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Christopher Andrews

Vernon Nase

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PSYCHIATRIC INJURY IN AVIATION ACCIDENTS UNDER
THE WARSAW AND MONTREAL CONVENTIONS: THE
INTERFACE BETWEEN MEDICINE AND LAW

DR. CHRISTOPHER ANDREWS*
DR. VERNON NASE**

ABSTRACT

THIS ARTICLE EXAMINES the handling of psychiatric injury under the framework of the Convention for the Unification of Certain Rules Relating to International Transportation by Air, or Warsaw Convention of 1929, and the Montreal Convention of 1999, a "consolidating and modernizing" convention, which both govern injury to passengers in international air travel. The Warsaw and Montreal Conventions establish liability for passenger injury, which has been interpreted as being strictly physical injury. Under the Warsaw Convention, recovery for pure psychological injury has been excluded. The origin of this exclusion derives from the interpretation of the convention's term lésion corporelle, which in its English transla-


** Vernon Nase, B.A. (Qld), M.A. (Syd), Grad. Dip. Lib. (NSW), Dip. Ed. (STC), LL.B (Hons) (Lond), Ph.D. (Qld), Associate Professor, School of Law, City University of Hong Kong, Adjunct Professor, Murdoch University.


3 Id.


5 Id. at 544.
tion requires strictly physical injury to a passenger. The origin and precedents for the exclusion are examined. It is found that the strict interpretation derives from the desire to interpret the Warsaw Convention in terms applicable to the 1929 understanding of psychiatric injury. It is further noted that this also may not be appropriate under the Vienna Convention on the Law of Treaties 1969.

While the interpretation has almost universally required physical injury, there has been a minor (but disputed) widening of scope of liability in recent years, contemplated in both Weaver v. Delta Airlines, Inc. and King v. Bristow Helicopters Ltd., to allow injury manifesting psychologically when it can be shown that it derives directly from physical changes in the body, even where not palpably obvious. Attention is drawn, however, to a certain disturbing looseness in expression and understanding of the differences between symptoms, signs, diagnoses and pathologies. Contemporary medical understandings of psychiatric injury are presented and draw a distinction between these facets.

Against this background, it is suggested, firstly, that the distinction between physical and mental illness is artificial in any case, and, secondly, that physical changes in psychiatric illness are well based and becoming increasingly understood. Indeed, the demonstration of such change is limited only by our examination and investigation techniques. Examples are given in depression and mood disorder, post traumatic stress disorder, and psychotic illness. A medical understanding also takes account of environmental factors in disease and the clear influence of the physical on the mental. It is thus argued that even if one accepts the necessity for physicality to injury, evidence abounds to place mental injury in the same framework.

It is further argued that there is justification for accepting mental injury per se, as to do so clarifies and unifies several otherwise conflicting areas of the law, unifies the law of aviation with other areas of transportation, and indeed gives acknowledgment to a human rights issue.

Acknowledgement is given to concerns regarding the acceptance of mental injury, including the “floodgates” argument, difficulties involved in diagnosis and proof, and concerns regarding disproof and causation of these injuries. The impor-

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6 Id. at 543.
tance of expert evidence is highlighted in the recent House of Lords decision in King v. Bristow Helicopters Ltd.9

In the light of all the factors involved, it is argued that it is no longer tenable to continue to deny compensation for what was misconceived as a “pure” mental injury arising out of aviation accidents involving international flights. Further, it is argued that the election to use the term “bodily injury” in the authentic text of the Montreal Convention of 1999 may have opened the door to claims for psychiatric injury involving bodily changes based on evidentiary support, for such claims, arguably, have an unintended effect of declaring an English language version to be one of the six authentic texts of the Convention.10

I. INTRODUCTION

This article considers the vexed and much argued issues regarding the handling of claims for psychiatric injury caused by accidents occurring in international flight. The governance of international air carriage for many countries still rests in the Warsaw Convention, which was agreed in 1929 and has been adopted by a large number of states.11 The Warsaw Convention governs the liability of air carriers to passengers on international flights for states that have not yet adopted the Montreal Convention of 1999,12 which in any event represents a consolidation and refinement of the better aspects of the Warsaw Convention.

It may seem strange that what may be regarded as a modern phenomenon—international long range commercial flight—could be governed by a convention agreed to so long ago. There certainly have been attempts to “modernize” the Convention, but its criteria for liability for injury remains essentially unchanged. Even the recently-in-force Montreal Convention of 1999 in Article 17 adopts a wording that is remarkably similar to

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9 Id.
10 Montreal Convention of 1999, supra note 2, ch. VII (the following statement at the conclusion of the text acknowledges the six official texts: “Done at Montreal on the 28th day of May of the year one thousand nine hundred and ninety-nine in the English, Arabic, Chinese, French, Russian and Spanish languages, all texts being equally authentic.”) (emphasis added)).
the original Warsaw Convention formulation.\textsuperscript{13} Such liability is the focus of this article.

The Warsaw Convention was designed to foster a fledgling aviation industry at a time when a single accident might potentially bankrupt an airline.\textsuperscript{14} The drafters created a “presumed fault” system under which the carrier accepted liability for an accident in return for a capped level of liability in the absence of willful misconduct on his or her part.\textsuperscript{15} Limits to liability were established and compensable injuries were arguably limited to those arising from physical affliction only.\textsuperscript{16} Pure psychological injury has been specifically denied compensation within a single-minded jurisprudence. Lest it be thought that this view hangs over from a bygone age as writ in ancient stone, the jurisprudence is actually surprisingly recent, with the seminal case, \textit{Eastern Airlines, Inc. v. Floyd},\textsuperscript{17} decided as recently as 1991.

The term “arguably” in the previous paragraph portends more than the simple word implies. The debate on whether pure psychological injury should be compensated has raged for decades;\textsuperscript{18} however, the courts have remained steadfast in their denial. It is to this question the discussion turns. This article examines the jurisprudence regarding psychological injury, and argues that within current medical knowledge, as well as legal understanding, pure psychological injury ought to be compensable.

\section{A. The Warsaw Convention Liability Provisions}

Liability for passenger injury vests in Chapter III of the Convention.\textsuperscript{19} This Chapter comprises Articles 17–30. Article 17, detailed below, is the prime focus of this article. Essentially, for passenger injury, the liability system created is one of presumed, but rebuttable, fault of the carrier. If there has been an accident, under Article 17 the carrier is presumed liable up to the liability limit defined in Article 22(1) of the Convention.\textsuperscript{20} The

\begin{itemize}
\item \textsuperscript{13} Compare id. art. 17, with Warsaw Convention, supra note 1, art. 17-8.
\item \textsuperscript{14} El Al Isr. Airlines, Ltd. v. Tseng, 525 U.S. 155, 170 (1999).
\item \textsuperscript{16} See infra Part I.A.
\item \textsuperscript{17} E. Airlines, Inc. v. Floyd, 499 U.S. 590, 590 (1991).
\item \textsuperscript{18} \textit{Id.} at 552; Rosman v. Trans World Airlines, 314 N.E.2d 848, 857 (N.Y. 1974).
\item \textsuperscript{19} Warsaw Convention, supra note 1, ch. III.
\item \textsuperscript{20} \textit{Id.} art. 22.
\end{itemize}
carrier also has access to several defenses under Article 20 (the "all necessary measures" taken defense)\(^\text{21}\) and Article 21 (contributory negligence on the part of the passenger).\(^\text{22}\) Under the unamended Convention, there is provision for the passenger to break through the liability cap under Article 25 if he can establish willful misconduct, or intentional or reckless behavior with knowledge that damage would probably result.\(^\text{23}\)

1. Personal Injury Provisions Under the Warsaw Convention

Article 17 provides that:

The carrier is liable for damage sustained in the event of the death or wounding of a passenger or any other bodily injury suffered by a passenger, if the accident which caused the damage so sustained took place on board the aircraft or in the course of any of the operations of embarking or disembarking.\(^\text{24}\)

This provision raises issues such as who is to be considered a "carrier" and a "passenger," the meaning of "accident," and the precise legal meaning of "on board," "embarking," or "disembarking." While each of these issues carries its own jurisprudence,\(^\text{25}\) they are not the present focus.

Perhaps the most debated item in the interpretation of this article is the meaning of "death or wounding of a passenger or any other bodily injury suffered by a passenger."\(^\text{26}\) And it is to this matter that the discussion turns. In short, the question becomes, "what is the meaning of 'bodily injury'?" and, in particular, "does bodily injury include pure psychological injury?" That the debate does not seem to have turned to the alternate, viz., that a psychological injury suffered by a passenger might be considered as "wounding," is something the authors find strange. But to the question of stand-alone psychological injury being covered by bodily injury, the courts have consistently answered

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\(^{21}\) Id. art. 20.  
\(^{22}\) Id. art. 21.  
\(^{23}\) Id. art. 25.  
\(^{24}\) Id. art. 17.  
“no,” and the writers present arguments questioning this answer.

While air carriers have defenses available to them (e.g., Articles 20 and 21), these are not always argued due to the International Air Transport Association (IATA) Intercarrier Agreements of 1995. Through these agreements, and by virtue of the unique Article 22(1), IATA carriers have waived recourse to their defenses for accidents up to 100,000 Standard Drawing Rights (SDR) given, of course, that an accident has occurred, though this is sometimes disputed.

B. ENGLISH LAW’S “NERVOUS SHOCK”

While it may not be strictly correct to suggest that the drafters of the Warsaw Convention possessed Victorian era sensibilities, it may be informative to dwell briefly on the state of the U.K. law of “nervous shock,” as negligently inflicted psychiatric injury was then termed. It should be emphasized that we are not turning to domestic law to interpret particular provisions of the Convention under examination. To do so would be in contravention of the Vienna Convention on the Law of Treaties. It is argued that it is relevant to touch upon the state of U.K. domestic law as it reflected the legal understandings about mental injury at that time operating within English law.

In the late nineteenth century, in the United Kingdom and its colonies, recovery was not contemplated for stand-alone mental injury. Victorian Railways Commissioners v. Coultas involved a train, a pregnant woman in a horse-drawn buggy, and a “near miss.” The appeal in this case turned on two issues: (1) “[w]hether the damages awarded by the jury to the [p]laaintiffs

29 Warsaw Convention, supra note 1 (the relevant part of art. 22(1) being reflected in these words: “Nevertheless, by special contract, the carrier and the passenger may agree to a higher limit of liability.”).
30 IATA, supra note 28.
31 See, e.g., Vienna Convention on the Law of Treaties, art. 27, May 23, 1969, 1155 U.N.T.S. 331 (internal law and observance of treaties, which notes that “[a] party may not invoke the provisions of its internal law as justification for its failure to perform a treaty”).
33 Id.
... [were] too remote”; and (2) “whether proof of ‘impact’ [was] necessary ... to maintain the action.” The first issue was decisive before the Privy Council. Sir Richard Couch stated the majority view that “the first question, whether the damages [were] too remote, should have been answered in the affirmative.” Mrs. Coultas’ damages, arising from her terror at seeing the train approaching, “unaccompanied by any actual physical injury, but occasioning a nervous or mental shock [could not] be considered a consequence which, in the ordinary course of things, would flow from the negligence of the gate-keeper.”

Soon, however, in Dulieu v. White, fear of imminent harm to oneself was accepted as a ground for claiming nervous shock. Justice Kennedy emphasized the need for the plaintiff to establish “damage to herself” and causation, “a natural and continuous sequence uninterruptedly connecting the breach of duty with the damage as cause and effect.” The “control mechanism” for duty of care in negligence added by Dulieu v. White was that “[t]he shock [. . .] must . . . arise[ ] from a reasonable fear of immediate personal injury to oneself.”

In the United Kingdom, the incremental creep of the law continued in Hambrook v. Stokes, a case that preceded the Warsaw Convention by less than five years. This case involved a runaway lorry, children walking up a street, and the mother farther down the same street, who saw the lorry rushing round a bend towards her, fearing that it had run down her children. A bystander told her that a child answering the description of one of her children had been injured. The mother suffered a severe shock, which the court accepted eventually led to her death. In fact, the daughter had been injured and was taken to hospital. The mother, who was pregnant, suffered a “severe hemor-
rhage." Six weeks later, the mother was operated on and a dead fetus was removed from her. Tragically, she died a few days later. The case was brought by her husband under Lord Campbell's Act. The majority judgment of Lord Justices Bankes and Atkin indicated that the position adopted in *Coultas* was no longer good law. Lord Atkin further rejected the limitation imposed by Justice Kennedy in *Dulieu v. White* that the shock must arise from fear for one's own safety: "I can find no principle to support the self-imposed restriction stated in the judgment of Justice Kennedy, in Dulieu v. White & Sons[,] that the shock must be a shock which arises from a reasonable fear of immediate personal injury to oneself." Lord Atkin's comments also reflect the position under the domestic law of torts in England in 1924, five years prior to the Warsaw conference:

The legal effects of injury by shock have undoubtedly developed in the last thirty or forty years. At one time the theory was held that damage at law could not be proved in respect of personal "injuries", unless there was some injury which was variously called "bodily" or 'physical," but which necessarily excluded an injury which was only "mental." There can be no doubt at the present day that this theory is wrong. Thus, the assertion by the U.S. Supreme Court in *Floyd v. Eastern Airlines, Inc.*, that stand alone mental injury in 1929 in the United Kingdom was not compensable is open to question. In *Floyd*, there is also an acknowledgement made that a "cause of action for psychic injury . . . was possible under French law in

43 *Id.* at 142.
44 *Id.* at 141.
45 *Id.* at 157 (Lord Atkin).
46 *Id.*
47 *Id.* at 154.
48 See *E. Airlines, Inc. v. Floyd*, 499 U.S. 530, 545 (1991) ("Although French law recognized recovery for certain types of mental distress long before the Convention was drafted, . . . in common-law jurisdictions mental distress generally was excluded from recovery in 1929."). Consequently, it was no surprise when the Court concluded: "In sum, neither the Warsaw Convention itself nor any of the applicable French legal sources demonstrates that 'lesion corporelle' should be translated other than as 'bodily injury'—a narrow meaning excluding purely mental injuries." *Id.* at 542. The dominant view in *Floyd* was in favor of a narrow interpretation of the French words "lesion corporelle" because (1) of their dictionary meanings (*Id.* at 537–38), (2) French jurisprudence pre-1929 revealed no cases to support a meaning broader than physical injury (*Id.* at 538), and (3) it was consistent with the primary purpose of the contracting parties to the Convention (*Id.* at 546).
This was joined to an assertion such an action would not have been recognized in many other countries represented at the Warsaw Convention. However, if Lord Atkin’s view in Hambrook v. Stokes is to be accepted, then U.K. jurisprudence in this area may best be characterized as developing and not as supporting the contention of the Floyd court that “in common-law jurisdictions mental distress generally was excluded from recovery in 1929.”

In these circumstances it may well be lamented that the Diplomatic Conference, considering the draft of what became the Warsaw Convention, failed to discuss the issue: “The President: ‘No one asks the floor? . . . I put Article 17 to a vote.’” No one counseled the Supreme Court in Floyd against attaching too much significance to this mere omission.

C. THE ORIGIN OF “BODILY INJURY”

The term “bodily injury” is an English translation of the authentic French text of the Convention where the term used was “lesion corporelle.” Within the jurisprudence in English speaking countries, the word “bodily” has consistently been taken to refer to the physical human body, and therefore injury has been seen in terms of physically determinable and evident structural changes to the physical body. While the externalities of bodily wounding seemed to have prevailed in the minds of interpreting courts, there is no doubt that modern psychiatry has long left behind the Cartesian dichotomy of mind and body: “[E]vents and processes with which psychiatry is concerned are both physical and mental and [. . .] the distinction resides not in the

49 Id. at 540.
50 Id.
51 Id. at 545.
52 Second International Conference on Private Aeronautical Law, October 4-12, 1929, Warsaw: Minutes 206 (R. Horner & D. Legrez trans., Rothman & Co. 1975). This omission was also noted by Lord Steyn in King v. Bristow Helicopters Ltd.: “It is common ground that the travaux preparatoires reveal no discussion or mention of liability for mental injury or illness.” [2002] 1 Lloyd’s Rep. 745 (H.L.).
53 Warsaw Convention, supra note 1, art. 17. The full French language text of art. 17 reads: “Le transporteur est responsable du dommage survenu en cas de mort, de blessure or de toute autre lesion corporelle subie par un voyageur lorsqu’il accident qui a cause le dommage s’est produit a bord de l’aeronef ou au cours de toutes operations d’embarquement et de debarguement.” Id.
54 Floyd, 499 U.S. at 536.
events and processes but in the linguistic/conceptual framework used in referring to them.\textsuperscript{55}

In modern medicine, our view of the body has advanced to a point where the distinction between the so-called physical and the so-called psychological is an artificial construct that has been dispensed with in modern medicine. Society, as reflected in the courts, ought also to dispense with this false distinction.

D. \textit{Eastern Airlines, Inc. v. Floyd}

1. \textit{Authority for the Interpretation of “Bodily Injury”}

Prior to 1991, when \textit{Eastern Airlines, Inc. v. Floyd}\textsuperscript{56} was decided, many cases considered the meaning of “bodily injury” in a somewhat ad hoc manner. \textit{Floyd} has been the precedential pivot for most subsequent cases in multiple jurisdictions, including the United States, the United Kingdom, and Australia; that is, until the 2001 House of Lords decision in \textit{King v. Bristow Helicopters Ltd.}\textsuperscript{57}

2. \textit{The Facts in Floyd}

Justice Marshall, in delivering the opinion of a unanimous Court, recited the following facts:

On May 5, 1983, an Eastern Airlines flight departed from Miami, bound for the Bahamas. Shortly after takeoff, one of the plane’s three jet engines lost oil pressure. The flight crew shut down the failing engine and turned the plane around to return to Miami. Soon thereafter, the second and third engines failed due to loss of oil pressure. The plane began losing altitude rapidly, and the passengers were informed that the plane would be ditched in the Atlantic Ocean. Fortunately, after a period of descending flight without power, the crew managed to restart an engine and land the plane safely at Miami International Airport.\textsuperscript{58}

The plaintiffs, a group of passengers [including Floyd] on the flight, brought separate complaints against [the airline,] Eastern Airlines, Inc. . . ., each claiming damages solely for mental distress arising out of the incident. . . . Eastern conceded that the engine failure and subsequent preparations for ditching the plane amounted to

\textsuperscript{56} \textit{Floyd}, 499 U.S. at 530.
\textsuperscript{58} \textit{Floyd}, 499 U.S. at 533.
an "accident" under Article 17 of the Convention but argued that Article 17 also [made] physical injury a condition of liability.\textsuperscript{59}

3. Case History

The District Court concluded that "mental anguish alone [was] not compensable under Article 17."\textsuperscript{60} The court relied on an "analysis of the [original] French text and negotiating history of the Convention" to reach this decision.\textsuperscript{61}

The Court of Appeals for the Eleventh Circuit reversed this decision, holding that "the phrase 'lésion corporelle' in the authentic French text of Article 17 encompassed purely emotional distress."\textsuperscript{62} This court "examined the French legal meaning of the term . . ., the concurrent and subsequent history of the Convention, and cases interpreting Article 17."\textsuperscript{63}

The Supreme Court granted certiorari on application to resolve an alleged conflict between the appellate court decision and the decision of the New York Court of Appeals in Rosman v. Transworld Airlines, Inc.,\textsuperscript{64} "which held that purely psychic trauma [was] not compensable under Article 17."\textsuperscript{65}

4. The Argument in Floyd

The Supreme Court's argument proceeded as follows: It first provided an overarching principle, quoting the statement from Volkswagenwerk Aktiengesellschaft v. Schlunk: "When interpreting a treaty, we begin with the text of the treaty and the context in which the written words are used."\textsuperscript{66}

It went on to state:

Other general rules of construction may be brought to bear on difficult or ambiguous passages . . . [And] treaties are construed more liberally than private agreements, and to ascertain their meaning we may look beyond the written words to the history of

\textsuperscript{59} Id.
\textsuperscript{60} Id. at 534.
\textsuperscript{61} Id. at 533 (citing Burnett v. Trans World Airlines, Inc., 368 F. Supp. 1152, 1154 (D.N.M. 1973)).
\textsuperscript{62} Floyd, 499 U.S. at 535 (citing 872 F.2d 1462, 1480 (11th Cir. 1989)).
\textsuperscript{63} Id.
\textsuperscript{65} Floyd, 499 U.S. at 535.
\textsuperscript{66} Id. (quoting Volkswagenwerk Aktiengesellschaft v. Schlunk, 486 U.S. 694, 699 (1988)).
the treaty, the negotiations, and the practical construction adopted by the parties.\textsuperscript{67}

The Court proceeded to argue in three phases. While the authors report the argument as given by the Court in the judgment, we also express concern at certain inconsistencies in the argument, which will be discussed shortly. They are not seized upon in this mere outline.

a. Phase One—Textual

The Court argued that as the text of the Convention was in French, “the French text must guide our analysis.”\textsuperscript{68} The French text of Article 17 is:

\begin{quote}
Le transporteur est responsable du dommage survenu en cas de mort, de blessure ou de toute autre lésion corporelle subie par un voyageur lorsque l'accident qui a causé le dommage s'est produit à bord de l'aéronef ou au cours de toutes opérations d'embarquement et de débarquement.\textsuperscript{69}
\end{quote}

This is translated as:

\begin{quote}
The carrier shall be liable for damage sustained \textit{in the event of the death or wounding of a passenger or any other bodily injury} suffered by a passenger, if the accident which caused the damage so sustained took place on board the aircraft or in the course of any of the operations of embarking or disembarking.\textsuperscript{70}
\end{quote}

The operative section was seen as “\textit{en cas de mort, de blessure ou de toute autre lésion corporelle},” or “\textit{the death or wounding of a passenger or any other bodily injury}.”\textsuperscript{71} And the Court regarded it as most important to ascribe textual equivalence to “bodily injury” and “lésion corporelle”:

Therefore, the narrow issue presented here is whether, under the proper interpretation of “lésion corporelle,” \textit{[mort, blessure,}

\textsuperscript{67} Id. (quoting \textit{Volkswagenwerk}, 486 U.S. at 700; Air Fr. v. Saks, 470 U.S. 392, 396 (1985)). These statements are loosely consistent with the treaty interpretation requirements under the Vienna Convention on the Law of Treaties, arts. 31(1) (“A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty, in the light of its object and purpose.”) and 32 (Supplementary Means of Interpretation), which provides support for examining supplementary means, such as the preparatory work of the treaty and the circumstances of its conclusion. Vienna Convention on the Law of Treaties, \textit{supra} note 31.

\textsuperscript{68} Floyd, 499 U.S. at 535.

\textsuperscript{69} Id.

\textsuperscript{70} Id.

\textsuperscript{71} Id.
or lésion corporelle] is satisfied when a passenger has suffered only a mental or psychic injury. . . . We must consider the "French legal meaning" of "lésion corporelle" for guidance as to the shared expectations of the parties to the Convention.\(^{72}\)

The authors emphasize the Court's desire to find "the shared expectations of the parties."\(^{73}\)

Recourse was first held to bilingual dictionaries. It was considered that these dictionaries suggested that "lésion corporelle" should be translated as "bodily injury."\(^{74}\) Given the view that corporelle was correctly translated as bodily, the Court concluded that "[t]hese translations, if correct, clearly suggest that Article 17 does not permit recovery for purely psychic injuries."\(^{75}\)

The Court noted that "dictionary definitions may be too general for purposes of treaty interpretation,"\(^{76}\) but it felt that the concerns regarding possible misinterpretation, if any, were also allayed when it noted that "the dictionary translation accords with the wording used in the 'two main translations of the 1929 Convention in English,'" namely the English and the American translations.\(^{77}\)

Having satisfied itself that the term was properly translated—on dictionary perusal—as "bodily injury," the Court then sought to examine the sources of law that French jurists would rely on in interpreting this term.\(^{78}\) These sources were said to be legislation, judicial decisions, and scholarly writing.\(^{79}\)

In legislative matters, the Court argued that there was no French legal provision in force in 1929 that contained the term "lésion corporelle."\(^{80}\) It noted that the scope of compensable injuries in French law was encapsulated in the French Civil

\(^{72}\) Id. at 536.

\(^{73}\) Id.

\(^{74}\) The dictionaries consulted by the Floyd Court included: (i) J. Jeraute, Vocabulaire Francais-Angeais et Angeais-Francais de Termes et Locutions Juridiques 205 (1953), which translates "bodily harm" or "bodily injury" as "lésion ou blessure corporelle," the term "lesion" as "injury, damage, prejudice or wrong," and gave as one sense of "corporel" the English word "bodily"; and (ii) Grand Larousse de la Langue Francaise 1833 (1987), which defines "lesion" as a "[m]odification de la structure d'un tissu vivant sous l'influence d'une cause morbide." Floyd, 499 U.S. at 536.

\(^{75}\) Id. at 536–37.

\(^{76}\) Id. at 537.

\(^{77}\) Id. (quoting R. Mankiewicz, The Liability Regime of the International Air Carrier 197 (1981)).

\(^{78}\) Id.

\(^{79}\) Id.

\(^{80}\) Id. at 538.
Code, Article 1382 (translated): “Every act whatever of man which causes damage to another obliges him by whose fault it happened to repair it.” 81

In examining case determinations, the Court also observed that no French court decisions during or before 1929 explained the phrase “lésion corporelle.” 82 They stated that the only such cases were relatively recent, in the context of “automobile accidents and other incidents.” 83 It was felt that these supported the narrow view of the term, though recent use could not be used to ascertain the original drafters’ view. 84

The Court next turned to scholarly writing and stated that leading up to 1929, it could not find any material “indicating that ‘lésion corporelle’ embraced psychic injury.” 85 The Court was critical of writers 86 who, it is claimed, drew on 1929 French tort law compensability for psychological distress as justification for the more liberal view in Aviation Law, and dismissed these considerations:

We find it noteworthy, moreover, that scholars who read “lésion corporelle” as encompassing psychic injury do not base their argument on explanations of this term in French cases or French treatises or even in the French Civil Code; rather, they chiefly rely on the principle of French tort law that any damage can “give rise to reparation when it is real and has been verified.” We do not dispute this principle of French law. However, we have been directed to no French case prior to 1929 that allowed recovery based on that principle for the type of mental injury claimed here—injury caused by fright or shock—absent an incident in which someone sustained physical injury. 87

The Court saw its overall task as to “give the specific words of the treaty a meaning consistent with the shared expectations of the contracting parties.” 88 On the basis of its textual analysis, the Court stated that it

[found] it unlikely that those parties’ apparent understanding of the term “lésion corporelle” as “bodily injury” would have been

81 Id.
82 Id.
83 Id.
84 Id. at 538–39.
85 Id. at 539.
86 Id.; see Georgette Miller, Liability in International Air Transport: The Warsaw System in Municipal Courts 128 (1977) (arguing that “a liberal interpretation of Article 17 would be more in line with the spirit of the Convention”).
87 Floyd, 499 U.S. at 539–40 (internal citations omitted).
88 Id. at 540 (quoting Air Fr. v. Saks, 470 U.S. 392, 399 (1985)).
displaced by a meaning abstracted from the French law of dam-
ages. Particularly is this so when the cause of action for psychic
injury that evidently was possible under French law in 1929
would not have been recognized in many other countries repre-
sented at the Warsaw Convention.\(^89\)

And, “[i]n sum, neither the Warsaw Convention itself nor any of
the applicable French legal sources demonstrates that ‘lésion
corporelle’ should be translated other than as ‘bodily injury’—a
narrow meaning excluding purely mental injuries.”\(^90\)

In the light of a short consideration of the structure of the
Convention, in which it was noted that some writers considered
that if mental injury was to be excluded it would have been spe-
cifically stated as such, the Court was, however, prepared to con-
cede “because a broader interpretation of ‘lésion corporelle’
reaching purely mental injuries is plausible, and the term is
both ambiguous and difficult, [the Court had to] turn to addi-
tional aids to construction.”\(^91\) And this was a statement justify-
ing its entry to phase two of its reasoning.

b. Phase Two—The Negotiating History of the Convention

The Court stated that “[t]ranslating ‘lésion corporelle’ as
‘bodily injury’ is consistent, we think, with the negotiating his-
tory of the Convention.”\(^92\)

The majority of the conferencing for the Convention took
place in Paris in 1925, and the Court stated that the Paris Con-
ference protocol specified that “[t]he carrier is liable for acci-
dents, losses, breakdowns, and delays,”\(^93\) and that this almost
certainly would have allowed for pure psychological injury.\(^94\)
However, it noted that a commission of experts (the Comité Inter-
ationnal Technique d’Experts Juridiques Aériens, or CITEJA)
appointed to refine the agreements of the Paris Conference sub-
csequently split the liability into three areas, one for each of pas-
senger injury, goods damage, and delay.\(^95\) Although there was
no immediate evidence as to the reason, the final wording for

\(^{89}\) Id.

\(^{90}\) Id. at 542.

\(^{91}\) Id.

\(^{92}\) Id.

\(^{93}\) Id. (quoting Air Fr. v. Saks, 470 U.S. 392, 401 (1985)).


\(^{95}\) Id. at 542-43.
Article 17 was changed by CITEJA, which the Court believed indicated that a narrow interpretation was intended. Further, it claimed that there was no indication that the drafters considered psychic injury at all. The Court considered that, as "many jurisdictions did not recognize recovery for mental injury at that time," "the drafters most likely would have felt compelled to make an unequivocal reference to purely mental injury if they had specifically intended to allow such recovery." It felt that such was the case with the Berne Convention on rail travel, which referred to "à l'intégrité corporelle" which was later amended to "l'intégrité physique ou mentale."

The Court finally stated that:

The narrower reading of "lésion corporelle" also is consistent with the primary purpose of the contracting parties to the Convention: limiting the liability of air carriers in order to foster the growth of the fledgling commercial aviation industry. . . . Whatever may be the current view among Convention signatories, in 1929 the parties were more concerned with protecting air carriers and fostering a new industry than providing full recovery to injured passengers, and we read "lésion corporelle" in a way that respects that legislative choice.

c. Phase Three—The Influence of Later Convention Meetings

In the final phase of its argument, the Court concluded that, "on balance, the evidence of the post-1929 'conduct' and 'interpretations of the signatories,' supports the narrow translation of 'lésion corporelle.'" A subsequent meeting was held in Madrid in 1951 and the Court quoted the meeting documents:

The French delegate to the committee proposed this substitution[, "affection corporelle" for "lésion corporelle,"] because, in his view, the word "lesion" was too narrow, in that it "presupposed a rupture in the tissue, or a dissolution of continuity" which might not cover an injury such as mental illness or lung

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96 Id. at 543.
97 Id. at 544.
98 Id. at 544–45.
100 Floyd, 499 U.S. at 545.
101 Id. at 546.
102 Id. (quoting Air Fr. v. Saks, 470 U.S. 392, 403 (1985)).
congestion caused by a breakdown in the heating apparatus of the aircraft. The United States delegate opposed this change if it "implied the inclusion of mental injury or emotional disturbances or upsets which were not connected with or the result of bodily injury," but the committee adopted it nonetheless. Although the committee's proposed amendment was never subsequently implemented, its discussion and vote in Madrid suggest that, in the view of the 20 signatories on the committee, "lésion corporelle" in Article 17 had a distinctly physical scope.¹⁰³

The Court referred back to the decision of the Court of Appeals in *Floyd* and found that it had relied on three international agreements, the Hague Protocol of 1955,¹⁰⁴ the Montreal Agreement of 1966,¹⁰⁵ and the Guatemala City Protocol of 1971.¹⁰⁶

The Hague Protocol was arguably the most important of these three instruments in terms of changes to the text of the treaty, especially given that the Guatemala City Protocol did not enter into force and that the Montreal Interim Agreement was an intercarrier agreement whose primary focus was the liability limit. With the Hague Protocol, the *Floyd* Court was of the view that:

While the authentic French version of Article 3 retained the phrase "lésion corporelle," the authentic English version of the Hague Protocol, which was proposed by the United States delegation, used the phrase "personal injury." Citing Saks, the Court of Appeals treated the Hague Protocol's use of "personal injury" as a "subsequent interpretation of the signatories" that "helps clarify the meaning" of "lésion corporelle." However, we do not accept the argument that the Hague Protocol signatories intended "personal injury" to be an interpretive translation of "lésion corporelle" where there is no evidence that they intended the authentic English text to effect a substantive change in, or clarification of that term. Moreover, the portion of Article 3 of the Hague Protocol in which "personal injury" appears is concerned solely with informing passengers that when the convention "governs" it "in most cases limits the liability of carriers for death or personal injury." It may be, therefore, that the signatories used "personal injury" not as an interpretive translation of

¹⁰³ Id. at 547 (internal citations omitted).
¹⁰⁵ 43 C.A.B. 819, Agreement No. 18900, approved by Order No. E-23680.
“lésion corporelle” but merely as a way of giving a summary description of the limitations of liability imposed by the Convention.107

The Court felt also that it should examine interpretations of “lésion corporelle” in other jurisdictions. It cited the case of Cie Air France v. Teichner108 (also including Daddon v. Air France109) in the Israeli Courts, where purely psychic injury was allowed.110 The Floyd Court, referring to the Israeli view that this was “desirable jurisprudential policy” given the post-1929 development of the aviation industry and the evolution of Anglo-American and Israeli law to allow for recovery for psychic injury in certain circumstances, still felt unpersuaded.111

5. Judgment

The conclusion of the Court was as follows:

We conclude that an air carrier cannot be held liable under Article 17 when an accident has not caused a passenger to suffer death, physical injury, or physical manifestation of injury. Although Article 17 renders air carriers liable for “damage sustained in the event of” (“dommage survenu en cas de”) such injuries, we express no view as to whether passengers can recover for mental injuries that are accompanied by physical injuries.112

E. CRITICAL COMMENTS ON THE JUDGMENT

The majority judgment in Floyd, written by Justice Marshall, as we have established, purported to base itself on traditional treaty interpretation techniques. It searched for the ordinary meaning of the words used and looked to the object and purposes of the treaty.113 “Even if [the Court] were to agree that allowing recovery for purely psychic injury [was] desirable as a policy goal [as was the Israeli Court’s contention], [the Court] cannot give effect to such policy without convincing evidence that the signato-

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107 Floyd, 499 U.S. at 548-49 (internal citations omitted).
110 Floyd, 499 U.S. at 551.
111 Id. at 551 (quoting Cie Air Fr. v. Teichner, 39 Revue Francaise de Droit Aérien, at 243, 23 Eur. Tr. L., at 102).
112 Id. at 552 (internal citations omitted).
113 See Vienna Convention on the Law of Treaties, supra note 31, art. 31(1).
ries' intent with respect to Article 17 would allow such recovery."

Where the court in *Floyd* differs from the "norm" of treaty interpretation is in the manner of its recourse to supplementary materials and in its dealing with the prior jurisprudence. Under Article 32 of the Vienna Convention on the Law of Treaties, which, even for non-signatory states, represents a statement of pre-existing customary international law, recourse to supplementary means of interpretation may be had. Such recourse, under Article 32, does not mandate the drawing of a line under 1929 and discounting post-1929 writings that reflect on the drafters' intentions. However, this is precisely what the *Floyd* court has done in its dismissal of the writings of George Ripert and Yvonne J. Blanc-Dannery that were considered in *Palagonia v. Trans World Airlines, Inc.*, a 1978 decision of the Supreme Court of New York. Not even a relatively narrow focus justifies excluding writings that reflect on the drafters 1929 intentions, i.e., "the shared expectations of the contracting parties" (to borrow a phrase from the majority judgment in *Floyd*). This exclusion is difficult to justify alone on the basis that Ripert was the French delegate to the Diplomatic Conference in Warsaw in 1929. Further, weight needs to be given to the fact that at the 1929 conference, Ripert observed that the convention was one "which is drawn for a few years." It would appear that not even the drafters saw the liability system that they created as one that existed to meet anything more than immediate needs.

It would not seem wise that aviation should remain "the odd man out" based on a shackling to 1929. The nature of change in the aviation industry suggests that one is dealing with an industry tremendously different from that in 1929 and that the intent of its governance should reflect that change. Indeed, it is disappointing that the Madrid meeting was not recognized for its main thrust—that "lésion corporelle" interpreted as "bodily

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114 *Floyd*, 499 U.S. at 551.
117 *Floyd*, 499 U.S. at 540.
118 *SECOND INTERNATIONAL CONFERENCE ON PRIVATE AERONAUTICAL LAW*, *supra* note 52, at 90 ("If this Convention of air law is to be applied during one or two centuries, I would perhaps share the fears of Mr. Pittard, but it's a question of a stabilization which was done in practically every country, for a Convention which is drawn for a few years, and I believe that when you will have fixed the present French franc, you will add nothing in saying 'gold franc.' ").
injury" was far too narrow and that a broader reading was agreed upon.

There were several places where the Court stated that "clearly" the term used did not include a physical component (e.g., the bilingual dictionaries where only one provision suggested physicality).\(^{119}\) The writers wonder if "clearly" has been confused with "conveniently" in this instance.

While the Court in *Floyd* acknowledged that "treaties are construed more liberally than private agreements," and that "[the Court] may look beyond the written words to the history of the treaty, the negotiations, and the practical construction adopted by the parties,"\(^{120}\) the Court seemed reluctant to do so except in the narrowest of senses:

Therefore, the narrow issue presented here is whether, under the proper interpretation of "lésion corporelle," [mort, blessure, or lésion corporelle] is satisfied when a passenger has suffered only a mental or psychic injury. We must consider the French legal meaning of "lésion corporelle" for guidance as to the shared expectations of the parties to the Convention.\(^{121}\)

In *Floyd*, the Court rested strongly on the notion that in France and other jurisdictions mental injury was not contemplated. However, this seems not to be the case, especially when the Court acknowledges the French Code provision that "[e]very act whatever of man which causes damage to another obliges him by whose fault it happened to repair it."\(^{122}\) Rather than using this as an argument that mental injury ought to have been explicitly mentioned if it was intended, it would perhaps have been more enlightened to accept that recovery for mental injury was common ground and thus was not especially mentioned for that reason.

Comments regarding the Berne Rail Convention might in fact more be taken as the drafters' learning from the 1929 experience when twenty-two years later they framed their convention.\(^{123}\) The Court in *Floyd* accepts that the Berne Convention recognizes mental injury, but it states that post-1929 widening of the Convention cannot justify a departure from the 1929 wording.\(^{124}\) This was an excellent opportunity for the expression of

\(^{119}\) *Floyd*, 499 U.S. at 536–37.

\(^{120}\) *Id.* at 535 (quoting Air Fr. v. Saks, 470 U.S. 392, 396 (1985)).

\(^{121}\) *Id.* at 536.

\(^{122}\) *Id.* at 538.

\(^{123}\) *See id.* at 545–46.

\(^{124}\) *Id.*
"desirable jurisprudential policy" which the Court failed to take up.

The *Floyd* court referred to Miller and criticized her basing her argument on an understanding of French tort law alone.\(^{129}\) This is despite the Court's insistence on the meaning of the French and its admitted non dispute with the precepts of French torts. But the Court argued that the meaning of the convention was shared by all.\(^ {126}\) In commenting on Miller in this way, using "alone" in the above, the Court does her an injustice. Miller is quite definite in suggesting that "the issue was not one of translation."\(^ {127}\) She also stated:

Both Courts in [*Rosman v. Trans World Airlines, Inc.* and *Husserl v. Swiss Air Transport Co.*]\(^ {128}\) made it clear that nobody questioned that the English text was an accurate translation of the French text. Any discrepancy at that level would have had to be solved in favour of the French text since the Convention was drawn up in French only. The issue was the relevance of French legal concepts as a means of interpreting the Convention. The rulings in *Husserl* and *Rosman*, which held that the treaty should be construed in the light of American law, clearly articulate an attitude shared by a number of other courts.\(^ {129}\) But this has been rejected by several federal courts where French law concepts were used to interpret the Convention in order to better understand the technical meaning of its text, and also to ascertain more accurately the intent of its drafters.\(^ {130}\)

Miller offers a detailed critique of the thinking of the Courts and would seem to have been dismissed lightly without reference to the substance of her further arguments—the unreliability and lack of precision in the meaning of "corporelle," the drafting history of the Convention and its later incarnations, an unwarranted interpretation of the CITEJA deliberations and submissions, the fact that Article 17 sets conditions and not lim-

\(^ {125}\) *Id.* at 539–40; see *Miller*, supra note 86, at 119.

\(^ {126}\) *Floyd*, 499 U.S. at 544.

\(^ {127}\) *Miller*, supra note 86, at 119.


\(^ {129}\) Miller cites Kahn v. Trans World Airlines, Inc., 12 Avi. 18032 (N.Y. Sup. Ct. 1973), and Smith v. Canadian Pac. Airways, 452 F.2d 798 (2d Cir. 1971), stating that the Court placed a limit to the extent on which domestic law concepts could be used. *Miller*, supra note 86, at 119.

\(^ {130}\) *Id.* (citing Reed v. Wiser, 555 F.2d 1079 (2d Cir. 1977), Block v. Compagnie Nationale Air Fr., 386 F.2d 323 (5th Cir. 1967), and Burnett v. Trans World Airlines, Inc., 368 F. Supp 1152 (D.N.M. 1973)).
its, the real lack of distinction between physical and mental injuries despite claims to the contrary, the non-warranted conclusions from Berne, and so on. Miller, probably the most authoritative writer on this subject, would seem to have been dismissed too lightly. Nonetheless, Floyd, as a decision of the U.S. Supreme Court, has been used as a dominant precedent for the subsequent denial of recompense for mental injuries since its determination in 1991.

It is highly noteworthy that the Court expressed "no view as to whether passengers can recover for mental injuries that are accompanied by physical injuries." The notion of mental injuries accompanied by physical injuries will be returned to later, though it is unfortunate that Floyd has been used as precedent in this area also against a specific non-entry into the topic.

F. JURISPRUDENCE PRIOR TO FLOYD

Prior to Floyd, a small number of cases were decided and Floyd properly attempted to resolve the degree of uncertainty and conflict engendered by the prior cases. In 1972, in Husserl v. Swiss Air Transport Co., the court prefigured Floyd. The court relied on Block v. Compagnie Nationale Air France on the premise that the "binding meaning of the terms . . . is the French legal meaning." In the light of the above discussion, the use of the term "legal meaning" is somewhat enigmatic where the legal usage of the term could be regarded as actually encompassing the psychological. Article 17 was held by the court of first instance to be controlled by "toute autre lésion corporelle" (even though "blessure" was thought to comprehend not only a physical wound but also any other hurt or injury) and it held that, in consequence, "mental anguish and suffering are not comprehended within the Warsaw Convention." In a separate opinion arising from the same case, however, mental injury was held to be within "lésion corporelle." The court found that "the types of injuries enumerated should be construed expansively to encompass as many types of injury as

131 See id. at 120–22.
134 Block v. Compagnie Nationale Air Fr., 386 F.2d 323 (5th Cir. 1967).
135 Husserl, 351 F. Supp. at 708 (quoting Block, 386 F.2d at 330).
136 Id.
are colorably within the ambit of the enumerated types. Mental and psychosomatic injuries are colorably within that ambit and are, therefore, comprehended by Article 17."\textsuperscript{138}

In 1973, \textit{Burnett v. Trans World Airlines, Inc.} dealt with "severe emotional trauma from the actions of . . . hijackers [in which the plaintiffs feared] that their lives [were] in jeopardy."\textsuperscript{139} Both parties to the dispute agreed that the Warsaw Convention applied to the hijacking and the court noted that the plaintiffs "also suffered various other physical ailments from their confinement."\textsuperscript{140}

Again the court held that "the French legal meaning must govern."\textsuperscript{141} The court noted that "[i]n this era, internal French law predicated a carrier's liability on contract, allowing a passenger to recover for mental as well as physical injuries."\textsuperscript{142}

In discussion, the court in \textit{Burnett} agreed with the definition by Colin, Capitant and de la Morandiere of \textit{lésion corporelle} as "an infringement of physical integrity"\textsuperscript{143} and stated that "[t]he definition gives not the slightest indication that mental injuries are to be included within its domain."\textsuperscript{144} But its view, importantly, drew on the perceived sharp distinction in American and French law between physical and mental injury.

As far as the Convention's history, the court drew a strong inference "that the Convention intended to narrow the otherwise broad scope of liability . . . and preclude recovery for mental anguish alone."\textsuperscript{145} Once again, the fact that the Berne Rail Convention made an explicit distinction was used as indication of differing intent and as indication that Warsaw did not.\textsuperscript{146} The conclusion was that "plaintiffs may recover in this action for any such emotional anxiety that they can demonstrate resulted from a bodily injury suffered as a consequence of the hijacking."\textsuperscript{147}

\textsuperscript{138} \textit{Id.} at 1250.
\textsuperscript{140} \textit{Id.}
\textsuperscript{141} \textit{Id.} at 1155.
\textsuperscript{142} \textit{Id.} at 1157.
\textsuperscript{143} \textit{Id.} at 1156 (citing Ambroise Colin & Henri Capitant, \textit{Traité de Droit Civil} at No. 65 (Léon Julliot de la Morandiere ed., 1959)).
\textsuperscript{144} \textit{Id.} at 1157.
\textsuperscript{145} \textit{Id.}
\textsuperscript{146} \textit{Id.}
\textsuperscript{147} \textit{Id.} at 1158.
In 1974, appeals in the cases of *Rosman v. Trans World Airlines, Inc.* and *Herman v. Trans World Airlines, Inc.* were heard together. These cases prompted the *Floyd* appeal. The court succinctly found that the “defendant [was] liable for plaintiff’s palpable, objective bodily injuries, including those caused by the psychic trauma of the hijacking, and for the damages flowing from those bodily injuries, but not for the trauma as such or for the nonbodily or behavioral manifestations of that trauma.”

Further, a claim for bodily injury must “be predicated upon some objective identifiable injury to the body. . . . [and] there must be some causal connection between the bodily injury and the ‘accident[,]’ . . . whether the bodily injury was caused by physical impact, by the physical circumstances of the confinement or by psychic trauma.”

The coexistence of physical and mental had been recognized only to a small degree by the courts until *Floyd*. In *Floyd*, the U.S. Supreme Court noted that it did not have to decide on liability for mental injuries that are *merely* accompanied by physical injuries. In *Husserl*, no opinion on the coexistence was offered. In *Burnett*, the Court held that a plaintiff could recover for emotional anxiety resulting from physical injury (and probably vice versa as in *Rosman* below) given the “well recognized principle of law allowing recovery for mental anguish resulting from the occurrence of a bodily injury, the emotional distress being directly precipitated by the bodily injury being considered as a part of the bodily injury itself.” In *Rosman*, the Court felt that “plaintiffs should be allowed to prove damages for palpable, objective bodily injuries suffered, whether caused by psychic trauma or by the physical conditions on the aircraft, irrespective of impact, but not for psychic trauma alone.”

In these cases prior to *Floyd*, the thinking would seem to be somewhat ad hoc: in one case mere accompaniment of physical and mental may be allowable; in another mental anguish resulting from bodily trauma; and in a third, physical trauma caused

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149 *Id.* at 857.
150 *Id.* at 856.
154 *Rosman*, 314 N.E.2d at 850.
by mental trauma. *Floyd*, in fact, made an enigmatic statement causing one to ask whether the physical and mental manifestation even had to exist in the same individual—absent an incident in which someone sustained physical injury.  

Though causation seems rightly to be assumed, the view of courts on its co-existence and its mechanisms seems fuzzy, and modern medicine is far more advanced than this. Further, the courts do not seem sure that trauma (either as an isolated term, or as an explicit concept) can be as much a mental matter as a physical one.

John F. Easton et al., drew attention to the concurrence and noted several categories of cases, including those exemplified by:

- pure mental injury unaccompanied by physical injury or unaccompanied by physical manifestation of injury;
- mental injury manifest in physical injury;
- mental injury unrelated to physical harm; and
- mental injury flowing from physical harm.

None of these would seem to be compensable under current Warsaw jurisprudence, as enunciated by *Floyd*. And, indeed, the distinction between a malady and its manifestation seems unappreciated, yet the distinction is crucial.

The present writers emphasize this latter point, that there is not any real appreciation in the judgments of the differences between symptoms and injuries, manifestations and pathologies, symptoms and causes. Any manifestation can only amount to symptomatology, as a symptom is by definition a manifestation. A symptom in no way defines causation. The same symptom can have multiple origins, and indeed several concurrently—the symptom of chest pain is a useful example with causes ranging from cardiac and pulmonary, through musculoskeletal, to psychological. A symptom alone does not define a pathology or an injury. Similarly, the term “trauma” in its usage by courts, as well as being misunderstood in its genesis, is used imprecisely, sometimes meaning a resulting condition, and sometimes meaning an injuring agent. Judgment on a medical matter must make medical sense.

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155 *Floyd*, 499 U.S. at 539–40.

Similarly, there is confusion regarding the term “psychosomatic,” which seems to be used interchangeably with the terms “emotional,” “psychological,” “psychic,” or even “mental.” Psychosomatic conditions are concerned simply with “the interaction of mind, brain, body, and social context . . . contributing to the pathogenesis, course, and treatment of disease.” It is not a term usable interchangeably with a pathological process. This interaction is explored below and is an indication of the inseparability of these elements. Ultimately, considering the legacy of Floyd, one thing seems clear: courts have stood against mental injury alone being compensable in aviation actions.

It would be remiss of the writers not to aver again to the case of Palagonia v. Trans World Airlines, Inc. because it stands in stark contrast to Floyd. This is because Palagonia focused closely on the meaning of “lésion corporelle” and found that it included the concept of stand-alone mental injury as recoverable damage. A feature of the Palagonia judgment was the expert evidence of Professor Rene H. Mankiewicz “that two of the principal drafters of the Warsaw Convention, Dean Ripert of France and Otto Riese of Germany, [had] written analyses in which they [had] made it very clear that the concept of lésion corporelle includes psychic damage or mental disturbance.” In contrast to this view, the Court in Floyd categorically held that (1) Article 17 does not allow recovery for purely mental injury; (2) “lésion corporelle” should be correctly interpreted as “bodily injury” to exclude purely mental injuries; (3) such a translation is consistent with the negotiating history of the Convention; and (4) “on balance, the evidence of the post-1929 ‘conduct’ and ‘interpretations of the [Warsaw Convention] signatories’ supports the narrow translation of ‘lésion corporelle.’” The Floyd Court was in clear disagreement with the evidence of Professor Mankiewicz in Palagonia, for example,

159 Id.
160 Id. at 482.
161 E. Airlines Inc. v. Floyd, 499 U.S. 530, 552 (1991) (“We conclude that an air carrier cannot be held liable under Article 17 when an accident has not caused a passenger to suffer death, physical injury, or physical manifestation of injury.”).
162 Id. at 542.
163 Id.
164 Id. at 546 (internal citations omitted).
agreeing with the view put forward by Eastern Airlines that his translation of “lésion corporelle” was “overbroad.” The Court condemned the Blanc-Dannery thesis, supervised by Ripert, on the convenient basis that her assertions as to the meaning of “lésion corporelle” were not supported by evidence from CITEJA or Warsaw proceedings. And yet Ripert, one of the drafters of the 1929 text, was Blanc-Dannery’s supervisor. The Court’s condemnation of the value of the Blanc-Dannery thesis was appropriately strong, as this was a major point of contention. Once the key evidential basis of the decision in Palagonia was repudiated, the Floyd Court was clear to make its rulings on the matter.

G. Jurisprudence Since Floyd

Floyd has become the dominant precedent in U.S. jurisdictions since its hearing and it has exerted strong persuasive influence in other jurisdictions. This may not surprise as it was perhaps the first, albeit most conservative, attempt by a State’s supreme court (within its judicial hierarchy) to define and discuss the interpretive issues regarding “lésion corporelle.”

The following are judgments following Floyd. In almost all cases the finding has been commensurate with Floyd—only the rare case has taken a wider view.

1. Cases in the United States

In 1992, Ospina v. Trans World Airlines, Inc. was decided and turned, not on the nature of the injury, but on the definition of “willful misconduct” of the airline. Its importance was that terrorist acts could be regarded as an “accident” within the meaning of the Warsaw Convention while not amounting to “willful misconduct.” The district court, which was overturned on the former point, had opined in any event that “[s]ince Mr. Ospina suffered physical injury which then caused him psychic harm, the award of damages to compensate for that

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165 Id. at 543 n.9 ("Eastern offers persuasive evidence that Mankiewicz's translation may be overbroad.").
166 Id. at 543 n.9.
167 Id. ("In the absence of such support we find the Blanc-Dannery thesis to have little or no value as evidence of the drafters' intent.").
169 Id. at 37.
harm [was] appropriate." Thus, the court was in harmony with Floyd.

In the same year, the court in Chendrimada v. Air India, stated that "plaintiffs must allege a physical injury or a manifestation of a physical injury" to respect Floyd and that this was satisfied in the case at hand. The authors draw attention to the perceived need for "physical injury or a manifestation of physical injury."

In 1993, Bowden v. Korean Airlines Co. held that, regarding moral damages, "none are available for mental anguish absent physical injury," citing Floyd. In the case in question, the fact that there was physical injury due to the explosion of a missile allowed the claim for pain and suffering prior to death.

In 1994, Jack v. Trans World Airlines, Inc. was decided. Interestingly a psychiatrist’s view of mental injury was determined to be inadmissible, as it was held that he did not have "legal training and [that] he did not fully grasp the meaning of the terms ‘lésion corporelles’ and ‘blessures.’" Further,

[p]laintiffs offered the declarations of [a mechanical engineer, a biomechanic, and a psychiatrist]. These declarants described the damage to the plane, the circumstances of the aborted take-off, evacuation and fire, as well as physical and mental effects on plaintiffs. The declarations refer to passengers generally and to the likely events and circumstances. The declarants’ failure to connect their conclusions to any particular plaintiff makes them irrelevant in these . . . proceedings.

The nub of the injury matter was contained in the court’s statements:

170 Id.; see also Anthony Mercer, Liability of Air Carriers for Mental Injury Under the Warsaw Convention, 28(3) AIR & SPACE L. 147, 152 (2003) ("The Court held that there was enough evidence to support the jury’s verdict that [the plaintiff] suffered pain and extreme psychic damage after he was injured by the bomb and before he died and that this constituted ‘damage sustained’ under Article 17 of Warsaw.").
172 Id.
173 Bowden v. Korean Airlines Co., 814 F. Supp. 592, 598 (E.D. Mich. 1993) ("They may not recover from their grief which did not result in physical effects, however.") (citing Floyd, 499 U.S. at 552).
174 Id. ("This is pain and suffering accompanied by physical injury, and logically, must be permitted by Floyd.").
176 Id. at 661.
177 Id. at 662.
Also of concern is [the psychiatrist's] opinion that that the emotional distress suffered by the plaintiffs has intrinsic physical effects. The court is not persuaded that [this] enables plaintiffs to satisfy Floyd's requirement of bodily injury. [The psychiatrist's] comments regarding the physiologic component of emotional distress would apply to any near death experience, including that suffered by the plaintiffs in Floyd . . . Application of [the psychiatrist's] opinion would eviscerate Floyd. The court declines to do so.\textsuperscript{178}

And;

Whether the recoverable damages—including emotional distress—are those caused by the bodily injury or by the accident itself is unclear under Article 17 and Floyd . . . It does not state that the damages must be caused by the bodily injury. Causation is not implied in the French phrase . . . One construction is that the recoverable damages need not be caused by the bodily injury, and may instead be those caused by the accident.\textsuperscript{179}

The Jack court foresaw the following four approaches to the mental injury issue:

1. No recovery allowed at all for emotional distress;
2. Recovery allowed for all distress as long as there was some bodily injury;
3. Emotional distress allowed as damages for bodily injury, but distress may include distress about the accident; and
4. Only emotional distress flowing from any bodily injury allowed.\textsuperscript{180}

The court felt that the first approach was the narrow approach used in Floyd, and was consistent with the state of law for some signatories. However, they felt this was not a desirable approach as “it [gave] so little to the passengers” and was very one-sided.\textsuperscript{181} The second approach was considered unfair to passengers who might be “fortunate enough” to sustain a minor incidental bodily injury like a scratch, where others did not.\textsuperscript{182} The third approach was not accepted, and the court felt that the fourth approach was their preference requiring the existence of

\textsuperscript{178} Id. at 664.
\textsuperscript{179} Id. at 665.
\textsuperscript{180} Id.
\textsuperscript{181} Id.
\textsuperscript{182} Id. at 665–66 ("The approach treats emotional distress as a freestanding cause of action [which is] inconsistent with courts' rulings . . . that the Warsaw Convention creates a cause of action, not just a limit on remedies.").
bodily injury and mental injury in consequence.\textsuperscript{185} In a major sense this (re)establishes the "old status quo" with Floyd.\textsuperscript{184} Recovery was not allowed for distress caused by the accident itself.\textsuperscript{185}

Similarly, following and confirmation of Floyd was seen in:

- \textit{Bickel v. Korean Airlines Co.}, in which the court stated "[w]e cannot, however, perceive any distinction . . . that would permit us to conclude that the recovery . . . [for] survivor's grief [is allowable]";\textsuperscript{186}

- \textit{Fishman v. Delta Air Lines, Inc.}, where emotional consequences of a scalding were compensable but the purely psychic injury of the mother of the injured child was not compensable;\textsuperscript{187}

- \textit{Daniel v. Virgin Atlantic Airways Ltd.}, where plaintiffs were denied damages for the inconvenience associated with delay, it not falling "within the rubric of 'emotional distress'";\textsuperscript{188}

- \textit{Turturro v. Continental Airlines}, basing its decision on Floyd's exclusion of psychosomatic illnesses from its conception of "physical manifestation of injury";\textsuperscript{189}

- \textit{Terrafranca v. Virgin Atlantic Airways Ltd.}, where the court stated, "the Court's thorough analysis simply offers no support that 'lésion corporelle' means anything other than 'bodily injury'";\textsuperscript{190} and

- \textit{El Al Israel Airlines Ltd. v. Tseng}, clearly requiring physical injury.\textsuperscript{191}

\textsuperscript{185} Id. at 666–68.
\textsuperscript{184} Id. at 667 (the court observed that "the Convention leaves the measure of damages to the internal law of parties to the Convention").
\textsuperscript{186} Id. at 668 (stating that this approach would both make passengers' recovery more reasonable and predictable and that it was more in harmony with the approach taken in \textit{Saks v. Air France}, suggesting that "[t]he damage is not damage from the accident" but rather "damage from the bodily injury").
\textsuperscript{188} Fishman v. Delta Air Lines, Inc., 132 F.3d 138, 142–43 (2d Cir. 1998) ("However, we agree with Judge Cedarbaum that the injury here [was] not the earache, but the application of scalding water to treat it. We conclude that the burning of Penina Fishman (and each of the claims arising from that incident) was an Article 17 accident.").
The case of Weaver v. Delta Airlines, Inc. resulted from an emergency landing.\(^{192}\) The plaintiff, Kathy Weaver, consequently was diagnosed with, and was treated for, post-traumatic stress disorder (PTSD).\(^{193}\) Weaver argued that she suffered physical injury and physical manifestations of injury, which included biochemical reactions that had physical impacts upon her brain and neurological system.\(^{194}\) Expert and uncontradicted evidence supported her contention.\(^{195}\) Accepting the physicality of this injury and not the nature of its manifestation, the court determined that “bodily injury” was satisfied and distinguished the case from other mental injury cases while adhering to a more modern medical conceptualization and appearing, at least superficially, to be consistent with the “bodily injury” requirement.\(^{196}\)

Similar following of the Floyd reasoning has occurred in Wallace v. Korean Air,\(^{197}\) Croucher v. World Wide Flight Services, Inc.,\(^{198}\) Carey v. United Airlines,\(^{199}\) Bloom v. Alaska Airlines,\(^{200}\) Bobian v. Czech Airlines,\(^{201}\) and Ehrlich v. American Airlines, Inc.\(^{202}\)

2. United Kingdom Cases

In the United Kingdom, two relatively recent cases have dealt with the issue of mental injury under the Warsaw Convention. They are King v. Bristow Helicopters Ltd. (Scotland)\(^{203}\) and In Re M (Kelly Morris’s case).\(^{204}\) Kelly Morris brought an action for sex-


\(^{193}\) Id. at 1190.

\(^{194}\) Id. at 1190–91.

\(^{195}\) Id. at 1192 (“In response, Delta has not presented evidence sufficient to raise a genuine factual issue . . . [Therefore], the injury to her brain should be considered a ‘bodily injury’ as defined under the Warsaw Convention.”).

\(^{196}\) Id.

\(^{197}\) Wallace v. Korean Air, 214 F.3d 293, 300 (2d Cir. 2000).


\(^{199}\) Carey v. United Airlines, 255 F.3d 1044, 1051–52 (9th Cir. 2001) (“. . . Floyd left open the question of whether . . . physical manifestations satisfy[ed] . . . ‘bodily injury’ . . . [The court was] persuaded . . . that they [did] not.”).

\(^{200}\) Bloom v. Alaska Airlines, 36 F. App’x 278, 280 (9th Cir. 2002).


ual assault on board an aircraft and did not succeed.205 Her appeal to the House of Lords was heard together with the appeal brought in King.206

The appeal in King was allowed. Mr. King had been involved in a helicopter crash where he sustained no physical injury.207 He did, however, sustain PTSD, and this led directly to a peptic ulcer, in exacerbation of previous peptic disease.208 On the basis of the physicality involved (this time physicality in consequence of a psychiatric condition) and in contrast with Morris, the appeal was allowed.209

Although King was decided by the House of Lords under the Warsaw Convention, nevertheless, it provides substantial support for a “modern” interpretation of what bodily injury is. Although superficially advocating the position that, under the Warsaw Convention, there could be no recovery for claims of purely psychological injury in the absence of physical harm, the court indicated a preparedness to see “bodily injury” through modern eyes based on contemporary medical evidence.210

As Lord Nicholls suggests:

The brain is part of the body. Injury to a passenger’s brain is an injury to a passenger’s body just as much as an injury to any other part of his body. Whether injury to a part of a person’s body has occurred is, today as much as in 1929, essentially a question of medical evidence.211

His Lordship conceded, “It may be that, in the less advanced state of medical and scientific knowledge [seventy] years ago, psychiatric disorders would not have been related to physical impairment of the brain or nervous system.”212 However, His Lordship argued that “even if that is so, this cannot be a good reason for now excluding this type of bodily injury, if proved by satisfactory evidence, from the scope of article 17.”213

The enduring relevance of a Weaver-like interpretation supported by medical evidence was explicitly acknowledged by His Lordship, stating that in Weaver, “the uncontradicted medical ev-

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205 Id. at 635.
207 Id. at 630.
208 Id.
209 Id. at 692.
210 Id. at 633.
211 Id.
212 Id.
213 Id.
Evidence was that extreme stress could cause actual physical brain damage. The judge observed . . . that 'if right alone is not compensable, but brain injury from fright is.' 

Lord Mackay also argues against the conceptualization of a mind-body divide based on the level of medical knowledge in 1929. If evidence supports the view that there has been an injury to the body, His Lordship supports recovery. Lord Steyn, in a carefully drafted opinion, also supports recovery if the mental injury causes "adverse physical symptoms": "I would hold that if a relevant accident causes mental injury or illness which in turn causes adverse physical symptoms, such as strokes, miscarriages or peptic ulcers, the threshold requirement of bodily injury under the Convention is also satisfied."

In his judgment, Lord Hope turns to traditional principles of treaty interpretation in indicating that the convention should receive a purposive construction and, in accord with Grein v. Imperial Airways Ltd. and Fothergill v. Monarch Airlines Ltd., that "[t]he ordinary and natural meaning of the words used . . . provides the starting point." Lord Hope avers to a traditional view, consistent with the judgments in Rosman and Floyd, that the framers choice of "lésion corporelle" or "bodily injury" imports a limitation that only a physical manifestation of a mental injury is allowable. However, Lord Hope acknowledges that even a narrow reading does not exclude use of medical and scientific evidence:

The meaning that is to be given to the words used in the Convention must be the meaning which was to be attributed to them when the Convention was entered into in 1929. But it must always have been intended that the application of that meaning to the facts would depend on the evidence. The proper approach is to

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214 Id. (citing Weaver v. Delta Airlines, Inc., 56 F. Supp. 2d 1190 (1999)).
215 Id. at 634.
216 Id. (Lord Mackay, ¶ 8) (In Lord Mackay's words, "I would apply the simple test, does the evidence demonstrate injury to the body, including in that expression the brain, the central nervous system and all the other components of the body?").
217 Id. at 641 (Lord Steyn, ¶ 20).
220 King, 2 A.C. at 656.
223 King, 2 A.C. at 642.
make use of the best current medical and scientific knowledge that is available.\textsuperscript{224}

The judgment of Lord Hobhouse supports the collective view of the authors that the silence of the Diplomatic Conference of 1929 on the issue of psychiatric injury ought not to be given greater importance than it deserves. Lord Hobhouse cites, with approval, the following passage from Lord Reed's judgment in the Court of Appeal in this case: "The travaux préparatoires do not support any theory that the signatories to the Warsaw Convention had a specific intention either to include or to exclude liability for psychiatric disorders."\textsuperscript{225}

On this issue of treaty interpretation Lord Hobhouse counsels against filling this void with a positive assumption. "It is," His Lordship asserts, "a descent into unprincipled subjectivism to use, as do the Court of Appeal ... and others have done before them, the absence of travaux préparatoires as a tool of construction."\textsuperscript{226}

The issue of what constitutes "bodily injury" is taken up by Lord Hobhouse, who does not support the need for the injury to manifest in an external or palpable manner in order to be recognized as a bodily injury. Lord Hobhouse cites a ruptured spleen or damage to an optic nerve as injuries that are bodily injuries that may not present as conspicuous or visible injuries.\textsuperscript{227} Emphasizing the need for plaintiffs to prove that their alleged injuries are "bodily," Lord Hobhouse defines bodily injury as "a change in some part or parts of the body of the passenger which is sufficiently serious to be described as an injury."\textsuperscript{228} His Lordship suggests that "[a] psychiatric illness may often be evidence of a bodily injury or the description of a condition which includes bodily injury."\textsuperscript{229}

While the Law Lords in \textit{King} appear to have endorsed the traditional position under the Warsaw Convention that recovery is not possible for purely mental injury, the case represents a watershed in interpretation of the Convention. This is because of its support for recovery if the plaintiff can establish, through medical evidence, that the condition complained of has caused adverse physical symptoms. With advances in medical science, it

\textsuperscript{224} \textit{Id.} at 657 (emphasis added).
\textsuperscript{225} \textit{Id.} at 678 (quoting Lord Reed, 2001 SLT 126, 167 at ¶ 56).
\textsuperscript{226} \textit{Id.} (emphasis added).
\textsuperscript{227} \textit{Id.} at 674.
\textsuperscript{228} \textit{Id.} at 675.
\textsuperscript{229} \textit{Id.}
is likely that certain psychological conditions that were previously regarded as uncompensable, stand-alone mental injury may be compensatable because they manifest in physically measurable symptoms. In short, the case advances the cause of recourse to modern medical science.

3. Australian Cases

Australian cases seem to have followed the expected *Floyd* course. While the cases of *American Airlines, Inc. v. Georgopoulos*\(^\text{230}\) and *Kotsambasis v. Singapore Airlines Ltd.*\(^\text{231}\) are State Appeal Court cases, they are the most persuasive that have been decided in Australia to date and have not exhaustively examined the mental injury issue, preferring to be guided by *Floyd*.

4. A Wider Interpretation

The only major case providing a wider view has been *Daddon v. Air France*\(^\text{232}\). In this case, the Israeli Court, alone in the developed world, has allowed pure psychiatric injury to be compensable in the aviation context. The Supreme Court of Israel ruled on claims made by passengers regarding mental anguish suffered while being held captive by hijackers at Entebbe Airport in Uganda.\(^\text{233}\)

Lord Hope refers to the case in *King* in the following terms:

It held that “bodily injury” in article 17 included mental anguish which was not accompanied by any physical injury. It reached this conclusion after recognizing . . . that the parties to the Convention apparently had no intention whatsoever in that regard . . . . What the court sought to do was to develop the meaning of the word by judicial policy in the light of subsequent developments. This approach has received no support in the other jurisdictions. It has been criticised on the ground that it is impermissible to construe the Convention in the light of changes since 1929.\(^\text{234}\)


\(^{233}\) *Id.*

\(^{234}\) *King*, 2 A.C. at 667.
H. MONTREAL CONVENTION’S USE OF “BODILY INJURY”

The Convention for the Unification of Certain Rules for International Carriage by Air, or Montreal 99, exists in six authentic texts, including an English language version which opts for the expression “bodily injury.” While delegates at this conference superficially appeared to have closed the door on the possibility of expressly incorporating “pure” or “stand alone” mental injury into the liability regime, in the light of the House of Lords decision in King v. Bristow Helicopters and the state of medical knowledge at the time of the convention, it is likely that Weaver-inspired claims will be made. Despite a substantial number of cases applying Floyd, the wording of Montreal 99 (viz, “bodily injury”) has not been tested. And while the Weaver decision garnered little support in U.S. judicial and legal circles generally, the possibilities are very real for a plaintiff to establish, through the use of expert medical evidence, that changes to the brain have occurred and hence “a bodily injury” has been sustained. If bodily injury is seen to include mental injury (subject to evidentiary proof), then surely the lobbyists who influenced the shape of the Montreal Convention on this issue may yet be seen to have failed to close the door on recovery.

III. INTRODUCING A MEDICAL VIEW

Both in 1929 and strangely solidified by the more recent Floyd case, a line was drawn between “physical” and “mental” injury. This has not been departed from; however, some widening of the solid view allowed the possibility of recovery if a demonstrated physical underpinning of mental injury could be shown. Lords Steyn, Nicholls, Mackay, and Hope asserted that there was no reason to think that the parties intended that no account should be taken of developments in medical science in determining the question of whether a person had sustained a bodily injury—if the brain could be shown to be injured and the other conditions for compensation under Article 17 were satisfied, it would not be right to refuse compensation under the

236 Id.
237 An approach taken in King, where Lords Nicholls, Mackay, Steyn, and Hope, while wishing their judgment to be seen as following Floyd, nevertheless argued that it would be wrong to regard Article 17 as limited by the state of medical and scientific knowledge that was current in the 1920s. The author has stated this view also with respect to the interpretation of treaties.
Article on the ground that in 1929 an injury of that kind would not have been capable of being demonstrated. The issue therefore became whether or not such an injury (physical as a basis to mental) could be demonstrated on the available evidence.

This article now argues for a widening of the approach to mental injury recognizing its reality and the devastation it may cause. It will argue that the narrow approach cannot be sustained on medical or other grounds, including a humanitarian ground.

The argument is approached in two separate ways, as implicit in previous judgments exist two quite different contentions. First, it will be argued that to separate physical and mental injury, or similarly, to regard and require one as precedent to the other, is medically unsound. Psychiatric injury may well have just as much physical basis as any other injury, and the discovery of this is limited only by the limitations of our current investigative modalities. Indeed, present research indicates more and more physical underpinning of psychiatric dysfunction and disability. But secondly, and even if this first is incorrect, it is of little moment, as it is asserted that in the present day we have reached an understanding where purely psychiatric injury is recognized as just as devastating and therefore just as "real" and worthy of compensation for itself, as it is for physical injury, whether it is accompanied by physical cause or association or pathology, or not.

This article asserts that there is no physical illness that does not have mental ramifications, and no mental illness that does not manifest itself with physical symptomatology. It argues that the removal of mental injury from "lésion corporelle" is an outdated and an untenable dichotomy, even if it once existed at all. To do so denies just compensation to disabled and deserving victims. Nonetheless, the present writers are sensitive to the concerns of those who would see the wider interpretation as the opening of floodgates. Safeguards against these concerns are considered and are also detailed below.

There has always been a societal prejudice against mental illness, and this is entirely unfortunate and unproductive. Not

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238 See King, 2 A.C. at 633.
only is mental illness common, it being said for example that thirty percent of the population at any one time suffer from symptoms supporting a diagnosis of clinical depression, but mental reaction shading in degree to mental illness is something that is in everyone’s experience at some time of life. The exigencies of life mean that we all suffer emotional upset at some stage or other, and this is necessary to function as fully human beings.

To say that a person suffers from symptoms of a mental illness (e.g., schizophrenia) is to condemn them to an odium not experienced by those that are, for example, diagnosed with a physical illness (e.g., thyrotoxicosis), yet both have physical and mental overtones in different mixes, and both can result from purely physical changes. The experience and diagnosis of pain, for example is similar, having both physical and mental elements. It is simply more complex, and the diagnosis of a cause for any given pain includes a myriad of physical causes as well as mental causes. The distinction is not trivial, and too often individuals perpetuate the stigma if it is suggested that their pain has a psychogenic cause—“what, are you telling me this pain is all in my imagination?” It is similarly contended that the courts, in separating physical and mental, are also compounding and perpetuating the stigma. For the wise medical practitioner, the psychogenic diagnosis is by no means pejorative—it is simply a diagnosis which allows the most effective modalities of treatment to be selected. Indeed the skilled practitioner is one capable, by training and experience, to make these assessments, both in their completeness and complexity.

Is it perhaps the notion of complexity that causes courts and society to shun mental illness? Is it that “it is in a too hard basket” that causes our desire not to consider it at all? We would assert that a better reason is needed in this age.

A. Introducing Definitions—Symptoms, Signs, Investigations, Pathology, and Diagnoses

The place of mental injury (and illness) in the schema of more general illness needs further examination, and certain terminology, methodologies, and approaches must be understood as background to the subsequent discussion. These are presented to assist understanding.

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240 JOHN DAVIES, A MANUAL OF MENTAL HEALTH CARE IN GENERAL PRACTICE (rev. ed. 2003).
In the process of diagnosis, that is, the assigning of causation to a patient’s malady, a multi-phased process occurs. First, a history of the illness is taken, in which the patient relates his subjective narrative of the sources of discomfort and the events leading up to them. For example,

I have noticed a swelling in the neck which has been present and growing for two months. At the same time my vision has become blurred, and looking in the mirror I notice my eyes have a “popped” look to them. I have a tremor, and I sweat much more than I used to.

The practitioner may supplement these with questions that may be relevant—for example, have you noticed any change in your voice? Or, do you feel unduly nervy or anxious? These constitute the patient’s symptoms—what the patient recounts of what he has noticed. The practitioner supplements these with appropriate questioning in order to obtain the history of the illness.

Second, the practitioner examines the patient and detects aspects of the malady using his examining skill. For example, he may find a fast pulse, high blood pressure, brisk reflexes, and so on. These are signs the patient demonstrates to the practitioner.

At this stage the practitioner will formulate a differential diagnosis—a set of possible causes for the symptoms and signs. In the above example, thyrotoxicosis (from non-malignant causes) is the prime on the differential, but also thyroid cancer, pituitary adenoma, pituitary carcinoma, ectopic autonomous thyroid tissue, as well as anxiety, will also figure on the differential.

Third, investigation will be undertaken to confirm or deny the differential. In the above, measurement of thyroid chemistry on blood test is warranted, along with measurement of pituitary chemistry and measurement of thyroid and pituitary antibody levels. Ultrasound scan of the thyroid and possibly CT or MRI scan of the thyroid and the pituitary would be warranted. Each

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242 Id. at 42.
243 Id. at 43.
244 In this text the masculine is often used. In no way is this used to deny the feminine. It is simply used for convenient expression and should not be interpreted as containing any other overtone.
245 Id. at 42.
246 Id. at 44.
247 Id. at 54.
of these gives specific results, narrowing the range of possible differential diagnoses. Biopsy, that is the removal of a small portion of tissue for microscopic examination, may also be useful. A working diagnosis is obtained when the diagnosis is narrowed to a minimal set of possibilities and the most likely is chosen. The terms “minimal set” and “most likely” are used deliberately, emphasizing that the end of a diagnostic process at best produces a likelihood and not a certainty, however good it is hoped that likelihood will be. Perhaps the law is slow to understand this essential inexactness of the medical process.

It is truly said that our ability to determine the basic cause of a disease is fundamentally limited by the advancement and precision of our investigative modalities, as well as the advances in research that allow our understanding of the fundamental path of an illness, and therefore our understanding of what ought to be investigated. This is of fundamental importance, and this article will allude to it later. A ready example is given by considering our understanding of schizophrenia. At one stage it was simply regarded as a “purely” mental illness where sensory perception was disordered and bizarre, and therefore some form of “major” tranquillizer was needed. Some thought was given to this as a “learned” response in the past. Now we have much finer instruments at our disposal, and matters such as sensitivity to brain chemicals like dopamine in certain brain functional regions, neuronal disorganization, among many other factors, are readily recognized. This takes such an illness out of the realm of a purely “odd behavior” syndrome to a syndrome with definite chemical (and physical) basis. Similar views of depression, anxiety, post traumatic stress disorder, and so on, are becoming increasingly more exact as these processes become better understood.

Investigation will allow much more precise ascription of the disease process involved and the pathological basis of the illness. Pathology is the study of the disease itself, and it allows the underlying mechanism to be ascribed and specific appropriate treatment to be tailored. For example, in the above case of thyrotoxicosis, is it due to the disorder one of hormone excess or malfunction, or is it due to an antibody process, or a malignant process such as a cancer, or is it perhaps due to an infective process like tuberculosis (TB)? Investigation, together with symptoms and signs, allows the identification of the appropriate pathology, and from this prediction of the likely course of the illness can be made as well as the best based treatment.
Putting all these together allows the reaching of a diagnosis, that is, a definition of the disease and a prediction of its likely course together with a firm basis for intervention in this course. It thus allows the recommendation of treatment strategies based on good science. It must still be firmly understood, nonetheless, that diagnosis still ascribes a cause within a degree of probability. The confidence may be very high, but it still remains a probability.

On these bases treatment is offered, whether it is by medical intervention (often pharmacological (functional) treatment) or by surgical intervention (structural alteration). Psychiatric treatment (in many different forms) may also be offered for some aspects—for example, the anxiety of thyrotoxicosis.

Importantly, treatment ultimately must also be seen as part of the diagnostic process, for the diagnosis may well be modified as the response to treatment is observed. Many medical practitioners who find themselves “in court” become annoyed by what is seen as the failure of the legal process to appreciate this fact, instead regarding diagnosis as firm and decided and the process rigorous and deterministic, where an elected treatment that is later modified is the “wrong treatment.”

B. The Notion of “Mental” Illness

Psychiatry as a medical discipline is a young one. If one asked the man in the street who fathered the discipline, the answer would almost certainly be “Freud.” If the man in the street knew, he would state that Freud lived at the turn of the 19–20th centuries.

In fact, it was a mentor of Freud, Josef Breuer, who first used “the Talking Treatment” and influenced Freud as to its value. The early history of the discipline is the subject of a fascinating novel where Breuer enters into a fictional psychoanalysis with the famous philosopher Friedreich Nietzsche. The cover tantalizingly states:

So begins an intriguing battle of wills and intellect as Breuer sets out to unlock the mysteries of a tormented mind. As the story unfolds, we see a relationship begotten in duplicity and manipulation evolve into a friendship that becomes powerfully redemptive for both men. Yalom brings to life not only Nietzsche and

249 Id. at 49.
Breuer but also “Anna O.” and a young medical intern named Sigmund Freud.\textsuperscript{250}

Indeed, Breuer at one stage even abandoned the treatment—such was his disillusion with it and his uncertainty about it.\textsuperscript{251} Nonetheless, the influence of Freud on psychiatry, while strong, is now regarded as dated—even in his and Breuer’s foundation school of psychoanalysis.\textsuperscript{252} Newer schools have developed, importantly embracing the behaviorists and the biological theorists, though true analytical psychiatry still has its place.

In the example of thyrotoxicosis given above one is dealing with relatively physical illness and there is little difficulty in identifying a target organ as being the site of the pathology. Psychiatry deals with no less real, though infinitely more complex, targets. It deals particularly with disorders of the “mind,” that is it deals with mental disorders. Human beings are complex. The wholeness of the individual can be appreciated from several viewpoints, including the physical, mental, social, and spiritual. Deficiency in one will detrimentally affect the function of the whole being. Psychiatry examines the interaction of the mind with other parts of the human being—and conversely other parts of the being interacting with the mind.

The process of diagnosis, however, is somewhat similar—history, examination, investigation, psychopathology and physical pathology, diagnosis, and treatment. It is simply that the “substrate” for elucidation is different but the flipside of the same coin. Certain background considerations may make this clearer.

The question of what exactly constitutes “the mind” has been tacitly ignored. The answer to this question may be theological, philosophical, and social, as well as physiological or biochemical, emphasizing that one entity can be viewed in many different, though still valid, ways. It constitutes one of the great philosophical debates of psychiatry\textsuperscript{253}—that of the mind-brain duality—though many now regard it is an equivalent argument to numbers of angels dancing on pin-heads.

An analogy might be considered by examining a book. At one level, the book is made of paper. On the paper are words.

\textsuperscript{250} Id. (on cover).
\textsuperscript{251} See generally id.
\textsuperscript{253} See \textit{TEXTBOOK OF BIOLOGICAL PSYCHIATRY} 1 (Jaak Panksepp ed., Wiley & Sons, Inc. 2004).
The words constitute sentences. And yet coupled somehow with this book is a story. The story has a life and being all of its own. Is the story contained in the book? Are the book—its paper, words, and sentences—and the story one and the same? They are obviously connected, but how? What is the life context of each?

Similarly, we know that the mind is somehow connected with the brain. Certainly some pathologies of the brain present with “mental” symptoms. In addition, some drug treatments given for “mental” symptoms have demonstrable and measurable actions within the physical locus of the brain. And yet the duality is not one to one. The mind in many ways has a life of its own—just as the story has its own being beyond the words of the book. The biological school of psychiatry would have it that much mental symptomatology, and therefore mental illness, results from disordered and measurable brain function—in consequence, our ability to recognize this is only limited by our measurement ability. While the process of learning may be important in shaping our mental processes, the very basis of learning must have physical consequences in the brain. What constitutes learning and therefore memory is a hugely fertile area of psychological research and at present is only glimpsed rather than known. Thence the effect of learned experience on subsequent function, especially in the context of traumatic experience, takes on a new and physical meaning.

At present we leave aside these more philosophical questions as well as others, such as: What is a mental illness? What is normality? Is it defined by a society? Is it defined by an individual? By a doctor? What of that which is “normal” in one culture but not another? In any case, these questions do not affect the principle that external events have substantial influences on mental function, and it is only a tiny step to say this applies as much to normal function as it does to injured function (this latter being expanded later).

Psychiatry is classically thought to involve three major subdivisions—psychotic illness, neurotic illness, and personality disorders.

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254 See id.

255 See generally Diagnostic and Statistical Manual of Mental Disorders (Am. Psychiatric Ass’n 4th ed. 2000) [hereinafter DSM].
Psychotic illness is said to exist where an individual loses contact with, and the ability to test, reality. Thought processes are disordered and lead to behaviors that are to some degree “bizarre” and arise out of the aberrant thought structure and aberrant perception of reality. An example is the group of illnesses constituting the schizophrenias, where thought processes are disturbed by hallucinatory and delusional states distorting a perception of reality, with disordered reasoning and processing and belief systems based on faulty perceptions, leading to abnormal behavior.

Neurotic illness is said to exist where thought processes and thought content are abnormal, but in such a way that maintains contact with reality, however it may be misinterpreted rather than wrongly conceived. There are many types of neurotic illness. Examples include anxiety disorders and depressive disorders, of which depression is part of the subgroup of “mood” disorders. The implication that there is a distinct demarcation between neurotic and psychotic illness is sufficient for our purposes here, but not always as clear as one would wish.

Personality disorders are regarded as notoriously difficult to treat and address the somewhat fundamental personality structure of the individual. The psychopathic personality may be regarded as an example, where the individual is constitutionally unable to feel remorse for the consequences of his actions. Not surprisingly, dangerous criminal and recidivist behavior may result.

The subdivision of mental illness into “organic” vs. “functional” illnesses is now somewhat historical and was used before finer techniques of investigation were available. Historically, on one hand, mental symptoms were known to occur when there were distinct diseases of the nerve structures within the brain, for example, brain tumors. Interestingly, the symptoms that were elicited helped to determine the function of various parts of the brain, though now we know this is simplistic, as “localiza-

256 See id. at 197.
257 See id.
259 See DSM, supra note 255, at 345, 429.
260 See id. at 685.
261 See id. at 701–02.
tion of function” is not as possible as one might have hoped. For example, destruction of a frontal lobe led to disinhibition and loss of foresight (as the case of Phineas Gage illustrated) with personality change. Destruction of an occipital lobe led to sight abnormalities of particular sorts, and so on. Such symptoms were said to result from “organic” brain disturbances. Further examples include the toxic neuropathies, where ingested chemicals, either accidentally or purposely ingested for the effect, gave rise to chemical effects of a very physical kind. Ongoing consequences of chronic ingestion were also identified, such as the alcoholic syndromes of Wernicke or Korakoff’s syndromes. These mental abnormalities are engendered by demonstrably physical processes. In the limited thinking of past days, illness that could not be associated with particular physical processes was regarded as “functional.” In that category depression in its various forms was included, as was schizophrenia, and the like.

In reality, this meant that investigative modalities were neither fine enough nor sensitive enough. Now the distinction between functional and organic illness is very blurred, if non-existent. Further, subsequent knowledge has indicated past treatments for functional illness have very distinct chemical action on cerebral nervous tissue, for example the increase in monoamines seen by giving anti-depressants. Further pathological advances have indicated that interfering with brain chemistry, for example reducing monoamine levels, leads to predictable emergence of psychiatric symptoms, such as depression.

Thus, it is asserted that the association of psychiatric symptomatology and physical causation are only limited by our investigative ability, and that the distinction between psychiatric illness and physical illness is very blurred, if not quite unrealistic. It is the astute practitioner who takes all these elements into account in assessing and treating an illness or injury. Indeed, it

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262 Localization of function is the association of particular functions of the brain, like memory and volition and the like, with certain specific anatomical areas of the brain. See generally, C.G. Phillips et al., Localization of Function in the Cerebral Cortex: Past, Present and Future, 107 Brain 328 (1984).

263 Joel Davis, Mapping the Mind: The Secrets of the Human Brain and How It Works 228–30 (Birch Lane Press 1997).


has been noted that of all symptoms, psychiatric symptoms are often the most disabling and distressing.\textsuperscript{266}

1. **Illness Versus Injury**

   In examining pathologies afflicting various parts of the body, not excluding the mind, every medical student has a small litany that must be recited, and this is the categories of causation of pathologies giving rise to diseases.\textsuperscript{267} These include recognized illness categories, such as “immune,” “ischaemic,” “hypoxic,” “neoplastic,” and so on. The full categorization can be thought of as an aid to categorizing mediators of illness in the body. One category is that of “trauma,” recognizing that the action of external agents can cause injury to any part of the body, not excluding the mind. Rather than causing “illness,” such agencies can be thought of as causing “injury,” though indeed this is simply another category of cause of body disorder.

   The argument being proposed thus is that it is not possible to separate physical and psychiatric illness. This leads to the view that in the handling of cases of psychiatric injury, specifically in this context of aviation injury, separation of psychiatric consequences of injury from physical consequences of injury is an artificial distinction of no merit.

C. **Physical Changes in Mental Disorders**

1. **Two Major Areas—Chemical Changes and Changes in Neuronal Connections**

   It is well to expand the principles above by providing examples of recent research illustrating the organic parallels between the physical and the mental that have also blurred the distinction between the two. In so doing, two areas (at least) of physical dysfunction in the nervous system are identified. Later discussion will indicate that these are prime loci for physical change underlying psychiatric symptomatology. The two major areas are those of the physical function of individual nerve cells and the connections that they make with each other; that is the influences one has on the next in a fashion analogous to an electric circuit.

\textsuperscript{266} See Mary A. Cooper, M.D., Univ. of Ill. at Chicago, Address at NWA Annual Meeting: Disability, Not Death, Is the Main Issue with Lightning Injury (Oct. 1998).

\textsuperscript{267} E.g., CLINICAL METHOD, supra note 241, at 26.
A brief appreciation of nervous system function is useful in defining terminology to be used, as well as appreciating the underlying organicity of all neural functions. It is acknowledged in passing that the biological school of psychiatric thought sees mental function as arising from cellular neural functions, hence, the school accepts the view that mental function can be traced to cellular function, either normal or abnormal.

**Neuronal Considerations.** All tissues, not least brain tissues, are composed of individual cells. The fundamental cell of neural activity is the neuron(e). Such a cell has the usual body containing a nucleus as well as many different subcellular bodies, which subsume the various metabolic and reproductive actions of the cell. A major difference is that the neuron has a long projection, termed an axon, along which electrical impulses may pass. Once an electrical impulse passes along an axon, the impulse reaches the terminus of the axon, perhaps several tens of centimeters from the cell body. At the end of the axon, in response to the impulse, the terminal of the axon releases a chemical. The terminal of the axon is placed in close proximity to a further neuron body. The released chemical, termed a neurotransmitter, crosses a very small cleft, termed the synaptic cleft, to act on the subsequent cell membrane. The action on the subsequent cell membrane initiates an electrical impulse in that cell. Cellular transmission and communication thus occurs via the action of neurotransmitters.

The neurotransmitter is released into the synaptic cleft from the presynaptic membrane to have action on the postsynaptic membrane. Action of the neurotransmitter is terminated by its breakdown by one of several chemical mechanisms—perhaps by direct chemical action in the cleft, perhaps by uptake back into the presynaptic cell terminal. Matters become far more complicated when it is realized that the neurotransmitter can act not only on the postsynaptic membrane, but perhaps also on the presynaptic membrane, modifying the behavior of the transmission. Further, some actions on the postsynaptic membrane may simply modify its behavior rather than initiate the onward electrical impulse. The action of a neurotransmitter on a cell membrane takes place at a receptor, which may be considered as a

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268 See John G. Nicholls et al., From Neuron to Brain (Sinauer Assocs. 3d ed. 1992) (providing a complex exposition of the principles of neuronal activity).
269 Id. at 19–21.
specific lock that is undone by the particular neurotransmitter to perform a specific function.

The whole communication unit is termed a synapse, and the process of transmission between one cell and the next is the process of one cell synapsing with the next.\footnote{Id. at 2.} Multiple axons may synapse with any one cell body and synapses may either promote or retard subsequent transmission. Thus the neuronal cell becomes an integrative station for most complex transmission.

Groups of cells may be aggregated into ganglia (s. ganglion), which are somewhat ill defined; however, they can be considered aggregations of cells of similar and/or integrative function.\footnote{Id. at 21.} Various regions of the brain have been found to contain neurons of similar function,\footnote{Knowledge of these regions of localization comes, in part, from study of pathological processes and/or injuries affecting local parts of the brain. Similarly, the action of medications affecting specific neurons gives inferential clues as to the functions of certain brain regions. Localization, however, is imperfect and not amenable to simple local identification, with some functions being spread widely in the brain. \textit{See id. at 2.}} though the holy grail of localizing certain functions to specific cerebral areas now would seem an impossibility.

Connections and Circuit Consideration.\footnote{Id. at 9.} A second and extremely complex aspect of neural function revolves around the connections into complex circuitous paths of neural synaptic communications. Thus, complex actions can be achieved by multiple synaptic activations. For example, a muscle movement may be initiated from a particular group of neural cells, with impulses being passed to the required muscles. This “motor cortex” is located in an area of the brain behind the frontal lobes. But in the process of neural excitation, before the impulse reaches the desired muscle, multiple other processes are integrated—for example, the initiation of the movement, the control of firing of the pathway so that the movement is smooth and not jerky, the original position of the muscles versus the final desired position, and so on. A seemingly simple action (culminating in an observed result like the movement of a muscle) results from many highly complex integrated actions. Various areas of the brain contain neuronal focuses for various parts of these actions to a greater or lesser degree. The motor cortex when stimulated can cause a movement to occur. The basal
ganglia (a complex group of structures internal to the brain) control the initiation and coordination of the action. The cerebellum (a low posterior structure) controls the jerkiness/smoothness of the action. And so on.

At this stage, however, one question has been bypassed—what initiates this process in the motor cortex? Equally, functions other than pure motor function may be recognized by analogy. These include vision and hearing, where some elements of the brain respond to very specific impulsive stimuli resulting from pinpoints of light stimulating the eyes and/or ears. Some areas respond to these primal stimuli, other areas integrate these and "associate" them into the more complex entities of scenes or pictures. The examination of these functions has been the subject of immense research, but apart from acknowledging its existence, the detail is beyond the present scope.

In the present context, even more complex and ill-understood processes subsume the "mental" functions of memory, thought, sensory appreciation, emotion, moods, learning, and so on. Yet, to return to the previous observation, a set of impulses generated from neural elements connected in neural circuits have multiple consequences of an emotional kind—the evoking of emotions, the raising of memories, the setting of mood. This, then, begins to answer the question of how to initiate a movement—by desire, perhaps—by impingement of impulses of emotional origin on the motor cortex.

Some actions within the individual take place unconsciously. Examples include the control of heart rate, sweating, blood pressure, and so on. Yet these are ultimately mediated by integrated neuronal action within pathways generating the unconscious control signals. The generation of such unconscious responses in consequence of mental processes (heart rate, sweating, tremor, and so on, for example) reinforces the idea that underlying emotional responses can control what might include physically consequent manifestations. It may very well be that the circuitry required has been laid down by a learning process (Joel Davis suggests innate hardwired circuitry at birth allows us to perform genetically advantageous tasks such as suckling, grasping, etc., and subsequent learning has been shown to increase neural connections by orders of magnitude). Actions and emotions result from learned processes, via laid-down circuitry. It is highly likely, therefore, that learn-

274 Davis, supra note 263, at 28–29.
ing can be stimulated by a traumatic event, and that this traumatic learning can shape future responses.275

Further, in their simplest forms, the consequences of mental processes can only deliver any response by the very physical activation of neuronal activation. Thus, no physically observable activity takes place without very physical neuronal synaptic activity, which may be just as much triggered by mental (e.g., a thought, or a mood) as well as physical processes (like the perception of pain). In this way, any body behavior is "physical" by definition.

*Psychopathology.* It is readily appreciated that there are several processes that can lead to "abnormal" function of the nervous system, including abnormalities in mental function. It has already been asserted that no function, mental or physical, conscious or unconscious, can take place without physical synaptic action. Indeed, in one sense there is no actual "abnormality" as such, merely consequential neurological function, mental or physical, that our society has chosen to label "abnormal."

In a pathway, several potential sites for abnormal function can be identified. The neurotransmitter may be faulty, either in structure or quantity. The means of receptor action may be imperfect. The electrical impulse may be imperfectly transmitted. In the wider context, neuronal connections may be improperly constructed, leading to improper integration of function. Mental disorders corresponding to all of these possibilities have been identified.

While the former neuronal level function abnormalities are thought to underpin many abnormalities like depression, bipolar disorder, anxiety, schizophrenia, and the like, the latter is also particularly important in our context. The growth and establishment of neural connections may be considered to be a result of the normal learning process as above, and this is part of normal cerebral growth and development, even schooling.276 But traumatic experiences may well induce learned neural connections. The place of traumatic experiences in the modification of neural connections leading to abnormal learned emotional responses—for example PTSD—is widely accepted.277 This is simply now a physical process underlying what was once seen as functional illness. Even then, it is well established that environmental events can also influence neurotransmitter

275 *See* Textbook of Biological Psychiatry, supra note 253, at 321.
276 Davis, supra note 263, at 33.
277 Textbook of Biological Psychiatry, supra note 253, at 325.
levels, and in turn this underlies some mental disorders, such as depression.\textsuperscript{278} It is further noted that the ability to research such processes is dependent on the ability to examine neural tissue in sufficiently fine detail.

Breuer, Freud, and colleagues may well have regarded psychological treatments as addressing only one group of maladies, those of the \textit{mind}, and regarded their endeavors as establishing a unique and new branch of medicine. But, this is now seen as far from the truth. There can never be a division between psyche and soma, between physical and mental, for there is no portion of either that is not informed by the other.

Several examples of hitherto functional illness assist in illustrating this physicality.\textsuperscript{279} These illnesses/injuries are those likely to be seen in cases of aviation induced mental injury. While this discussion cannot be exhaustive, the interested reader is referred to more comprehensive references (e.g., Jank Panksepp).\textsuperscript{280} While several illnesses are mentioned, in the context of this article, PTSD is salutary and coincidentally an illness where much current work is progressing. This relevant work may be taken as a model below.

An important note here is that environmental factors can also produce mental illness, and experiences can alter brain structure and function.\textsuperscript{281} In the present context this is an important note as it leads us directly to the point that external injuring forces can alter brain structure and function (and not only brain), giving rise to mental symptoms and illness. The reduction in mono-amines as above due to external stress is known, the production of post traumatic stress is known, panic attacks are known, the increase in cortico-tropin-releasing factor (CRF) is known, and the connection of CRF with depression has been proposed.\textsuperscript{282} In the context of this article, these observations are important and highly relevant.

\textsuperscript{278} Id. at 324.
\textsuperscript{279} See generally id.
\textsuperscript{280} See generally id.
\textsuperscript{281} See id. at 201.
It is well known that as well as the mood disorder and other associated dysfunction that can exist in the depressive spectrum of diseases, other highly relevant associated syndromes can exist, for example, phobias, panic, and post traumatic-like syndromes. Recent research in PTSD links the biochemical findings in each of these disorders and provides a prototypical example for this article of organically based illness which has only recently been observed and recognized.

The link with environmental stressors is profound. When subject to severe stressors, individuals release a steroid hormone, cortisol. This is released under the control of the hypothalamus, a specific region of the brain. This stimulates the pituitary gland, a specific endocrine gland, and this in turn causes release of cortisol from the adrenal gland. The hypothalamic-pituitary-adrenal axis is clearly implicated in stress response, and the psychological consequences are becoming measurable and observable.

Rachel Yehuda provides an insight into hormonal alterations in PTSD. Yehuda notes a very complex literature with regards to cortisol levels in PTSD. The general view is that cortisol levels are lowered in PTSD, and she points out that they are statistically significantly lowered compared to comparison populations even though they may often appear in the normal range. Low cortisol levels in PTSD patients are seen despite the fact that the controlling hormone CRF is raised. This raises the possibility of another theory regarding neural responsiveness to CRF in PTSD, and that is alterations in the responsiveness of cortisol sensors in the disorder. A typical test for the integrity of the HPA pathway is the dexamethasone suppression test. Administration of dexamethasone, being a potent cortisol analogue, suppresses ACTH and CRF production in the normally functioning system. Yehuda states the fact that the dexamethasone suppression test in PTSD is in fact abnormal. It demonstrates increased cortisol suppression after dexamethasone administra-

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283 DSM, supra note 255, at 429.
285 See id. at 139.
286 Id.
287 See id.
tion. Her focus therefore is on disorders in the control system for cortisol secretion mediated via the CRF receptor. 288

The technicalities of the argument are not of immediate interest, but simply demonstrate that strong inroads are being made into the physical basis for highly relevant consequences of stressful events.

Cortisol is also under investigation in related disorders, including "pure depression" where, as well as a monoamine theory of depression exists, the role of cortisol is postulated. 289 Thus, cortisol is connected to two disorders closely allied to psychological manifestations of aviation injury. PTSD alone is argued in many cases, but the related disorders, anxiety, panic, and depression, are also strongly prevalent, and are unified in the theory involving the hypothalamic-pituitary-adrenal (HPA) axis.

We turn to other theories of these diseases, illustrating that the finding of physicality is certainly not of recent origin and has a time-honored place in medical science.

1. Depression and Mood Disorder

Despite common misconception, "depression" is an illness that has many more features than just "feeling blue." 290 It also includes features such as abnormal sleep pattern, changes in appetite and body weight, motor and mental speed, fatigue and energy loss, loss of concentration, apathy, feelings of worthlessness and guilt, and recurrent thoughts of death, with or without suicide attempts. 291 Studies identify many fundamental chemical imbalances within this syndrome, made more complex by the recognition of not just one form, but many forms, of depression. 292 This may indicate multiple potential causative problems, and the search for only one causative lesion is elusive.

Genetic associations with abnormalities in the transport proteins for serotonin seem promising. 293 Such a genetic influence points fundamentally to an inheritable biochemical deficiency.

Dysregulation of various chemical pathways involving specific neuropeptides and neurochemicals is also strongly implicated, and pathways connecting various key parts of the brain are also

288 See id. at 154–55.
289 See id. at 147.
290 DSM, supra note 255, at 352.
291 Id. at 349.
292 Id. at 353.
293 Id.
implicated. This specifically includes the limbic system, hippocampus, hypothalamus, and frontal cortices, which are all areas of quite significant activity in response to emotional stimuli operating at a level not in immediate consciousness.

Various causes of dysregulation are proposed—HPA function via CRF, allied with abnormalities in dexamethasone suppression testing. Panksepp interestingly cites Christine Heim et al., as finding "reports of alterations in cortisol regulation in women with a history of early life trauma or abuse further suggest that HPA axis dysregulation may be an important marker of vulnerability to various types of affective disorders in later life . . . "

Other reports indicate that regionally specific localized brain deficiencies can underpin prominence of various of the cognitive deficits and later associations with other brain disorders such as Parkinson’s Disease and the dementias. Deficiencies in serotonin and noradrenaline have long been considered to underlie various depressions, and this observation is linked with the therapeutic effect of medication for depression on increasing these neurotransmitter levels in the synapse. The studies are well supported by post mortem assays of the chemicals, as well as measurements of the activity of the serotonin receptor binding capabilities which are altered in depression.

The findings above point to substantial chemical abnormalities in depression. Structural abnormalities are also supported by a long list of associations between known destructive lesions (ranging from tumors, dementias, metabolic diseases, and so on) with depressions. A detailed discussion of the biological underpinning of depression is somewhat beyond the present scope, but the observations made thus far should leave the reader in no doubt that multiple changes in brain chemistry and connection are strongly linked to depression.

294 Id.
295 See Nemeroff, supra note 282, at 336.
297 Textbook of Biological Psychiatry, supra note 253, at 204.
298 Id. at 471-72.
299 Id. at 206-07.
300 Id. at 207.
2. Schizophrenia

The schizophrenias are a complex group of illnesses and are characterized by varying combinations of hallucinations, delusions, disorganization of motor functions like speech, thought processes, and logic, with loss of affect and volition. There must be associated occupational and social dysfunction, together with an absence of other diagnoses (such as drug abuse) to account for the disorder. There is some genetic heritability of the disorder, though not simple, and various cerebral anatomical alterations have been demonstrated. These point to an underlying physical basis to the disease. At the microscopic level, alterations of synaptic connectivity are demonstrated, especially in the neocortex and hippocampus. Disorder in the normal layering of neuronal cells has also been described. Changes in regional cerebral activity have been demonstrated on imaging.

The anatomical disturbances that have been demonstrated provide an example of derangement of overall brain function, and in line with the second mechanism postulated, chemical abnormalities also exist, especially with regard to dopamine function, along with other neurotransmitters. Nonetheless, where the chemistry was considered in the past to be the main abnormality in schizophrenia, the parts played by the two aspects, chemical and connectivity, are now closely intertwined.

3. Post Traumatic Stress Disorder (PTSD)

Of all psychiatric injuries most likely to present themselves following an accident, PTSD must figure as one of the most likely and its use as a prototype has been set out above. As Panksepp puts it, "[t]he human response to psychological trauma is one of the most important public health problems in the world." Further,

The biology of routine stress responses and the biology of trauma are fundamentally different: Stress causes a cascade of biological and physiological changes that return to normal after the stress is gone . . . . In contrast, in PTSD, the biological alterations persist well after the stressor itself has disappeared. The fundamental problem in PTSD is a "fixation of the trauma." Thus, the critical issue in understanding PTSD is: What keeps the organism from

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501 DSM, supra note 255, at 299.
502 Id. at 298.
503 TEXTBOOK OF BIOLOGICAL PSYCHIATRY, supra note 253, at 319.
maintaining its homeostasis and returning to its nontraumatic state, and what causes these regulatory processes to break down?\textsuperscript{304}

Further, the process involves "alterations in a variety of 'filtering' systems in the central nervous system (CNS) that help distinguish relevant from irrelevant stimuli. As a result, traumatized individuals have difficulty engaging fully in current exigencies and distinguishing between what is threatening and what is safe."\textsuperscript{305}

The elements of PTSD are summarized as repeated reliving of memories from the traumatic experience, emotional numbing and avoidance behaviors, and patterns of hyperarousal.

Panksepp quotes McLean, who defined the brain as a mechanism for "detecting, amplifying, and analyzing" in order to maintain an "internal and external environment."\textsuperscript{306} This ranges from fundamental unconscious activities like the control of oxygen intake and temperature maintenance, through to the categorization of incoming information against which to make long term complex decisions regarding the self and society.\textsuperscript{307}

He proposed three levels of brain development which are represented in the evolutionary structures seen in the human brain: "(1) the brainstem and hypothalamus, which are primarily associated with the regulation of internal homeostasis; (2) the limbic system, which maintains the balance between the internal world and external reality; and (3) the neocortex, which is responsible for analyzing and interacting with the external world."\textsuperscript{308} The first contains the most stable circuitry, the third contains circuitry modifiable by experience, and the second is transitional between the two.\textsuperscript{309} Thus, it might be thought that trauma might most profoundly affect the neocortex.\textsuperscript{310} While this seems true for the stress response, trauma (defined as stress which overwhelms the organism) seems to affect the lower core functions.\textsuperscript{311} Panksepp goes on to say that "[f]ailure to comprehend the traumatizing experience . . . plays a critical role in mak-

\textsuperscript{304} Id. at 321 (internal citations omitted).
\textsuperscript{305} Id.
\textsuperscript{306} Id. at 324.
\textsuperscript{307} Id.
\textsuperscript{308} Id.
\textsuperscript{309} Id.
\textsuperscript{310} Id.
\textsuperscript{311} Id.
ing a stressful experience traumatic.\textsuperscript{312} This type of inability lays the foundation for a distorted picture of danger and its interpretation that underlies PTSD.

It goes without saying that in itself a traumatic experience in an aviation context must rank as one well outside a normal experience, and therefore it has an incomprehensible quality to start with.

Biological underpinning has been sought for this inability.\textsuperscript{313} Several factors are noted: (1) medication that increases arousal also increases the relived trauma response, and the opposite with modalities that decrease arousal; (2) an abnormal startle response is thought to be grounded in permanent neuronal changes that have negative effects on learning, habituation, and stimulus discrimination; (3) loss of regulation of the arousal mechanisms is at the brainstem level; and (4) over-reactivity of stress hormone responses, such that less and less stimulus is required to produce the same hormone response.\textsuperscript{314} The topic is far reaching, and a brief discussion like this only begins to outline the many factors in these disorders; however, it underlines their strong physicality.

A highly relevant contention in this context is that external processes exert a substantial effect on psychological function. The adaptation of an organism to repeated stressful stimuli is noteworthy. In the context of PTSD, for example, lesser and lesser stimulus is needed to invoke the same trauma response in the reliving. In depression, an environmental trigger is often noted in initial attacks, but less and less in subsequent attacks. The chemical adaptation of the organism is easily seen to underlie both.

A further noteworthy feature of environmental influences on psychological function is that somatic therapies (physically altering therapies) can be most successful in treating some disorders. These range from the commonly used and very effective electroconvulsive therapy (ECT) and its new cousin, magnetic seizure therapy, and in increasing order of invasiveness, transcranial magnetic stimulation, vagal nerve stimulation, deep brain stimulation, and psychosurgery.\textsuperscript{315}

\begin{thebibliography}{10}
\bibitem{note} Id. at 325.
\bibitem{note} Id.
\bibitem{note} See id. at 326–28.
\bibitem{note} Id. at 522.
\end{thebibliography}
Finally, it is appropriate to draw attention to future prospects in neurobiological psychiatry. The use of gene therapy and neuropeptide medications, together with fundamental research on delineating various subgroups of mental illnesses proportional to specific neurotransmitter abnormalities in one family of cousins, all offer possibilities for the future. These are fundamentally predicated on their being physical and biological underpinnings to psychiatric disorders.

The first endpoint of this argument is that there ought to be no major distinction between physical and mental illness. Second, there can be no physical or psychiatric manifestation that is not mediated by neural activity. And third, environmental events, such as traumatic incidents, can have consequences physically giving rise to mental disorders. These may be most simply considered as events altering neuronal connections, and thereby influencing learning, so that abnormalities arising from environmental stressors can be regarded as learned responses. On the other hand, complex chemical and hormonal consequences subsume changes at the cellular level. Overall, the point being made is that while it is fundamentally wrong to separate physical and mental illness, even if we were to accept for the sake of argument that a physical basis for psychological function and malfunction is necessary for legal success, there is marked, ongoing evidence that such physical mechanisms do exist and are the norm.

E. Justification for a Wider Interpretive Approach

It is clear that a case exists for reconsidering aviation accidents giving rise to mental injury so as to allow their compensability once substantiated, and this is purely on medical grounds. On the one hand, it is artificial to consider physical and mental illness as being fundamentally different. On the other, if one must pursue the notion that physical causation for psychiatric illness must be found, then there is no mental function that is not mediated by some form of neuronal activity, normal or abnormal.

Various other reasons have been given in justifying a wider recognition in this area apart from this medically argued view.

516 See id. at 177–86, 628–32.
Among these, Vernon Nase has provided the following categorization.\[317\]

1. **Clarification and Unification of the Law, and Bringing the Law into Line with Parallel Law in Other Fields**

At present, the outcome of a claim for pure mental injury in fields other than aviation is precariously based on which jurisdiction is hearing the claim. Unification and clarification is a matter of simple predictive justice. In this context, the authors consider Australian law, this being the jurisdiction in which the authors reside, noting parallels in other jurisdictions.

Tort law compensation is the focus for this examination as a related comparative area. A jurisprudence has grown up around the topic of recovery for psychiatric illness in tort law. This jurisprudence has developed from the denial of compensation, through the use of the term “nervous shock” to the identification of recognizable psychiatric illness.\[318\] This latter term will be addressed later, however, the following indicates some of the basic principles of the development.

In *Campbelltown City Council v. Mackay*, Justice Kirby, stated:

> Since the tort of nervous shock was fashioned, there have been substantial advances in the understanding of human psychology. It is highly artificial to imprison the legal cause of action for psychiatric injury in an outmoded scientific view about the nature of its origins. The causes of action at common law should . . . be released from subservience to nineteenth century science.\[319\]

The parallels with comments, supra, regarding the imprisonment of aviation law in 1929 science is noted in passing.\[320\]

Harold Luntz and David Hambly do acknowledge the difficulty in distinguishing a normal grief reaction, which might be considered to include a normal stress reaction, from that which is prolonged and shades into a mental illness.\[321\] This might be considered.\[322\] However, the U.K. Law Commission stated that “[p]sychiatry does recognise a distinction between mere mental

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320 See supra Part I.
322 See the discussion of PTSD, supra Part III.D.3.
distress and psychiatric illness, although the distinction between the two is a matter of degree rather than kind and, as medical knowledge advances, changes over time.\textsuperscript{323}

The Commission’s report is instructive in many areas and repays reading. The commissioners considered that reasonable foreseeability of psychiatric injury should be the major criterion of liability, not proximity of the patient.\textsuperscript{324} In the context they considered, the commissioners felt that shock as a requirement for the induction of the illness should be abandoned.\textsuperscript{325} Nonetheless, in the context of an aviation injury, some form of trauma should be easily demonstrable in any case.

In \textit{Jaensch v. Coffey}, Justice Deane not only accepted the concept of psychiatric illness following trauma, but extended its scope to include secondary persons close to the index case.\textsuperscript{326} The U.K. report similarly comes to this view with provisos.\textsuperscript{327} \textit{Gifford v. Strang Patrick Stevedoring Ltd.}, conurs with this view also in contemplating psychiatric injury to a child of an employee, compensable against the negligence of the employer, given evidence establishing a suitably close relationship.\textsuperscript{328}

Peter Handford states that in the evaluation of psychiatric injury, “Australian courts have shown themselves much more prepared than their counterparts in England to recognise the existence of a duty not to cause psychiatric injury in novel situations.”\textsuperscript{329}

In the recent cases of \textit{Tame v. New South Wales} and \textit{Annetts v. Australian Cattle Stations}, the following principles were re-affirmed and are taken as the definitive Australian view on psychiatric injury:\textsuperscript{330}

1. “The common law [of Australia] does not limit liability for damages for psychiatric injury to cases where the injury is caused by a sudden shock”.\textsuperscript{331}
2. The common law of Australia does not limit liability for damages for psychiatric injury to cases “where a plaintiff has directly perceived a distressing phenomenon or its immediate aftermath”;\(^ {332} \)

3. “Damages are recoverable in negligence only for a recognisable psychiatric injury and not for emotional distress”;\(^ {333} \) and

4. It is not a precondition to recovery in any action for negligently inflicted psychiatric harm that the plaintiff be a person of “normal” emotional and psychological fortitude.\(^ {334} \)

The view in principle number three above is highlighted. Initially, when allowing the possibility of a successful claim for mental injury, courts invented the term “nervous shock” with its implied focus of one event impinging directly on one individual giving rise to a claim by that individual.\(^ {335} \) In developing this, Tame and Annetts demonstrate the expansion to the use of the term “recognisable psychiatric injury.”\(^ {336} \) This is a fundamental change and illustrates the necessity for the injury claimed to be recognized (that is, known as an entity, perhaps via DSM, though it is argued to the psychiatric profession whether a DSM classification is needed) and be diagnosable. Even after the major legislative intervention in the law of negligence, in the wake of the “insurance crisis” and the Ipp Report, domestic jurisdictions maintain the need to establish a “recognized psychiatric illness.”\(^ {337} \)

This underpins the contention of the writers for the necessity of expert psychiatric opinion in the terms outlined previously. Where a distinction is drawn between recognizable psychiatric injury and mere mental distress also mitigates against the floodgates argument. As David Ruschena notes:

By leaving open the possibility of claims by victims in a close and loving but not necessarily family relationship with a harmed primary victim, and by following the decisions in Tame and Annetts that “immediate perception” and “sudden shock” go to reasona-

\(^ {332} \) Id. at 319, 323.

\(^ {333} \) Id. at 339 (per Gaudron, Gummow, and Kirby, J.J.) (emphasis added).

\(^ {334} \) Id. at 323 (per Gleeson C.J., Gummow, and Kirby, J.J.).


\(^ {336} \) Tame, 211 C.L.R. at 329.

\(^ {337} \) See, e.g., Civil Liability Act (W.A.), 2002, § 5S(1) (Austl.) (mandating that the plaintiff must have suffered a recognized psychiatric illness for a duty of care to be owed in negligence).
ble foreseeability only, the Court appears to have indicated that the scope of litigation has the potential to be much wider than people might have otherwise assumed.  

2. Law of the Sea, Rail Conventions, and Inland Waterways Convention

Each of these methods of transportation allow claim for psychiatric injury. On this basis alone a case may be made that air passengers ought to be allowed the same recognition.

3. A Human Rights Issue

Just as one does not discriminate against those with physical injuries, to deny a claim for mental injury is a form of discrimination. It has been argued above that there is no fundamental distinction between physical and mental injury and illness, and that each influences the other.

F. The Inseparability of Physical and Mental Illness and Injury

Added to these, the foregoing sections of this article have argued a further reason for the widened view, and that is that the contemporary understanding of the nature of physical and mental illness requires that physical and mental illness be treated on an equivalent footing. Indeed, to separate the two is an artificial endeavor and is fraught with illogicality, as well as being out of step with contemporary medical understanding. Consider the following views, for example.

The Indivisibility of Mental from Physical Health. This point deserves the strongest emphasis, foremost to counteract the fundamental misconception that leads to such language as “mental health” or “physical problem.” These very notions are erroneous, incomplete, and are belied by simple clinical phenomena. One can hardly find in a primary care patient evidence of psychological distress or mental symptomatology without accompanying physical symptomatology. Conversely, physical—so-called medical—problems are always accompanied by psychological symptoms. It is impossible to render adequate primary care

339 Nase, supra note 317, at 411.
340 Id. at 412.
without attending to both. \[341\] "[P]sychiatry is, and has always been, concerned with behaviour in its widest sense, and has continually searched for knowledge of brain-behaviour relationships and the somatic underpinnings of psychopathology." \[342\]

Although the fields of psychosomatic medicine, behavioral medicine, and health psychology have slightly different perspectives, they share the view that health and illness result from the interplay of biological, psychological, and social forces. \[343\]

Using the biopsychosocial model as a guide, researchers have discovered new and important findings and ways to promote people's health and recovery from illness. \[344\] Here is a sample of discoveries:

- Using psychological methods to reduce anxiety in patients who are awaiting surgery enables them to recover more quickly and leave hospital sooner;
- People who have a high degree of social support from family and friends are healthier and live longer than people who do not;
- Stress impairs the function of the immune system; and
- Applying psychological and educational programs for cancer patients reduces their feelings of depression, improves their immune system functioning, and enables them to live longer. \[345\]

It has already been noted that psychiatric injuries can be among the most disabling that can be suffered and represent sources of extreme distress to individuals. This makes the denial of compensation merely a perpetuation of ill-based prejudice.

G. Acknowledgement of Arguments Against a Wide View

1. Existing Concerns

Legitimate concerns have been raised regarding the consequences of increasing the access to compensation for mental injury. \[346\] It is well to acknowledge these and place them in context. It must firmly be reiterated that the bringing of an action and claim for mental injury will require significant expert

\[341\] HANDBOOK OF MIND-BODY MEDICINE FOR PRIMARY CARE 84 (David Moss et al. eds., 2003) [hereinafter HANDBOOK].
\[343\] See generally id.
\[344\] HANDBOOK, supra note 341, at 86.
\[345\] See generally TRIMBLE, supra note 342.
\[346\] 49 AM. JUR. PROOF OF FACTS 2D Post-Traumatic Stress § 1 (1987).
opinion. Such expert opinion will generally be psychiatric or psychological. This requirement should not daunt the courts. Many causes of action, not least for psychiatric injury in tort law, depend on such opinions already.\textsuperscript{347} Such will undoubtedly be the case in aviation mental injury actions.

Having said this, courts know well the value of expert opinion, and the handling of expert opinions is no surprise for them. It has well been recognized that psychiatric experts have the capacity to form opinions on:

1. the nature of a psychiatric syndrome;
2. current research on the organicity of such;
3. the relation to a precipitating event; and
4. the degree of disability posed by a given injury.\textsuperscript{348}

Windeyer's famous comment that law marches with medicine "but in the rear and limping a little" is highly relevant here.\textsuperscript{349} So, also is His Honour's comment that "[t]he ways in which the law of liability for nervous shock has been developed by courts . . . have been empirical, with results and limitations that appear as pragmatically rather than as logical applications of principle."\textsuperscript{350}

Luntz and Hambly caution that in psychiatric injury there is a dividing line that may all too easily be crossed between what might be regarded as a normal (grief) reaction into psychiatric illness.\textsuperscript{351} Justice Kirby, however, opined:

Nineteenth century notions of psychological illness and an abiding suspicion of such claims (not so susceptible to objective scrutiny and determination) lurk in the cases to forbid recovery where prolonged grief is shown, extending beyond the norm deemed acceptable to our society. The changing composition of the Australian community, and different cultural attitudes to the demonstration of profound grief, afford yet another reason for reconsidering this area of the law. To adhere to stereotypes expressed in terms of "abnormal grief" derived from England, may work an injustice upon Australian litigants for whom the norms

\textsuperscript{348} 33 AM. JUR. PROOF OF FACTS 2D Qualifications of Medical Expert Witness § 1 (1907).
\textsuperscript{350} Id. at 407.
\textsuperscript{351} LUNTZ & HAMBLEY, supra note 321, at 538.
are different and grief reaction more variable than was hitherto expressed to be the case.\footnote{Coates, 1995 NSW LEXIS, at *30.}

In this is an implicit expression that not only should the legal process be in the van of development, but also it recognizes the ability of psychiatrists in giving helpful and valuable expert opinion: "Psychiatry does recognise a distinction between mere mental distress and psychiatric illness, although the distinction between the two is a matter of degree rather than kind and, as medical knowledge advances, changes over time."\footnote{Law Comm'n, supra note 323, at 52.}

This highlights that, in addition, expert opinions will be required to provide guidance not only on whether a particular malady is of sufficient degree as to warrant compensation, but does indeed constitute mental illness.

2. Other Views

Thus, three arguments against the wider view—that there would be an opening for (1) diagnostic difficulty, (2) scope for abuse of the diagnosis, and (3) difficulty disproving such a claim—seem to diminish when one accepts the ability of expert opinion to assist as above. Even if criticism is directed at this notion, it is criticism that is no more valid than for many other areas of law, and there seems no justification for denying claims in the case of aviation accidents alone. It is suggested that expert opinion will need to address specifically:

1. the diagnosis of the plaintiff's disorder, and especially that it reaches the criteria for mental illness rather than normal reaction (and DSM\footnote{DSM, supra note 255.} assists in this regard);
2. the causal relation to the stressor;
3. the underlying pathology and current research; and
4. the degree of disability posed by the illness/injury.\footnote{See discussion supra Part III.F.}

The court will need to be satisfied that a diagnosable illness has been suffered, and that this constitutes a significant enough disability of likely longevity to merit compensation.\footnote{Weaver v. Delta Airlines, Inc., 56 F. Supp. 2d 1190, 1191-92 (D. Mont. 1999).}

The fourth criticism, that allowance of these claims will open the floodgates of litigation, is an argument that has been advanced regarding other areas of allowance of litigation without
real detrimental consequence.\textsuperscript{357} This argument too would seem to be satisfied when the court is assured of the preceding two stipulations. It is noteworthy that the U.K. Law Commission had the floodgates argument well in mind when formulating its recommendations.\textsuperscript{358} In this regard it made two observations. The first was that while strong tests to detect fabrication had been developed in psychiatric spheres, such an occurrence was in fact rare.\textsuperscript{359} The second was to seek an estimate from British insurers as to the likely increase in premiums if such claims were allowed in the negligence field.\textsuperscript{360} The response was only up to a ten percent increase.\textsuperscript{361} Such contentions seem to place the floodgates fear in a better grounded context.

H. A Systematization of Symptoms, Signs, and Diagnoses—In a New Context

1. Differentiation of Causation Based on Symptom Evidence

A synthesis of the current position regarding compensation for injuries resulting from aviation accidents has been undertaken. It is important that a systematization be undertaken given the loose terminology referred to above. In the argument above, a firm differentiation between symptoms, signs, and diagnoses has been given. It is submitted that courts have been misguided in that they have concentrated on psychiatric symptoms, rather than attempting to grapple with the greater complexity of psychiatric diagnosis and pathology.

Typical symptoms and signs of course are as many and as wide as medicine itself, but the following lists indicate a small selection which illustrates the following argument.

Typical physical symptoms of physical illness might include:
1. swelling;
2. colour change;
3. irregularity of heartbeat;
4. pain;
5. tremor;
6. weakness; and
7. abnormal sensations.

\textsuperscript{357} See Post Traumatic Stress, supra note 346.
\textsuperscript{358} LAW COMM'N, supra note 323, at 5, 55.
\textsuperscript{359} Id. at 55.
\textsuperscript{360} Id. at 7.
\textsuperscript{361} Id.
While typical psychiatric symptoms and signs include:
1. tiredness and/or asthenia;
2. hallucinations;
3. mood changes;
4. changes in concentration; and
5. changes in higher mental functions

It is important to note that none of these symptoms can be regarded as exclusively physical or exclusively psychiatric. There are physical illnesses that have psychiatric symptoms, and psychiatric illnesses that may present with physical symptoms. For example, asthenia may be seen in much physical illness—cardiac failure, chronic airways disease, hormonal, and autoimmune illnesses. Hallucinations often occur in any illness that is coupled with low oxygen levels, such as cardiac failure and respiratory disease. Mood changes are often associated with hormonal illness and also strikingly with carcinomatosis. On the other hand, pain can be very difficult to distinguish in terms of physical elements and psychogenic elements. Tremor may occur in anxiety. Arrhythmiae may be seen in depression and anxiety.

Further, it is important to note that consideration of the symptom alone is insufficient to determine the cause of a disorder, and an attempt must be made to delve to the diagnosis level in order to appreciate the full science of the disorder. If one takes a group of symptoms alone and attempts to assign a cause to them, it is clearly a task fraught with error, if not an impossible task. Thus, any attempt to examine psychiatric symptoms alone, i.e., the manifestations of a disease, leads one to error. Courts may well have fallen into this error. Reliance on examination and the elucidation of signs alone is similarly fraught. It is often not until investigations are carried out that a firmer cause can be assigned, and the examination of the underlying pathology reveals the true nature of a condition and its physicality. But even then, the diagnostic process allows only the assignment of probability rather than establishment of certainty. It has been indicated above that our ability in more subtle cases depends very much on the degree of advancement of investigative techniques.

2. A Systematization

From the point of view of aviation accidents, individuals may present psychiatric symptoms, physical symptoms, or both. The
difficulty of separating these has been argued on several grounds.

For review purposes, the following table gives various alternative presentations versus diagnoses. It is emphasized that where concentration on symptoms and signs have been the norm in the past, thinking must move beyond these to diagnoses.

**Presentation Clusters**

<table>
<thead>
<tr>
<th>Diagnosis Physical</th>
<th>Symptoms—said to be Physical</th>
<th>Symptoms—said to be Psychiatric</th>
</tr>
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<tbody>
<tr>
<td>—</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Diagnosis Psychiatric</td>
<td>—</td>
<td>C</td>
</tr>
</tbody>
</table>

This is now examined in the context of aviation accident jurisprudence.

A litigant will succeed at once, on current jurisprudence, if it can be shown that there is a physical basis for the symptoms claimed, and that this physical basis has been induced by the accident concerned.\(^{362}\) While this may be an improper mode of argument, viz. that the symptom rather than the disease has a defined basis, it is accepted that existing jurisprudence points to success. Thus, injuries manifesting with *either* physical or psychiatric symptoms traceable to a physical cause will succeed as having a definite physical basis for the underlying diagnoses. These are accounted for in areas A and B above.

Area C is enigmatic. The possibility for psychiatric disease presenting with physical symptoms is extremely common. A substantial example is provided by the group of conversion hysterias, so called, where individuals will manifest severe physical disability (such as paralysis, inability to speak, and blindness) deriving from psychiatric illness. Although not tested, one feels that a definite physical consequence is readily demonstrated, and so litigation may potentially succeed. Area C, therefore, is probably one that need not concern us further. The only area which is currently rejected, without argument, is the set of psychiatric diagnoses presenting with psychiatric symptoms, and these are represented in area D above. It is to area D that our attention is drawn.

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3. "The Area D Debate"

Area D has forced various litigants into a somewhat artificial endeavor, that is to show that the claimed symptoms have a definite physical basis. The debate over the inappropriateness of this has been given above. Concerns regarding opening floodgates by allowing area D claims to be argued, and potentially to succeed, have been a major concern of those suggesting that these injuries should remain disallowed. It has already been argued that expert opinion of causation, relation to the accident, and degree of disability engendered ought to be required. It has been argued that other areas of the law have been able to grapple with the floodgates and the concerns have been containable and appropriately contained. Floodgates have not necessarily opened and the concern has been relatively unfounded. The view of the U.K. Law Commission is presented above.

But more particularly, it has been shown that it is intrinsically untenable to separate physical and psychiatric injury, and that it is likely, when investigative modalities are fine enough, that all maladies will be shown to have some form of physical basis. Ultimately, given a biological viewpoint, some level of neuronal connection abnormality or neurotransmitter abnormality is likely to be demonstrated as the basis for psychiatric symptomatology. It is likely that environmental causes, such as that provided by an accident, will be shown to influence neuronal action and communication, and thus, causation is likely to be demonstrated. Examples of various syndromes have been given above.

I. Achieving a Just Widening of Interpretation

The process of determining a claim involves certain notional processes on the part of a court. The claim of the plaintiff is tested ultimately against the conventions governing air accident compensation. For dualist legal regimes, this involves determining a cause against the legislation that enacts the adoption of the conventions. Widening the extent of compensability in order to allow claims for proven psychiatric injury can take place at one of several levels.

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363 See discussion supra Part III.F.
365 See discussion supra Part III.E.1.
366 HANDBOOK, supra note 341, at 5–6.
At the root of the problem has been the assignment of meaning to “lésion corporelle,” and in particular the debate as to whether this includes mental injury. Conventions may be altered to make the intention clear if there is ambiguity or obscurity.\textsuperscript{367} Doing so is dependent on the will of the drafters of conventions, including the negotiations transacted at diplomatic conferences establishing them. For example, it is entirely inadequate for drafters to say that psychiatric injury should be—or is—included, and then do nothing in the face of a demonstrated claimed ambiguity causing judicial debate. Convention writers cannot maintain integrity by acknowledging one view and then remaining inactive. Given that many consider that “lésion corporelle” already includes mental injury, yet note the failure of courts to act in accord with these views, there would seem little excuse for not explicitly removing ambiguity. Such was the desire of a number of delegates at the commencement of the Montreal Diplomatic Conference in May, 1999.\textsuperscript{368} However, for whatever reason (the cynical may take one view where others may be milder) the opportunity was lost. Nase, in discussing the lost opportunity presented at Montreal, refers to compensation for mental injury as “the issue that will not go away.”\textsuperscript{369} Perhaps it is the case that this issue can only “go away” when \textit{just} compensation is allowable, departing from the narrow view so far adopted. If the international legal system, in a sense led by IATA carriers and ICAO, were to take the initiative, a new approach might quickly be settled based around unilateral waiver of defenses. The ideal for revision of the convention would, of course, involve states in agreeing to a modification of the Warsaw and Montreal Conventions. This is the ideal but, sadly, least likely method for effecting the necessary change.

However, further avenues are available. Legislators adopting a particular convention may well enhance the required definitions so that in a particular jurisdiction legislation leaves no doubt that the wider approach is “permissible.” There are, however, consequent implications for the locale for the bringing of a case.

\textsuperscript{367} Vienna Convention on the Law of Treaties, \textit{supra} note 31, art. 32 (supplementary means of interpretation).

\textsuperscript{368} Montreal Convention of 1999, \textit{supra} note 2, art. 17.

While these mechanisms are "ideal world" approaches, in the present real climate perhaps the only path available is a judicially activist route, despite the controversy attaching to that term.

Judicial determinations may be made interpreting given adopting legislation, and this is the generation process for the common law. It is indicative that adopting legislation has not adequately solved the problem when courts take recourse to the original convention to interpret phrases like "lésion corporelle." Courts have also dabbled in the veracity of the translation as "bodily injury" having recourse to the original conventions. The ultimate result has been a strictly literal interpretation. Given the passage of time since the jurisprudence became entrenched, and the advances in legal and medical thinking, it may well require forward thinking activist judges to drag the conventions, kicking and screaming, into modernity.

IV. CONCLUSIONS

This article has argued that it is long overdue for the scope of compensation for aviation accident induced injury to be widened to include pure psychiatric injury. In order to succeed in the currently accepted jurisprudential climate, a plaintiff, with what may be regarded as pure psychiatric injury, must argue for a definite physical base to the injury. This is artificial and limited by current technology, not justice.

Contemporary medical thinking is that there is no fundamental difference between psychiatric illness and physical illness processes. Both inform the other. Thus, on fundamental grounds, widening of the concept of injury necessarily suggests that psychiatric injury is simply a frailty to which all flesh is subject and should be considered in no different way from physical injury.

Secondly, however, if one accepts for argument sake that a physical basis for psychiatric injury is necessary for success, much biological evidence is amassing indicating that the vast majority of, if not all, mental illness has a physical basis. The discovery of such a basis eludes us in some cases only by dint of the inadequacy of available investigative technology.

Routes to making the matter contemporary include explicit framing of various conventions and explicit statements in ena-

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371 Id. at 542.
bling and adopting legislation. However, in the short term, it may fall to an activist judiciary to demonstrate that the law does not lag and limp behind contemporary thinking. Such pressure may well induce legislators, and framers of conventions, to adopt what otherwise might be considered “courageous.”

At the conclusion of the Diplomatic Conference in 1999, defendant lawyers felt they had cause to celebrate the survival of the words “bodily injury,” minus a tentatively proposed “and mental injury,” in the authentic English language text of the new Montreal Convention. However, obiter dicta at the House of Lords level in King v. Bristow Helicopters has brought the supposition that mental injury is excluded from the new convention into considerable doubt. In particular, Lord Steyn cited the Master of the Rolls in Morris v. KLM, who observed:

If and when the 1999 Montreal Convention comes into force there may be scope for argument, on the basis of the travaux préparatoires evidencing the consideration that was given to mental injury, that those who drafted the Convention intended the meaning of the phrase “bodily injury” to turn on the jurisprudence of the individual state applying that Convention.

The statement in question, which was adopted by the Montreal Diplomatic Conference in plenary session on the second last day of the Conference, provides ample support for a modern interpretation of the words bodily injury in applying the Montreal Convention. Given that the Montreal Convention is a consolidating convention that is intended to refine and improve the Warsaw Convention in its various manifestations, and that it currently applies in the European Union and the United States, the door is not merely ajar, it is nearly open. The relevant inclusion reads:

With reference to Article 16, paragraph 1 of the Convention, the expression “bodily injury” is included on the basis of the fact that in some States damages for mental injuries are recoverable under certain circumstances, that jurisprudence in this area is developing and that it is not intended to interfere with this development, having regard to jurisprudence in areas other than international carriage by air.

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372 Montreal Convention of 1999, supra note 2, art. 17.
374 Id.
The explicit acknowledgement by the conference in its *travaux préparatoires* of developing jurisprudence provides a platform upon which a modern interpretation of what constitutes bodily injury might be made. On the basis of the *obiter dicta* in *King*, and, because of the modern meaning of the word “bodily” and the state of medical knowledge in 1999 and at the present day—making it possible to measure bodily changes with greater accuracy than ever before—the writers argue that it is time for a senior court in Anglo-American jurisdictions to provide recovery for pure mental injury in international aviation accidents. It should do so on the basis of sound evidence in support of bodily changes.

In conclusion, Lord Hope in *King v. Bristow Helicopters* offered a perspicacious view toward the future:

> It has for a long time been recognised that it is not possible to maintain a rigid distinction between the body and the mind in the law relating to liability in damages for negligence. In *Bourhill v. Young* [1943] AC 92, 103[, ] Lord Macmillan recognised that the crude view that the law should take cognisance only of physical injury resulting from actual impact had been discarded and that it was recognised that an action will lie for injury by shock sustained without direct contact. As he put it, the distinction between mental shock and bodily injury was never a scientific one.\(^{376}\)

\(^{376}\) *King*, 2 A.C. at ¶ 47.