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IN *Holmes v Poeton Holdings Ltd.* [2023] EWCA Civ 1377, the Court of Appeal addressed an area of law that is "bedevilled by apparent inconsistency and imprecision at the highest level" (at [30]). The case concerned Mr. Holmes, who contracted Parkinson's disease after prolonged exposure to trichloroethylene (TCE), a toxic solvent, during his employment with Poeton Holdings Ltd. Central to the appeal was the challenge of establishing factual causation, given the multifactorial pathogenesis of Parkinson's disease. This provided a significant opportunity for the court to clarify contentious aspects of the material contribution doctrine, particularly in its application to indivisible diseases.

Allowing the defendant's appeal on the facts owing to the uncertain aetiology of Parkinson's disease the Court of Appeal held, in a unanimous decision, that the material contribution doctrine applies to indivisible as well as divisible diseases, thereby affirming earlier dicta by Lord Phillips in *Sienkiewicz v Greif* [2011] UKSC 10, at [90], and Lord Toulson in *Williams v Bermuda Hospitals Board* [2016] UKPC 4, at [31]. Stuart-Smith L.J., delivering the lead judgment in *Holmes*, reasoned that the material contribution doctrine was articulated by the House of Lords in *Bonnington Castings Ltd. v Wardlaw* [1956] A.C. 613 "in terms that were appropriate to indivisible diseases" (at [46]), despite the case concerning pneumoconiosis – a condition now regarded as a "quintessential divisible disease" (at [63]). The reasoning appears acutely cognisant of the evolving interpretations of *Bonnington*, which retrospectively view the House of Lords as treating pneumoconiosis as an indivisible disease due to the claimant's full award of damages.

However, it is critical to keep matters of attribution separate from apportionment, as only the former was at issue before the House of Lords in *Bonnington*. It is thus questionable whether the court truly intended to distinguish between divisible and indivisible diseases or whether this distinction emerged as an anachronistic construct in later judicial interpretations. Considering the state of medical knowledge in 1956, it seems unlikely that the court anticipated the rigid differentiation now prevalent in modern case law. At least from this perspective, the subsequent restriction of the material contribution doctrine to divisible diseases in *B v Ministry of Defence* [2010] EWCA Civ 1317 and *Heneghan v Manchester Dry Docks Ltd.* [2016] EWCA Civ 86 remains undeserving of its criticism by Stuart-Smith L.J. at [65] in *Holmes.*

The evolution of the material contribution doctrine reveals a broader tension between legal realism and conceptual clarity. Courts have endeavoured to adapt legal principles in response to evolving medical and scientific knowledge, yet this process has introduced additional

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complexity into the theoretical foundation of the material contribution doctrine and its relationship to but-for causation. Stuart-Smith L.J. unequivocally positioned the doctrine as an exception to the but-for test at [63] in *Holmes*, following the approach established in *Bailey v Ministry of Defence* [2008] EWCA Civ 883 and supported by Lord Rodger in *Fairchild v Glenhaven Funeral Services Ltd.* [2002] UKHL 22, at [129], as well as Lord Phillips in *Sienkiewicz*, at [17]. However, this gives only cursory attention to the contentious status of *Bailey* as a legal precedent. Academic commentary has sought to preserve the orthodoxy by reinterpreting the outcome in *Bailey* through a more consistent application of but-for causation (J. Stapleton, "Unnecessary Causes" (2013) 129 L.Q.R. 39; S. Steel, "Material Contribution to Damage, Again" (2022) 138 L.Q.R. 545). And notably, the Privy Council proposed a cumulative but-for approach in *Williams*, at [32]–[34]. Unfortunately, Stuart-Smith L.J. in *Holmes*, concluded at [67] that any such interpretation constitutes an approach that is "liable to cause confusion" and should therefore "not be adopted" – a stance seemingly rooted in his resolute determination to extend the doctrine to indivisible diseases.

Evidently, with divisible diseases, the material contribution doctrine operates within the orthodoxy of the but-for test, allowing causation to be established cumulatively by recognising that each contributing factor incrementally worsens the condition, even if no factor itself satisfies the standard. However, this approach cannot accommodate indivisible diseases, as noted in *B* at [150] and *Heneghan* at [23]. Dyson M.R. observed in *Heneghan* at [36] that, without knowing the triggering contribution of the indivisible disease, the doctrine cannot definitively determine whether a tortfeasor's contribution worsened the claimant's condition at all; instead, it can only be inferred that the contribution increased the overall risk of harm. Consequently, Dyson M.R. concluded at [47] that where scientific evidence does not support a finding of causal contribution, reliance must shift to the *Fairchild* exception, which addresses risk rather than causation in the traditional sense. The analogy by Stuart-Smith L.J. at [116] provides a useful starting point for distinguishing the material contribution doctrine from the *Fairchild* exception:

> Take a simplified model and assume that an individual who has developed Parkinson's disease had 100 units of dopaminergic neurons and that the destruction of 70 of those units has caused his disease. Assume that exposure to TCE has damaged or destroyed 35 units: it would not be difficult for a court to conclude that the exposure to TCE materially contributed to the development of the disease. Assume exposure to TCE has damaged or destroyed 1 unit: it is not obvious that the same answer would be given. Yet in the present case there is nothing to indicate even at a most general level whether Poeton's tortious exposure has damaged or destroyed 0 units, or 70 units or some number of units in between.

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The analogy posits that the doctrine may apply where it is evident that harm to a more-than-de-minimis number of units is attributable to a defendant's conduct, but not where it remains unclear whether any harm has occurred. This aligns with Dyson M.R.'s position in *Heneghan*, which effectively confines the material contribution doctrine to issues of factual rather than scientific indeterminacy, further reflected by Stuart-Smith L.J.'s acceptance of the differentiation between individual causation and generic causation in *Holmes*. However, Stuart-Smith L.J.'s analysis neglects the critical issue that arises with indivisible diseases: the difficulty of isolating the causal trigger. Whether the defendant's conduct destroyed one or 69 units is irrelevant if none can definitively be identified as the trigger of the disease. This is distinct from divisible harm cases, where each contribution can be cumulatively attributed. The practical application of the doctrine is therefore constrained by epistemic gaps in understanding the pathogenesis of such conditions. This reinforces the continued relevance of the *Fairchild* exception, as its focus on risk rather than causation, circumvents the need to identify a specific causal trigger.

Extending the material contribution doctrine to indivisible diseases risks blurring the distinction between the two different approaches. A claimant could seek full liability from the defendant, circumventing the proportional liability framework under the material increase in risk exception to cases other than mesothelioma claims. Underhill L.J.'s statement at [124] in *Holmes* that "in the case of an indivisible injury, a tortfeasor who makes a material contribution to the injury is liable for the whole" suggests that liability is assigned entirely to the defendant, regardless of any scientific certainty on the extent of their contribution. In contrast, divisible diseases are subject to apportionment based on the defendant's specific contribution, as affirmed by Stuart-Smith L.J. at [32], where scientific evidence permits quantification. However, such quantification is not possible with indivisible diseases, as noted in *BAE Systems v Konczak* [2017] EWCA Civ 1188, at [49], *Rahman v Arearose Ltd.* [2000] EWCA Civ 19, at [30], and *Dickens v O2* [2008] EWCA Civ 1144, at [43]. Ritchie J. in *CNZ v Royal Bath Hospitals* [2023] EWHC 19 (KB) at [372] acknowledged the perennial unfairness this poses to claimants, noting that even with divisible diseases, evidential deficits can hinder precise quantification. However, *Holmes*, involving an indivisible disease, transforms the full-liability rule from an exception into a default position.

This amalgamates the material contribution doctrine with the thin-skull rule. *Page v Smith* [1995] UKHL 7 and *Simmons v British Steel* [2004] UKHL 20 epitomise the doctrinal tensions that emerge when the conceptual distinctions between pre-existing vulnerabilities and concurrent causes are obscured. As Underhill L.J. observed in *BAE*

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at [62], such distinctions are already "debatable" and "difficult to apply". It is emblematic of the doctrinal instability that arises when courts attempt to carve out exceptions to causation rules without clear theoretical foundations, a dynamic vividly illustrated in *Holmes*. The Court of Appeal did acknowledge the limitations of a full-liability rule at [120], which may arise in three scenarios: first, where the indivisible injury results from multiple tortfeasors; second, where there are overdetermined causes; and, third, where multiple non-tortious causes independently contribute, as seen in *Wilsher v Essex Area Health* [1988] A.C. 1074. Since neither generic nor individual causation was made out on the facts, it was briefly concluded at [120] that "important and difficult questions" like these "should therefore be left alone until a case in which they actually arise". Perhaps, in the end, the Court of Appeal has raised more questions than it sought to answer?

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