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PHYSICAL DAMAGE IN NEGLIGENCE

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I. INTRODUCTION

BEING an action on the case, it has long been supposed that negligence is consummated only upon the occurrence of "damage". Without damage, there can be no claim against a person whose conduct is deficient in some significant way. Thus, it is often said that there can be no recovery for negligence "in the air"; that damage is the "gist" of negligence. Beyond these simple propositions, it is trite also to state that general conditions of liability in negligence depend in large measure upon the kind of damage pleaded.[1] Take, for example, the question whether a duty of care is owed. Little more than foreseeability must be proven in order to establish that a duty of care was owed by a defendant alleged to have caused physical injury to a person or physical damage to property.[2] A similar requirement exists with respect to a defendant alleged to have caused a recognised psychiatric illness to a primary victim.[3] More onerous rules apply with respect to a defendant who is alleged to have caused secondary victims recognised psychiatric ills. In such cases, each secondary victim must prove that a close tie of love and affection existed between him or her and the primary victim at the time of the accident causing the death of, or injury to, the primary victim.[4] Pure economic losses are recoverable in only one major category of case, involving the making of misstatements. In such cases, courts have generally required proof of a prior assumption of responsibility by the defendant[5] as well as reasonable reliance by the claimant.[6] The kind of damage pleaded also impacts upon the ease with which causation is likely to be proven and the restrictiveness of the

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[1] *White* v. *Chief Constable of South Yorkshire Police* [1999] 2 A.C. 455, 492 (Lord Steyn).
[2] *Perrett* v. *Collins* [1998] 2 Lloyd's Rep. 255, 261 (Hobhouse L.J.); contra *Marc Rich & Co. A.G.* v. *Bishop Rock Marine Co. Ltd.* [1996] 1 A.C. 211, 235 (Lord Steyn).
[3] *Page* v. *Smith* [1996] 1 A.C. 155, 187 (Lord Lloyd).
[4] *Alcock* v. *Chief Constable of South Yorkshire* [1992] 1 A.C. 310.
[5] As to the meaning of this, see *Williams* v. *Natural Life Health Foods Ltd.* [1998] 1 W.L.R. 829, 835–837 (Lord Steyn).
[6] See esp. *Hedley Byrne & Co. Ltd.* v. *Heller and Partners Ltd.* [1964] A.C. 465; *Henderson* v. *Merrett Syndicates Ltd.* [1995] 2 A.C. 145, 178–181 (Lord Goff) (on "The governing principle").

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remoteness rules which are applicable in a given case. Clearly, then, the categorisation of the damage is bound to be very important in determining whether liability is imposed.

In recent times, academic writings have rarely been concerned with the question of what constitutes sufficient "physical damage" for the purposes of the law of negligence.[7] The great debate about whether the manifestation of latent defects in products and structures is physical damage or mere economic loss has long been resolved in favour of the latter view.[8] Yet it is the purpose of this article to demonstrate that there have been a number of important developments in the courts' conceptualisation of physical damage in negligence. These developments appear to have shifted attention away from the examination of actual changes in physical structures or states of persons or property and towards a more context-specific inquiry into social perceptions of damage. We find that what constitutes physical damage for one purpose in the law of negligence might not constitute physical damage for another purpose. Such is the social construction of physical damage.

II. Orthodox Notions of Damage

The basic principles as to what constitutes "physical damage" for the purposes of the law of negligence are easy to discern. Physical damage most often involves deleterious changes in the physical state or structure of persons or property. These changes impair[9] or destroy the functional characteristics of persons or property. They are ordinarily manifest in nature, easily perceptible by the human eye. Take the case of A, who crashes into B's car. Take, alternatively, the facts in *Donoghue* v. *Stevenson*,[10] the seminal case governing liability for the infliction of physical harm, where the claimant suffered gastroenteritis, resulting in the usual panoply of bodily symptoms.[11] It has been held that the deposit of dust might be sufficient to constitute physical damage, as in the case where the construction of a building creates an excessive amount of dust

[7] A similar point was made by J. Stapleton, "The Gist of Negligence" (1988) 104 L.Q.R. 213, 213. A valuable exception is C. Weston, "Suing in Tort for Loss of Computer Damage" [1999] C.L.J. 67.

[8] *Murphy* v. *Brentwood District Council* [1991] 1 A.C. 398.

[9] The orthodox understanding of damage in negligence, whether personal or property damage, is predicated upon the damage being deleterious in the sense that it is an "impairment". Thus, "personal injury", for the purposes of the Limitation Act 1980, "includes any disease and any impairment of a person's physical or mental condition": s. 38(1). There is no such requirement in torts actionable *per se*. Thus, the performance of an operation without consent, although leading to an improvement in functioning, is an actionable battery. Similarly, a "dealing" with goods, although improving them in some way, is an actionable conversion.

[10] [1932] A.C. 562.

[11] There was also a much more speculative claim about nervous shock.

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which is subsequently "trodden into the fabric of a carpet by householders ..." dirtying and discolouring it.[12] The changes in state or structure need not, however, be manifest in nature. It is uncontroversial that the contraction of a disease is sufficient to constitute physical damage,[13] diseases disrupting the organic functioning of persons, animals or plants. Whether the law will regard the physical change as sufficient "depends on the evidence and the circumstances"[14] and is ordinarily subject to the rule *de minimis non curat lex* (the law does not deal with trifles).

Physical damage is often the result of the operation upon the person or property of some external physical force, but this need not be so. The cases indicate that the positive acts of the defendant might make it foreseeable that the claimant will *react* in a certain way causative of damage, perhaps in order to avoid worse consequences occurring. Thus the claimant company in *Spartan Steel & Alloys Ltd.* v *Martin & Co. (Contractors) Ltd.*[15] was forced by the negligence of the defendant to oxidise metal before it solidified in a furnace, thus changing the metal's chemical constitution and reducing its value. Alternatively, the very failure by the defendant to do something that should have been done[16] might cause foreseeable injury to persons or physical damage to property. This is the kind of claim made, for example, in medical negligence cases, where it is argued that injuries, diseases or other ailments were not properly diagnosed and treated.[17] Consider, thus, the case where C shows early symptoms of a treatable cancer which D fails to detect.

The question arises whether the courts' conception of "physical damage" has been widened in recent negligence cases (if not actually abandoned as a condition of liability). Two types of case will be examined in answering this question. The first type of case is that which has arisen from wrongful conception and related claims. These concern alleged failures by medical practitioners leading to the birth of a healthy child.[18] Despite the fact that the

[12] *Hunter* v. *Canary Wharf Ltd.* [1997] A.C. 655, 676 (Pill L.J.). This point was not subject to the subsequent appeal to the House of Lords, reported at the same place.

[13] See, *e.g.*, Law Reform (Personal Injuries) Act 1948, s. 3; Limitation Act 1980, s. 38(1); *Cartledge* v. *E. Jopling & Sons Ltd.* [1963] A.C. 758.

[14] *Hunter* v. *Canary Wharf Ltd.* [1997] A.C. 655, 676 (Pill L.J.).

[15] [1973] 1 Q.B. 27.

[16] Pure omissions constitute a different category of case. See, *e.g.*, *Kent* v. *Griffiths* [2001] Q.B. 36.

[17] *E.g.*, *Hotson* v. *East Berkshire A.H.A.* [1987] 1 A.C. 750.

[18] Contrast wrongful life claims, brought by children suffering congenital handicap or deformity. The Congenital Disabilities (Civil Liability) Act 1976, sub-s. 1(2)(b) denies liability in such cases. The position is similar at common law. The Court of Appeal in *McKay* v. *Essex A.H.A.* [1982] Q.B. 1166 held that such claims do not divulge damage "in any *accepted* sense": at p. 1189 (Ackner L.J.) (emphasis added). One cogent reason for this denial of damage is the impossibility of comparing non-existence with (impaired) existence and in

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child is born healthy, there have been a number of successful claims related to alleged injuries to the *mother* which, it can be argued, are not describable as deleterious physical changes. The second type of case is that which arises from the contamination of property (be it land or chattel), where that contamination again results in neither physical change nor any diminution of the functional characteristics of affected property. The contamination carries with it, however, a longer-term risk of illness or disease for those who are exposed to it and, thus, a stigma that reduces the market value of the contaminated property. In both classes of case, the defendant's negligence gives rise to real risks of physical damage which either does not eventuate or which will do so only after a protracted time period. These are potentially problematic cases in the law of negligence.

III. Natural Physical Processes

Wrongful conception claims typically arise in circumstances where a woman has undergone a sterilisation operation, or where her partner has undergone a vasectomy, with the object of precluding the woman's future pregnancy. The procedure is not effective and the woman conceives, eventually giving birth to a healthy child. The resulting negligence claim might relate either to the failure of the medical procedure or to the quality of advice given to the parents as to the precautions that they should have taken prior to confirmation of sterility or as to the chances of a spontaneous re-canalisation. Cases typically involve claims related not only to physical pain, suffering and discomfort, but to various expenses including the economic cost of bringing up the child. The House of Lords has recently ruled, in *McFarlane* v *Tayside Health Board*,[19] that, for public policy reasons, recovery should be denied for the costs of rearing the child. This ruling is not the concern of this paper. The paper is concerned, rather, with the reasons given by their Lordships for accepting that there should be recovery for the pain, suffering and inconvenience of pregnancy and birth.

In *McFarlane*, the mother's conception was an entirely natural event that her physiological constitution was designed to induce and to accommodate. Most women are only too glad to avail themselves of the opportunity to conceive and to give birth to

valuing such claims: at pp. 1181–1182 (Stephenson L.J.), 1189 (Ackner L.J.) and 1192 (Griffiths L.J.). These actions are beyond the scope of this paper, as are the even more remote claims of wrongful birth brought by the parents of congenitally handicapped or disabled children. See, *e.g.*, *Parkinson* v. *St. James and Seacroft University Hospital N.H.S. Trust* [2001] EWCA Civ 530; [2001] 3 W.L.R. 376.

[19] [2000] 2 A.C. 59.

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children at some stage in their reproductive lives. This was not the case with the claimant. The development of her baby restricted her movements and resulted in physical confinement towards the end of the pregnancy. This was an undoubted interference with the mother's autonomy.[20] She also suffered pain and anxiety during pregnancy and birth. But the fact remains that the mother's physiological integrity was not compromised. Her organs continued to function in the way that "nature intended" and her body returned after delivery to its pre-conception state.[21] It is difficult, as such, to describe the changes that took place within the claimant's body as *deleterious changes* or as having impaired their functioning. The gravamen of the argument for the claimant was that there should be recovery for the pain, suffering and inconvenience she experienced *simpliciter*, unattached to any deleterious physical change. Was this not *damnum absque injuria*?[22]

The orthodox notion of physical damage is predicated upon any change in physical state or structure being of a factually observable kind. It is evident from the speeches of their Lordships that the damage suffered by the claimant was, on this score, different from the orthodox notion. Lord Slynn, for example, stated that it was unnecessary "to consider the events of an unwanted conception and birth in terms of 'harm' or 'injury' in [the] ordinary sense of the words".[23] Lord Hope stated that "[t]he physical consequences to the woman of pregnancy and of childbirth are, of course natural processes. In normal circumstances they would not be considered as a harm ..."[24] In comparing these changes with other changes in the human body that the law regards as physical injury, such as "the development of arthritic changes at the site of the injury or of post-traumatic epilepsy",[25] Lord Hope was comparing chalk with cheese. Lord Millett could only say that there had occurred "an invasion of [the mother's] bodily integrity" (surely no more than a poor metaphorical way of describing the injury) and that this "*threatened*

[20] This is well described in another context: *Parkinson* v. *St. James and Seacroft University Hospital N.H.S. Trust* [2001] EWCA Civ 530 at para. [67] (Hale L.J.); [2001] 3 W.L.R. 376.

[21] Different considerations would apply, of course, where, due to the negligence of the doctor concerned, the claimant was to suffer some actual injury, such as a Caesarean scar: [2000] A.C. 59, 107 (Lord Millett). No argument is made here against the proposition that this is indeed physical injury. Arguments that equate unwanted pregnancy with injury simply because of its unwanted nature and because of the risks of something going wrong are fallacious. Negligence does not compensate for risks arising in the air. Damage, as has been stated, is required. Cf. H. Rogers, "Legal Implications of Ineffective Sterilization" (1985) 5 L.S. 296, 310; A. Grubb, "Failed Sterilisation: Limitation and Personal Injury" (1996) 4 Med. L. Rev. 94, 97. The focus of this article is upon how that damage is conceptualised.

[22] Ordinarily, physical injury is a pre-requisite to a claim for damages, which may include (as a "head of damages") pain and suffering: H. McGregor, *McGregor on Damages* (16th edn., London: Sweet & Maxwell, 1997), at p. 49, para. 82.

[23] [2000] 2 A.C. 59, 74.

[24] At p. 86.

[25] At p. 87.

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further damage both physical and financial".[26] Threatened injury is not actual injury.[27] Moreover, there were no on-going risks to the physical integrity of the mother, such as those which arise in the contamination cases (considered below). Any risks of physical harm fell away after the successful birth. It was more accurate, however, for Lord Hope to draw attention to the different contexts in which the bodily changes affecting a pregnant woman occur.[28] In one context (mother desirous of children) the changes are wanted and in another (mother who seeks sterilisation) they are not. But the very fact that minds could differ over the question indicated that the claimant suffered no physical injury *in the orthodox sense*.

The Lords' tacit admission that the claimant's injury in this case was not actual physical injury, but was, rather, of a socially constructed kind, is evident particularly in Lord Steyn's use of an ordinary bystander test of what does and what does not constitute recognised injury. While his Lordship was of the opinion that commuters on the London Underground would not permit damages for bringing up a healthy child,[29] he was adamant that there would be no such objection to the recognition of injury with respect to ordinary pain and suffering.[30] Lord Millett's mode of analysis was somewhat similar.[31] His Lordship indicated that "most people" would regard a failure to take care resulting in an unwanted pregnancy as a proper subject of compensation—the implication again being that the pregnancy is perceived as a form of damage. Their Lordships quite clearly took social views into account in determining the answer to the question whether the law *should* treat the kind of claim in question *as if* it were a claim for physical injury or damage. The question that they answered was a normative one, dependent upon social perceptions, not a positive one dependent upon the proof of deleterious changes in the body of the claimant. But this is not to say that such a mode of reasoning is indefensible.

On the contrary, the House of Lords' reasoning appears to be the product of an inherent logic, given the culture and context within which it was decided. Society demands that parents should have the ability to limit the size of their families. There are often good reasons for this, relating to the ability of prospective parents to provide reasonable homes for their children and/or to cope with the demands of parenthood. The prospective parents may be too

[26] At p. 107 (emphasis added).
[27] See note 21 above.
[28] [2000] 2 A.C. 59, 86.
[29] At p. 82.
[30] At p. 84.
[31] At p. 109.

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old, sick or infirm to look after a (further) child. They might be fearful of transmitting a congenital disease that has blighted the lives of others in the family. Society demands, furthermore, that medical practitioners should uphold high standards of care in all aspects of their work, given the paramount importance of bodily health and integrity. All invasive procedures should be carried out with the greatest of skill and attention. All advice proffered should be the product of care and attention to the concerns of the particular patient. A medical practitioner who agrees to perform a particular procedure undoubtedly understands the desirability of these imperatives. Practitioners who fail to comply with them, and who inflict pain and suffering upon their patients as a result of their failures, should be open to liability and censure. Without such liability, there would be little incentive for medical practitioners to take care.[32] It is arguable that liability is further vindicated by the fact that the kind of failure in question creates physical risks to the mother (although none of these risks materialise). These risks include such things as the possible need for an episiotomy or for delivery by Caesarean section.

In a subsequent Court of Appeal decision, *Greenfield* v. *Irwin*,[33] the claimant was treated with a course of contraceptives. She claimed that the defendants negligently failed to recognise that she was, at the time, pregnant with a child whom she did not want. Had she known that she was pregnant, she would have had the pregnancy terminated. She brought a claim for the earnings that she lost after having the child and giving up her employment. In delivering the most important of the court's *ex tempore* judgments, Buxton L.J. professed to some difficulty in characterising the nature of the losses in this kind of case.[34] His Lordship appears to have assumed that the House of Lords in *McFarlane* had found that the claimant suffered *no* physical injury.[35] He stated:

> I am unable to accept that the damage suffered here was "physical" in any way that makes a relevant distinction between this case and *McFarlane*. It may or may not be right ... that what happened here is to be characterised as an interference with the plaintiff's body, even though it was a failure to interrupt a physical process already in operation rather than the initiation of a process. But there is no difference between this case and *McFarlane* which, in my judgment, makes any distinction that is relevant in law between the two cases.[36]

[32] See, esp., at pp. 76 (Lord Slynn), 82–84 (Lord Steyn), 91 (Lord Hope) and 100 (Lord Clyde).
[33] [2001] EWCA Civ 113; [2001] 1 W.L.R. 1279.
[34] At para. [11].
[35] At para. [13].
[36] *Ibid.*

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Given what has already been said about *McFarlane*, Buxton L.J.'s assumption was correct as a matter of observable fact, but incorrect as a matter of jurisprudential logic. There was no actual deleterious change in the state of, or impairment to, the claimant's body in the earlier case. But the House of Lords recognised, nevertheless, a socially perceived *form* of physical injury. It was surely upon this wider notion of physical injury that Buxton L.J. confirmed an award by the court below of damages for the physical effects upon the claimant of the pregnancy and birth. The claimant was, in accordance with ordinary principles,[37] permitted to recover the immediately consequential economic costs of the pregnancy. But she was refused any further award with respect to the more remote consequences of her injury, notably her loss of earnings. The position is neatly and, it is submitted, correctly summarised in the concurring judgment of May L.J., that "[t]here may be a claim for what may be *characterised* as a personal injury, but that claim does not extend to the loss of earnings' claim with which this court is concerned".[38] The claimant's loss could be characterised as, or was closely analogous to, a personal (i.e. physical) injury. It was a loss of a socially constructed kind.

IV. Contamination

Contamination is a product of industrial or chemical processes, leading to familiar problems such as toxic spills and irradiation. What has proven problematic for the courts in recent times is the determination of the appropriate threshold at which contamination should be regarded as worthy of legal recognition and compensation. The maxim *de minimis non curat lex* provides a point of departure, the suggestion being that damage caused by contamination must be "significant" if it is to be the basis of an award in negligence. Recent cases suggest, however, that the extent of any physical change in the structure or state of items of property might *not* be to the point. The courts might have no choice other than to recognise the effects of "trifling" changes in physical structures or states, based upon social aversion to phenomena such as radioactivity. This is a result of two related factors: (1) that industrial or chemical processes producing toxic outputs give rise to serious risks of human and environmental catastrophes; and (2) that, even where no such catastrophes occur, the fact of minor contamination gives rise to social fears about the long-term risks

[37] At para. [25].
[38] At para. [43] (emphasis added). See, also, *Hardman* v. *Amin* [2000] Lloyd's Rep. Med. 498, 501 (Henriques J.).

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posed to human health and wellbeing. Non-catastrophic, or even insignificant, contamination may have a subsequent impact upon either the usefulness and/or the sale value of land or property.

In *Merlin* v. *British Nuclear Fuels Plc*,[39] the question arose whether the aerial contamination of land situated in close proximity to a nuclear fuel reprocessing plant could be described as "damage to property" under section 7(1) of the Nuclear Installations Act 1965 and could, thus, be subject to compensation under section 12 of the Act. The answer to this question is, of course, highly relevant in determining what constitutes "physical damage" in the tort of negligence. On the facts, exposure to radionuclides presented no immediate threat to the health of the occupants. No claim was brought based upon the causation of personal injuries. Any physical changes were restricted to the settlement of radionuclides upon household surfaces and to a change in the composition of the air surrounding the home. But the claimants had two young children and thought it wise to move from the property, which subsequently sold at an under-value. The loss in the value of the home was the product of scientific uncertainty regarding the effects of long-term occupation and social fears about the possible consequences. Gatehouse J., sitting in the High Court, held that there had been no damage to property for the purposes of the Act. More specifically, there had been no "physical damage to tangible property".[40]

> The mere presence of ionising radiations within the plaintiffs' property emitted from waste discharged from the site, is not enough to constitute a breach of statutory duty. There must be consequential damage. The radionuclides with which this case is concerned—plutonium isotopes and americium—are alpha emitters. These cannot do any significant damage to persons or property externally, but when inhaled, ingested or otherwise enabled to enter the body they may induce cancers, but, of course, will not necessarily do so. The presence of alpha emitting radionuclides in the human airways or digestive tracts or even in the bloodstream merely increases the risk of cancer to which everyone is exposed from both natural and artificial radioactive sources. They do not per se amount to injury.[41]

This accords with the orthodox view that damage occurs only when there is some *deleterious change* in the structure or state of the person or property in question. On the facts, all that existed was the obvious potential for damage in the form of the development of cancers and the like by those who lived on the property. The

[39] [1990] 2 Q.B. 557.
[40] At p. 570.
[41] At pp. 572–573.

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development of disease was conditioned upon many uncertainties, including the length of any continued occupation. The Act had a thirty-year limitation period in which to allow claims related to the development of any such diseases.[42]

In the subsequent Court of Appeal decision in *Blue Circle Industries Plc* v. *Ministry of Defence*,[43] *Merlin* was distinguished. *Blue Circle* concerned the contamination of the claimant's land by radioactive waste that overflowed from a pond on the defendant's Atomic Weapons Establishment site following a storm. Although there was no evidence that the level of contamination posed any risk to those who utilised the claimant's property, even over the long-term,[44] the level of radioactivity was, in certain places, above the maximum acceptable level specified by the Radioactive Substances Act 1960 and associated statutory instruments. The defendant itself carried out remedial work to remove and replace the contaminated topsoil.[45] Yet the claimant was subsequently unable to sell the affected property and made a claim for compensation, again arguing that it had suffered "damage to property" within the meaning of section 7(1) of the Nuclear Installations Act 1965. The judge at first instance held that there had been a contamination of the claimant's property and that this amounted to physical damage, in that "the contamination consisted of the intermingling of plutonium, amongst other chemicals, with the soil in the marsh with the result that there was no practical process, other than excavation, which would remove it".[46] The Court of Appeal agreed with this assessment, at least in a qualified way.

Aldous L.J. (Chadwick and Simon Brown L.JJ. agreeing) stated that damage, within the meaning of the Act, would occur "provided there is some alteration in the physical characteristics of the property, in this case the marshland, caused by radioactive properties which render it less useful or less valuable".[47] His Lordship's test for damage is obviously compound in nature, requiring *both* a physical change *and* a consequential loss of use or value. But a different weight was given to each limb of the test. His Lordship required no minimal degree of change, by way of immediate tangible effects or diminution in the functionality of the property, in order to satisfy the first limb. In functional terms, the

[42] At p. 570.
[43] [1999] Ch. 289.
[44] According to the judge at first instance, "even before any remedial work, and applying pessimistic assumptions, they were well below levels which would have posed any risk to health": at p. 299.
[45] At p. 296.
[46] At pp. 298–299.
[47] At p. 300.

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contaminated soil was little different from what it had been prior to the failure to take care and any change might have been considered *de minimis*. It was held to be enough that "the addition of plutonium to the topsoil rendered the [chemical] characteristics of the marshland different".[48] More important was the weight to be attached to the second limb of the test. As a consequence of the topsoil having been contaminated for a period, and despite the fact that it was subsequently removed at the defendant's expense, the property could not be sold at a suitable price. It was this secondary consequence, reflective of social perceptions of damage,[49] which was actually determinative of liability. This is brought out in the test adopted by Aldous L.J., which is similar to that used by Lord Steyn in *McFarlane*—the ordinary bystander test. His lordship stated:

> The educated reader of section 7(1)(a) of the Act of 1965 would realise that it imposed a duty to prevent damage to property from the radioactive properties of nuclear material. He would have no difficulty in concluding that the marshland, admixed with radioactive material, was damaged as the level of contamination was such as to reduce its market value.[50]

In reaching his conclusions in *Blue Circle*, Aldous L.J. drew an analogy between the case before him and the decision in *Losinjska Plovidba* v. *Transco Overseas Ltd. ("The Orjula")*.[51] Contamination in *The Orjula* took the form of a spillage of hydrochloric acid across the hatch and deck of a ship. This needed to be removed from the ship's surfaces because of its corrosive nature and this was done by spraying onto those surfaces a mixture of soda and water, which neutralised the acid. The claimant claimed for the costs of decontamination. The defendant resisted this claim by arguing that the loss was purely economic. It was asserted that there had been no physical damage to the ship because the acid had been removed expeditiously. Mance J. stated that whether there had been damage or not was, in such a case, a matter of fact and degree. Furthermore: "Relevant considerations are whether there has been 'injury impairing value and usefulness' of the property in question, and the need for work and the expenditure of money to restore the property to its former usable condition is material."[52]

[48] *Ibid.*
[49] Stigma also arose from the possibility of further contamination in the future, but any loss in value arising from such fears was subject to a discount in the amount of damages to be awarded: at p. 310.
[50] At p. 300.
[51] [1995] 2 Lloyd's Rep. 395.
[52] At p. 399.

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The case for relief was undoubtedly stronger than in either of the two nuclear contamination cases. The acid was a tangible substance that posed an *immediate* danger to property. The claimant had little choice but to comply with an order from the Dutch authorities that the vessel be de-contaminated. It could hardly lie in the mouth of the defendant to argue that no damage occurred until the acid had started to take effect. Action needed to be taken (and was taken under compulsion) in order to prevent a greater loss occurring. Mance J., in holding that the incident had resulted in a form of physical damage, emphasised the secondary effect of the interference, which was that the ship could not be used for its ordinary purposes until decontaminated.[53] The case was a strong precedent, then, for the decision in *Blue Circle* itself. It was again a case of socially constructed damage.

V. Basis of Liability

An interesting question, which arises from consideration of the wrongful conception and contamination cases, is whether the "immobilisation" of persons or property is sufficient to be classified as physical damage in negligence. Immobilisation, or, more appositely in the case of immovable property, loss of use, is a common characteristic of negligence claims. In *McFarlane*, for example, the claimant was confined to a hospital bed for a period. In *Blue Circle* the claimant was unable to sell a piece of land, while in *The Ojula* the claimant was unable to sail its ship. Jacobs J. in *Caltex Oil (Australia) Pty. Ltd.* v. *The Dredge "Willemstad"*[54] suggested that the physical immobilisation of property belonging to, or the risk of which is upon, the claimant could amount to sufficient physical damage.[55] His Honour was of the opinion that the immobilisation of property in this way was a physical *effect* that could be just as significant as destruction, damage or other loss. A duty of care would arise where "there is physical propinquity of the plaintiff's property to the place where the defendant's act or omission has its physical effect".[56] But Jacobs J.'s suggestion does not appear to have been taken up in subsequent cases.

It is reasonably clear that immobilisation, or loss of use, can only ever be a *relevant* factor in determining whether there has been a recognised form of damage. Most torts are concerned to protect personal autonomy in some way, including freedom of

[53] *Ibid.*
[54] (1976) 136 C.L.R. 529.
[55] At pp. 597–598.
[56] At p. 602.

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movement and ability to use and enjoy land or property. But there are also cases in which the possibility of damages is denied for the mere loss of use of the claimant's property. The loss of use is described as giving rise to a mere economic loss. This was the case, for example, in *Spartan Steel* v. *Martin*,[57] where the claimant company had lost the use of a furnace operated to smelt metal. Recovery was permitted with respect to a melt that was under way when the defendant negligently cut off the electricity supply, the company having to oxidise the metal in order to avoid damage to the furnace. This process of oxidisation altered the physical characteristics of the metal and reduced its value. A claim with respect to profits that would have been earned upon further melts was rejected. A recent Australian case, *Perre* v. *Apand Ltd.*,[58] concerned a claim of an inability to sell a commercial crop of potatoes in a lucrative market, brought about by the negligence of the defendants. The potatoes had not been infected by bacterial wilt introduced into the locality by the defendants. But by the operation of a state statute,[59] which precluded sales of potatoes grown within 20 kilometres of an outbreak of bacterial wilt, they could not be sold in Western Australia. Despite the physical restriction placed upon the movement and sale of the potatoes, the High Court of Australia held that the loss in this case was purely economic.[60] Gummow J. stated that the immobilisation argument employed in the *Caltex Oil* case was "illusory". "The Perre's case", he stated, "is best approached on the substantial footing that they do not complain of 'physical damage' to their land or the tangible assets used in their business operations there".[61] In each of *McFarlane*, *Blue Circle* and *The Orjula*, much more was at stake than mere immobilisation or loss of use. The negligence of the defendants gave rise to serious risks of immediate or longer-term damage. Of course, serious risks of damage should not be confused with the actual causation of damage. It is the award of a remedy *despite* the lack of physical damage in these cases that makes them of such interest to the torts lawyer.

An alternative, and more theoretical, explanation of the results in the wrongful conception and contamination cases can, perhaps, be derived from John Gardner's thesis that negligence is ultimately concerned with failures to try and that it can (in theory) be seen to

[57] [1973] 1 Q.B. 27.
[58] (1999) 198 C.L.R. 180.
[59] Plant Diseases Regulations 1989 (W.A.), Sch. 1, Pt. B, Item 14(1)(b)(ii) and (iii).
[60] (1999) 198 C.L.R. 180, 192 (Gleeson C.J.), 197 (Gaudron J.), 240 (Gummow J.), 266 (Kirby J.), 299 and (Hayne J.). Cf. at p. 329 (Callinan J.).
[61] At p. 240.

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come in both "short-order" and "tall-order" varieties.[62] According to Gardner, "common law negligence" is only proven when a claimant is able to show *both* that the defendant did not try sufficiently to take care (*i.e.*, that there was a breach of duty) *and* that his or her failure resulted in the infliction of damage. The conditions for avoiding liability in such a case are not onerous because the defendant avoids liability if he or she tried or if, though care were not taken, no damage was caused to the claimant. The defendant's obligation in such a case is of the "short order" variety. "Bare negligence", on the other hand, is a much more onerous variety of negligence in that the claimant need only prove that the defendant did not try sufficiently to take care. It matters not, in the latter case, whether the defendant's failure to take care did or did not cause damage. This is a "tall order" obligation.[63]

Gardner explains how, under the late twentieth century conception of the "moral intelligibility" of obligations in tort, liability for both common law and bare negligence is justified. On this view, "the [common law] tort of negligence is essentially a variation on the theme of a bare negligence tort":[64]

> The essence of D's wrong, morally speaking, lies in his failure to take adequate care not to injure [C]. The extra condition that [C should] actually have been injured by D's failure to take care is regarded, correspondingly, as morally secondary. Its defence is accordingly apt to be a parasitic defence, *i.e.* one that presupposes that the real moral wrong has already been done to [C]. Thus the extra condition is collaterally defended as, for example, a *locus standi* condition ... But by the same token the door is left open to allowing the extra condition that [C] be injured by D to be eliminated or watered down while leaving the central moral theme of the tort in place.[65]

This explanation of the nature of tort obligations[66] might indeed be a helpful way of understanding why it is that the courts have permitted the watering down of the physical damage requirement in the cases examined. According to this argument, liability in negligence can be justified by the context in which the defendant has failed to take care, even though the damage which gives rise to the action is of a greatly "watered-down" kind—perhaps even if

[62] J. Gardner, "Obligations and Outcomes in the Law of Torts", in P. Cane and J. Gardner, *Relating to Responsibility: Essays for Tony Honoré* (Oxford: Hart Publishing, 2001), esp. at pp. 122–125.

[63] The other kind of "tall-order" obligation is that which arises under a strict liability tort, *viz.*, not to cause damage. See *ibid.*, at pp. 122–125.

[64] At p. 124.

[65] *Ibid.*

[66] Gardner presents a further possibility, centred around "outcome responsibility" in the remainder of his article.

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there is no such damage. Doctors who fail properly to perform sterilisation procedures and/or who fail adequately to advise upon the need for contraceptives, risk inflicting physical injuries upon women (pregnancy and birth indeed carrying risks of physical injury). Similarly, bodies that engage in industrial or chemical processes that result in toxic outputs risk the causation of catastrophic injuries to persons and/or property. The mere fact of the failure to take care in circumstances of great or unjustifiable physical risks grounds a moral obligation to repair.

We have, then, two models of negligence, each of which might be thought to provide an adequate justification for the results in the wrongful conception and contamination cases. Although there appears to be *no need to choose* between them, the question arises whether one or the other is the more appropriate model for the analysis of these cases. The obvious objection to the applicability of the first model, the common law negligence model, is that, as a matter of observable fact, there was no damage in these cases. The negligence was negligence "in the air" as it were. Yet the whole point is that these cases have heralded the acceptance of a *new form* of damage sufficient to ground liability in negligence—that is, damage of a "socially constructed" kind. The cases demonstrate that what is arguably more important than observable facts in the recognition of damage is the culture and context within which serious failures to take care have occurred. Furthermore, it cannot be doubted that the wrongful conception and contamination cases featured kinds of damage that are so closely *analogous* to orthodox kinds of damage that one would be splitting hairs to attempt to draw a line between them. The courts have declined to engage in such hair-splitting. For these reasons, it is submitted, that these cases are indeed cases of common law negligence, that is, negligence of the short-order variety. (Above and beyond all of this, it might well be pointed out that the tort of negligence is an *artificial construct*, which need not signify the existence of any particular thing which can be proven to exist in the real world. Being an artificial construct, it is perfectly capable of accommodating a form of damage which does not exist in the real world, such as a socially constructed form of damage.)

VI. A Distinguishable Case?

The wrongful conception and contamination cases discussed in this article do not exhaust the range of situations in which courts are faced with the problem of failures to take care leading to adverse consequences not strictly describable as physical damage. However,

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these cases share common features which are absent in the kind of case which will now be discussed. The situation in question is that where, through the careless interference of the defendant, the claimant loses valuable data stored on a computer disk (whether a hard drive or a floppy disk). The defendant's failure might cause a power surge, leading to the shut-down of a computer or the "scrambling" of data on a disk. Conversely, that failure might lead to an interruption in the supply of power which has the same effect. The question arises whether it is possible to characterise the loss of data as leading to anything other than pure economic loss—which is most likely to be irrecoverable. One possibility is, of course, to attempt to characterise the loss as a physical loss. However, the decided cases have not been concerned with losses of function in affected computer disks. If such loss of function were to occur (the disk being destroyed), there would be no question but that the damage were physical in nature. The cases in question have concerned a less obvious kind of damage. The argument has been that a physical change has occurred in a way which might ordinarily occur whenever new data is saved or old data is erased—that is, by way of a realignment of the magnetic particles which "store" the data. Is this sufficient to constitute "physical damage"?

In the criminal case of *R.* v. *Whiteley*,[67] the defendant was charged with the offence of intentionally damaging property under sub-section 1(1) of the Criminal Damage Act 1971. "Property" was defined in sub-section 10(1) of the Act as "property of a tangible nature". The prosecution case was that, in hacking into a computer system, the defendant had damaged tangible property within the meaning of the provision by way of an "alteration to the state of the magnetic particles on [computer disks] so as to delete and add files".[68] In upholding conviction, Lord Lane C.J. set out a two-limb test for damage very similar to that employed in the wrongful conception and contamination cases:

> What the Act requires to be proved is that tangible property has been damaged, not necessarily that the damage itself should be tangible. There can be no doubt that the magnetic particles upon the metal discs were a part of the discs and if the appellant was proved to have intentionally and without lawful excuse altered the particles in such a way as to cause an impairment of the value or usefulness of the disc to the owner, there could be damage within the meaning of section 1.[69]

[67] (1991) 93 Cr.App.R. 25.
[68] At p. 27.
[69] At p. 28.

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The question arises whether this test for damage is sufficiently cogent, perhaps on the basis of an analogy with the facts in the cases already examined. One common feature shared by the wrongful conception and contamination cases was that the defendants engaged in conduct which created risks of physical injury to persons. This was not the case in *Whiteley*. Another common feature was that the physical entity which was affected (the body of the woman, the land or property of the claimant) was immobilised and/or rendered less valuable as a social fact. The immobilisation of an entity, or the loss in social value, although not sufficient to constitute damage, might be viewed as being necessary to any recognition of damage. There is nothing to suggest that the computer disks damaged in *Whiteley* were immobilised.[70] Any loss in value was subjective to the victim because the victim and no one else need have been concerned about the loss of the data.[71]

There would have been no complaint in *Whiteley* if the data were safely stored on back-up disks. The court would refuse a remedy for the erasure of data from, or scrambling of data upon, *particular* computer disks. So wherein did the physical damage reside? The complaint was merely that the magnetic particles on particular disks had been realigned. The problem is, so it would seem, that the actual magnetic alignment of particles on the disks was of no *inherent* concern to the user. The real loss was of something stored on the disks, something that is both of mere subjective value *and* intangible in nature. We can thus conclude that there is a third feature which the computer disk case does not share with the conception and contamination cases. Bodies and tangible items of property are useful items in and of themselves, while magnetic particles arranged on a disk in a particular way are not. In this kind of situation, the courts must (if they are to offer a remedy in negligence) look to some other way of characterising the loss as damage. The loss would not appear to be property damage. And it would not appear to be describable as sufficiently analogous to property damage.[72] It might be considered as some other kind of

[70] The evidence was, however, that the computers containing the disks were indeed rendered temporarily inoperable.

[71] Lord Lane C.J. rejected a suggestion that the interpretation of the phrase "physical damage" adopted by the court below was incorrect on the basis that the legislature had, by the time that *R.* v. *Whiteley* was taken on appeal, stepped in to clarify the meaning of the phrase. The Computer Misuse Act 1990, s. 3(6) defines "damage", for the purposes of the Criminal Damage Act 1971, as subsisting in some impairment to a computer's or to a computer storage medium's "physical condition". His Lordship's view was that the subsequent amendment could not affect the original meaning of the words: (1991) 93 Cr.App.R. 25, 31.

[72] See also *Seaboard Life Insurance Co.* v. *Babich* [1995] W.W.R. 756; *Rockport Pharmacy Inc.* v. *Digital Simplistics, Inc.* 53 F. 3d 195 (1995). In both of these cases, North American courts refused to accept that the loss of computer data could amount to physical damage.

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socially constructed loss (*e.g.*, the loss of "information"). But this is a question for another day.

VII. Conclusions

The wrongful conception and contamination cases have arisen in circumstances in which the courts have been required to make difficult determinations about what does and what does not constitute "physical damage" in negligence. Given the finely balanced nature of the exercise in examining the physical and scientific evidence, the courts have turned their attention to an examination of social perceptions and attitudes in making their choices. This is most clearly evident in the employment of ordinary bystander tests, which focus upon whether the reasonable person would consider it appropriate or not to award damages. In both the wrongful conception and contamination cases analysed in this article, we have seen courts widening their conception of what constitutes physical damage. The courts have acceded to social perceptions of damage and to concern about standards of conduct in recognising new forms of loss. This, it has been argued, is justified on the basis that the real wrong in negligence is the failure to take care, given the context within which the failure takes place. Although the cases could possibly be characterised as involving the imposition of tall-order obligations upon defendants, the fact that damage is recognised to have occurred entails the conclusion that these are ordinary cases involving the imposition of more familiar short-order obligations.

The widening of the legal conception of damage emphasises the close (and closing) relationship between negligence and nuisance.[73] Recovery has long been available in nuisance for "amenity" damage, for interference with the *use and enjoyment* of land. Interference might be caused by activities that are not ordinarily the subject of liability in negligence, such as the production of noise, smell or vibration. (Then again, in *Hunter* v. *Canary Wharf*, we find an example of actions brought in both nuisance and negligence for the damage suffered by claimants whose properties were showered with dust during the construction of office towers.) Whether the production of noise, smell or vibration amounts to damage or not is dependent in the law of nuisance upon matters such as location, duration and extent. Damage is contextual and dependent upon social perceptions about how land should and

[73] The close relationship between these causes of action has often been noticed. See, *e.g.*, F. Trindade and P. Cane, *The Law of Torts in Australia* (3rd edn., Melbourne: Oxford University Press, 1999), at pp. 650–654.

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should not be used. Damages are awarded on the basis that protection of the physical integrity of land is of little value if the land cannot be used and enjoyed in a socially beneficial way. The contamination cases indicate quite clearly that a similar view is to be taken of other kinds of property. The courts have taken insignificant physical impacts upon property as the departure point in the examination of the secondary consequences of such impacts and, in turn, in determining what constitutes physical damage for the purposes of negligence.[74] In *Perre* v. *Apand*,[75] a case of the introduction of a potato disease onto neighbouring land, Callinan J. expressly noted the close analogies that can often be drawn between the two categories of case. He stated:

> What happened to the properties (the lands, the plant and equipment, and the leaseholds or tenancies) of the appellants here may not have been actual physical damage but it came very close to that ... In a sense, the amenity of a property is very much akin to a physical attribute of a property. A particular activity on parcel "A" may adversely affect the amenity of parcel "B" although the two parcels do not adjoin each other.[76]

The wrongful conception and contamination cases examined in this article arise at a borderland of negligence where the courts face real choices as to what they recognise and what they do not recognise as constituting "physical damage". On this particular borderland negligence meets nuisance. Although it is often the case that the law at the borderland of negligence is jagged and unsatisfactory,[77] the cases examined in this paper present a rather more pleasing picture of seamless connection.

[74] Cf. M. Lee, "Civil Liability for Contamination: *Blue Circle Industries Plc* v. *Ministry of Defence*" (1999) 50 N.I.L.Q. 403, 409–410.
[75] (1999) 198 C.L.R. 180.
[76] At p. 329.
[77] C. Witting, "Negligent Inspectors and Flying Machines" [2000] C.L.J. 544.

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