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Heart Attacks and the Pennsylvania Workmen's Compensation Act: Establishing the Causal Relationship Between Employment and Injury

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I. Introduction

Heart attacks strike nearly 700,000 Americans each year, many of whom are under sixty-five years of age and in the prime of their working lives. Thus the incidence of heart attacks as job-related maladies is of considerable significance to the workmen's compensation system. Although the legal distinctions involved in determining whether heart attacks are compensable under workmen's compensation have occasioned extensive commentary and judicial interpretation in recent years, the effect of the 1972 amendments to the Pennsylvania Workmen's Compensation Act[1] has yet to be examined. The purpose of this comment is to evaluate the causation requirement of the Pennsylvania Workmen's Compensation Act[2] as applied to work-related heart attacks. It summarizes briefly the background and purposes of the statute, examines the difficulties of the pre-1972 causation requirement, analyzes the present causation requirement, and describes the technique whereby the causal link between employment and heart attack may be established. The comment incorporates an analysis of the decided cases and concludes with a summary of how, in actual practice, the law of heart attack compensation relates to the statutory purposes of the Act.

II. Background

A. The Heart Attack Problem

The American Heart Association estimates that 28,830,000 Americans suffer from some form of cardiovascular disease,[3] *i.e.*, diseases of the heart or blood vessels, and that in 1976 approximately 1,060,900 deaths will be caused by cardiovascular disease—52 percent of all deaths in that year.[4] One-fourth of these victims will be under age sixty-five.[5] Moreover,

1. Act of February 8, 1972, P.L. 25, No. 12; Act of March 29, 1972, P.L. 159, No. 61 [hereinafter referred to as the 1972 amendments].
2. Act of June 2, 1915, P.L. 736, No. 338, as amended, PA. STAT. ANN. tit. 77, § 1-1603 (Supp. 1976) [hereinafter referred to as the Act].
3. American Heart Association, *1976 Heart Facts Reference Sheet.*
4. *Id.*
5. *Id.*

in 1973, 684,066 deaths were caused specifically by heart attack, and 3,990,000 persons alive today have some history of either heart attack or angina pectoris.[6] In Pennsylvania, cardiovascular disease accounted for 55.14 percent of all deaths in 1973, causing more than three times as many deaths as cancer and nearly fourteen times as many as accidents.[7] These statistics underscore the enormity of the problem posed by placing heart attack victims, a very large segment of the population, under the aegis of workmen's compensation coverage.

Because this comment focuses principally upon heart attacks, it must be observed at this juncture that the term "heart attack" is imprecise:

> The use of the term "heart attack" is unfortunate insofar as it is much too general in its implication. "Heart attack" refers to anything from a brief and transient episode of chest pain to a severe myocardial infarct resulting from coronary artery thrombosis, or even to sudden death. Yet, the term is so deeply ingrained in the vocabulary of the average layman that it is probably impossible to replace it with a more specific term.[8]

Regrettably, the lay definition is carried over into the case law. Since the Workmen's Compensation Act is not intended to provide general life and health insurance for employees,[9] the need to demonstrate a causal relationship between employment and injury in heart attack claims is clear. The difficult question in such cases surrounds the precise etiology of a heart attack and springs from two sources: the lack of consensus within the medical profession regarding the interrelation between work effort or strain and heart attacks,[10] and the tendency of medical witnesses to look for *the*

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6. *Id.*

7. American Heart Association, Pennsylvania Affiliate, *1973 Mortality Statistics.* For an interesting comparison indicative of the rise of the problem since 1958, see McLaughlin, *The Compensability of Heart Injuries Under the Pennsylvania Workmen's Compensation Act*, 21 U. PITT. L. REV. 445, 446 (1960) [hereinafter cited as McLaughlin].

8. Bucklin, *Heart Disease and the Law*, MED. TRIAL TECH. Q. 294, 295 (1971 Annual). *Accord*, R. GRAY, ATTORNEY'S TEXTBOOK OF MEDICINE § 30.80, at 30-33 (1976):

> This is a mere layman's phrase, the exact meaning of which cannot be defined. Not infrequently it is used by physicians attempting to explain the situation to a patient who has suffered sudden acute cardiac embarrassment the result of either coronary insufficiency or myocardial infarction, fatal or nonfatal.

9. Monahan v. Seeds & Durham, 336 Pa. 67, 6 A.2d 889 (1939); A.P. Green Refractories Co. v. Workmen's Comp. App. Bd., 8 Pa. Commonwealth Ct. 172, 301 A.2d 914 (1973); Hinkle v. H.J. Heinz Co., 7 Pa. Commonwealth Ct. 216, 298 A.2d 632 (1972); Rettew v. Graybill, 193 Pa. Super. 564, 165 A.2d 424 (1960); Wilcox v. Buckeye Coal Co., 158 Pa. Super. 264, 44 A.2d 603 (1945).

10. In almost every contested cardiac case there is a conflict in the testimony of the medical witnesses regarding the cause of the particular heart attack at issue. Each of the heart attack cases reviewed by the commonwealth court under the post-1972 law has involved such a dispute. This issue has generated significant comment in the law reviews. *See, e.g.*, Goshkin, *Legislative Action, the Only Reasonable Solution to the Problems of Workmen's Compensation Heart Cases*, 5 THE FORUM 329, 335 n.17 (1969-70):

> Several years ago a study by a committee of the California Heart Association pointed up the uncertainty of "reasonable medical certainty" in heart cases. After a panel of five cardiologists, internists and other physicians well experienced in heart disease had reviewed 319 compensation cases in an attempt to answer certain questions pertaining to causation it was found that in only 47 of the 319 cases did all five doctors agree. In 90 cases four doctors agreed. In 215 cases three agreed and in 48 cases only two could agree, and could not even formulate a majority opinion. Further, where 101 of the same records were again reviewed by the panel without its

cause of a heart attack while lawyers and the compensation authorities are concerned only with whether *some* cause and effect relationship exists.[11] These problems become particularly acute when claimants attempt to establish causation despite a predisposing condition, a dilemma that frequently arises.[12]

Assume, for example, that a store salesman who engages in very little physical activity and suffers from an acute arteriosclerotic condition becomes embroiled in a heated discussion with a customer, feels chest pains immediately thereafter, and dies some two months later.[13] The cause of death listed on his death certificate is "myocardial infarction" (heart attack). From a medical standpoint the infarct was *the* cause of death. From the standpoint of the workmen's compensation laws this determination leaves a great deal to be desired. *Legal* causation requires far more than a conclusory statement of myocardial infarction. It requires the tracing of a causal link between the stress of the decedent's employment and the attack and subsequent death: a determination that this stress, and not solely the arteriosclerosis, actually contributed to his death. Thus, the outcome turns on whether the medical witness can supply the requisite evidence to connect the heart attack and subsequent death to the decedent's employment. How this may be done is the subject of a later section of this comment.[14]

B. Purposes of Pennsylvania's Workmen's Compensation Act

The Pennsylvania Workmen's Compensation Act arose in 1915 during a period of rapid growth of workmen's compensation legislation in many states.[15] This statute, superseding the common law and various

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knowing the records had been seen previously, in 30 percent of the opinions the doctors reversed themselves! *Heart Claims Under the California Workmen's Compensation Act*, 13 *Circulation* 448 (1956).

See also McLaughlin, *supra* note 7, at 452-53:

> The precise role of exertion in precipitating heart attack is the subject of considerable medical literature. The layman is inclined to leap to a conclusion of cause and effect relationship based solely on a *post hoc* basis. It is convenient to assume that since an attack followed exertion then the exertion must have caused the attack. Unfortunately, the matter is not so simple for the heart specialist. . . . Even if exertion is a factor, how much exertion is required is another difficult problem. In other words, the more the expert witness may know of the heart and its diseases, the more difficult it may become for him in individual cases to find causality in exertion.

Cf. Dahl, *The Inter-Relationship Between Law and Medicine in Workmen's Compensation: A Comparative Guide for Practitioners*, 12 CALIF. W.L. REV. 25, 35 (1975) [hereinafter cited as Dahl]:

> Heart attacks . . . are often different manifestations of the same cause-tension. Most of the time their connection to employment is speculative. Dr. Paul Dudley White, President Eisenhower's cardiologist, said that the only heart condition he would relate to employment with certainty was corpulmonale, an enlargement of the heart.

11. Dahl, *supra* note 10, at 36-37.

12. A. LARSON, THE LAW OF WORKMEN'S COMPENSATION § 38.83, at 7-181-82 n.95.7 (1973) [hereinafter cited as LARSON].

13. This hypothetical case bears a close similarity to the facts presented in Workmen's Comp. App. Bd. v. Kanell Jewelers, Inc., 22 Pa. Commonwealth Ct. 1, 347 A.2d 500 (1975), discussed at notes 92-98 and accompanying text *infra*.

14. *See* notes 139-79 and accompanying text *infra*.

15. The Act was followed within months by an enabling amendment to the Pennsyl-

employer's liability acts, was intended to remedy deficiencies in prior laws.[16] The cost of work-related injuries was to be allocated to the employer, not as the result of any presumption that the employer was negligent, but because of the inherent hazards posed by the employment. Compensation to employees for work-related injuries was thus to be accepted as a cost of production[17] that was to be distributed among the ultimate consumers of the product:[18]

> The ultimate social philosophy behind compensation liability is belief in the wisdom of providing, in the most efficient, most dignified and most certain form, financial and medical benefits for the victims of work-connected injuries which an enlightened community would feel obliged to provide in any case in some less satisfactory form, and of allocating the burden of these payments to the most appropriate source of the payment, the consumer of the product.[19]

Pennsylvania courts, while considering the Act to be remedial in nature, have uniformly held that it is to be liberally construed in favor of claimants.[20] The supreme court has realized from an early date, however, that a too liberal construction could have Pennsylvania constitutional overtones. In *Rich Hill Coal Co. v. Bashore*[21] the court held that a workmen's compensation statute must fulfill at least three requirements to be constitutionally valid: first, the benefits must meet the test of reasonableness; second, injuries must arise in the course of employment to be compensable; and third, an employer may not be compelled to compensate the employee of another.[22]

While emphasizing the liberal treatment to be accorded claimants under the Act, courts have been careful to point out that the Act's purpose is not to provide general life and health insurance for employees.[23] As discussed below, these twin considerations may be difficult to resolve under current law—particularly when the claim for compensation is founded upon a heart attack.[24]

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vania Constitution, PA. CONST. art. III, § 21 (renumbered § 18 by amendment of May 16, 1967).

16. Dupree v. Barney, 193 Pa. Super. 331, 163 A.2d 901 (1960); Taylor v. Ewing, 166 Pa. Super. 21, 70 A.2d 456 (1950); REPORT OF THE NATIONAL COMMISSION ON STATE WORKMEN'S COMPENSATION LAWS, at 34 (1972) [hereinafter cited as REPORT OF THE COMMISSION].

17. REPORT OF THE COMMISSION, *supra* note 16, at 34.

18. LARSON, *supra* note 12, § 3.20, at 17.

19. *Id.* § 2.20, at 5.

20. Cleland Simpson Co. v. Workmen's Comp. App. Bd., 16 Pa. Commonwealth Ct. 566, 332 A.2d 862 (1975); United States Steel Corp. v. Workmen's Comp. App. Bd., 10 Pa. Commonwealth Ct. 247, 309 A.2d 842 (1973); Crucible Steel Co. of America v. Workmen's Comp. App. Bd., 9 Pa. Commonwealth Ct. 269, 306 A.2d 395 (1973); Gilbert v. Aronomink Country Club, 214 Pa. Super. 70, 251 A.2d 724 (1969); Allen v. Patterson-Emerson-Comstock, Inc., 180 Pa. Super. 286, 119 A.2d 832 (1956); McAvoy v. Roberts & Mander Stove Co., 173 Pa. Super. 516, 98 A.2d 231 (1953).

21. 334 Pa. 449, 7 A.2d 302 (1939).

22. *Id.*; A. BARBIERI, PENNSYLVANIA WORKMEN'S COMPENSATION AND OCCUPATIONAL DISEASE § 2.04, at 6 (1975) [hereinafter cited as BARBIERI].

23. *See* note 9 and accompanying text *supra.*

24. *See* text following note 181 *infra.*

C. *Law Prior to the 1972 Amendments*

Prior to the enactment of the 1972 amendments, the Act required that an injury result from an "accident" to be compensable.[25] This restriction on recovery was purely statutory, since the Act's enabling constitutional amendment required only that there be an "injury."[26] To mandate that the injury be "by an accident"[27] was, however, consistent with the workmen's compensation statutes of most states.[28]

Dean Larson has explained that the "by accident" requirement presently in effect in the majority of jurisdictions is merely an arbitrary boundary, derived from practical considerations and pressed into service to ensure that only work-related injuries are compensable. It originated in the legislative fear that if the relationship between work and injury is tenuous, as in heart attack cases, failure to impose such a limitation would result in compensating every employee who is "injured" within the time-space limitations of employment.[29] But the barrier posed by the "by accident" requirement proved to be far more formidable than originally envisioned, particularly in light of the intended liberal construction of the Act.[30] As a result, courts began to fashion various doctrines that gradually undercut the requirement.

1. *The Unusual Pathological Result Doctrine*

One of these doctrines was the "unusual pathological result" doctrine, first enunciated in *Parks v. Miller Printing Machine Co.*[31] Judge Barbieri reports[32] that this doctrine stemmed from the pre-1972 requirement of "violence to the physical structure of the body."[33] This phrase was the basis for broadening the concept of "accident" to include cases in which an employee, while engaged in his usual work, suffered an unexpected or untoward result as a consequence thereof.[34] When applied to

25. Act of June 21, 1939, P.L. 520, No. 281, § 101; Act of June 4, 1937, P.L. 1552, No. 323, § 101; Act of June 2, 1915, P.L. 736, No. 338, § 301. The term "accident," however, remained undefined in the Act. Readinger v. Gottschall, 201 Pa. Super. 134, 191 A.2d 694 (1963).

26. The pertinent language of the amendment reads:

> The General Assembly may enact laws requiring the payment by employers, or employers and employees jointly, of reasonable compensation for *injuries* to employees arising in the course of their employment, and for occupational diseases of employees, whether or not such injuries or diseases result in death, and regardless of fault of employer or employee. . . .

PA. CONST. art. III, § 21 (renumbered § 18 by amendment of May 16, 1967) (emphasis added).

27. PA. STAT. ANN. tit. 77, § 431 (1952).

28. At present, only California, Iowa, Maine, Massachusetts, Minnesota, Pennsylvania, Rhode Island and Texas do not require the injury to arise by an "accident" to be compensable.

29. Larson, *The "Heart Cases" in Workmen's Compensation: An Analysis and Suggested Solution*, 65 MICH. L. REV. 441, 467-68 (1967).

30. *See* note 20 and accompanying text *supra*.

31. 336 Pa. 455, 9 A.2d 742 (1939).

32. BARBIERI, *supra* note 22, § 3.11, at 19-20.

33. PA. STAT. ANN. tit. 77, § 411 (1952).

34. *See, e.g.*, Parks v. Miller Printing Mach. Co., 336 Pa. 455, 9 A.2d 742 (1939); Hinkle v. H.J. Heinz Co., 7 Pa. Commonwealth Ct. 216, 298 A.2d 632 (1972). For an enlightening discussion of this doctrine see McLaughlin, *supra* note 7, at 472.

internal injuries, the doctrine required that the break, disruption, or lesion be sudden or unusual under ordinary circumstances.[35] There remained, however, a significant limitation upon application of the doctrine: recovery was barred if the employee suffered from a predisposing condition or ailment that contributed to the resultant injury.[36] As applied to heart attacks this restriction barred many otherwise meritorious claims.[37]

2. *The Unusual Strain Doctrine*

In the trend of further liberalization, the courts adopted a second approach to mitigate the "by accident" requirement: the "unusual strain" doctrine.[38] Unlike the unusual pathological result doctrine, the unusual strain doctrine did not bar recovery when the employee suffered from a predisposing condition or ailment that contributed to the injury.[39] Courts adopting this approach reasoned that an employer takes his employees as he finds them, with all of their strengths and weaknesses,[40] and that as long as the employee is performing an unusual task when an injury results, an award is proper. As the test was formulated, there was some indication that the determination whether the employee's activities had been "unusual" would be made in comparison with the normal employment activities of the profession.[41] But in 1969 the supreme court held that recovery would depend upon the *individual* employee's work patterns.[42] Even in its expanded form, however, the doctrine still posed serious hardships for

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35. BARBIERI, *supra* note 22, § 3.11, at 21.

36. *See* Page's Dept. Store v. Workmen's Comp. App. Bd., 11 Pa. Commonwealth Ct. 126, 309 A.2d 169 (1973); Hinkle v. H.J. Heinz Co., 7 Pa. Commonwealth Ct. 216, 298 A.2d 632 (1972). This result is logical because

> it could hardly be argued that the physical breakdown was fortuitous, untoward or unpredictable as an "accident," if the breakdown could be to some degree predictable medically in view of preexisting physical circumstances. To put it conversely, it is fortuitous, untoward and unpredictable for a physically healthy and previously unaffected member or structure of the body to suffer injury from normal use.

BARBIERI, *supra* note 22, § 3.11, at 21.

37. *See, e.g.*, Good v. Pennsylvania Dept. of Prop. & Supplies, 346 Pa. 151, 30 A.2d 434 (1943) (benefits denied to widow of employee who suffered heart attack after lifting 60-100 pounds of pipefittings to his shoulder, because he suffered from a preexisting arteriosclerotic condition); Crispin v. Leedom & Worrall Co., 341 Pa. 325, 19 A.2d 400 (1941) (claimant who suffered heart attack while pushing loaded truck weighing some 1800 pounds, and who was at that time 58 years old and suffering from chronic arteriosclerosis, denied recovery); Rettew v. Graybill, 193 Pa. Super. 564, 165 A.2d 424 (1960) (recovery denied on basis of contribution of preexisting condition to heart attack); Wilcox v. Buckeye Coal Co., 158 Pa. Super. 264, 44 A.2d 603 (1945) (same).

38. *See* McLaughlin, *supra* note 7, at 459 (general discussion and explanation of the unusual strain doctrine).

39. Hamilton v. Procon, Inc., 434 Pa. 90, 252 A.2d 601 (1969); Borough of Aliquippa v. Workmen's Comp. App. Bd., 18 Pa. Commonwealth Ct. 340, 336 A.2d 450 (1975); Walker v. Workmen's Comp. App. Bd., 18 Pa. Commonwealth Ct. 168, 334 A.2d 844 (1975).

40. *See* LARSON, *supra* note 12, § 12-20, at 3-231 to 3-249; Dahl, *supra* note 10, at 32; Hamilton v. Procon, Inc., 211 Pa. Super. 446, 236 A.2d 819 (1967) (dissent) (wherein Hoffman, J., reports this as the settled rule), *rev'd*, 434 Pa. 90, 252 A.2d 601 (1969).

41. Hamer v. Rishel, 147 Pa. Super. 585, 24 A.2d 664 (1942), discussed in Hamilton v. Procon, Inc., 434 Pa. 90, 98 n.10, 252 A.2d 601, 604 n.10 (1969).

42. Hamilton v. Procon, Inc., 434 Pa. 90, 252 A.2d 601 (1969).

heart attack claimants, particularly when the claimant's "usual" work was strenuous.[43]

3. *The Impact Rule*

The third attempt to soften the harsh "by accident" requirement came about recently when, in *Stump v. Follmer Trucking Co.*,[44] the supreme court rejected the "impact rule" standard for workmen's compensation cases. In so doing, the court overruled previous holdings that emotional reactions or shock could not satisfy the causation requirement in heart attack cases. Noting that the impact rule was inconsistent with its recent decisions in both *Hamilton v. Procon, Inc.*[45] and *Niederman v. Brodsky*,[46] the court stated:

> It seems inconsistent, if a coronary thrombosis can be precipitated, or caused or contributed to either by physical trauma or emotional excitement that the courts should be willing to accept the physical as causative, but reject the emotional, given the present state of medical knowledge.[47]

Thus emotional or psychological excitement that brought about an acute coronary thrombosis or aggravated an existing thrombosis could henceforth supply the causational basis for a workmen's compensation award.

4. *Dissatisfaction with the Liberalized "By Accident" Requirement: Winds of Legislative Change*

Despite purported liberalization of the "by accident" requirement, what had actually evolved was a relatively formless mass of judicial interpretations that often barred meritorious claims on the basis of microscopic distinctions and provided little guidance to the courts or to attorneys counseling clients on the merits of their cases.[48] In 1969, in *Hamilton v.*

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43. *See, e.g.*, American St. Gobain Corp. v. Workmen's Comp. App. Bd., 11 Pa. Commonwealth Ct. 388, 393, 314 A.2d 40, 42-43 (1974): "[T]hough the work is hard, if it is, as here, of the same kind and quantity and done in the same manner as it has been performed in the past, disability resulting from the exertion does not constitute an accident." *Accord*, McGowan v. Upper Darby Pet Supply, 207 Pa. Super. 329, 217 A.2d 846 (1966) (recovery denied claimant meat cutter who suffered heart attack after lifting 100-125 pound slab of meat, since this was part of his usual work).

44. 448 Pa. 313, 292 A.2d 294 (1972).

45. 434 Pa. 90, 252 A.2d 601 (1969). *See* note 42 *supra*; notes 49-51 and accompanying text *infra*.

46. 436 Pa. 401, 261 A.2d 84 (1970). This case abolished the impact rule as a requirement for tort liability.

47. 448 Pa. at 317, 292 A.2d at 296.

48. *See* Hamilton v. Procon, Inc., 211 Pa. Super. 446, 460, 236 A.2d 819, 826-27 (1967) (dissent).

> The profuse litigation revolving around the accident concept has not only built up a retaining wall against liability in heart cases by a distortion of the language of the Act in light of its derivation and legislative purpose, but has also provided a great source of difficulty in defining a workable rule.

Id. at 460, 236 A.2d at 826.

Accord, Comment, *Pennsylvania Workmen's Compensation: An Analysis of Persistent Problems and Recent Legislative Reform*, 75 DICK. L. REV. 445, 453 (1972).

Procon, Inc.,[49] the supreme court was presented with the opportunity to remedy this situation by abrogating the unusual strain doctrine in favor of an alternative theory, the "usual strain" doctrine. This "New Jersey Rule" provided that if the *ordinary* stress and strain of employment—whether or not coupled with predisposing heart ailments—plays a substantial, *i.e.*, non-trivial, part in a heart attack, a compensable injury arises.[50]

Refusing to adopt this rule, the court reasoned that "such a major change" was a matter for the legislature:

> The adoption of a totally new concept such as the "New Jersey Rule" should be preceded by legislative investigations in an effort to determine the latest medical knowledge concerning the connection between heart attacks and employment strain. Furthermore, we as a court are not in a position to study the possible consequences from an insurance standpoint of the adoption of a more liberalized rule for recovery in heart attack cases. We cannot and should not, as a judicial body, convert workmen's compensation coverage into general group life and health insurance coverage. Therefore, we urge the legislature to undertake a study of the desirability of revising Pennsylvania's unusual strain doctrine.[51]

III. Current Causational Requirements

A. The Amended Workmen's Compensation Act

Apparently taking its cue from the language in *Hamilton*, in 1972 the Pennsylvania legislature passed a sweeping package of amendments[52] directed at, *inter alia*, the elimination of the "by accident" requirement for compensable injuries with its attendant confusion.[53] The pertinent section of the Act, section 301(c)(1),[54] which redefines "injury" and "personal injury," is liberal in comparison to its predecessor:

> The terms "injury" and "personal injury," as used in this act, shall be construed to mean [only violence to the physical structure of the body] *an injury to an employee, regardless of his previous physical condition, arising in the course of his employment and related thereto*, and such disease or infection as naturally results [therefrom] *from the injury or is aggravated, reactivated or accelerated by the injury*; and wherever death is mentioned as a cause of compensation under this act, it shall mean only death resulting from such [violence] *injury* and its resultant effects, and occurring within three hundred weeks after the [accident] *injury*. The term ["injury by an accident in the course of employment"] "*injury arising in the course of his employment*," as used in this article, shall not include an injury caused by

49. 434 Pa. 90, 252 A.2d 601 (1969).

50. *See* LARSON, *supra* note 12, § 38.64(b), at 7-134. The landmark cases establishing the New Jersey "usual strain" rule are Dwyer v. Ford Motor Co., 36 N.J. 487, 178 A.2d 161 (1962) (noted in 29 NACCA L.J. 223 (1962-63)) and Ciuba v. Irvington Varnish & Insul. Co., 27 N.J. 127, 141 A.2d 761 (1958).

51. 434 Pa. at 97, 252 A.2d at 604.

52. *See* note 1 *supra*. An early review of these amendments can be found in Comment, *Pennsylvania Workmen's Compensation: An Analysis of Persistent Problems and Recent Legislative Reform*, 76 DICK L. REV. 445 (1972).

53. *See* note 48 *supra*.

54. PA. STAT. ANN. tit. 77, § 411 (Supp. 1975).

> an act of a third person . . . but shall include all other injuries sustained while the employee is actually engaged in the furtherance of the business or affairs of the employer . . . .[55]

There are four major changes in the section of the Act defining "injury." First, the "by accident"[56] and "violence to the physical structure of the body" requirements are deleted. In their place is simply the need to establish an "injury." Second, compensation may now be awarded in all cases without regard to the previous physical condition of the employee. Third, the injury must not only arise in the course of employment but must also be related thereto. Finally, diseases or infections that are aggravated, accelerated or reactivated by the injury are now compensable.

These changes solve most, if not all, of the problems of recovery under prior "by accident" law, eliminating the necessity of pleading a twist or slip in order to show an accident,[57] removing the bar to recovery posed by predisposing ailments or conditions under the unusual pathological result doctrine,[58] and making it unnecessary to show any unusual exertion as was required under the unusual strain doctrine.[59]

In its form and interpretation the current Pennsylvania statute regarding the compensability of heart attacks closely resembles the "usual strain" rule[60] judicially propounded in New Jersey.[61] Thus, under present law, if an employee suffers a heart attack either precipitated or contributed to by the ordinary stress and strain[62] of employment, such injury is compensable. This is true even though the employee may be suffering from a predisposing illness or condition rendering him or her more susceptible to attack.[63] The primary inquiry of the current Pennsylvania Act is whether a

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55. *Id.* (Deleted portions from previous § 411 are bracketed; new material is italicized).

56. This specific change is in accord with the recommendations of the National Commission on State Workmen's Compensation Laws. *See* REPORT OF THE COMMISSION, *supra* note 16, at 49.

57. *See* Comment, *Pennsylvania Workmen's Compensation: An Analysis of Persistent Problems and Recent Legislative Reform*, 76 DICK. L. REV. 445, 453 (1972):

> The accident requirement put a premium on sharp pleading, i.e., it became necessary to plead a slip or a twist when perhaps those words would not have been in the employee's initial description of his accident.

This was apparently necessitated by the requirement of a showing of "violence to the physical structure of the body." *See* note 33 and accompanying text *supra.*

58. *See* notes 36-37 and accompanying text *supra.*

59. *See* note 43 and accompanying text *supra.*

60. *See* note 50 and accompanying text *supra.*

61. "As is readily apparent, the Act of 1972 has now basically made the injury without accident phase of of the New Jersey rule the law of Pennsylvania." BARBIERI, *supra* note 22, § 3.15, at 26.

62. The term "stress and strain," as opposed to the terms "exertion" and "overexertion," is more frequently employed in medical circles. Its use by the courts aids in avoiding the problems generated by the latter terms when used in conjunction with the unusual strain doctrine and the impact rule. At least one other non-"by accident" state prefers to use the phrase "stress and strain." *See* McMurray's Case, 331 Mass. 29, 116 N.E.2d 847 (1954). This appears, also, to be the approach adopted by the New Jersey courts. *See* Dwyer v. Ford Motor Co., 36 N.J. 487, 178 A.2d 161 (1962); Ciuba v. Irvington Varnish & Insul. Co., 27 N.J. 127, 141 A.2d 761 (1958).

63. PA. STAT. ANN. tit. 77, § 411 (Supp. 1975). Again, this is the New Jersey approach:

direct causal link can be established between employment and injury.

With regard to the burden of proof resting on a claimant, however, the New Jersey Rule and the Pennsylvania Act are dissimilar. New Jersey requires proof of causation by a preponderance of the evidence.[64] Although this may be a reasonable burden for the claimant to bear, there is no such requirement in Pennsylvania. The burden resting on a Pennsylvania claimant is that of bringing "substantial" evidence, actually much less than a preponderance.[65] This light burden of proof is an objectionable aspect of Pennsylvania's workmen's compensation law from the employer's standpoint.

As noted previously,[66] in order to be compensable an injury must not only arise in the course of employment, but must also be *related thereto.*[67] The test for compensability under the Act, therefore, is two-pronged. The employee must first have been engaged in the furtherance of the business or affairs of his employer (*i.e.*, the injury must be one arising within the time-space limitations of employment). Second, the injury must be shown to have been causally related to the employment.[68] This second requirement is derived from the language "related thereto" found in section 301(c)(1) of the Act,[69] and was incorporated by the legislature to insure that only work-related injuries are compensated. While posing an evidentiary barrier to spurious claims, it allows greater flexibility in proof than did its arbitrary predecessor, the "by accident" requirement, since it eliminates the need to point to a *particular* stressful event that precipitated the injury. Thus claimants are free to prove that an indirect work factor acted as a catalyst in bringing about the injury.

Moreover, as far as causation is concerned, the Act establishes the same standard of proof whether or not an employee suffers from a predisposing condition. By incorporating the language "regardless of his previous physical condition"[70] in the definitions of injury and personal injury, the legislature affirms the principle that employers take their employees as they find them.[71]

> [W]here the heart has deteriorated to the point that potentially any appreciable degree of exertion carries a danger of precipitating, or so acting upon the condition as to accelerate, a disabling or fatal attack, if the effort or strain, which *in fact* precipitates or contributes to the attack, occurs during the course of the employment and as an ordinary or usual incident of the work, the resulting disability or death is compensable.

Dwyer v. Ford Motor Co., 36 N.J. 487, 491, 178 A.2d 161, 163 (1962) (emphasis added).

64. Dwyer v. Ford Motor Co., 36 N.J. 487, 178 A.2d 161 (1962). New Jersey also requires that the employment activity contribute in a material degree (a degree greater than *de minimis*) to the injury. *Id. Accord,* REPORT OF THE COMMISSION, *supra* note 16, at 51 (recommending compensation when the employment factor is a "significant" cause of disability or death).

65. *See* notes 85-86 and accompanying text *infra.*

66. *See* notes 54-56 and accompanying text *supra.*

67. PA. STAT. ANN. tit. 77, § 411 (Supp. 1976).

68. This second requirement is merely evidentiary.

69. PA. STAT. ANN. tit. 77, § 411 (Supp. 1976).

70. *Id.*

71. *See* note 40 and accompanying text *supra.*

B. Case Law Under the Amended Act

The commonwealth court has reviewed five cases in which the 1972 amendments were applied to heart attacks.[72] In all five cases the court affirmed awards of benefits made by the referee.

The first heart attack case to reach the commonwealth court was *Workmen's Compensation Appeal Board v. Jeddo Highland Coal Co.*,[73] in which the court upheld the board in affirming a referee's award of benefits to a claimant whose husband had suffered a fatal heart attack while performing his "usual" duties. The court noted that the usual-unusual exertion distinction is no longer determinative,[74] although it did stress the fact that decedent's recent work had been physically taxing:

> His job was *somewhat unusual* in that he worked 7 days a week for at least 11 months prior to his death. He died . . . [while] attempting to move a *heavy* cable, a task which decedent had performed many times before.[75]

The court ruled that no "accident" need occur, but that an "injury," as redefined by the Act, will suffice. By affirming the award of benefits in this case, the court made clear that work-related heart attacks will continue to be compensable "injuries" under the amended Pennsylvania Workmen's Compensation Act.[76]

The *Jeddo* decision stands for several other significant propositions that were to become the foundation for recent heart attack cases. First, as in all compensation cases, the burden lies upon the claimant to prove that a compensable injury has been suffered.[77] Second, the test of a compensable injury is two-fold:[78] (1) the claimant must demonstrate that the employee's heart attack arose in the course of employment, *i.e.*, that the employee was engaged in the furtherance of the business or affairs of the employer; and (2) the claimant must show that the attack was *causally related* to the employment, *i.e.*, that there was a "*causal connection* between [the employee's] work and [the] injury."[79] Third, conflicts in medical causation testimony are to be resolved by the referee, whose resolution is binding upon the courts. Thus, medical testimony indicating causation may supply

72. Workmen's Comp. App. Bd. v. Bernard S. Pincus Co., — Pa. Commonwealth Ct. —, 357 A.2d 707 (1976); Workmen's Comp. App. Bd. v. Ayres Philadelphia, Inc., — Pa. Commonwealth Ct. —, 351 A.2d 306 (1976); Workmen's Comp. App. Bd. v. Kanell Jewelers, Inc., 22 Pa. Commonwealth Ct. 1, 347 A.2d 500 (1975); Workmen's Comp. App. Bd. v. Auto Express, Inc., 21 Pa. Commonwealth Ct. 559, 346 A.2d 829 (1975); Workmen's Comp. App. Bd. v. Jeddo Highland Coal Co., 19 Pa. Commonwealth Ct. 90, 338 A.2d 744 (1975).

73. 19 Pa. Commonwealth Ct. 90, 338 A.2d 744 (1975).

74. *Id.* at 93 n.3, 338 A.2d at 746 n.3.

75. *Id.* at 92, 338 A.2d at 746 (emphasis added).

76. As early as 1961 it was explicitly held that a heart attack could constitute an "injury" for workmen's compensation purposes. The heart attack, in itself, however, was not an "accident," and without a showing of the requisite "accident" there could be no recovery. *See* Baur v. Mesta Mach. Co., 195 Pa. Super. 22, 168 A.2d 591 (1961) (noted by Blatt, J., in City of Philadelphia v. Hays, 13 Pa. Commonwealth Ct. 621, 320 A.2d 406 (1974)).

77. 19 Pa. Commonwealth Ct. at 94 n.5, 338 A.2d at 747 n.5. Unfortunately, the court did not specifically define the degree of this burden.

78. *Id.* at 93, 338 A.2d at 746.

79. *Id.* at 94, 338 A.2d at 747.

the requisite causal link between employment and injury even though rebuttal testimony is brought.[80]

Jeddo was followed within months by a second heart attack case, *Workmen's Compensation Appeal Board v. Auto Express, Inc.*[81] In *Auto Express*, a truck driver, participating in the routine unloading of his truck through the use of mechanized forklifts and handtrucks, experienced chest pains and stopped working after completing a portion of the operation. The chest pains continued intermittently through the following day, and the driver was hospitalized for a myocardial infarction. The referee's award of total disability benefits was affirmed by the Workmen's Compensation Appeal Board and was again affirmed by the commonwealth court in a decision resting largely on the *Jeddo* rationale. The court, remarking that "[t]he facts and legal issues involved in *Jeddo* are remarkably similar to those at hand,"[82] applied the two-part injury test of *Jeddo*.[83] Moreover, it reiterated the *Jeddo* statement that the resolution of conflicting medical causation testimony is within the sole province of the referee and that the courts, on review, are bound by the referee's determinations.[84]

The *Auto Express* court made two particularly noteworthy points. The first deals with the burden of proof upon a claimant to support a referee or board determination:

> In this type of case, where the Board has affirmed an award of a referee granting benefits to a claimant, our scope of review is limited to a determination of whether there is *substantial* competent evidence in the record to support any necessary findings of fact and whether the Board and referee have committed an error of law.[85]

The court later defined *substantial* evidence as "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion."[86]

The second notable point in *Auto Express* deals with the adequacy of the testimony of a claimant's medical witness to establish the causal relationship between employment and the heart attack. As a rule, when

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80. *Id.* at 95, 338 A.2d at 747. This particular holding raises serious questions. *See* notes 115-23 and accompanying text *infra.*

81. 21 Pa. Commonwealth Ct. 559, 346 A.2d 829 (1975).

82. *Id.* at 562, 346 A.2d at 831.

83. *See* notes 78-79 and accompanying text *supra.*

84. 21 Pa. Commonwealth Ct. at 563, 346 A.2d at 832.

85. *Id.* at 561, 346 A.2d at 831 (emphasis added).

86. *Id.* at 561, 346 A.2d at 831. *See* Columbus Serv. Int'l & Underwriters Adjusting Co. v. Workmen's Comp. App. Bd., 17 Pa. Commonwealth Ct. 441, 333 A.2d 233 (1975) (same definition).

After quoting claimant's medical witness, however, the court said: "The above testimony in its totality constitutes *sufficient* competent evidence to support the referee's finding as to causation." 21 Pa. Commonwealth Ct. at 565, 346 A.2d at 833 (emphasis added). This seemingly interchangeable use of the terms "substantial" and "sufficient" has led to some confusion (*see* Siegel, *Workmen's Compensation Law*, 47 PA. B. ASSN' Q. 134, 144 (1976)). It is felt, however, that the true test of a claimant's burden of proof is the "substantial evidence" standard. *See* Novaselec v. Workmen's Comp. App. Bd., 16 Pa. Commonwealth Ct. 550, 332 A.2d 581 (1975). The term "sufficient" merely connotes that this burden has in fact been met. Workmen's Comp. App. Bd. v. Mifflin-Juniata State Health Foundation, 19 Pa. Commonwealth Ct. 133, 338 A.2d 691 (1975).

medical testimony is called for, the witness must present an unequivocal statement of opinion regarding causation.[87] Assertions of probabilities generally do not meet this test.[88] In *Auto Express*, however, the court held that, despite the testimony of claimant's witness that the employment activity was the "*probable* cause"[89] of the attack, his later testimony that "this man overexerted himself, and I feel that would be the cause of the initial attack"[90] rendered his testimony, regarded in its entirety, sufficiently unequivocal to establish causation.[91]

Auto Express was followed shortly by a third heart attack case, *Workmen's Compensation Appeal Board v. Kanell Jewelers, Inc.*,[92] and *Jeddo* was again cited as controlling.[93] In *Kanell*, a jewelry salesman suffered a myocardial infarction at work and died as a result some two and one-half months later. The referee determined that the injury was compensable and awarded death benefits to decedent's wife and minor children. Both the board and the commonwealth court affirmed.

Briefs of counsel and the record below raise two significant issues not mentioned in the *Kanell* opinion. First, the decedent's heart attack was found by the referee to have been precipitated not by strenuous physical exertion, but by a stressful, emotional argument with a customer.[94] By holding that the record adequately established the causal connection between work and the heart attack,[95] the court impliedly held that the "impact rule" was not carried forward under the revised Act and, more importantly, that emotional stress can lead to a compensable heart attack.[96] Second, it is significant that this particular decedent was suffering from a predisposing myocardial condition at the time of his fatal attack. The referee found

> that the injury of May 13, 1972 set in motion a chain of events which aggravated a non-disabling myocardial condition, thereby causing, directly and substantially, the death of claimant's decedent on July 25, 1972 from said myocardial infarction.[97]

By confirming that the referee's findings had adequate support in the record[98] the court impliedly ruled, as would be expected under the 1972 amendments, that predisposing conditions or ailments will not bar a heart

87. *See* notes 140-43 and accompanying text *infra*.
88. *See* notes 143-52 and accompanying text *infra*.
89. 21 Pa. Commonwealth Ct. at 564, 346 A.2d at 833 (emphasis added).
90. *Id.* at 565, 346 A.2d at 833.
91. *Id.* at 565, 346 A.2d at 833.
92. 22 Pa. Commonwealth Ct. 1, 347 A.2d 500 (1975).
93. *Id.* at 3, 347 A.2d at 501. The court also noted the similarity between this case and *Auto Express* (discussed at notes 81-91 and accompanying text *supra*). *Id.* at 3 n.2, 347 A.2d at 501 n.2.
94. Record, at 91a (referee's Findings of Fact No. 9).
95. 22 Pa. Commonwealth Ct. at 3-4, 347 A.2d at 501.
96. This conclusion is bolstered by the court's finding that there was "no meaningful factual dissimilarity" between the *Jeddo* and *Auto Express* cases (in which physical effort was the causative factor) and the present case (in which physical exertion did not play a part in the attack). *See* note 93 and accompanying text *supra*.
97. Record, at 91a (referee's Finding of Fact No. 5).
98. 22 Pa. Commonwealth Ct. at 3-4, 347 A.2d at 501.

attack claim when a causal connection between employment and the attack can properly be shown.

The fourth judicially decided heart attack case applying the 1972 amendments is *Workmen's Compensation Appeal Board v. Ayres Philadelphia, Inc.*[99] In *Ayres*, claimant's decedent was a seventy-one year old man employed as a "cutter and spreader"[100] who, prior to the attack, suffered from a number of predisposing conditions, including hypertension, chemical diabetes, and cardiac irregularity. The evidence brought before the referee indicated that the decedent was found dead, lying face up, next to a table where he had been performing his usual tasks. The undisputed cause of death was myocardial infarction. Claimant's medical evidence consisted of the testimony of decedent's physician, an osteopath engaged in general practice. Finding that this evidence supplied the requisite causal connection between decedent's work and his attack and subsequent death, the referee granted an award and the board affirmed.[101] The commonwealth court affirmed the decision of the board. Relying again on *Jeddo*, the court noted that the claimant had met the two-part test of proving a compensable injury by demonstrating that the heart attack arose in the course of employment and was related thereto.[102] The rebuttal of the testimony of claimant's medical witness by the testimony of a cardiologist was held immaterial because the conflict was resolved by the referee as was within his province.[103]

The fifth and final case to construe the 1972 amendments as they apply to heart attack compensation claims is *Workmen's Compensation Appeal Board v. Bernard S. Pincus Co*,[104] in which a truck driver was killed by a heart attack upon his return to work after lunch. Before lunch decedent had been performing his usual tasks, moving packaged meat products from inside a truck to the tailgate where they could be unloaded by others, and had completed approximately half of the job. On these facts the referee awarded benefits; the board and the court affirmed.

In its opinion, the commonwealth court declined to set forth "an ecumenical definition of 'injury',"[105] holding such a definition unnecessary to the determination whether a heart attack was a compensable injury under the Act. The court simply ruled that

> where a decedent, as here, was performing his usual job assignment at the time of his fatal heart attack, and the connection between his work and the heart attack was supported by tes-

99. __ Pa. Commonwealth Ct. __, 351 A.2d 306 (1976).

100. The term "cutter and spreader" denotes a person whose job consists of laying pieces of fabric on a work table and cutting them to the desired sizes.

101. The case was originally remanded by the board to the referee because the referee had failed to make a specific finding that there had been an "injury." After the referee made this requisite finding, the award was affirmed by the board.

102. __ Pa. Commonwealth Ct. at __, 351 A.2d at 307-08.

103. *Id.* at __, 351 A.2d at 308.

104. __ Pa. Commonwealth Ct. at __, 357 A.2d 707 (1976).

105. *Id.* at __, 357 A.2d at 708.

timony of a physician, that the death was *directly related* to his work, decedent's claimant was entitled to benefits.[106]

The four cases previously discussed were cited in support of the court's decision.

Of note is the fact that the decedent in *Pincus* was not actually working at the time he suffered his fatal attack. Rather, he was returning from lunch and "walking along the loading dock toward his truck" when he died.[107] The fact that an award of benefits in a case such as this was confirmed by the court clearly demonstrates that a heart attack claimant need not pinpoint a *specific* work incident that precipitated the attack in order to be entitled to compensation. The holding further intimates that the victim need not be "at work" when the attack occurs for claimant to recover—that he could, for example, be on his way home from work. The salient inquiry remains whether a causal connection between employment and injury can be established.

These five cases have shown that claimants must no longer demonstrate anything "unusual," either in the way of work effort or "pathological result," to be entitled to an award. This means that heart attack claimants previously prevented from recovering because they could not fit their cases into either of the judicially enumerated categories of "accidents" will now be entitled to awards if they can adequately establish a causal relationship between employment and the heart attack. For example, under pre-1972 law, an employee whose "usual" work was strenuous enough to trigger an attack in some normal individuals, yet who suffered a predisposing cardiovascular condition contributing to the attack, would have been barred from recovering under both the unusual strain and unusual pathological result doctrines. Now, upon adequate proof of causal connection, he will be entitled to an award. The cases have not, however, indicated a trend toward accepting a *de minimis* work factor as adequate causation. On the contrary, the commonwealth court has emphasized the need to show a *direct* relationship between employment and injury.[108] The stress and strain of employment, either alone or in conjunction with other factors, must play a substantial part in the resulting injury.

IV. Establishing the Causal Relationship

The need to establish a direct causal relationship between employment and injury has received primary consideration to this point. The focus of the remainder of the comment is upon the process by which this relationship can be established.

A. Role of the Referee

Initially, it is crucial to realize that the workmen's compensation referee is the sole trier of fact. He alone is charged with the responsibility to

106. *Id.* at __, 357 A.2d at 708 (emphasis added).
107. *Id.* at __, 357 A.2d at 707.
108. *Id.* at __, 357 A.2d at 708.

weigh testimony and resolve issues of credibility.[109] His factual determinations are binding on the appeal board unless the board takes additional evidence.[110] The board may consider additional evidence only if it believes the referee's findings of fact to be unsupported by competent evidence.[111] If the board takes no additional evidence, the referee's decision is reversible by the courts only if he has violated consitutional rights, committed an error of law, or made findings of fact that are not supported by substantial competent evidence.[112]

The term "substantial evidence" has already been encountered,[113] and the term "competent evidence" in this context has been held to mean "legally competent" or "answering all requirements of the law."[114] Thus, if the referee's findings of fact rest upon such relevant and legally competent evidence as a reasonable man might accept as adequate to support them, they become virtually immune from attack either by the board or the courts.[115] Medical causation is such a fact. The result is that the referee, generally a layman, resolves complex medical-factual questions, and his resolution of these key questions, necessarily determinative of the outcome, is practically unassailable.

This virtual unreviewability, coupled with the light burden of proof

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109. Workmen's Comp. App. Bd. v. Auto Express, Inc., 21 Pa. Commonwealth Ct. 559, 346 A.2d 829 (1975); Aluminum Co. of America v. Theis, 11 Pa. Commonwealth Ct. 587, 314 A.2d 893 (1974); Hoy v. Fran Lingerie, 9 Pa. Commonwealth Ct. 542, 308 A.2d 640 (1973); Universal Cyclops Steel Corp. v. Krawczynski, 9 Pa. Commonwealth Ct. 176, 305 A.2d 757 (1973).

110. Workmen's Comp. App. Bd. v. Auto Express, Inc., 21 Pa. Commonwealth Ct. 559, 346 A.2d 829 (1975); Commercial Laundry, Inc. v. Workmen's Comp. App. Bd., 17 Pa. Commonwealth Ct. 297, 331 A.2d 230 (1975); Dunn v. Merck & Co., Inc., 12 Pa. Commonwealth Ct. 572, 317 A.2d 657 (1974); Hoy v. Fran Lingerie, 9 Pa. Commonwealth Ct. 542, 308 A.2d 640 (1973).

111. Forbes Pavilion Nursing Home v. Workmen's Comp. App. Bd., 18 Pa. Commonwealth Ct. 352, 336 A.2d 440 (1975).

112. Workmen's Comp. App. Bd. v. Auto Express, Inc., 21 Pa. Commonwealth Ct. 559, 346 A.2d 829 (1975); Dunlap v. Workmen's Comp. App. Bd., 17 Pa. Commonwealth Ct. 19, 330 A.2d 555 (1975).

113. *See* note 86 and accompanying text *supra.*

114. Vorbnoff v. Mesta Mach. Co., 286 Pa. 199, 133 A. 256 (1926). This definition, admittedly imprecise, is the best available in Pennsylvania workmen's compensation case law. Its likely interpretation is that "competent" should be taken in the sense of the common-law rules of evidence.

115. The referee's findings are, of course, subject to reversal for capricious disregard of competent evidence, but the burden of showing such disregard is heavy: "Capricious disregard has been defined as the wilful and deliberate disbelief of an apparently trustworthy witness whose testimony one of ordinary intelligence could not possibly challenge." Rice v. A. Steiert & Sons, Inc., 8 Pa. Commonwealth Ct. 264, 272, 301 A.2d 919, 923 (1973). Moreover, given the tendency of the courts to hold that the trier of fact may reject in whole or in part the testimony of any witness, American Steel & Wire Div. v. Fesh, 4 Pa. Commonwealth Ct. 84, 286 A.2d 10 (1972); Walker v. Heavey, 207 Pa. Super. 528, 219 A.2d 466 (1966); Hauptle v. Bausch & Lomb Optical Co., 206 Pa. Super. 292, 212 A.2d 902 (1965); Halloway v. Carnegie-Illinois Steel Corp., 173 Pa. Super. 137, 96 A.2d 171 (1953), and may reject even uncontradicted testimony, Wolfe v. William J. Burns Int'l Detective Agency, 215 Pa. Super. 382, 258 A.2d 870 (1969); Smith v. Pullman-Standard Car Mfg. Co., 194 Pa. Super. 263, 166 A.2d 299 (1960); Stampone v. Anthony Dally & Sons, Inc., 188 Pa. Super. 615, 149 A.2d 129 (1959), the burden of showing capricious disregard of competent evidence is nearly insurmountable.

resting on a Pennsylvania claimant,[116] has led some observers to suggest that questionable claims are being compensated.[117] Unlike Pennsylvania, New Jersey and some other states that impose no "by accident" requirement have attempted to alleviate this problem by requiring claimants to prove their case by a preponderance of the evidence.[118] California takes a different approach, permitting the appeal board to resolve questions of *credibility* and to reverse a referee's findings of fact on that basis.[119] Although in Pennsylvania the appeal board had this power at one time, it no longer does.[120]

Given the above combination of factors, a Pennsylvania referee's finding of "causation" may easily be capricious.[121] This potentiality has led certain authorities to question whether heart attacks should be covered under workmen's compensation legislation.[122] Others have urged that certain minimum criteria be established to guide the referee in making his determinations and to serve as a standard for review.[123] Yet the arbitrari-

116. *See* note 86 and accompanying text *supra.*

117. *See* McLaughlin, *supra* note 7, at 491:

> [T]he untruthful claimant or employer is every bit the menace in these proceedings that he is in any other litigation. However, the claimant in Workmen's Compensation litigation does not have the burden of proof required of him elsewhere and for that reason an unscrupulous witness in this situation is even more dangerous to the administration of justice.

118. *See, e.g.*, Musselman v. Central Tel. Co., 261 Iowa 352, 154 N.W .2d 128 (1967); Dwyer v. Ford Motor Co., 36 N.J. 487, 178 A.2d 161 (1962); Ruggieri v. Bristol Mfg. Corp., 92 R.I. 365, 168 A.2d 726 (1961); LeBlanc's Case, 334 Mass. 265, 134 N.E.2d 900 (1956).

119. *See* Lamb v. Workmen's Comp. App. Bd., 11 Cal. 3d 274, 520 P.2d 978, 113 Cal. Rptr. 162 (1974).

120. The Act of February 8, 1972, P.L. 25, No. 12, stated that the board could disregard any findings of fact made by the referee that were not supported by *credible* evidence. The Act of March 29, 1972, P.L. 159, No. 61, however, stripped the board of this power by substituting the word *competent* for the word credible. Thus, issues of credibility are no longer within the scope of the board's review. Universal Cyclops Steel Corp. v. Krawczynski, 9 Pa. Commonwealth Ct. 176, 305 A.2d 757 (1973).

121. This is the result of the singularly unharmonious state of opinion among the medical profession concerning the causes of heart attacks (*see* note 10 and accompanying text *supra*). As a consequence, parties are ordinarily able to provide sufficient competent evidence to support any causation determination the referee might make.

> [T]he case for the employee and the case for the defense are generally in stalemate. The applicant has put on eminent medical experts to testify why some aspect of his work has caused or aggravated an underlying arteriosclerosis bringing about a thrombosis or infarct. The defense is certainly not outdone and presents its highly qualified medical experts to testify why the alleged work effort was merely coincidental to the heart incident. This leaves it to the trier of fact to decide the case in accordance with his own philosophy, the state of his last electrocardiagram or the length of his nose.W hatever decision is rendered will be impregnable from attack as there will be substantial evidence in the record to support it.

Goshkin, *Legislative Action, the Only Reasonable Solution to the Problems of Workmen's Compensation Heart Cases*, 5 THE FORUM 329, 329-30 (1969-70) (footnote omitted). *See also* McLaughlin, *supra* note 7, at 491 (remarking that lack of knowledge among compensation authorities, lawyers and courts about the basic mechanics of heart injury makes a reliable evaluation of the causal relationship impossible).

122. *See Report of the Committee on the Effects of Strain and Trauma on the Heart and Great Vessels*, 26 CIRCULATION 612, 621 (1962).

123. At least three states (Oklahoma, Utah and Washington) have pursued this approach. *See* Hellmuth & Hellmuth, *Heart Attack and Workmen's Compensation: Model Rules of Practice*, 4 THE FORUM 113 (1968-69); McLaughlin, *supra* note 7, at 453 (wherein the Utah plan is discussed).

ness of such criteria in the face of ever-increasing medical knowledge militates against their use.

Ironically, the factors set forth above, which present a formidable potential for abuse of the compensation scheme, may have their greatest detrimental impact on workers who only recently have been fully embraced by it—those with a history of cardiovascular difficulties. As studies have shown, these workers may be faced with the prospect of unemployability as employers adopt more cautious hiring policies in light of the recent decisions.[124]

B. Discovery

The evidence gathering techniques that are an integral part of civil suits are not emphasized in workmen's compensation proceedings. Discovery is limited, section 422[125] setting forth the only major discovery vehicles available under the Act. Depositions may be taken, but only if the witness sought to be deposed resides outside the Commonwealth or is unable to testify because of illness or other cause.[126] Complete copies of records of medical, surgical or hospital treatment provided by the employer must be furnished to the employee upon request, and the employee must reciprocate.[127] The employer enjoys no right, however, to demand an impartial physical examination, which is granted only at the discretion of the board and referee.[128] Despite the obvious desirability of an impartial examination in a case in which the question of causation is a close one,[129] the referee or board is under no obligation to honor a request for examination,[130] nor is it an error of law for them to refuse even to rule on such a request.[131] Requests for autopsies appear to rest on still more tenuous

124. *See, e.g.*, Hellmuth & Hellmuth, *Heart Attack and Workmen's Compensation: Model Rules of Practice*, 4 THE FORUM 113, 115 (1968-69) (footnote omitted):

> A survey of Wisconsin industry showed the harm which can result from too liberal cardiac claim adjudication. About half the employers questioned reported that they avoid hiring new cardiac applicants; 48% of these gave the threat of workmen's compensation costs as a reason.

Accord, E. CHEIT, INJURY AND RECOVERY IN THE COURSE OF EMPLOYMENT, at 332-33 (1961); 49 KY. L.J. 394, 395-96 (1961).

125. PA. STAT. ANN. tit. 77, § 835 (Supp. 1975).

126. *Id.*

127. *Id.*

128. PA. STAT. ANN. tit. 77, § 831 (Supp. 1975); Workmen's Comp. App. Bd. v. Auto Express, Inc., 21 Pa. Commonwealth Ct. 559, 346 A.2d 829 (1975); Workmen's Comp. App. Bd. v. Republic Steel Corp., 19 Pa. Commonwealth Ct. 495, 338 A.2d 762 (1975). The statutory language makes no provision for motion of the parties; rather, it states that the board, department, or referee may, of its *own* motion, order such an examination. *Cf.* PA. R. CIV. P. 4010(a), providing that in civil cases a *party* may move the court to order examination.

129. *But see* Dahl, *supra* note 10, at 52, arguing that such a procedure is necessary only when physicians have become "so polarized toward either the applicant or defendant that the boards have to call in an independent examiner to get objective findings and estimates." In all other cases, he states, the process becomes unduly expensive and time consuming.

130. Workmen's Comp. App. Bd. v. Auto Express, Inc., 21 Pa. Commonwealth Ct. 559, 346 A.2d 829 (1975).

131. *Id. But see* Workmen's Comp. App. Bd. v. Republic Steel Corp., 19 Pa. Commonwealth Ct. 495, 338 A.2d 762 (1975) (suggesting that when the amount and quality of medical testimony actually introduced in a given case is low, it may be an abuse of discretion to refuse a request for impartial examination).

grounds. The power of the board or referee to order an autopsy (if such a power actually exists) would be rooted in section 422 of the Act,[132] which establishes the investigatory powers of both board and referees. Again, strong arguments may be advanced for an autopsy when the etiology of a heart attack is questionable.[133] On this subject Judge Barbieri reports:

> The question has arisen as to whether or not the investigatory power of the referee would include the power in a death case to order that an autopsy be performed. It has generally been conceded that the referee has no such power, but autopsies are performed by agreement of the deceased's dependents in many cases in order to resolve the questions concerning the cause of death which are vital to the right to recover. Agreement to permit autopsy is particularly likely to be granted in view of decisions which hold that the failure to permit an autopsy can be used against the claimant who refuses it. These decisions are founded upon the logical view that if the cause of death may only be determined through autopsy, and this means for determining the cause of death has been foreclosed by the claimant's refusal to permit this form of investigation, the claimant has simply failed to produce a form of available proof which is necessary to meet his or her burden of proof.[134]

C. Evidentiary Rules

While the discovery process is much more limited in workmen's compensation cases than in civil suits, the rules of evidence are considerably broader. Section 422 is controlling in this regard:

> Neither the board nor any of its members nor any referee shall be bound by the common law or statutory rules of evidence in conducting any hearing or investigation, but all findings of fact shall be based upon sufficient competent evidence to justify same.[135]

This section is in general conformity with the intended liberal construction of workmen's compensation legislation in favor of claimants.[136] The slackened evidentiary rules have been justified on the ground that workmen's compensation hearings are not intended to be adversary proceedings in the same sense as civil trials. Thus, the common law and statutory rules of evidence should not be as stringently applied as they are in the courtroom.[137] Both the commonwealth and superior courts have pointed out, however, that since the rationale of this relaxation of evidentiary rules is the hope that legally unsophisticated claimants might proceed without

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132. PA. STAT. ANN. tit. 77, § 831 (Supp. 1975).

133. *See* Bucklin, *Heart Disease and the Law*, MED. TRIAL TECH. Q., 294, 299 (1971 Annual); LARSON, *supra* note 12, § 38.83, at 7-183; Wilentz, *Workmen's Compensation Problems: Causal Relationship in Cardiac Deaths*, 14 J. FOR. SCI. 302, 307 (1969).

134. BARBIERI, *supra* note 22, § 6.20. at 69.

135. PA. STAT. ANN. tit. 77, § 834 (Supp. 1975).

136. *See* note 20 and accompanying text *supra*; BARBIERI, *supra* note 22, § 6-21, at 74 & n.140.

137. BARBIERI, *supra* note 22, § 6.21, at 74 & n.139.

counsel, evidentiary rules are not to be ignored if both parties are ably represented.[138] Moreover,

> it has been held that Section 422, and similar enactments applicable to administrative and quasi-judicial bodies are not authority for denying parties in adversary proceedings fundamental rights embraced by some rules of evidence. Among such fundamental rights is that of confronting, cross-examining and refuting witnesses.[139]

D. Medical Evidence

Because a layman is ordinarily not competent to express an opinion on medical factual causation,[140] medical testimony is generally required to establish the causal relationship between employment and injury.[141] Furthermore, the medical witness must unequivocally assert that the heart attack actually did result from the assigned cause.[142] A less direct expression of opinion falls below the requisite standard of proof and thus does not constitute legally competent evidence sufficient to support findings of fact.[143] Statements of medical opinion phrased in terms of "could have"[144] or "could be the cause";[145] "probably was"[146] or "probably a cause and effect relationship";[147] "highly possible"[148] or "very probable and highly

138. City of Pittsburgh v. Workmen's Comp. App. Bd., 12 Pa. Commonwealth Ct. 246, 315 A.2d 901 (1974); Frey v. Lehigh Eng'r Co., 202 Pa. Super. 596, 199 A.2d 287 (1964).

139. City of Pittsburgh v. Workmen's Comp. App. Bd., 12 Pa. Commonwealth Ct. 246, 248-49, 315 A.2d 901, 903 (1974).

140. Only when the relationship between cause and effect is so close that the conclusion of causation-in-fact would be inescapable for even the untrained layman will medical testimony not be required. *See* Lingle v. Lingle Coal Co., 203 Pa. Super. 464, 201 A.2d 279 (1964), distinguishing Witt v. Witt's Food Market, 122 Pa. Super. 557, 186 A. 275 (1936). In *Witt*, the claimant was previously healthy and had experienced no prior cardiac difficulty, and the manifestations of his heart injury were immediately apparent after he lifted a heavy slab of meat. The court held that on these facts no medical testimony was required to establish causation.

141. When there is no obvious causal relationship, medical testimony is necessary to establish causation. Workmen's Comp. App. Bd. v. Czepurnyj, 20 Pa. Commonwealth Ct. 305, 340 A.2d 915 (1975); Malocheski v. Consolidated Cigar Co., 12 Pa. Commonwealth Ct. 430, 316 A.2d 81 (1974); Czankner v. Sky Top Lodge, Inc., 13 Pa. Commonwealth Ct. 220, 308 A.2d 911 (1973); Lingle v. Lingle Coal Co., 203 Pa. Super. 464, 201 A.2d 279 (1964); Washko v. George L. Ruckno Inc., 180 Pa. Super. 606, 121 A.2d 456 (1956).

142. Vorbnoff v. Mesta Mach. Co., 286 Pa. 199, 133 A. 256 (1926); Columbus Serv. Int'l & Underwriters Adjusting Co. v. Ẅ orkmen's Comp. App. Bd., 17 Pa. Commonwealth Ct. 441, 333 A.2d 233 (1975); Harrisburg Housing Authority v. Workmen's Comp. App. Bd., 14 Pa. Commonwealth Ct. 413, 322 A.2d 753 (1974); Reed v. Glidden Co., 13 Pa. Commonwealth Ct. 343, 318 A.2d 376 (1974); Washko v. George L. Ruckno, Inc., 180 Pa. Super. 606, 121 A.2d 456 (1956).

143. Menarde v. Philadelphia Transp. Co., 376 Pa. 497, 103 A.2d 681 (1954); Columbus Serv. Int'l & Underwriters Adjusting Co. v. Ẅ orkmen's Comp. App. Bd., 17 Pa. Commonwealth Ct. 441, 333 A.2d 233 (1975); Harrisburg Housing Authority v. Workmen's Comp. App. Bd., 14 Pa. Commonwealth Ct. 413, 322 A.2d 753 (1974); Ẅ ashko v. George L. Ruckno, Inc., 180 Pa. Super. 606, 121 A.2d 456 (1956).

144. Florig v. Sears, Roebuck & Co., 388 Pa. 419, 130 A.2d 445 (1957); Nester v. George, 354 Pa. 19, 46 A.2d 469 (1946).

145. Mohler v. Cook, 205 Pa. Super. 232, 209 A.2d 7 (1965).

146. Bonaduce v. Transcontinental Gas Pipe Line Corp., 190 Pa. Super. 319, 154 A.2d 298 (1959).

147. McMahon v. Young, 442 Pa. 484, 276 A.2d 534 (1971).

148. DiFazio v. J.G. Brill Co., 133 Pa. Super. 576, 3 A.2d 216 (1938).

possible";[149] "might be related";[150] or "I assume"[151] or "I presume"[152] have been held too equivocal to establish causation. On the other hand, opinions rendered "with a reasonable degree of medical certainty,"[153] phrased, for example, as "I think it certainly accelerated his death,"[154] "it is my opinion that [the accident] was aggravating,"[155] or "it is my opinion [the work] precipitated that which caused his death, namely, the coronary occlusion"[156] were all held sufficiently unequivocal to establish causation. The witness need not establish causation to a medical certainty,[157] nor need he rule out all other possible causes.[158] There must in all cases be an adequate factual basis in the record upon which the witness predicates his opinion. An opinion based on premises not found in the record will not support an award.[159]

In the attempt to establish a factual basis for opinion testimony of causation, all relevant evidence will generally be admitted.[160] Yet as previously pointed out despite the liberality contemplated by the Act in the admission of proofs, the ordinary rules of evidence may not be entirely disregarded.[161] Thus it has been logically and consistently held that a referee's findings of fact may not be based wholly on hearsay.[162] Some of the older holdings indicate, however, that hearsay testimony, normally incompetent, becomes competent evidence of the facts and circumstances stated therein when not objected to.[163] These cases have never been overruled. As a practical matter, hearsay is frequently admitted for the

149. Smith v. Pullman-Standard Car Mfg. Co., 194 Pa. Super. 263, 166 A.2d 299 (1960).

150. Workmen's Comp. App. Bd. v. Stolsky, 18 Pa. Commonwealth Ct. 367, 336 A.2d 447 (1975).

151. Smith v. Pullman-Standard Car Mfg. Co., 194 Pa. Super. 263, 166 A.2d 299 (1960).

152. Ferlazzo v. Harbison-Walker Refractories Co., 200 Pa. Super. 390, 189 A.2d 189 (1963).

153. Columbus Serv. Int'l & Underwriters Adjusting Co. v. Workmen's Comp. App. Bd., 17 Pa. Commonwealth Ct. 441, 333 A.2d 233 (1975).

154. Hagner v. Alan Wood Steel Co., 210 Pa. Super. 473, 233 A.2d 923 (1967).

155. Reed v. Glidden Co., 13 Pa. Commonwealth Ct. 343, 318 A.2d 376 (1974).

156. Curran v. James Regulator Co., 157 Pa. Super. 44, 41 A.2d 443 (1945).

157. Czankner v. Sky Top Lodge, Inc., 13 Pa. Commonwealth Ct. 220, 308 A.2d 911 (1973); Parks v. Winkler, 199 Pa. Super. 244, 181 A.2d 124 (1962).

158. Czankner v. Sky Top Lodge, Inc., 13 Pa. Commonwealth Ct. 220, 308 A.2d 911 (1973); Hagner v. Alan Wood Steel Co., 210 Pa. Super. 473, 233 A.2d 923 (1967); Gouldner v. Seltzer Coal Co., 190 Pa. Super. 115, 150 A.2d 879 (1959).

159. Workmen's Comp. App. Bd. v. Czepurnyj, 20 Pa. Commonwealth Ct. 305, 340 A.2d 915 (1975); Sabatini v. Affiliated Food Distrib., Inc., 6 Pa. Commonwealth Ct. 470, 295 A.2d 845 (1972); Goebel v. Aschenbach & Miller Co., 142 Pa. Super. 315, 16 A.2d 154 (1940).

160. McCauley v. Imperial Woolen Co., 261 Pa. 312, 104 A. 617 (1918); Lopen v. Economy Coat, Apron, Towel & Linen Supply Co., 163 Pa. Super. 593, 63 A.2d 109 (1949); Nesbit v. Vandervort & Curry 128 Pa. Super. 58, 193 A. 393 (1937). *See* PA. STAT. ANN. tit. 77, § 834 (Supp. 1975).

161. *See* notes 138-39 and accompanying text *supra.*

162. *See, e.g.*, Scannella v. Salerno Importing Co., 2 Pa. Commonwealth Ct. 11, 275 A.2d 907 (1971); Leber v. Naftulin, 179 Pa. Super. 22, 115 A.2d 768 (1955); Nesbit v. Vandervort & Curry, 128 Pa. Super. 58, 193 A. 393 (1937).

163. *See, e.g.*, Ford v. A. E. Dick Co., 288 Pa. 140, 135 A. 903 (1927); Goettel v. Pittsburgh Coal Co., 140 Pa. Super. 516, 14 A.2d 344 (1940); Broad St. Trust Co. v. Heyl Bros., 128 Pa. Super. 65, 193 A. 397 (1937).

additional light it may shed on the case[164] or to corroborate other admissible evidence.[165]

Statements made to physicians by claimants for the purpose of treatment have enjoyed special treatment for workmen's compensation purposes:

> Statements by injured workers to attending physicians for the purpose of treatment have generally been admissible in workmen's compensation cases. But such hearsay statements, when made as to the *cause* of the injury, were excluded unless they fell with the *res gestae* or were found to be "pathologically germane" to the condition being treated.[166]

Hospital records are also admissible under the Act "as evidence of the medical and surgical matters stated therein."[167] It has been recognized, however, that the quoted language was not intended to encompass either opinion or hearsay.[168]

E. Who May Testify Regarding Causation

The next question concerns who is competent to render an opinion on causation. The competency of a witness is a question of law[169] and, since the scope of review by both the board and the courts includes errors of law, either may reverse the referee's decision in this matter.[170] Nevertheless, the commonwealth court has held that failure to object to the competency of a witness will be treated as a waiver of that objection, precluding review.[171]

The cases have tended to show a logical preference for the employee's

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164. *See, e.g.*, Cody v. S.K.F. Indus., Inc., 447 Pa. 558, 291 A.2d 772 (1972); Giordano v. Ralph J. Bianoc, Inc., 204 Pa. Super. 219, 203 A.2d 396 (1964); Ceccato v. Union Collieries Co., 141 Pa. Super. 440, 15 A.2d 401 (1940).

165. Cody v. S.K.F. Indus., Inc., 447 Pa. 558, 291A.2d 772 (1972) Irwin Sensenich Corp. v. Workmen's Comp. App. Bd., 15 Pa. Commonwealth Ct. 518, 327 A.2d 644 (1974).

166. BARBIERI, *supra* note 22, § 6.21(7)(b), at 94 (emphasis added). It should be noted, however, that since the ruling of the supreme court in Cody v. S.K.F. Indus., Inc., 447 Pa. 558, 291 A.2d 772 (1972), hearsay statements made to a *physican* about the *cause* of an *unwitnessed* injury by an employee who later *died from that injury* are admissible, whether or not they are "pathologically germane" or part of the *res gestae*. *See* BARBIERI, *supra* note 22, § 6-21(7)(b), at 95.

167. PA. STAT. ANN. tit. 77, § 835 (Supp. 1975). The section goes on to state an even more liberal rule for cases in which the claim of disability is for a period of twenty-five weeks or less (emphasis added):

> Where any claim for compensation at issue before a referee involves twenty-five weeks or less of disability, either the employee or the employer may submit a certificate by any qualified physician as to the history, examination, treatment, diagnosis and *cause* of the condition, and sworn reports by other witnesses as to any other facts and such statements shall be admissible as evidence of medical and surgical or other matters therein stated and *findings of fact may be based upon such certificates or such reports.*

168. BARBIERI, *supra* note 22, § 6.21(7)(b), at 96.

169. Workmen's Comp. App. Bd. v. H.P. Foley Co., 18 Pa. Commonwealth Ct. 540, 336 A.2d 892 (1975).

170. Workmen's Comp. App. Bd. v. Vivis, __ Pa. Commonwealth Ct. __, 350 A.2d 462 (1976); Universal Cyclops Steel Corp. v. Krawczynski, 9 Pa. Commonwealth Ct. 176, 305 A.2d 757 (1973).

171. Workmen's Comp. App. Bd. v. Czepurnyj, 20 Pa. Commonwealth Ct. 305, 340 A.2d 915 (1975).

attending physician.[172] Underscoring this tendency is the lack of any requirement in heart attack cases that claimant's medical witness be a cardiologist.[173] The witness' failure to qualify as a specialist goes only to the weight and not the competence of his causation testimony.[174] Thus, family physicians, *i.e.*, general practitioners, have been held competent to establish the causal relationship in heart attack cases,[175] as have osteopaths.[176] Even an orthopedic surgeon who had neither treated the employee for his heart attack nor engaged in general practice, and who had practiced exclusively in orthopedic surgery, was held competent to establish causation.[177] It is doubtful, however, that the courts would ever rule chiropractors competent to render a medical causation opinion in a heart attack case.[178]

In sum, competent, unequivocal medical testimony will be required in almost every case to establish the causal relationship between work and a heart attack. The testimony must reflect not merely the possibility of a causal relationship, but must establish with a reasonable degree of medical certainty that the employment played a direct and material part in causing the heart attack.[179] The salient inquiry, therefore, is whether the medical witness can establish that the stress and strain of employment played a substantial role in inducing the attack.

V. Conclusions

The background, purposes and interpretation of Pennsylvania's Workmen's Compensation Act have been examined in relation to heart attack claims. The 1972 amendments to the Act are a clear legislative mandate that, henceforth, the ofttimes petty, arbitrary and ambiguous distinctions that barred recovery for legitimate heart attack claims in the past will cease to exist. This, in conjunction with another new provision of the Act stating that coverage is no longer elective,[180] is conclusive evidence that employers, and ultimately consumers, will be forced to bear a larger share of the costs of work-related injuries than ever before.

172. *See, e.g.*, Workmen's Comp. App. Bd. v. Czepurnyj, 20 Pa. Commonwealth Ct. 305, 340 A.2d 915 (1975); Workmen's Comp. App. Bd. v. Branch Motor Express, Inc., 18 Pa. Commonwealth Ct. 262, 334 A.2d 847 (1975); BARBIERI, *supra* note 22, § 6.21(6)(e), at 84-85.

173. Lisi v. Workmen's Comp. App. Bd., 17 Pa. Commonwealth Ct. 294, 331 A.2d 252 (1975).

174. Workmen's Comp. App. Bd. v. Branch Motor Express, Inc., 18 Pa. Commonwealth Ct. 262, 334 A.2d 847 (1975); Lisi v. W orkmen's Comp. App. Bd., 17 Pa. Commonwealth Ct. 294, 331 A.2d 252 (1975).

175. Russell v. Scott Paper Co., 140 Pa. Super. 84, 13 A.2d 81 (1940).

176. Workmen's Comp. App. Bd. v. Ayres Philadelphia, Inc., __ Pa. Commonwealth Ct. __, 351 A.2d 306 (1976); Lisi v. W orkmen's Comp. App. Bd., 17 Pa. Commonwealth Ct. 294, 331 A.2d 252 (1975).

177. Fry v. Calcite Quarry Co., 460 Pa. 610, 334 A.2d 258 (1975), *rev'g* 14 Pa. Commonwealth Ct. 347, 322 A.2d 403 (1974).

178. Chiropractors have been held competent to express an opinion only within the scope of chiropractic medicine. McKinney Mfg. Corp. v. Straub, 9 Pa. Commonwealth Ct. 79, 305 A.2d 59 (1973).

179. *See* notes 140-58 and accompanying text *supra*.

180. PA. STAT. ANN. tit. 77, § 431 (Supp. 1975).

Considering the pervasive nature of cardiovascular disease among members of the working population,[181] the 1972 amendments are a major step toward including within the Act's coverage a large segment of workers who, without such amendments, might continue to go uncompensated. At the same time, however, Pennsylvania workmen's compensation law is ever approaching the fine line separating injury compensation from general life and health insurance. Whether it will cross that line will depend on the interpretation given by courts and compensation authorities to the *degree* of relationship between employment and injury that will be required to establish a compensable injury.

The prospect of spurious heart claims looms larger now.[182] Nevertheless, considering the humanitarian purposes of the Act, the more liberal approach to causation is preferable to the old standard that often impeded recovery of legitimate claims in an effort to prevent a few questionable claims from being compensated.

The battleground in recent cases has been the fundamental issue of causation. Heart attack decisions adopt the requirement of a direct test of causation. Although the claimant's burden of proof is admittedly slight,[183] the compensation authorities and the courts have to date required that the stress and strain of employment play at least a substantial, non-trivial part in the resulting heart attack. It is clear, however, that "exertion" in the physical sense is not prerequisite to recovery.[184]

Emerging as the key figure in the compensation scheme is the referee. The conscious purpose of both the legislature and the courts to make his factual determinations conclusive is manifest. Given the very narrow scope of review by the board and courts of these determinations, the two major issues raised on appeal will usually be the sufficiency of the evidence underlying the findings of fact, and concomitantly, whether the claimant's medical evidence is competent as a matter of law to establish causation.

Yet to be considered is the impact that the more liberal standard for finding a work-related heart attack may have upon the overall workmen's compensation scheme. Critics are certain to charge that Pennsylvania's new rules will convert workmen's compensation into a system of heart attack insurance. Dean Larson notes, however, that in other states that have abolished the "by accident" requirement, obtaining an award is no easy matter.[185] The claimant must still establish causation in fact. Moreover, studies in some of the so-called "liberal" states indicate that despite the pervasive nature of heart ailments among the general population, heart cases do not constitute a particularly significant element in the overall

181. *See* notes 3-7 and accompanying text *supra.*
182. *See* note 117 and accompanying text *supra.*
183. *See* note 86 and accompanying text *supra.*
184. *See* notes 94-96 and accompanying text *supra.*
185. LARSON, *supra* note 12, § 38.83, at 7-186-87.

compensation scheme.[186] But whether these studies show the true picture or not, Pennsylvania's liberalized coverage scheme, while smoothing the path to compensation, can be expected to have an adverse impact as well. Workers can expect to be faced with more rigid physical requirements by employers attuned to the possibility of rising workmen's compensation costs incurred in paying the claims of high-risk employees.[187]

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186. *See* E. CHEIT, INJURY AND RECOVERY IN THE COURSE OF EMPLOYMENT, at 329-32 (1961) (discussion of the California and New York experiences). *But see* Wilentz, *Workmen's Compensation Problems: Causal Relationship in Cardiac Deaths*, 14 J. FOR. SCI. 302, 303-04 (1969) (citing the New Jersey problem).

187. *See* note 124 and accompanying text *supra*.