome questionnaire-based process of doubtful cost-effectiveness applied to all new applicants for an aviation document.

In the case of AMAs and DMEs this requirement was easily satisfied by holding a current Annual Practising Certificate, issued by the Medical Council.

In the case of the Medical certificate, it was feared that every new applicant who had not already been through this FPP process would have to do so. The prior system, which this process was replacing, involved only investigating those document holders about whom a question of fitness had arisen (investigation with “due cause”). To introduce this routine process at what seemed to be a relatively unimportant stage (of entry into a low level of the “aviation ballpark”) was mercifully perceived as “overkill”.

Neither of these reasons had anything to do with ensuring that the Director had appropriate powers. Indeed, if the present “**Clayton’s emergency**” regarding the Director’s powers is to be believed, the “problem” was self-inflicted back in 1992. My point, though, is that the attempt to give these documents the status of “non-documents” was inept and flawed **at the outset**.

Clarification is possible with a fraction of the verbiage offered in this Bill, in a way which would keep New Zealand more closely linked with the structure adopted by the FAA (on which New Zealand’s Aviation “Rule Part” system is modelled). I spoke in person with **Dr Jon Jordan the Federal Air Surgeon** (the highest medical position in the FAA), in 1995 about this matter. He confirmed that their document, which is equivalent to our CAA Medical Certificate, has similar status to other aviation documents. Consequently, *the law in the USA fully supports appropriate powers of suspension, revocation, and amendment with appropriate penalties in relation to the misuse of these documents*

The FAA legislation would bear closer scrutiny. It appears that a simple clause in the Act could state that an applicant for (or holder of) a CAA Medical Certificate would not need to be subjected to the “Fit & Proper Person” test, *unless the Director had reasonable grounds to suspect that this person was not a fit and proper person.* [recommendation **4c**]

This would satisfy the second of the two reasons for this problem arising. The first reason, relating to a cumbersome process of issuing Instruments of Delegation and Certificates of Appointment appears to have been resolved via

efficiencies within the CAA, and so is no longer an issue.

Thus would end the alleged “emergency”, and most of the wording of the Bill #2. It also ensures that the powers of the Director are the same regardless of the document type in question. Finally, it keeps the system of legislation as simple as possible in accordance with the Swedavia-McGregor recommendations.

I acknowledge that some submissions express concern regarding powers of the Director implied by the Medical Certificate being an Aviation Document. In my view, if this perceived problem is genuine, its solution can be found without introducing unnecessarily complex layers of “doublethink” regarding when a document is not a document.

[Another question, regarding this alleged lack of Director’s powers was addressed earlier in section 3 under the heading “Recruitment, Selection & Supervision of Medical Officers”.]

5. Scientific Flaws of SG Report:
The *scientific* flaws in the SG report had been very well summarised in the submission of the Aviation Medical Society of Australia and New Zealand, of which I am Vice President. To avoid repetition I merely state here that I fully support the finding of the society’s submission, that the SG report is so **seriously flawed in terms of its science** as to be worthless as a basis for any sort of urgent or major changes in the complex system set up in New Zealand to preserve “**aviation safety at reasonable cost**”. [recommendations **5a, 5b, 5c**]

6. Economic Flaws in the SG Report & Amendment Bill’s Introduction:
The Swedavia-McGregor Report was based on sound cost-benefit analysis, and showed a likely saving in cost at no significant drop in aviation safety.

The Scott-Gorman Report contains no CBA. Its proposals are not costed, but appear likely to be enormously more expensive. The only mention of dollars anywhere in the SG Report is a projected “saving” of \$350,000 - \$400,000 as a result of a computer system. Since the total budget for the Medical Unit in 1997-98 had been clamped down to ~\$600,000, this projected “saving” is clearly no gain on the previous decentralised system. It can only be based on an unstated blowout in expenditure of major proportions, and may only be attractive to a Director who has already seen enormous budget over-runs during the present crisis. To offset such expenditure, the SG Report offers no saving in lives lost or damage incurred (accidents). It appears merely to offer increased *control* (not increased safety) at *unreasonable cost*. This committee needs to ask whether the Bill is actually about *power* rather than about safety... [recommendation **5a**]

7. Danger Signs in the SG Report & Amendment Bill’s Introduction:
Appendix VIII supplements the Society’s submission by looking at the signs present in the SG report, which a non-scientist and particularly an astute politician will recognise as the smoke signals of a biased report.

In particular Appendix VIII pinpoints three “Trojan Horses” (clauses inserted by CAA which bear no relation to recommendations of the SG report, which appear to have been inserted for obscure reasons and which are detrimental to the rights of individuals targeted by them). These are --

- An unreasonably restrictive definition of “*medically unfit*” [in 27 A];
- A covert attempt to withdraw support from doctors appointed as the Director’s agents in protecting aviation safety [27 G. (6)];
- A lack of protection for “*whistleblower*” professionals [27D (3)].

8. Conclusion:

Though the report *raises important questions* about the administration of medical certification it provides few useful answers that had not already been clearly stated to the Director without effect. In particular, one would have expected the Review Team (one of whom is an occupational physician) to have looked at not only questions of physical health of individuals, but also at ***the “health” of the organisation called the CAA.***

This question was one of the terms of reference of the review team, and yet no evidence is given in the report of the issues which the team examined, or of their analysis, in order to reach the glowing testimonial recorded very briefly about the exemplary behaviour of the CAA medical unit. The answers to the medical certification crisis do not lie in scientific debate, but come from answering questions about mismanagement. These issues would have been readily revealed if the professors had talked to me (as the single person with the greatest experience of the problems in the AMA scheme). That they failed to do so, overlooking the faults of those who had commissioned the review, confirms that the setting up of this review team was flawed at the outset and should be rejected.

My general recommendations appear in the Executive Summary, and specific recommendations regarding the Bill are in Appendix II.



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G: References (copies available on request)

1. P Dodwell, 1st Letter to Coroner, Taumaranui Inquest
2. P Dodwell, 2nd Letter to Coroner, Taumaranui Inquest
3. Memo from P Dodwell, PMO, re “***Aviation Document***” 1992
4. NZ Herald item 25 Feb 2001 “***Hundreds of Pilots Unfit***”
5. Dr I S Wilson, PMO, paper on medical resources, 1982
6. CAA Medical Unit Responsibilities, 1989
7. Dr P Dodwell, PMO, ***Report on Alcohol, Drugs & Mental Illness***, 1997
8. CAA Medical Manual, Vol 1, Appendices I - III
9. CAA Medical Manual Vol 1, Section 3.10 – action “***if incorrect Medical Certificate is issued***”
10. AMA Newsletter #6 – re errors of AMAs
11. CAA Medical Manual Vol 1, Chap 7 “***Medical Records & Audit***”
12. Report to AIHF, Nov 2000, of the “***Gagging Letter Affair***” and Pilot A
13. Prof Sir John Scott’s published paper on ***use of legal challenges to suppress freedom of scientific debate***, NZ Med J 14 July 2000.

Appendix I: Relevant Qualifications & Experience

I am a registered medical practitioner recognised by the Medical Council of New Zealand since 1986 as a specialist in Occupational Medicine, and I currently hold full Vocational Registration in that field under the Medical Practitioners Act 1995. The following are my qualifications:

DEGREES/QUALIFICATIONS	1971	MB ChB (Otago)
	1982	Dip Com Health (Otago)
	1983	D I H (Otago)
	1985	MCCM (NZ)
	1986	D Av Med (RCP, London)
	1987	FACOM (Australasia) - renamed FAFOM (RACP) 1993
	1993	MFOM (RCP, London)

I have practised occupational medicine since 1981 when I began a dual appointment to the Ministries of Health and of Transport in New Zealand. I am currently self-employed as an occupational physician, with specialist qualifications acceptable in both Australasia and Britain.

Under their various names since 1981 I advised the Ministry of Transport's land transport, marine, meteorological, and aviation divisions regarding occupational health matters affecting their staff. For simplicity in what follows, I will use the term CAA to include that part of the Ministry which later became a state owned enterprise of that name.

When the Airways Corporation of New Zealand split from the Ministry in 1987 I was their first medical advisor.

From 1988 to 1998 I was Principal Medical Officer to the CAA. In this capacity, I made submissions to the Swedavia-McGregor report of 1987, and subsequently managed the medical section of what became the CAA through a number of reorganisations. I take pride in having restored a relationship of mutual respect between the CAA and the New Zealand Air Line Pilot's Association following a bitter legal action brought by the latter against CAA in the late 1980s regarding pilots' rights to privacy with respect to information about drink-drive offences. In the later years of this period I was CAA's representative on the Air Ambulance & Air Rescue division of the Aviation Industry Association. Effective communication with the outside world is an essential function of the PMO.

Early in the same period I worked closely with the CAA Rules Rewrite team in the development of Part 67 Medical Standards & Certification and of related parts of other legislation. I take pride in having been directly responsible (with the assistance of Dr Robin Griffiths) for Civil Aviation legislation to ensure the protection of individuals' rights to privacy, in tune with what became later the Health Information Privacy Code of the Privacy Act. This was achieved by the insertion of clause 67.21 into Rule Part 67, which had the unprecedented effect within the CAA of giving the PMO sole responsibility for maintaining the confidentiality of personal medical information. It took considerable effort to persuade non-medical CAA management how crucial this was, and despite the existence of clause 67.21,

the protection of personal medical information has continued to be a source of difficulty, which I understand has been presented in submissions to this Committee (notably the NZMA).

Following the completion of Part 67, I was personally responsible for the development (and subsequent management) of the Aviation Medical Assessor scheme (AMA scheme) until my resignation in July 1998.

As PMO I was for a number of years a contributing author to the Diploma in Aviation Medicine (Otago), and more recently have collaborated with the setting and marking of the final FAFOM examination (a specialist qualification) for the Royal Australasian College of Physicians.

I am an Associate Fellow of the international *Aerospace Medical Association*, and a member of the *Aerospace Human Factors Association*, the *NZ Ergonomics Society*, the *Australia & NZ Society of Occupational Medicine* and the UK *Society of Occupational Medicine*. I have been New Zealand Vice President of the *Aviation Medical Society of Australia & NZ* since 1996.

I am (and have been, since 1981) committed to the concept of “**aviation safety at reasonable cost**” which is central to the mission of the CAA. I was a loyal public servant during my period of employment by CAA, but came to realise I was being prevented from achieving what was necessary to serve that aim while within CAA. Perhaps that aim is now in sight...

Appendix II: Specific Recommendations on CA Amendment Bill No 2

1. Towards More effective Problem Detection
 - (a) There is a well-known principle of competent medical diagnosis and management which CAA must recognise and foster. This is that in a clinical setting objective tests and examination findings are vastly overshadowed in importance by historical information obtained through a co-operative and trusting doctor-patient relationship, and via sound clinical judgement. **CAA must encourage and support a stable and trusting relationship between a pilot and the pilot's current AMA/DME.**
 - (b) It has been submitted that a pilot should generally be considered fit until there is reasonable evidence to the contrary. In the same way, a doctor (having fulfilled the necessary criteria for initial and continued appointment) must be considered a reliable and professional agent of the CAA unless *reasonable evidence* is found to the contrary. **The Director's powers of suspension/revocation must reflect this.**
 - (c) Under 27D(3) - There should be **protection** (against criminal and civil liability) for professionals who notify a medical officer of the CAA about a licensee believed on reasonable grounds to be unfit and considered likely to disregard professional advice on this. Coverage of professionals should be extended to include *registered medical practitioners, registered psychologists, audiologists, and optometrists.*
2. Towards Quality Management of AMA/DME Appointments
 - (a) The system of AMA examination, appointment, and subsequent support (which has lapsed since 1997) must be resumed, modelled on "best practice" as exemplified by the FAA.
3. Towards Better Management of Resources
 - (a) Recruitment of medical officers (with appropriate qualifications and experience) must be at internationally competitive salaries. This is a *correct* finding of The SG Report. But, contrary to the SG Report, the PMO must be a vocationally registered specialist in aviation medicine.
 - (b) The Aviation Medicine Review Board structure and process must be retained and strengthened, to preserve license holders' rights to independent review, by inclusion at the level of Rule Part 67, or even the Act, rather than merely being described in AC67 as a "means of compliance".
 - (c) More appropriate funding is urgently required, for carefully re-evaluated core functions of a **CAA Medical & Human Factors Unit**. Such a unit should provide service level agreements to a number of other CAA units, including providing an occupational health service for CAA staff (on behalf of the Human Resources section).
 - (d) Centralisation at any other time might be viable, but right now it does not address existing problems correctly and risks worsening instability of the central CAA medical system. The present decentralised system should be retained, and strengthened, under the existing regulatory framework.
 - (e) Recruitment, selection and supervision of Medical Officers must comply with the requirements of the Medical Practitioners Act 1995.
 - (f) 27N - Any "retrospective" clause should be merely interim, to avoid disruption during a case-by-case review. If assessment decisions have been invalid, they

should be rendered valid via case-by-case review by a vocationally-registered and properly-appointed PMO or SMO who then would issue replacement CAA Medical Certificates.

(g) If a power is deemed lacking for PMO, SMO & MO appointees to undertake medical assessments (currently “fixed” by appointing them as an AMA under 67.05) then CA Amendment Bill No 2, should NOT attempt an **ultra vires** solution as per p11, section 6(2) power of Director to “*undertake medical assessments*”, but should insert an amendment along similar lines to Part 67.21(b) giving such power to “*a medical practitioner employed by the Authority*” or “*a medical practitioner appointed by the Director*” or some such.

(h) The “Gagging Letter” must be withdrawn; CAA must resume providing supportive advice in accordance with undertakings given via Letters of Appointment, and in the CAA Medical Manual. CAA must affirm the freedom of pilots to have representation, and for independent medical practitioners to participate in scientific debate and provide appropriate representation, within a framework which includes the various legitimate stages of review and appeal of medical certification decisions and CAA Rulemaking as well as determinations regarding interpretation under existing Rules.

4. Towards More Coherent Legislation

(a) 27A(2) contradicts the DEFINITION of “*aviation document*” and is bad law. If it proves necessary to exclude the medical certificate from the definition, this should be by recasting the definition. The same appears to have been intended (but not achieved) regarding Certificate of Appointment of AMA/DME, and if necessary should be corrected in the same manner.

(b) The existing definition of “*aviation document*” should be retained, and the following new sections discarded: - 27A(2) along with consequential amendments 27B, 27C, 27H, 27I (unless more reasonable wording can be negotiated), 27J, 27K, 27N (other than a temporary transition clause, discussed in section 12), and on page 11 amendment 6(2) & (3).

(c) A clause in the Act could state that an applicant for (or holder of) a CAA Medical Certificate would not need to be subjected to the “Fit & Proper Person” test, unless the Director had *reasonable grounds* to suspect that this person was not a fit and proper person. An obligation may need to be raised for appropriate persons to notify the Director of concerns.

(d) A similar exclusion clause could be inserted to address concerns (expressed in other submissions) regarding unduly sweeping powers over medical certificates and the ordering of tests. This is more economically and logically achieved via an exclusion clause than via redefining “*aviation document*”.

5. Towards Better Prioritisation of Safety Management Objectives
 - (a) The Scott-Gorman Report must be set aside and re-investigated with true independence, using a Cost-Benefit Analysis as its basis.
 - (b) All parts of the Bill not supported by sound evidence must be set aside pending thorough and independent investigation – notably 27A, 27G(6), in addition to clauses already listed elsewhere as defective.
 - (c) An independent inquiry must be conducted with urgency to resolve this systemic problem within the CAA. CAA requires managers with sound communication skills and commitment, with the competence to recognise and appoint competent aviation medical specialists, and the competence (via such specialists' advice) to identify correctly the priorities of safety management.

Appendix III: Analysis of the CA Amendment Bill No 2

Sections Supported:

1. I support those aspects of the Bill with **both the intention and result of clarifying meaning**, since this is in keeping with the principles of the Swedavia-McGregor report (1987). However, few clauses meet both these criteria.
2. I applaud the changes of clause 27D, which represent an attempt to clarify the **obligations of a licence holder with respect to knowledge of possible medical unfitness**. In particular, I refer to clauses 27D (2) & (3) which, with better wording, could be used to make it easier for “**whistleblowers**” within the medical profession. These changes have relevance to the recent Taumarunui Inquest but have been a recognised problem since the mid-1980s (well before the AMA scheme was even envisaged).

The changes proposed in the Bill appear to have been based loosely on a personal submission sent by me to the coroner Mr Scott [**copy available**], without acknowledgment. Unfortunately, important details of my suggestion have been omitted.

More effective changes than those proposed in the present Bill were enacted under Land Transport legislation in the mid 1980s. I was personally involved in the preparation of that earlier legislation 15 years ago. I suggest additional measures to ensure greater effectiveness of these proposed clauses.
[recommendation **1a**]

3. I support 27F permitting a **limited extension of medical certificate**.
4. I support the **consequential clauses** empowering fees and charges (27O), permitting a rollover of medical certificates issued under previous legislation (27P), providing more clearly for offences (47 B), and empowering the Director to assist holders of medical certificates via written statements (through Amendment to section 71(1) of the principal Act). I will attach to my submission a clear summary of the relatively small part of the Bill which merits support. None of this merits urgency, but provided Parliament focuses on these bare essentials there should be no problem in getting it right quite quickly.

Apart from the above exceptions, **the vast bulk of this Bill appears to be totally unnecessary**, being based on a number of misunderstandings.

In my view, the introduction of this ill-conceived Bill has been a misuse of Parliamentary process.

Appendix IV: Development Of Audit & Monitoring:

The following explanation leads on from **E:General Points, Section 2**, about alleged faulty examinations leading to AMA appointment. It outlines the subsequent audit and monitoring of AMA performance, and why this was not fully set up by 1998.

- All candidates, regardless of the mark they achieved in the exam, were advised that the first ten assessments they conducted would be double-checked within the CAA by one of the panel of three Central Medical Assessors. It was possible to do this without significantly increasing the workload of the CMAs, because this was offset by the reduced workload from the decentralisation of the process. *Any serious problems were immediately brought to my attention and corrective action put in place with the particular AMA within 24 hours*. Less serious “clerical” type errors were brought to my attention or that of the SMO on a weekly basis.
- A system was developed to grade the severity of these errors. This is described in the Medical Manual (revision 1, Dec 1995, replacing **Chapter 3 - Medical Certification**), in section 3.10 “IF AN INCORRECT MEDICAL CERTIFICATE IS ISSUED”. Page 46 summarises the grading of errors and the action which should be taken.
- Weaker applicants (with lower marks), and also those found to have problems during their ten first cases were followed up for a longer period of coaching.
- I must emphasise that this system (learning by doing; mentoring; apprenticeship) is a powerful and effective method of **quality assurance**.
- I also encouraged AMAs to tell a Medical Officer when they felt there was a problem higher up the system. In other words, I **encouraged criticism** and responded positively to it. Free and frank exchange of information is the only way to run a responsive system and ensure good quality control.
*[Here I would particularly like to mention **Dr Bill Daniels**, who was one of my best sources of feedback regarding problems in the system. It was Dr Daniels who forewarned me about several cases where doubtful decisions had been made at a previous assessment, and who highlighted confusing terminology in the Medical Manual]*
- This open approach had the advantage that it could be implemented using the existing team of staff, and although I as PMO had considerable “hands-on” involvement initially I progressively delegated responsibility downwards as I became satisfied there was an effective system in place. After about six months I was able to leave the SMO (Dr Ashworth) and later his part-time MO successor (Dr Hochberg) to run the system of monitoring with just occasional feedback to myself when problems arose.
- The CAA computer system also recorded each assessment decision of an AMA as the records of each case were sent in for storage. This was a simple system, which just recorded basic details from the Assessment Form of each applicant. If a Notice Of Unfitness was returned about a particular applicant, in view of the sensitivity of such decisions this was referred immediately to the Senior Medical Officer for checking and if it appeared correct was entered as an “unfit” assessment for that AMA.
- The computer system detected certain logical errors in the information on the applicant’s CAA Medical Certificate. This was just a *clerical* check, not a check on the clinical decision-making of the doctor, although some of the more

serious errors might *reflect* a clinical error. Many of the errors so detected were clerical errors such as *transposition of numbers or characters*. The SMO referred to this grading system if there seemed to be a serious error (grade 1 or 2), but if this was a “*false alarm*” he was authorised to downgrade the error code.

- The intention had been to give AMAs feedback on the frequency of their errors recorded thus, on a six monthly basis. This was an important **quality assurance** method. It gave each AMA (confidentially) their own error rate for each of the 3 grades of error, as well as the overall range of error rates and average. This let them see where they ranked amongst their peers. Unfortunately, this 6-monthly reporting became less frequent in later years owing to worsening resource problems. *During 1999-2001 my successor, Dr Callaghan, never provided such feedback to AMAs.* This lack of feedback is not commented upon by the SG Report.
- The other important statistic which I fed back to AMAs (confidentially) was their individual **pass/fail percentage**, representing the proportion of pilots they were assessing as fit/unfit. Again, they were also told the overall range and average for this ratio so that they could determine their ranking. *This was an important measure of whether an AMA was unduly strict or unduly lenient and was a valuable way of determining whether the overall AMA system was resulting in a distortion from previous results (of the previous centralised system) or whether it was mirroring this appropriately.*
- Not surprisingly, our overall impression was that there appeared to have been a change towards conservatism.
- But owing to a persistent misunderstanding, it was common for an AMA to defer assessment and pass the papers to CAA medical unit (rather than for the AMA to take responsibility for a difficult decision). Unfortunately this phenomenon led to the pass/fail rates being *biased initially towards excessive “pass” rates (which tended to invalidate this statistic during 1994-96).*

The reason was that AMAs were commonly not completing the Assessment Form in this situation, so that it was not recorded as a “fail” (i.e. an Unfit assessment). Since their decision was effectively a conservative, but unrecorded, “Unfit” assessment the lack of a record would have tended to bias the statistics in the wrong direction and suggest that the AMA was too lenient (whereas the reverse might well be the case). ***This phenomenon would also (in 2000) be relevant to the Presland Decision.***

- When I detected this phenomenon, I issued repeated written instructions to AMAs that they **must** complete an Unfit decision on an Assessment Form for recording in the CAA computer in such circumstances but that if this decision involved uncertainty on their part it might be reasonable not to issue a Notice of Unfitness. **[see AMA Newsletters #1 - #6]**
- Since the new PMO, Dr Callaghan, had never been an AMA prior to her appointment as PMO she would not have been privy to these reminders on my part and the significance may well have escaped her. Certainly, as an appointed AMA myself since 1998 ***I recall no evidence of her ever having reminded AMAs of this potential problem until the Presland Case arose*** (which has other implications, regarding the lack of legal support for referring the file to CAA for Special Assessment).

- During the final years that I was PMO, however, the effect of the reminders about recording “Unfit” decisions led to what appeared to be a more accurate recording of pass/fail statistics. *The impression gained from this was that the system was shaking down quite well and was beginning to reasonably mirror the standards which had operated centrally [see AMA Newsletter #6].*
- Dr Hochberg’s submission pointed out that I always encouraged him and the central medical assessors, whenever examining a pilot’s medical file for whatever reason, to always use this opportunity to consider the quality of the work of the AMA/DME involved. The outcome of this was always to provide individual feedback to the AMA/DME. This was documented in the personal file of the AMA in question, and remains a matter of record. It was considered by me as PMO when reviewing an AMA’s appointment on a 3-yearly cycle. I also used this for collective feedback to AMAs and DMEs, as well as to plan appropriate adjustments to the CAA Medical Manual.
- After I left CAA Mr Richard McFarlane (for 10 months without any PMO to advise him) and then Dr Callaghan appear to have re-appointed AMAs & DMEs without close attention to such details, if one is to judge by the SG Report’s comments about lack of surveillance of the system of 3-yearly appointment. More emphasis seems to have been put on the audit visit results (only conducted on 16 of the 27 AMAs, and *never used on the central system*). *These matters are not commented upon by the SG Report as reflecting a defect of the **central** CAA system.*
- A final aspect of the **quality assurance** of the medical unit during my tenure as PMO was an emphasis on a 2-stage process whenever *any* problem was raised by a member of the public or by an AMA/DME.
 - The first stage was to *fix the immediate problem.*
 - The second stage was a crucial aspect of quality assurance: *to identify any flaw in the CAA’s medical systems, which might have contributed to the particular problem.* In Human Factors terms, this was looking for the “*latent failure*”. A solution was then developed, following ISO9002 principles, and implemented.
- This approach was based on understanding that anyone can make mistakes, including myself, but that it is important to be willing to put them right.
- Nevertheless, there were further levels of audit yet to be implemented. Owing to serious resourcing problems (recorded in Section 3) it was not possible to implement these during my tenure as PMO. ***But the preceding summary shows that many effective elements of audit were already in place, based on a free and frank exchange of criticisms of the system.***
- Many of these later levels were foreshadowed in writing in the CAA Medical Manual Volume 1, Chapter 7 -- Medical Records & Audit (18 August 1993). This indicated that the usual level of audit would be “*invisible to AMAs, until completed in each case, since it will generally not involve a visit to the AMA. To keep costs down, audit will be a paper exercise conducted at Aviation House. This is the reason that AMAs must send to CAA documentation of all assessments conducted. On a three-year cycle, each AMA will be audited at least once. This will involve a sampling of the AMA’s assessments at random, and brief review of the quality of documentation and of the resulting assessment decision and action taken by the AMA*”. A number of criteria are listed.

- This remains the current edition of that chapter, **despite CAA having departed from these published procedures in 1999 – an important failure to comply with ISO 9002**.
- In view of the resource problems described in Section 3, it was signalled that **a visit to an individual AMA was only envisaged if serious problems surfaced during this random “paper audit”**. This was considered the most efficient and cost-effective system of audit. Nevertheless, because of the atrocious resource problems suffered by the medical unit, even this economical system of random paper audit proved impossible to implement.
- In 1999 when a more ambitious, but apparently flawed, method of audit was adopted it developed serious problems and had to be interrupted in May 2000.

My own audit (due in May 2000) would have been interesting, since I was the only AMA electing the “**assessment-only**” option of AMA practice. This meant I never met the pilot whom I certified but assessed reports sent from DMEs. Thus my audit could not have been side-tracked into areas which might be irrelevant to the powers of an AMA (those aspects of the work which were the functions of a DME, and not, according to the Manual procedures, subject to audit). I thus expected a sharper focus on the real business of an AMA: **the assessment decision and its quality**. Days before my audit would have been conducted it was called off by CAA. I am therefore not in a position to comment from personal experience.

Appendix V: Exaggerated Urgency & Misuse of Statistics:

The Bill was presented with urgency, on the basis of claims of an **imminent safety problem** (described in the SG report). These claims of urgency are exaggerated and have the effect of inducing unnecessary haste. What is needed is a careful, considered approach, which will set aviation safety on track for the 21st century. The alleged “emergency” is an exaggeration. In Appendix VI I show that several more urgent matters in the medical arena have been neglected in the last ten years.

The present problems are relatively minor in comparison, and merely require some fine-tuning. More important will be an increase in resources, though this should require somewhat less than the enviable funds which have been poured into the medical unit over the last two years to manage the crisis it faced (without apparent progress in its ability to communicate with the outside world).

The first aspect of alleged urgency has been dealt with in an earlier section relating to a perceived lack of powers of the Director. This section will deal with the question of whether there is a safety crisis.

To understand how to control safety it is essential to understand the concept of the “**Pyramid of Causation**”, since control must be aimed at the root causes of safety problems.

- The most serious safety problems are also the least numerous (**accidents**, at the apex of the pyramid).
- Below that are the more numerous “**incidents**” (best thought of as “*near misses*”).
- At the base of the pyramid are what Reason refers to as “**latent failures**” -- a variety of errors and omissions by individuals or organisations, all of which set the scene for the possibility of near misses or accidents. These are the most numerous. They also tend to be less easy to detect, and their significance is often misunderstood or ignored. These latent failures constitute the findings uncovered at audit, or as the result of informal reporting (such as by a “whistleblower”).

During recent debate, attention has oscillated between CAA’s focus on “latent failures” and opponents’ comments regarding a lack of aviation accidents. The Director has been quoted as emphasising the need for aviation safety experts to focus on latent failures.

Missing from this debate has been a proper sense of perspective. There is no doubt that the greatest gains in aviation safety come potentially from achieving a major reduction in latent failures, because these provide the fertile soil from which incidents and accidents arise. If analysed properly, they also provide a more readily-available and statistically-significant set of indicators of the strength or weakness of the aviation safety system. However, they are only indirect indicators, and the only reliable indicator that the correct “latent failures” have been addressed would be a subsequent drop in frequency of incidents and accidents.

Conversely, to wait for an increase in accidents as the only indication of the need for improvement in the system would be equivalent to putting an ambulance at the bottom of the cliff instead of a fence at the top.

- This popular (fence) analogy is a very important illustration not only of safety, but also of the cost-benefit equation. A fence is a cheap one-off safety measure. An ambulance at the **top** of the cliff would not be as cost-effective as a fence there (i.e. beware of unwieldy solutions). It is important to be clear of the risks and the costs before instituting expensive measures with undue haste, particularly when the proposed measure (centralisation) has been tried before, repeatedly, prior to proper cost benefit analysis.
- There is a legitimate use for *accident statistics* in deciding about taking urgent steps. An excellent example would be the “**bogus parts**” **affair**, when it was noted that the immediate and obvious cause of an accident was that a helicopter rotor blade fell apart because of illegal repairs. The implications of this justified the grounding of numerous aircraft so as to rapidly establish the size of the problem and its remedy. The CAA, within its existing framework of quality assurance and enforcement, dealt with this affair efficiently. There was no need for major reorganisation of the CAA or its agents.
- A poor example would be the **Taumaranui Inquest affair**, where speculation about the possible effects of medication has been given greater prominence than the overriding “*human factors*” aspects of this tragedy. I attach a copy of my own response to the coroner in this case (Mr Scott) in answer to his questionnaire sent out to AMAs [**copy attached**].

In this case, the proximate cause of the accident is not at all obvious as being a medical incapacitation (which for all accidents worldwide is responsible for less than **1%** of accidents). Bearing in mind that “*human factors*” is responsible for more than **80%** of accidents, and bearing in mind the circumstances of this particular accident, I am not alone in suggesting that the pilot may have been the engineer of his own downfall (in conjunction with poor weather conditions), and that any changes required in the medical certification system would be of lesser importance and urgency compared with increasing CAA’s emphasis on human factors solutions.

Misuse of statistics:

As a follow-up to the release of the SG report, CAA released statistics regarding medical certification since 1996, and an interpretation of the statistics was published in the New Zealand Herald of Sunday 25 February 2001 [**copy available**]. As the former Principal Medical Officer of CAA, who was responsible for the design and development of computer software to generate such statistics, I believe these statistics have been used selectively and have been misinterpreted. Correctly-selected figures would have covered the decade from 1990 to 2000. I made a written request for this information under the Official Information Act on 9 March 2001, but at the time of writing this had an incomplete response from CAA.

My clear recollection, based on intimate knowledge of these reports, leads me to the following statements: --

- It was misleading for the report to have spoken of “**hundreds of pilots unfit**”. Firstly, this gives the incorrect impression of an unsafe situation where unfit pilots are still flying in large numbers. The figures quoted actually indicate numbers of pilots who have been **grounded**, and who therefore are “*safe*” as a result of the controls inherent in the existing medical certification system. Taken to an extreme, this method of control could attempt to ensure safety by the grounding of all 14,000 or 15,000 New Zealand-certified pilots, leaving only those pilots operating in New Zealand’s skies who have been certified by overseas authorities. This would clearly be nonsensical.
- The largest group of such “*grounded*” pilots is those who are “**temporarily unfit**”. This is a totally unreliable measure of true safety problems. As the term suggests, the vast majority of such pilots have been grounded pending tests to clarify whether a problem really exists at all, or while treatment is put in place to resolve a problem. Most of these pilots would normally be returned to flying after thorough investigation showed no evidence of any ongoing problem.
- The likely explanation of the recent peak in numbers of those Temporarily Unfit is an overcautious approach to *mere possibilities* – exactly what the Bill attempts to make law!
- Only the number of those assessed as “**permanently unfit**” approaches being a reliable measure of a true safety problem, since this in general will have been decided when a clear-cut problem has been shown to exist and fails the standards of Part 67. Even in this case, an over-conservative interpretation of the standards can lead to a blowout of the numbers.

It is important to express these numbers as a *percentage* per annum, to avoid distortions arising from changes in the total numbers assessed. This is essential during the later years when assessments were progressively divided between AMAs and the CAA medical unit. It was entirely misleading for crude numbers to be published in the Star-Times without indicating where the responsibility lay for these assessments.

It is important to examine the annual statistics **over a 10-year period** at least. I attach a graph (the final page of this Submission), based on statistics so far made available. Gaps represent material not yet provided by CAA.

Going back **22 years** (1979) under an earlier **centralised system** it seems that out of about 8000 annual assessments “**unfit**” totals were about **110 (1.4%)** and a “temporarily unfit” total was not separately reported (apart from a “current” running total which was a mere **17**). This is not markedly different from figures in the early 1990s, and represents a time when the PMO was an *aviation medical specialist* (using the correct meaning of the term) in close control of Special Assessments.

This 1980 figure was followed by a sudden increase in demand for the Aviation Medical Review Board in the mid-1980s. *CAA at the time of writing this had not provided statistics for the 1980s*, but this demand suggests that the last time there was an outcry about unnecessary grounding of pilots was because for a short period the PMO was not an aviation medicine specialist. This is no criticism of Dr Wilson, who was well aware of the difficulty, and I very much doubt that the blow-out in ‘Unfit’ assessments then was as much as the recent 1998-2000 figure of **5.2%**.

In the years 1990 – 1993 (prior to the AMA scheme, when all assessments were centralised and under the direct control and/or supervision of the PMO) **permanently unfit** assessments were relatively steady at approximately **0.3%** (~25 p.a.) of the approximately 8000 annual assessments, and **temporarily unfit** assessments were approximately **1%** of this number (~80 p.a.). This represents a situation which was stable for 5-6 years, without untoward effects (and echoes the 1979 situation).

As PMO during the period of introduction of the AMA scheme (1994-98) I found, as the **AMA assessments** began to come in in 1994, that an understandably more conservative (i.e. *safe*) approach arose on the part of AMAs [*CAA had not provided me with statistics on this at the time of writing*].

At the same time a part-time doctor, who had decreasing access to supervision by the PMO (owing to the resource problems outlined in another section), was conducting **special assessments**. This also led to an understandable conservatism, and the gradual increase in Unfit assessments centrally 1994-98 appears to reflect the increasing unavailability of a specialist PMO to provide close supervision (and indeed to conduct the more difficult assessments). This culminated in a period of 10 months when no assessments were done by a specialist PMO and responsibility rested on the acting PMO on a part-time basis (1998). **The peak of Unfit assessments occurred during those 10 months.** These points are no criticism of the doctors concerned. It was a *safe* situation, but may have unduly increased costs.

Section 3 of this submission (under “*Recruitment & Selection of Medical Officers*”) explains why it is not surprising that this unnecessary change towards conservatism arose in 1998 at the CAA medical unit level.

There has been a slow recovery since 1998, which might have occurred more rapidly if there had been access to mentoring by a former PMO, rather than by an external AMA who was part of the conservative element already described above. The unfortunate consequence of this, although it tends to favour safety by grounding pilots, is that *an increasing number of pilots will have been grounded unnecessarily*. This not only has cost implications, but if taken to extreme it has safety implications by removing an increasing number of more

experienced pilots from the “aviation ballpark”. This is a “*human factors*” concept well understood in aviation safety circles.

The correct interpretation of the statistics (misrepresented in the Star-Times news item) underscores a systemic problem within the CAA medical unit. This problem was identified by the aviation industry many months ago, but to the present appears to have been ignored and treated in a defensive manner by the CAA. The “blow out” of hundreds of temporarily unfit pilots represents a large waiting list of pilots requiring a proper assessment. It represents a management crisis, not a safety crisis.

There is indeed an urgent problem. The focus of that problem lies within the CAA and the solution must be directed there. Section 3 outlines how this problem arose, and **Appendix VI** indicates other urgent problems identified by me as PMO during the last ten years, and communicated to management, which have not been properly addressed to date.

Appendix VI: Other More Urgent Matters

Over the period 1992 - 1998 there were a number of **other urgent matters** which I brought to the attention of the Director of Civil Aviation, and which were set aside. These relate to **alcohol** (as noted in the submission of Dr Hochberg), **fatigue**, and the approach of CAA to **Human Factors** in general.

The present problems are relatively minor in comparison, and merely require some fine-tuning. More important will be an increase in resources, though this should require somewhat less than the enviable funds which have been poured into the medical unit over the last two years to manage the crisis it faced (without apparent progress in its ability to communicate with the outside world).

I remind the Committee that **medical factors**, such as sudden or subtle incapacitation caused by a medical problem, have been shown worldwide to be a minor causal factor in aviation accidents (< 1%). In contrast, behavioural factors (**Human Factors**) account for about 80% of aviation accidents, and alcohol and drugs have been shown worldwide to account for about 10% of aviation accidents.

Despite these well-known figures, the CAA of New Zealand has persistently under-resourced the investigation and control of the Human Factors contribution to aviation accidents, and has virtually no machinery in place to investigate and control alcohol and drug problems in aviation. This was highlighted in the submission of Dr Hochberg, and I confirm it.

➤ **ALCOHOL & DRUGS:**

The only pilots subjected to alcohol and drug testing after an accident (if you will forgive my bluntness) are those who are dead and therefore no future safety problem. Those who survive a crash are not tested.

Nor does CAA test those who have been involved in a recognised aviation incident where their behaviour has been suspect. The New Zealand Police publicly highlighted these defects in the law about five years ago after a crash in the South Island. Nothing has changed.

I, as PMO, highlighted these deficiencies via a confidential report [**COPY ATTACHED**] on alcohol, drugs, and mental illness, which was presented both within CAA and to the Ministry of Transport. In particular my report highlighted a crash in the late 1980s where a number of passengers were killed, and the surviving commercial pilot while subsequently in hospital was recorded as undergoing the DTs. For unknown reasons the pilot's well-known alcohol problem does not appear as a cause of this crash. At the time of my report in 1997 I called for this investigation to be reopened, and *both CAA and TAIC chose not to do this.*

My report was acknowledged favourably by the Director in a management meeting, yet was rapidly buried and has resulted in no effective action on alcohol, drugs, and mental illness to date.

Alcohol and drug abuse is a serious problem, which tends to be concealed by the sufferer *and is not well detected by routine medical certification procedures focused on by the SG Report.* In the case of the crash I have mentioned, the warning signs had been recognised (but not reported) by the spouse and the GP long before the fatal commercial flight. I am not suggesting that alcohol and drug abuse is a huge problem in New Zealand aviation, but it is unlikely to be a lesser problem than overseas and probably accounts for 5-10% of all aircraft

accidents, even though the defective CAA statistics fail to record this. This is a problem of greater urgency than that of “*ticks in boxes*” at routine audit highlighted by the SG report. I speak here of a recognised, recurring safety problem being set aside by CAA and the Ministry over the years 1988-98.

Detection and control of alcohol & drug abuse requires a co-ordinated approach. Corresponding measures by the Land Transport Safety Authority over the same ten-year period have improved public awareness of alcohol and drug problems, and have had a significant impact on road safety. CAA only manages to avoid shame for its own negligible efforts by failing to look for (and therefore record) the effect of alcohol and drugs in aviation accidents and incidents in this country.

➤ **FATIGUE IN AVIATION:**

Fatigue is well recognised internationally to be an important factor degrading aviation safety. Consequently, legislation aimed at controlling the effects of excessive duty times, time zone shifts, and related factors is widespread. NASA in the USA has conducted groundbreaking research, led by Dr Mark Rosekind. This led in turn to a programme of **Fatigue Countermeasures** with a solid basis in evidence-based medicine. Dr Rosekind presented his findings to a group of CAA staff in the mid-1990s, and this group concluded that *the CAA’s approach to management of fatigue via the Rules process was fundamentally flawed and lacked a scientific basis*. As spokesman for this group, I presented a submission to the Director. The Rules team rejected the submission and retained the flawed and fragmented system. This reflected a lack of appropriate Human Factors training and experience within the Rules team.

➤ **USE OF HUMAN FACTORS EXPERTISE WITHIN CAA:**

For the last 20 years the medical unit has been the only focus of tertiary-level [ie. University-level] Human Factors expertise within the CAA. In more recent years the CAA has employed psychologists, although in a rather fragmented and less than effective way. The three most important fields of tertiary-level expertise which should be involved in the investigation and control of human factors problems in aviation are those of **psychology, ergonomics, and aviation medicine**. CAA has an uncoordinated and ineffective approach to the use of such expertise, preferring to recruit to key positions engineers and pilots with relatively brief and superficial training in these three areas. While not wishing to understate the valuable experience which such individuals have in aviation, it is overstating their qualifications for CAA to term them “**technical specialists**”, which implies a post-graduate qualification.

As the only registered specialist within the CAA with formal tertiary training in a variety of the areas relevant to investigation and control of human factors problems, I attempted on numerous occasions to persuade CAA management to develop a more co-ordinated approach to Human Factors.

By the time I left CAA in 1998, a draft Service Level Agreement regarding accident investigation was the **only** such SLA under development (between the medical unit and other parts of the CAA) but *remained unconfirmed*.

Appendix VII: CAA Staff Professional & Personal Conduct

Section 3 showed that the selection and poor support of medical staff of the CAA medical unit in the last two years gave a certain inevitability to what followed.

This Appendix shows **poor communication and a defensive attitude** of the CAA regarding the free and frank discussion of scientific and administrative issues. *This fails to follow the example of “best practice” exhibited by the FAA during their regular training sessions for AMEs (which I have attended on numerous occasions).*

The problems arising from this failure have been allowed to escalate to the present crisis despite considerable diplomacy displayed by those approaching the CAA to seek solutions. The behaviour displayed by CAA staff has at times reached the level of an **abuse of a position of power and of improper interference in the independence of professional practice.**

This is best illustrated by the example of what has come to be known in the industry as the affair of the “**Gagging Letter**”. This affair also happened to be the earliest indication that things were going wrong. It began within two months of Dr Callaghan arriving at CAA, though there had been warning signs during the previous year (described in the section on Resource Problems).

The pilot at the centre of the controversy (Pilot A) was “grounded” by CAA from about April 1999 until late in 2000, and yet was able in October 1999 to obtain a commercial pilot licence (helicopter) in the United States after I contacted my counterpart in the FAA Aeromedical Certification Division, Dr Warren Silbermann. His medical problem never at any stage caused disability or symptoms, and was merely something noted on a chest x-ray and in some blood tests, which eventually reverted to normal. He lost thousands of dollars from his unnecessarily prolonged grounding, and is currently separated from his family for prolonged periods while flying in the jungles of Borneo. His wife has given me, on his behalf, written permission to present this case to the Select Committee, and can verify what I say.

This was not an isolated example, and I have a signed consent from one other case heading down the same track. During 1999-2000 the Society, and the aviation industry became increasingly concerned. The attached summary of the “Gagging Letter” affair was therefore presented at the initial meeting of a new group – the Aviation Industry Health Forum (AIHF) in November 2000 [**see attachment**, which was also attached to the submission of the Aviation Medical Society].

It clearly demonstrates an arrogant attitude to the rights of pilots and to the doctors who advised them, under the medical certification system of the CAA. My initial complaint about this to **Mr Richard McFarlane of CAA** in August 1999 received no reply. A second formal complaint brought to the Director in May 2000 and handled by **Mr Peter O’Brien** led to a lukewarm “apology” which merely indicated that CAA could have been more polite in trampling over these rights. There was no acknowledgement that CAA had exceeded its powers.

The professors showed no interest in hearing about this matter, and never interviewed me. It would not surprise me if others found it similarly difficult to be heard by the professors, as the Committee has heard in submissions. The warm endorsement of “professional and personal conduct” in the SG Report appears distinctly Nelsonian in failing to see the signals.

Appendix VIII: The Danger Signs in the SG Report & Bill No 2

(a) The three *Trojan Horses* of the Bill (unrelated to the findings of the SG Report) are:

- **Section 27A:** Other submissions have highlighted a lack of reasonableness of the definition of “*medically unfit*”, whereby a “*maybe*” would let the Director act against a Medical Certificate. I agree, and will not elaborate further on this point.

My additional point on 27A is this: In general, medical standards belong logically in **CA Rule Part 67: Medical Certification**. The Swedavia-McGregor Report warned against fragmentation, and there seems little justification for inserting a general medical standard in the Act, when a similar general standard is already stated at the start of Part 67, based more soundly on ICAO Annex I.

The only justification which might exist for inserting this definition in the Act would be if it were justifiable for the Director to have *powers of medical assessment*. My section 2 [**recommendation 3g**] shows that this may be *ultra vires* - any necessary power can instead be *vested in a medical practitioner appointed by the Director*.

- **Section 27G:** This echoes a method familiar to me as former PMO. It was first attempted in relation to Dr I S Wilson in 1988 when he was to return on a part-time basis to conduct Special Medical Assessments on behalf of the Director under delegated power. I have available a letter of legal advice from the Medical Protection Society which Dr Wilson gave me to show that a similar clause (which CAA attempted to insert in an actual contract) was *in contradiction of the contractual relationship which would have been implied by the Instrument of Delegation, even if no written contract had existed!*

The implications are similar in the case of doctors given powers to act on behalf of the Director via the Act. If this clause were enacted as is, I (and probably all of my colleagues) would be forced to withdraw immediately from work as an AMA, or Medical Examiner for CAA, since this would seem to be an attempt to legitimise the lack of support, from CAA for its appointed doctors, evident at the Taumaranui inquest.

This is contrary to the undertaking stated by CAA in its Medical Manual and *contrary to the “best practice” exhibited by the FAA and restated at every FAA seminar for AMEs that I have attended*. CAA seems to be trying to have the best of both worlds, by controlling how AMEs will carry out their work but absolving itself of any responsibility for what AMEs will do under CAA’s instructions

- **Section 27D(3):** This may be an attempt at the recommendation I made in my second letter to Mr T. Scott, coroner for the Taumaranui inquest. It is a pale echo of the corresponding Land Transport legislation, and serves only to place an obligation on doctors without offering any protection. If unchanged, it would most likely fail to encourage increased reporting. There is a possibility it might only serve to entrap AMEs or AMAs/DMEs who failed to notify CAA, thus facilitating the Director’s proposed new powers to suspend or cancel an AMA/DME/AME’s appointment upon a single such failure.

(b) Danger signs present in the SG Report are as follows, and should lead an astute observer of politics to ask penetrating questions:

- Lack of specialist Aviation Medical expertise on the review team and within the CAA.
- *Question of serious conflict of interest of one team member*, previously signalled but ignored; as well as of the *external doctor who assisted CAA with the “Daniels Affair”* and with this report. Naming of specific doctors as highly recommended to be part of the new regime.
- AMSANZ (registered by Medical Council as provider of Continuing Medical Education for AMAs & DMEs, and so the true focus of aviation medical expertise in this country) not provided draft of SG Report, thus breaching the earlier undertaking of Sir John Scott and CAA.
- Inappropriate emphasis on “**Guild behaviour**” by authors over many months, since very early in the consultative process (see NZ ALPA submission).
- AMSANZ’s reasonable request for independent validation of audit results (“**audit of audits**”, by Royal New Zealand College of GPs and NZ Medical Association) obstructed by CAA; **Official Information requests** for this purpose blocked since December 2000 – classic “*Guild behaviour*”.
- Details in report demonstrate bias arising from conflict of interest.
- Clumsy attempt at *scapegoating* (p20), while overlooking reasons for delays in audit by CAA (p25 - “*for whatever reason*”).
- **lack of cost-benefit analysis** (in contrast to prior Swedavia-McGregor Report it presumes to reverse). “Savings” of \$350,000 - \$400,000 are >60% of 1998 Medical Unit annual budget! How much will this new proposal *cost* in order to “save” that much? How much has it cost in 2000 to reach the present impasse?
- Report adopted an idiosyncratic definition of “*aviation medical specialist*” entrenching the CAA’s *unannounced* & flawed 1999 downgrading of its top medical job [see Section 3 re Recruitment].
- Precipitate, simultaneous release of the Bill with report on which this is based, **timed to coincide with Judicial Review**.
- Alleged urgency. Appearances of a “**Clayton’s Emergency**”.
- What has been the *cost* of this massive and flawed process? Who benefits?