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Cardiac Victims and Workmen's Compensation

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CARDIAC VICTIMS AND WORKMEN'S COMPENSATION

The Kentucky Court of Appeals, in Terry v. Associated Stone Co., recently awarded compensation to a claimant who suffered a coronary occlusion with resulting damage to his heart following strenuous exertion arising out of and in the course of his employment. The court, prior to this time, had never compensated for a disabling heart attack resulting from a pre-existing disease which had possibly been superinduced by excitement, exertion, stress or strain. It is noteworthy, however, that the Workmen's Compensation Board has consistently declined to award compensation for either death or disability in heart cases and the Court of Appeals has, with one exception, uniformly sustained the findings of the Board. In the Terry case the Court of Appeals again sustained the findings of the Board (except for the amount of the award) and to this extent nothing revolutionary appears in the case.

In sustaining the award of compensation by the Workmen's Compensation Board in the Terry case the court broke away from what seemed to be an inseverable gravitational pull of conservatism and took a more liberal interpretation of the accident requirement in the statute in a heart case. One cannot, however, too hastily assume

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1 Terry v. Associated Stone Co., 334 S.W. 2d 926 (Ky. 1960).
2 Id. at 928 and cases cited therein. But see Adams v. Bryant, 274 S.W. 2d 791 (Ky. 1955), where the attending physician listed acute cardiac failure as one of three possible causes of the employee's death. The court recognized the absence of disease and awarded compensation for overexertion, nervous shock and exposure.
3 The lone exception is Wallins Creek Collieries Co. v. Williams, 211 Ky. 200, 277 S.W. 234 (1925). In that case the court stated that the Board did not find that death was the result of pre-existing heart disease "but there was no evidence upon which it could base any other finding, and its conclusion to the contrary is not supported by any evidence..." 211 Ky. at 202, 277 S.W. at 235. [Emphasis added.]
3a Most of the heart cases that have reached the Kentucky Court of Appeals have been decided on the basis of the "substantial evidence" rule. However, the conservative attitude of the court is indicated by expressions in three cases, in one of which would seem that the holding was contrary to the holding in the Terry case. In Rusch v. Louisville Water Co., 193 Ky. 689, 257 S.W. 389 (1923), the Board had found that the death had two causes, namely, (a) "pre-existing heart disease" and (b) "over excitement and hurry at a critical moment." The Board then found (c) that the claimant had not sustained the burden of proof that the death "was not the result of pre-existing disease" and dismissed the claim. Since finding (b) conflicts with finding (c), the court should have returned the case to the Board for clarification of the findings, unless the dismissal of the claim could be justified on other grounds. It should be clear that, if "over excitement and hurry at a critical moment," contributing to death, could be classified as an accident, the claimant should have been entitled to an award apportioned among the two causes. It follows that the claim is a holding that such was not an accident within the meaning of the statute. This conclusion is born out by the language used by the court. Thus, the court has in the Rusch case, in effect, adopted the conservative view that, in heart cases, there is not
that the Gordian knot has been cut for heart claimants in Kentucky. The court indicated that with the addition of the word "traumatic" preceding the words "personal injury" to the statute subsequent to the accident in question, this decision would not necessarily control cases arising after the amendment. This paper proposes to show that this latest liberal view of the court in Kentucky is the preferable view. Also, in spite of or notwithstanding the addition of the word "traumatic" to the statute, the Workmen's Compensation Board and the Kentucky Court of Appeals should not retreat from this forward-looking position.

"Among industrial workers under 65 who develop coronary thrombosis, less than 25 per cent need retire. The majority are able to carry on the old routine if they are not subjected to stress, overexertion, long hours and too little leisure." However there is a certain stigma, attaching to one who has had any type of heart disease, which is a social and economic disability. A person who has a heart condition or has had one aggravated by injury is faced with the problem that in our

(Footnote continued from preceding page)
an accident unless there is an unexpected cause, as distinguished from unexpectedness of result only, for there was here clearly an unexpected result. See Wieda v. American Box Board Co., 343 Mich. 182, 72 N.W. 2d 13 (1955). In Wallins Creek Collieries Co. v. Williams, 211 Ky. 200, 277 S.W. 234 (1925), the Board found that the death was caused by an accident, on evidence that death was caused by an attack of angina pectoris, a chronic condition of the blood vessels feeding the heart, which attack "was perhaps superinduced by overexertion." The Board awarded full compensation and the circuit court affirmed. Since there was no apportionment the Board and the circuit court must have considered that the death was accidental and its sole cause was the overexertion, the pre-existing disease not having been a contributing factor. The Court of Appeals appears to have treated the case as one in which two causes contributed to the death, viz., (a) the pre-existing chronic diseased condition of the heart, and (b) the attack of angina pectoris (a disease), "perhaps superinduced by the overexertion." The former could not have been considered as basis for an award in any event and the latter could not have been so considered unless it had been "the natural and direct result of a traumatic injury by accident." [Emphasis added] 1918 Ky. Acts ch. 176, p. 690 (1918). The court said that "what happened . . . was certainly not a traumatic accident. . . ." Therefore there was no basis for an award. 211 Ky. at 203-04, 277 S.W. at 235. The court by way of dictum expressed the opinion that what happened could not be classified as an accident. It is clear that the court relied on Rusch, supra. In Salmon v. Armco Steel Corp., 275 S.W. 2d 590, 592 (Ky. 1955) the court stated: "However, in a number of cases we have held that a heart attack brought on by strain or exertion is not compensable."

Terry v. Associated Stone Co., 334 S.W. 2d 926, 930 (Ky. 1960). "As of August 1, 1956, Ky. Rev. Stat. (hereinafter cited KRS) §842.005(1) (1960) was amended by addition of the word "traumatic proceeding [sic] the words 'personal injury.' Appellant's injury occurred in July of 1955. Therefore, whether the law as it now reads would indicate any different result under the facts of this case is unnecessary to decide."

KRS 342.005(1); see Ky. Acts 1956 ch. 77 § 1.

Osborn, "Placing the Cardiac in Industry," The Heart: A Law-Medicine Problem (An Institute of The Law-Medicine Center, Western Reserve University, March 22-23, 1957), at 274, quoting from an article by Dr. T. R. Van Dellen which appeared in the Houston Chronicle on September 20, 1956.
The dynamic society of competitive production cardiac cripples are not wanted in the open labor market.\(^7\) This presents a limitation to which the person with a heart disability must adapt himself and avoid psychological reactions while doing so.\(^8\)

The underlying philosophies, opposed to recognition of disabilities and deaths from heart diseases, seem to be based on an assumption that such recognition is social insurance. There are probably two reasons for this: (a) cardiovascular diseases account for over half of all deaths in the United States,\(^9\) and (b) cardiovascular deaths may occur at night when the person is in bed completely at rest as often as they occur while the person is at work. This seems to have established a presumption that heart disease is ordinarily the result of natural physiological causes rather than trauma or particular effort.\(^10\)

Workmen's compensation acts in the United States are not intended to provide public social insurance\(^11\) nor would this be a desirable goal. The fact that such a large proportion of deaths occur from cardiovascular diseases only demonstrates the social and economic magnitude of the problem. It is not a sound argument against compensation.

It may be granted that a large number of these cardiovascular deaths may occur when the person is at complete rest as compared with the number that occur when the person is on the job. However, there is still the requirement that the death or disability be sustained by an accident "arising out of and in the course of his employment"\(^12\) which must be satisfied in order for the Board to award compensation.

In support of a more liberal view as to heart cases there are several arguments. Foremost is the statutory directive. In Kentucky the

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\(^7\) Id. at 275, stating that when it comes to hiring new employees who have heart trouble, they are accepted by some firms but over half never or only occasionally hire cardiacs. In contrast, however, up to 88 per cent of companies retain persons who develop heart disease.

\(^8\) See, "Social Disability of the Cardiac Cripple: Economic and Emotional Consequences of Traumatic Heart Disease," 5 Current Med. No. 20, p. 17 (May 1958).

\(^9\) Cardiovascular Diseases in the U. S.—Facts and Figures, pp. 1 and 10 (March 1958), showing that the ratio of cardiovascular deaths to all deaths in the United States has risen from 24\% in 1905 to 53.3\% in 1955. This is an American Heart Association pamphlet available through the Kentucky Heart Association, Inc., 311 Speed Building, Louisville 2, Kentucky.


\(^11\) See 1 Larson, Workmen's Compensation Law § 3.10 (1952) and materials there referred to comparing our American systems with those of New Zealand and Great Britain which are truly public and socialistic.

\(^12\) KRS 342.005(1). 1 Larson, op. cit. supra note 11, § 6.10, notes that forty-one (41) states and the Longshoremen's and Harbor Worker's Act have adopted this provision,
workmen’s compensation statute specifically provides that the statute “shall be liberally construed on questions of law, as distinguished from evidence. . .” At the outset the Board must find as fact what was the cause of the disability or death, and its finding on this is conclusive on the court if supported by substantial evidence, whether on disputed or undisputed testimony. Then the Board must determine whether the cause so found was a “personal injury by accident.” This determination is one of law reviewable by the court, but our court has frequently ignored the distinction between these two mental processes treating the total determination as one of fact. Thus if the Workmen’s Compensation Board determines, on the basis of conflicting probative evidence which is substantial, that a death or disability is compensable, the Court of Appeals can be expected to continue affirming the Board’s decisions. In either case, the Workmen’s Compensation Board, or the courts are further directed to liberally construe the statutes “with a view to promote their objects and carry out the intent of the legislature. . .”

What was the intent or purpose of the legislature in enacting the Workmen’s Compensation Act? Apparently it was the intention of the Kentucky legislature “to place the burden for injuries received upon the industries in which they were suffered rather than upon a society as a whole.” Something very similar to this statement of intent is the usual statement of the purpose for workmen’s compensation statutes generally. A rather cursory dismissal of cases involving heart disease will defeat this intent. In fact, in some occupations, such as that of traveling salesmen, taxi drivers, bus drivers and truck drivers for example, future medical research may determine that the

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13 KRS 342.004.
14 This “substantial evidence” must be more than a scintilla and must do more than create a suspicion of the existence of the fact to be established. American Rolling Mill Co. v. Pack, 278 Ky. 175, 181-182, 128 S.W. 2d 187, 190 (1939); 15 For numerous authorities see, 19 Ky. Dig., “Workmen’s Compensation,” Key No. 1939. 16a See Brewer v. Millich, 276 S.W. 2d 12 (Ky. 1955) where the distinction was recognized but the court treated the determination as one of law in Hayes Freight Lines v. Burns, 290 S.W. 2d 836 (Ky. 1955).
16 Terry v. Associated Stone Co., 334 S.W. 2d 926, 929 (Ky. 1960). The court noted that in Blue Diamond Coal Co. v. Whitaker, 303 Ky. 716, 198 S.W. 2d 792 (1947), the opinion indicated that the court would have sustained the findings of the Board regardless of the way the Board had interpreted the evidence before them.
17 KRS 446.080(1).
19 Robinson v. Lytle, 276 Ky. 397, 124 S.W. 2d 78, 80 (1933) and Brewer v. Millich, 276 S.W. 2d 12, 16 (Ky. 1955). 19a 1 Larson, op. cit. supra note 11, § 1.00. See also e.g., the editor’s formulation of 99 C.J.S. Workmen’s Compensation § 5a (1958).
20 A survey indicates that people who drive cars for a living tend to have a much higher heart disease rate than those who do not. Mills and Porter, (footnote continued on next page)
industry is not carrying its share of heart disease disabilities. As medical knowledge of this fact develops, heart disabilities may be determined to be occupational diseases in these fields. This paper, however, is not prepared to propose such an extension for heart disease disabilities upon the present level of knowledge of the causes of heart injuries.

Assuming at this point that Kentucky will develop a liberal interpretation of the statute in this respect and that heart disease disabilities and deaths were intended to be compensable under our Workmen's Compensation Act, can heart claimants satisfy the several tests for compensation in Kentucky? KRS 342.005(1)\(^2\) makes the employer liable for:

(a) traumatic
(b) personal injury sustained by the employe
(c) by accident
(d) and for disability resulting from occupational disease
(e) arising out of and\(^2\) in the course of his employment,\(^2\)
(f) or for death resulting from such accidental injury or occupational disease,

but specifically excluding:

(h) diseases except where the disease is the natural and direct result of a traumatic injury by accident and
(i) results of a pre-existing disease, whether previously disabling or not.

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“Tobacco Smoking and Automobile-Driving Stress in Relation to Deaths from Cardiac and Vascular Causes,” 234 Am. J. M. Sc. 35-43 (July 1957). It was found in this study that heart disease is distinctly higher in persons with an annual driving mileage in excess of 12,000 miles. In this study it was noted that excessive cigarette smoking and an annual driving mileage in excess of 12,000 miles are related to an increased amount of deaths due to heart disease.

The implications of this study may be far reaching. This is evidence that workers who were drivers by "occupation" could have heart conditions which "arose out of employment" even though the actual heart attack did not occur on the job at all. 5 Current Med. No. 20, p. 16 (May 1958).


We are interested at this point in the possible or probable effect of the addition to this section of the word "traumatic" preceding the words "personal injury." What has this word added to the accidental injury requirement?

There is a considerable diversity of opinion as to the meaning of the word "traumatic." This term is not always understood to have a uniform meaning as between lawyers and even less often as between lawyers and doctors. The criterion for "trauma" under the decisions of the Kentucky Court of Appeals would apparently include "any independent influence or causes external to the body coming into direct contact with, and causing injury to, the physical structures thereof."24 For the purposes of this article, this definition will be accepted. This definition is broad enough for "trauma" to include four categories: (1) Physical trauma, caused by physical violence; (2) Thermal trauma, caused by heat or cold; (3) Electrical trauma, caused by electrical energy; (4) Chemical trauma, caused by poisons.25

In heart cases there is not only the difficulty implicit in the definition of the word "trauma" itself but also the difficulty in proof of causation. At times it may not be possible to get adequate medical testimony to prove causation in all cases.26 However, because of the importance of heart disease as a medicolegal problem27 the medical profession is paying more attention to the influence of stress and strain as a substantial factor in heart disease. Stress and strain can be physical, such as is experienced in accidental injury or it can be psychological or emotional as is experienced by executives who have to make serious decisions. Either of these is now considered of sufficient importance in heart disease for prominent medical authorities to go on record in this regard in a positive manner.28 When death

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24 Great Atlantic & Pacific Tea Co. v. Sexton, 242 Ky. 266, 271, 46 S.W. 2d 87, 89 (1932). See also Note, "Traumatic Personal Injury: A Discussion of the 1956 Amendment to the Kentucky Workmen's Compensation Act," 47 Ky. L.J. 437 (1959). This article advocates extension of the definition of "trauma" to include overexertion, shock and overexposure.


27 Statistical Bulletin, Metropolitan Life Insurance Co., (Dec. 1955), estimated that 5 1/2 million people in this country have some type of heart disease. There are 1 1/4 million new cases each year. This is important in the personal injury field in that inevitably people with heart disease may be involved in traumatic situations which give rise to the disputed issue of traumatic heart disease. 3 Current Med. No. 14, p. 8 (Nov. 1956).

28 "Trauma as a Type of Stress in the Causation of Coronary Heart Disease: A Symposium Review of Recent Medical Literature on the Subject," 5 Current Med. No. 20, p. 10 (May 1958). For other medical authorities' views on the relationship of coronary heart disease and physical exertion, accidental trauma (footnote continued on next page)
or disability follows an accident arising out of and in the course of
the claimant's employment, the medicolegal question usually is, "Was
the disability or death the result of the accident alone, the heart
disease alone, or did both contribute in the subsequent disability?" 29

The most clear-cut means of heart injury would be through
penetrating wounds as, e.g., bullets, knives or broken ribs. This type
of injury would offer no problem as there would be direct physical
trauma. From this extreme and obvious example we move toward
the cases that produce litigation in which the accident requirement
is not so clearly met. Larson 30 groups by-accident requirement cases
into four principal categories, consisting of two "exertion" categories
— "breakage" cases and "generalized condition" cases—and two "expo-
sure" categories— "freezing and sunstroke" cases and "diseases of expo-
sure" cases. In the category of exertion causing a "generalized condi-
tion" he places the heart injuries involving coronary thrombosis,
myocarditis, dilation of heart, arteriosclerosis, etc. A majority of
jurisdictions accept usual exertion as fulfilling the "by accident"
requirement if these conditions result. Larson lists Kentucky with the
majority in this category but indicates that heart cases are contra. 31
In Kentucky cases, other than heart cases, internal injuries resulting
from strain have been recognized as being compensable "personal
injuries by accident" 32 and there has been no tendency to be so
meticulous with the question of trauma.

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and emotional upset, see also Masters, et. al., "Acute Coronary Insufficiency, Its
Differential Diagnosis and Treatment," 45 Annals Internal Medicine 561-581
(1956); Sigler, "The Evaluation of Claims for Workmen's Compensation in
1956); and Moritz, "Trauma and Heart Disease," 5 W. Res. L. Rev. 133 (1954).

29 "Distinguishing Between 'Natural and Traumatic' Death in Victims with

The physician who is concerned with such a case may clarify the situation in his
mind if he states the problem in this fashion:

(1) Has the natural disease any connection with the trauma or is it a distinct
process?
(2) Is the natural disease sufficient to produce death by itself?
(3) Is the traumatic condition sufficient to produce death by itself?
(4) Is the natural disease merely a contributory factor in the death which is
due mainly to trauma?
(5) Is the traumatic condition merely a contributory factor to the death which
is due to natural causes?
(6) Is the death the result of traumatic injury and natural disease?"
30 1 Larson, op. cit. supra note 11,
(a) § 38.20 Routine exertion causing "breakage."
(b) § 38.30 Routine exertion causing injury from "generalized conditions."
(c) § 38.40 Routine exposure causing freezing or sunstroke.
(d) § 38.50 Routine exposure causing disease.
31 Id. § 38.30, at 527-528, n. 19.
32 Contractors Service & Supply Co. v. Chism, 316 S.W. 2d 840 (Ky. 1958);
Parrott v. S. A. Healy Co., 290 S.W. 2d 798 (Ky. 1956); Ironton Fire Brick Co.
(footnote continued on next page)
Unquestionably there is a distinct and peculiar test for compensation in heart cases in Kentucky. This may be the result of at least two causes. One cause is that lawyers, referees and the courts may be unaware of the basic mechanics of heart injury. If this is the situation, a reliable evaluation of the issues of causal relationship is impossible. There are a number of excellent sources through which an attorney may acquire the knowledge necessary for his needs.

Secondly, physicians who offer testimony as expert witnesses frequently misunderstand their function. This is principally because they are unaware of the legal determinants of compensability and the degree of certainty required of their opinions. A mere “possibility” is not alone sufficient to support a finding of fact. On the other hand if the medical witness is cognizant of the significance attached to the term “probable” as distinguished from the term “possible,” very often it may be just a matter of words and he could reasonably testify that the injury or condition is a “probable” result of a particular accident. Also, it is not necessary for the medical witness to testify with absolute certainty that a particular accident in fact caused or aggravated the claimant’s condition. The Board is entitled to take all the circumstances into consideration, including medical testimony, to justify its conclusion.

Doctors do not consider it important whether they say that a heart condition was “aggravated” or “precipitated” by trauma, though

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v. Madden, 285 S.W. 2d 897 (Ky. 1956); Totz Coal Co. v. Creech, 245 S.W. 2d 924 (Ky. 1951); U. S. Coal & Coke Co. v. Parsons, 245 S.W. 2d 442 (Ky. 1951); Harlan-Wallins Coal Corp. v. Lawson, 242 S.W. 2d 999 (Ky. 1951); Wood-Mosaic Co. v. Shumate, 305 Ky. 386, 204 S.W. 2d 331 (1947); Tafel Electric Co. v. Scherle, 295 Ky. 99, 173 S.W. 2d 810 (1943); and Coleman Mining Co. v. Wicks, 213 Ky. 134, 320 S.W. 936 (1926).

See McLaughlin, “The Compensability of Heart Injuries Under the Pennsylvania Workmen’s Compensation Act,” 21 U. Pitt. L. Rev. 445, 491 (1959-60). Mr. McLaughlin, who was formerly Special Assistant Attorney General assigned to the State’s Workmen’s Insurance Fund, cites in this article four principal causes for what he terms “unfortunate results” in heart cases. The two causes discussed in the text were among the four listed by Mr. McLaughlin.

See generally Boas, Cardiac Injury Resulting From Effort or Trauma (1955); Practising Law Institute, Aggravation of Pre-existing Conditions—Medical Aspects of Heart Injury Cases (1957); and Gray, Attorney’s Textbook of Medicine (3d ed. 1955), especially Vol. 1.

Old King Mining Co. v. Messer, 252 S.W. 2d 863 (Ky. 1952); Ratliff v. Cubbage, 314 Ky. 716, 238 S.W. 2d 944 (1951); American Rolling Mill Co. v. Pack, 278 Ky. 175, 128 S.W. 2d 187 (1939).


The Kentucky Court of Appeals seems to think in terms of “aggravation” of pre-existing diseases. Terry v. Associated Stone Co. 334 S.W. 2d 926, 930 (Ky. 1960). Statutory provisions are: KRS 342.005(1) does not “include the results of a pre-existing disease, whether previously disabling or not,” under an

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this is of concern to the lawyer. Supposedly, if “aggravation” is alleged or required, this can be interpreted as implying, at the most, only a “temporary enhancement” of pain and suffering from a cardiac condition which has in the past produced some degree of disability. On the other hand, if “precipitation” is required or alleged, this would seem to mean making a disease manifest, or bringing to light symptoms which were previously not present and which now make it difficult for the individual to perform his normal activities or even to remain alive. This distinction would, as far as traumatic heart conditions are concerned, apparently make “precipitation” favorable to the plaintiff-claimant while “aggravation” would be more to the defendant’s advantage.

Regardless of whether the statute requires or there is an allegation of “aggravation” or “precipitation,” the expert medical witness may determine that the claimant was not previously suffering from a disease if he had no symptoms which caused him pain, suffering, inconvenience or interference with his job. The question should be: Was the specific accident or trauma (or could it have been) a competent producing cause of the subsequent symptoms of cardiac disability? This argument is especially supported by the physical features of the heart that give this organ special reparative or healing abilities by the process of compensation or decompensation. Many people, as a result of this “compensation,” never know of the disabling symptoms of impaired coronary circulation until the traumatic accident brings them to light. Also, in many of these cases but for the accident the individual would have continued his normal functions—though perhaps in a somewhat precarious state. Up until the actual time of the accident the safety margin was adequate to permit his usual activity. The unknown pre-existing cardiac condition merely rendered

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employer’s liability. Under KRS 342.005(2), apportionment of the aggregate extent and duration of disability must be made between:

(a) “Traumatic injury by accident;”
(b) Pre-existing disease previously disabling;
(c) Pre-existing disease not previously disabling but aroused into disabling reality by the injury or occupational disease.

KRS 342.120(1)(a), (1)(b) and (4) (Ky. Acts 1960 ch. 147 § 9 then) indicates that a claimant may recover for a dormant non-disabling disease condition which was aroused or brought into disabling reality by reason of a subsequent compensable injury by accident or an occupational disease from the Subsequent Claim Fund but not for prior disabling disease.

38 See “Procedural Problems in Proof of Traumatic Heart Disease: Important Differences Between Allegation of ‘Aggravation’ and ‘Precipitation,’” 5 Current Med. No. 20, p. 19 (May 1958), where this distinction is made.

39 In one case, at least, a general practitioner was held to be competent to testify on the relationship between trauma and coronary heart disease. Choicener v. Walters Amusement Agency, Inc., 269 Mass. 341, 168 N.E. 918 (1929).
the claimant more susceptible or predisposed him to the effects of the accidental injury. The accidental injury served to extinguish the margin of safety.

In the past, the possibility of cardiac trauma from non-penetrating injury to the chest was ignored by the medical profession. The stereotyped opinion was that the heart was an organ that almost always escaped injury. Although the heart is well protected by the bony thoracic cage, there is abundant evidence that cardiac injury does result from either direct or indirect violence many times without external evidence of injury and often from what appears to be only slight trauma. At the present time more cases of traumatic heart disease are overlooked than are diagnosed incorrectly.40

Many medical authorities believe that even with the most severe exertion it is impossible to cause a normal heart to fail or dilate.41 Thus, where there is disability or death from heart disease following exertion, there probably was a previous abnormal heart condition. Therefore, any compensation award would be apportioned according to the proximate contribution of the pre-existing disease and the accident.42 Stern43 believed that a heart disorder could be aggravated in three different manners due to trauma: (1) by psychic excitement, (2) by strong mechanical shock to the body, and (3) by strong movements of the muscles, such as the effects of sudden effort. “Heart strain is not trauma in the usual and common meaning of the word, however, the result of this physiological condition is internal injury with disability of varying duration and degree.”44

42 KRS 342.005(2); Shuman Co. v. May, 327 S.W. 2d 14 (Ky. 1959); American Rolling Mill Co. v. Stevens, 290 Ky. 16, 160 S.W. 2d 355 (1941); University of Kentucky v. Combs, 261 Ky. 883, 88 S.W. 2d 981 (1935); Broughton’s Adm’t v. Congleton Lumber Co., 235 Ky. 534, 1 S.W. 2d 908 (1930); Kingston-Pocahontas Coal Co. v. Maynard, 209 Ky. 431, 273 S.W. 84 (1925); B. F. Avery & Sons v. Carter, 205 Ky. 548, 266 S.W. 50 (1924); Employers’ Liability Assurance Corp. v. Gardner, 204 Ky. 216, 263 S.W. 743 (1924); Robinson-Petett Co. v. Workmen’s Compensation Board, 201 Ky. 719, 258 S.W. 318 (1924).
43 Kissane, supra note 40 at 422, where he refers to the following authorities: Stern, Uber Traumatische Entstehung Junerer Krankhuten, Jena p. 26 (1900); Montschr. f. Unfallheilkunde, p. 4 (1897); Dritte Auflage Bearbetet von Rudolf Stern, Jena, p. 864 (1930).
44 Id. at 423.
pathological processes that are associated with myocardial infarction it is not unreasonable to assume that physical exertion can initiate a myocardial infarction.\textsuperscript{45} Physical strain, if it is to be regarded as the cause of myocardial infarction will usually be a specific sudden effort occurring at some particular moment, and be followed immediately by symptoms of cardiac disturbances.\textsuperscript{46} Even so, immediate disablement should not be an essential criterion of causal relationship, though the onset of symptoms is important in determining whether the heart disease is only coincidental with the injury or a result of the injury.

It is difficult to determine whether overexertion (or unusual exertion) should be necessary for compensation in heart cases.\textsuperscript{47} For a chronic cardiac cripple the slight normal exertion of every day life may be enough to overstrain the diseased heart while another heart may withstand tremendous exertion. A majority of jurisdictions hold that if the strain of the employee's ordinary or usual exertions causes death or collapse from heart weakness the injury is compensable, although there is a rather substantial minority of jurisdictions that require a showing that the exertion was in some way unusual or extraordinary.\textsuperscript{48} Kentucky's Court of Appeals has managed to avoid any direct consideration of the unusual strain doctrine. Although the court has discussed the element of "trauma" in heart cases, this discussion has been merely dictum.\textsuperscript{49} An able study has been made suggesting that Kentucky should resolve the question of causation in heart cases by a determination whether the evidence reasonably indicates a conclusion that the employment, \textit{in fact}, caused the unexpected result for which compensation is sought and not by an "unusual exertion" test.\textsuperscript{50} This is a reliable test and it would seem to be designed to carry out the "intent of the legislature" underlying our statute.

The term heart disease covers more than 20 different kinds of

\textsuperscript{45} Boas, \textit{op. cit. supra} note 41, p. 2.
\textsuperscript{46} See Kissane, \textit{supra} note 40 at 418 where it is stated, "Approximately seventy-five per cent of all cases of traumatic heart disease have symptoms immediately, but there may be a delay up to one month."
\textsuperscript{47} Larson believes that many heart failure cases are decided on arbitrary and artificial medico-legal distinctions which are rather dubious. 1 Larson, \textit{op. cit. supra} note 11, § 38.73 at 560. Larson further criticizes the whole theory of unusualness on four grounds: (a) the word "accident" does not inherently require "unexpected cause" which some states require for disease or generalized-condition cases; (b) "unusual" is not synonymous with "unexpected" or "accidental"; (c) there is seldom any adequate measure of the unusualness or usualness of exertion in any occupation; and (d) unusual exertion does not necessarily indicate a greater possibility of medical causation. \textit{Id.} at §§ 38.60-38.63, 38.81.
\textsuperscript{49} \textit{Id.} at § 455, n. 8.
\textsuperscript{50} \textit{Id.} at § 455.
conditions. Of these, the big three—arteriosclerosis (coronary artery disease), hypertension and rheumatic heart disease—account for about 96 per cent of the disabilities and deaths. Arteriosclerotic heart disease (including coronary artery disease) accounts for a large majority of all "heart disease" deaths—for more than four-fifths of the total among white males and for nearly two-thirds of those among white females. This discussion is limited to disabilities or deaths resulting from coronary arteriosclerosis as this is the heart disease most easily affected by stress and strain or exertion. Heart failure in persons with "uncomplicated" hypertensive heart is normally a result of a slowly progressive deterioration and the course of the disease is rarely significantly changed by physical exertion or emotional disturbance. This would mean that hypertensive heart disease, if not complicated by coronary arteriosclerosis, would be compensable only where heart disease is recognized as an occupational disease. The Kentucky Court of Appeals has not had occasion to pass upon this point and it is not considered practicable to make this extension at the present time.

Up to this point the argument has been that heart cases should be compensable but not all heart or cardiac cases will be or should be compensable. A reasonable question at this point would be: Are there any criteria by which a compensable cardiac case can be distinguished from a non-compensable cardiac case? Obviously this can not be stated in an all-inclusive test. As a skeleton foundation or as a minimum basis, the following checklist may be used for traumatic heart cases:

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See "Prior Cardiac Conditions Aggravated by Trauma," 1 Current Med. No. 2, pp. 36-37 (Nov. 1953), for seven (7) types of prior heart disease that may be aggravated by trauma.

Your Heart, Metropolitan Life Insurance Company Bulletin, p. 10 (1954); see also note 9 supra.

Statistical Bulletin, Metropolitan Life Insurance Company, p. 1 (Feb. 1959); supra note 9 at 6. Hypertension was reported as an associated condition in a considerable proportion of deaths classified as due to arteriosclerotic heart disease; when both of these conditions are reported on the death certificate, international rules of classification require that the death be charged to arteriosclerotic heart disease.

Moritz, "Trauma and Heart Disease," 5 W. Res. L. Rev. 133 at 139 (1954). The tenor of this article indicates that Dr. Moritz thinks of heart failure as the end result and not the progressive process.

Cf., Insurance Dep't of Mississippi v. Dinsmore, 233 Miss. 569, 102 So. 2d 691 (1958), where compensation was awarded when mental and nervous strain of work was a "factor" contributing to death from a stroke. Discussed in 37 Texas L. Rev. 258 (1959), and 27 Fordham L. Rev. 462 (1958). Kentucky's general occupational disease statute was not enacted until 1956. KRS 942.316 (Ky. Acts 1956, ch. 77 §12).
A. Proximate Causation

1. What was the nature of the injury? (Automobile collision, fall on stairs, violent physical exertion, emotional stress, etc.)
2. Was the claimant unconscious or in shock for any period of time? How long was he unconscious?
3. Did the claimant exhibit at the time of the injury any evidence of emotional upset, anxiety, hysteria, or tension?
4. At the time of the injury, was there any necessity for the administration of emergency cardiac drugs (such as morphine, demerol, aminophyllin derivatives)?
5. Did the claimant faint at the time of the injury?
6. Before the accident did the claimant have a history of: rheumatism, chorea, scarlet fever, congenital heart disease, arteriosclerotic or coronary heart disease?
7. Before the accident did the claimant have any symptoms of: Pain in the chest, shortness of breath, palpitation, rapid heart beat, swelling of the ankles, easy fatigability?

B. Identification

1. After the accident did the claimant exhibit any symptoms such as: Chest pain, shortness of breath, palpitation, rapid heart beat, swelling of the ankles, easy fatigability?
2. What did the electrocardiogram show after the accident?
3. If electrocardiograms were taken before the accident and are available, how do they compare with those made after the accident?
4. Are there any murmurs present?
5. What significance do these murmurs have from a functional or disability viewpoint?
6. After exercise, is there any evidence of blueness of the skin (cyanosis) or shortness of breath (dyspnea)?
7. What is the blood pressure (both systolic and diastolic)—immediately after exercise and three minutes after exercise?
8. Is there any irregularity of pulse after exercise?
9. Does the pulse rate return to normal limits within a reasonable time after exercise?
10. Is the “cardiac reserve”—good? fair? poor?
11. Is the heart disease “fully compensated?”
12. What drugs are being given for treatment of this heart condition?
13. What is the exact medical diagnosis?

C. Evaluation of Disability

1. Is this claimant employable (a) full time? (b) part time? (c)
only for light duty or sedentary positions? (d) moderate duty positions? (e) arduous duty positions?

2. What is his “functional capacity class?”
   (a) Class 1—Is there no limitation of his physical activities in spite of the fact that he has heart disease? That is, does ordinary physical activity cause him no discomfort? Claimants in this class do not have any symptoms of cardiac insufficiency nor do they experience angina.
   (b) Class 2—Is he a claimant with cardiac disease who has only a slight limitation of physical activities? That is, is he comfortable only at rest? In this class, ordinary physical activity results in undue fatigue, palpitation of the heart, shortness of breath.
   (c) Class 3—Is he a claimant who has marked limitation of physical activity—by reason of the fact that even “less than ordinary” activity causes undue fatigue, palpitation of the heart, shortness of breath or anginal pain?
   (d) Class 4—Is he a claimant with heart disease who is unable to carry on any physical activities whatsoever without discomfort? Even at rest in bed or in a chair, does he exhibit symptoms such as those mentioned above? Does he, when any physical activity whatsoever is undertaken, increase or enhance existing discomfort?

3. “Therapeutic classification”—In what therapeutic classification has the claimant been put by his doctor? In this regard there are the following therapeutic classifications:
   (a) Class 1—Claimants with heart disease whose physical activity need not be restricted.
   (b) Class 2—Claimants with heart disease whose ordinary physical activity need not be restricted—but who cannot undertake, or who are advised not to undertake unusually severe or competitive efforts.
   (c) Class 3—Claimants with heart disease whose ordinary physical activity has to be moderately restricted, and whose strenuous physical activity has to be discontinued.
   (d) Class 4—Claimants with heart disease whose ordinary physical activity has to be markedly restricted.
   (e) Class 5—Claimants with heart disease who have to be at complete rest in a bed (or a wheelchair).

This therapeutic classification was adopted as a guide for the doctor in the management or treatment of cardiacs. However, the attorney
CONCLUSION

It should not be a sufficient defense to say that the underlying process, even though not producing any symptoms or disability, can, by its inherent development and without the intervention of trauma, produce disability. The question to be posed and settled is whether the specific trauma, when it occurred, was an efficient producing cause for the ensuing symptoms and the disability. The fact that without trauma the underlying diseased condition is capable of eventuating and indeed may eventuate into disability is not relevant to the fact that because of trauma it did result in the disability complained of at a particular time.

A unique criterion should not be required for compensation in heart cases in Kentucky. To prevent discrimination against cardiac injury claimants as compared with claimants from other industrial injuries, Kentucky should not retreat from its position in Terry v. Associated Stone Co. This liberal view or position is in keeping with the spirit of our Workmen's Compensation Act.

The test to be used by the court if it is to maintain this position should be whether there is evidence to support a conclusion that the employment, in fact, caused the unexpected result for which compensation is sought regardless of the degree of strain. Over exertion should not be an absolute essential for an award. It might be advantageous, in order to resolve the question of causation in keeping with the "intent of the legislature", to avoid the attempt to distinguish between "exertion" and "overexertion" and to use the compound term "stress and strain" instead. The compound term would include both usual exertion and overexertion.

In making the investigation and determination whether the employment in fact caused the unexpected result, the use of a board of impartial cardiologists responsible only to the Workmen's Compensation Board would be the ideal modus operandi. The employee would be

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57 Terry v. Associated Stone Co., 334 S.W. 2d 926 (Ky. 1960).
58 "Exertion" and "overexertion" seem to be the words that have been adopted by the legal profession and use of them may lead to distinctions not advocated by this article. "Stress and strain" appear more frequently in medical discussions without any attempt to distinguish between the usual and the unusual. See, e.g., Rosenbaum and Belknap, Work and The Heart (1959); Stroud and Stroud, Diagnosis and Treatment of Cardiovascular Disease (1957). At least one court has used the term "stress and strain", see McMurray's Case, 116 N.E. 2d 847 (Mass. 1954).
59 This can be done under KRS 342.315. This statute permits "physicians or surgeons." See also KRS 342.121.
adequately protected with this method. With the aid of the cardiologists the Board should have little difficulty with the problem of apportionment which is present in most heart injury cases.

The employer will be adequately protected in Kentucky by our "subsequent injury" statute. This statute was designed to promote employment of handicapped persons and older workers. Because of this statute, fear of possible future awards in cardiac injury cases should not create any reluctance on the part of employers to employ or re-employ these people.

Adoption of this view in Kentucky will not open the floodgates with every internal failure becoming an accident just because it happens as was prophesied by Judge Latimer in his dissent in the *Purity Biscuit Company* case. The effect of the test advocated will be to make the question of compensability turn on the fundamental causation issue. There must still be an "accident" involving an unexpected result and some effort or exertion medically capable of producing the collapse "arising out of" and "in the course of" his employment. It is not enough that the cardiac failure merely happen during working hours. The controlling factors in considering cardiac injury cases should be prevention of arbitrary discrimination against employees injured in this manner and imposition on industry (as part of cost of production) with the cost of work-connected injuries in our industrial society. Sound legal principles to distinguish the compensable from the non-compensable cardiac claim are essential to preclude a sort of macabre industrial raffle in which a cardiac victim's chances of recovery are practically nihil.

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60 KRS 342.120.
61 *Purity Biscuit Co. v. Industrial Comm'n*, 115 Ut. 1, 201 P. 2d 961 at 975 (1949).
62 *Totz Coal Co. v. Creech*, 245 S.W. 2d 924 (Ky. 1951); *Phil Hollenbach Co. v. Hollenbach*, 181 Ky. 262, 204 S.W. 152 (1918), defining "accident" as something "unusual, unexpected, and undesigned," including an "unexpected or unusual event happening with or without negligence." See generally 1 Larson, *op cit. supra* note 11, § 37.20.
63 *Masonic Widows & Orphans Home v. Lewis*, 330 S.W. 2d 103 (Ky. 1959); *United States Steel Co. v. Isbell*, 275 S.W. 2d 917 (Ky. 1955); *Harlan-Wallins Coal Corp. v. Stewart*, 275 S.W. 2d 912 (Ky. 1955); *Draper v. Ry. Accessories Co.,* 300 Ky. 597, 189 S.W. 2d 934 (1945). See 1 Larson, *op cit. supra* note 11, §38.83 at 564.565 for view similar to the one expressed in this paragraph.