The Common Law of Landscape Hostility in the Lives and Deaths of Honeybees

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Abstract: This article offers a legal explanation for the decline of honeybees. While most investigations into bee populations and bee survival rates have been scientific, this article provides an additional set of causes, showing how our legal definitions of property and standards of negligence contribute to a landscape hostile to the lives of bees. Examining recent litigation in the United States and Canada, it shows how legal concepts of property impact the lives of bees, especially in cases of pesticide overspray near property boundaries, and in the forms of knowledge and ignorance in play in contesting duties of care in negligence cases. By expanding our understanding of the causes of bee death, this article points toward additional ways in which the stressors that bees face might be reduced.

Keywords: bees, animal law, Colony Collapse Disorder, common law, torts, negligence, boundaries, neonicotinoids, pesticides, insecticides

The decline of species takes place not only in space, but often because of that space. In landscapes shaped by human action, how we arrange that space is a choice that can be so stressful for some species that it begins to render their lives impossible. While this is true for many species, this article shows how choices about physical space codified in law have placed tremendous stress on bees. It focuses specifically on how property boundaries and landlord duties of care serve to create a stressful landscape. To emphasize the political nature and legal enforcement of our landscapes, the analysis focuses on civil lawsuits in the common law world to understand what claims are made, sustained, or denied in this enforcement process.

This article draws our attention to the landscape at a moment when the multiplicity of stressors bees face is becoming apparent, and the risk that their decline poses to humans adds a sense of urgency to finding a solution. Most prominently, neonicotinoid pesticides have emerged as a major driver behind death in honeybee populations. These pesticides cause substantial harm, leading to a decrease in honeybee colonies and hampering their ability to reproduce (Sanchez-Bayo et al.), disrupting their navigation abilities (Siviter, Koricheva et al.; Henry et al.), decreasing their foraging activity, impairing their learning and memory, and weakening their immune systems (Pisa et al.). Chronic exposure to pesticides may change bees' physiology (Almasri et al.), and potentially their gut microbiome (Kwong et al.; Raymann and Moran; Zheng et al.; Motta et al.). This is a widespread problem: neonicotinoid pesticides were recently found in 75% of honey samples collected globally (Mitchell et al.).

Neonicotinoids build on stressors that bees already face, including parasites and a lack of forage during transportation over long distances for purposes of commercial pollination. Varroa mites, a parasite common in hives since the early 1990s, correlate strongly to deformed wing virus (Dalmon et al.) and colony death (VanEngelsdorp et al). Mites built on the stress of American Foulbrood, a disease that attacks the larvae of a hive during development, weakening their ability to reproduce (Genersch). While American Foulbrood has been well known for over a century and Varroa mites have been widespread for three decades, they are now stressing bees who are also weakened by a decline in the quality of their forage (Di Pasquale), and their functional access to that forage (Simone-Finsome et al.). These existing stressors are now widely

expected to interact with chemical stressors in the environment heighten the stress on bees over the effect any would have individually (Goulson et al.; Doublet et al.; Siviter, Bailes et al.; Tosi et al. 'Lethal, Sublethal').

The economic risk of bee decline is enormous, as the direct economic value of pollination to the United States' economy alone has risen from US$15 billion in the year 2000 (Morse and Calderone), while in 2012, the economic value of pollination-dependent crops in the United States was US$34 billion (Jordan et al.). Significant declines in the yield of essential crops such as almonds, blueberries, and apples could arise from reductions in honeybee populations (Biesmeijer et al.; Aizen et al.), as many crops are already limited by pollination services (Reilly et al.).

Backyard hobby beekeeping has boomed in recent years, and the increase in cultivated colonies has been interpreted as a sign that bees have recovered. For example, in Australia, between 1997 and 2002, the number of colonies declined from 672,557 to 490,853, but populations rebounded to 668,672 by 2019 (Clarke and Le Feuvre 10). However, this rebound has been driven in significant part by hobby beekeeping, as evidenced by the number of beekeeping clubs in New South Wales increasing from seven in 2009 with 329 members, to 31 clubs in 2020 with 2961 members, and a significant increase in recreational beekeepers nationally (Clarke and Le Feuvre 16, 10). This boom of new beekeepers has not resulted in additional honey production, which has declined nationally since a peak in 1985. Similarly in the United States, where there has been a modest rebound in hive numbers, the effective pollination efforts of those hives have declined by about 30% between 1987 and 2018 (National Agricultural Statistics Service). Overwintering losses remain elevated in cold climates, where Canadian losses in the winter of 2021-2022 were 45.5% nationally, which is similar to the United States, increasing the cost of pollination significantly (Ferland et al.; Williams et al.). While the long-term decline in managed bee populations remains most clear in North America, and to a lesser extent Europe (Phiri et al.),[1] one understudied area of population rebounds over the past decade is the distribution of hives. Pollination is not only a matter of hive numbers, but of also their distribution and survival on the landscape.

Efforts to understand bee deaths have largely been scientific so far, but the recent turn to understanding hive stressors wholistically and synergistically invite us to think about the role of law and politics in creating a landscape that is so stressful for bees. This article examines two cases, one from the United States and one from Canada, that reveal the ways in which property boundaries and the forms of knowledge underlying our duties of care to one another fail to consider the lives of bees. How we understand negligence, I argue below, will matter for the future health of bees.

1. Bees as Legal Property

Late in his life, Plato took up the question of what should be the penalty for poisoning someone else's bees. In the *Laws*, the 83rd proposed law reads,

> (a) If a doctor poisons a man without doing either him or any member of his household fatal injury, or injures his cattle or bees (fatally or otherwise), and is found guilty on a charge of poisoning, *he must be punished by death*.
>
> (b) If the culprit is a layman, *the court* is to decide the proper penalty or fine to be inflicted in his case (Laws XI 933d, *emphases original*).

Damaging someone's bees was clearly a serious matter for Plato, and the proper penalty for laypeople something to be determined by the courts. Courts and legal commentors have expended significant energy categorizing bees within frameworks of property in order to provide appropriate protection and compensation in cases of damage, although the definitions in the common law have not always been helpful.

In his *Commentaries*, Blackstone distinguishes between legal property rights in animals that are tame (*domitae*) and those that are free or wild by nature (*ferae naturae*).[2] Those that are tame include domestic livestock such as horses, sheep, and poultry, that do not generally wander, but even if they do cross a property line, the owner's property right remains absolute. In contrast, for those that are wild by nature and brought under human control through work (*ferae naturae, per industriam hominis*), '[a] qualified property right may subsist' but, 'if at any time they regain their natural liberty, his property instantly ceases' (*Commentaries* *391-392). Bees

are, according to Blackstone, wild by nature, but animals in which humans may obtain a limited property right by hiving them (*Commentaries* *393). Blackstone here envisions beekeepers catching swarms, containing them in a hive, and maintaining them as property just so long as they stay in that hive. If they swarm and get out of sight, all property right in them is lost.

Blackstone's early modern conception of beekeeping – catching wild bees and offering them a hive – does not capture the domestication of bees in which bees are bred, fed, hived, and managed in a deliberate manner, and where swarming is rare. James Kent's nineteenth century consideration of property rights in bees mirrors Blackstone's, with a focus on swarming (*350). The crossing of property lines that concerns this article is not swarms looking for a new home, but rather of worker bees seeking pollen widely and regularly returning to their hives. The behaviour of a modern beehive is similar to the carrier pigeons Blackstone describes, who even though they 'are flying at a distance from their home [...] remain still in my possession, and I preserve my qualified property in them' (*Commentaries* *392). If a pigeon who is wild by nature traverses property lines with the expectation of return, that pigeon remains personal property. However, Blackstone does not contemplate the foraging behaviour of bees, only their swarming, setting bees on poor legal footing. Although individual localities have largely updated their understanding of bees as property, the baseline bias that regards bees as a lesser personal property than horses or chickens remains and frustrates civil claims for damage.

2. Permeable Property Lines and Pesticide Drift

While the common law conception of beekeeping differs from its modern counterpart, another reason why bees face so much stress is that our legal fictions about bees and property lines are a mismatch for the lived practices and consequences of those borders. David Dana and Nadav Shoked argue that the basis of this mismatch is a unitary understanding of property rights, in which the entire territory within a defined border offers its owner identical rights, abilities, and statuses. That includes both people who think the hard core of property is the ability to exclude others, like Thomas Merrill ('Property and the Right to Exclude'; 'The Property Strategy') and Henry Smith (Merrill and Smith; 'Property as the Law of Things'), as well as those who think

the ownership of property creates a complex range of social relationships, like Lee Ann Fennell ('Lumpy Property'; 'Property and Half-Torts'). The critical feature of property is, for Dana and Shoked, the suddenness and totality of the border; on one side of the line there is a particular set of rights held by one group, and on the other it is entirely different. Or at least, that is the fiction that controls part of our actions, property-practices that geographers sometimes call *territory* as a set of practices, expectations, and relationships (Blomley; Brighenti). Property lines, though, are not that sharp or absolute, a reality that bees experience all too often with pesticide drift, the phenomenon of pesticides crossing property boundaries and being applied beyond their intended target. Such a crossing can happen through aerosolized pesticides blowing in the wind, or through bees crossing property boundaries to interact with plants that have been sprayed. The property line here is not a hard, sharp border of inclusion, but a flowing frontier of pollinators, plants, pollen, and pesticides. In actual practice, the border marks not a point of exclusion for bees, but rather a different regime of hazards.

The consequences of pesticide drift on bees have been civilly litigated in much of the common law world, although most cases against the pesticide makers themselves have settled out of court for undisclosed terms. However, one major suit, *Anderson v. State Department of Natural Resources* 693 N.W.2d 181 (Minn. 2005) in Minnesota, United States, has gone to verdict and clarified the standard of liability applicable to landlords spraying on their land when bees living on another property were known to be foraging there. In *Anderson*, the Minnesota State Supreme Court considered claims by multiple beekeepers that the state's land manager, the Department of Natural Resources (DNR), and property lessee International Paper (IP), applied a pesticide known to be toxic to bees, Sevin XLR Plus, within about a hundred feet of bee hives on land with flowering plants where bees were known by all parties to be foraging. The beekeepers argued that this application did not exercise due care for trespassing animals and was negligent, along with two related complaints (*Anderson* majority, 184). The majority opinion by Justice Russell Anderson found the DNR and IP responsible for negligence, but not the other related claims (*Anderson* majority, 192).[3]

Scholarly response to this case focuses on two areas: the potential expansion of common law negligence in an ecological context, and the relationship of this state-level precedent to principles contained in federal statute. Common law negligence is the wrong of violating a duty. In this case, the landowner owed the owner of the bees a duty of care, in which the landowner had a responsibility to use their land, 'so as not to injure others' (*Anderson* majority, 186). This is a much more stringent standard than behaviour with wanton disregard or intentional injury, and it appears to create a heightened responsibility for landlords. Prior to Anderson, landowners only had a duty to trespassing animals once they were discovered, and that duty only extended to avoid wilfully injuring them (Triplett 1503; Abelkop). However, under Anderson, the court deemphasized the trespass of the bees, and instead emphasized the role of the humas. As Ray Kirsch summarizes their logic, 'whether the bees were trespassers, grades, or letters of the alphabet did not matter – their categorization was not important relative to the knowledge of the parties and the foreseeability of the risks' (Kirsch 346). The landowners knew that there were bees foraging on their land, and that created a duty of care. They breached that duty of care when they could reasonably foresee that spraying Sevin XLR Plus would harm the bees, and they chose to spray anyway.

Anderson was decided under Minnesota state law and common law principles of negligence, which in the American context are often pre-empted by federal case or statutory law covering the same area. The primary federal pesticide regulation is rooted in the Federal Insecticide, Fungicide, and Rodenticide Act (FIRFA), which Congress first passed in 1947 and later updated to expand the authority of the Environmental Protection Agency in regulation. One of those authorities is regulating the usage instructions for pesticides. The question this poses then is if the usage instructions for pesticides are legally exhaustive and pre-empt all other legal obligations under state or common law, or whether they are guidelines for use that can coexist with duties existing under state or common law. In *Bates v. Dow Agrisciences* (2005), the United States Supreme Court held that FIRFA only pre-empts state variations in labelling, and does not pre-empt other state regulation or private duties. Alexandra Klass, who represented one of the landowners in Anderson, argues that this nesting of duties, 'greatly expands the duties

landowners owe to trespassing bees and other animals', an expansion she finds unworkable since it requires action beyond complying with pesticide labelling, where that required action is unduly vague (Klass, 805).[4]

One way to think about managing duties of care in cases of pesticide drift is to reconsider our concept of property borders. *Anderson* is a product of a legal fiction that a legal right to keep bees right up to a property border can coexist with a legal right to spray insecticides right up to that border; these two rights are incompatible if treated as absolute. However, Dana and Shoked offer an alternative to this unworkable, absolutist framing. Instead of thinking of real property as an undifferentiated geographic area, they make the case that we often distinguish the edges of property from its core. Familiar examples from human residential areas abound. Homeowners recognize that their claim to exclusive use is lower near a road or sidewalk than in a backyard, garden, or behind a fence (Dana and Shoked 756); we recognize that our ability to exclude an unwanted drone flying at head-height through our garden is higher than our ability to exclude an airliner passing over at 30,000 feet (Dana and Shoked 802). Agricultural land is a conceptual outlier in extending undifferentiated property rights up to the very edge of the property border, indicated by its pioneering of fencing to mark and enforce boundaries. It has taken work and technology to maintain the fiction of undifferentiated property rights across space because it is so at odds with how we usually treat property.

The *Anderson* decision has the potential to align the practices of property more closely with the graded entitlement model common to residential property by imposing a duty of care on landowners, meaning that the right to spray to the property boundary may not exist in all cases. That right to spray can be impacted by what the neighbour is doing on their property, including keeping bees. While the situatedness of the exact legal standard – the distance from the border to apply the pesticide, the direction of the wind, the appropriate humidity, *et cetera* – may strike proponents of a label-based framework, like Klass, as unworkable, doing so would align agricultural property norms with other ways we treat property. If we move from the current status quo of thinking that pesticide application is essential to land management and that an ongoing negotiation with interacting interests over how and when to spray would be 'difficult, if not impossible' (Klass 805), we might reduce the stress on bees from overspray.

A move away from label compliance into ongoing negotiation with bordering interests has the potential to create greater efficiency by including all relevant stakeholders and allowing affected parties to negotiate solutions based on local knowledge. In his classic study of ranchers in northern California, Robert Ellickson makes the case that agrarian disputes are often resolved informally and efficiently in large part because they make no explicit reference to the law, and instead rely on community norms (Ellickson). Chelsea Gallay makes a case that in an urban environment, Alternative Dispute Resolution (ADR) holds significant promise for structuring negotiations over damage to bees (Gallay). What *Anderson* offers is not a clear legal framework for settling disputes, but rather a notice to agricultural communities that beekeeping is a legitimate activity, the accommodation of which must be incorporated into existing practices, norms, and conversations. This sort of notice creates a legal framework for bargaining outside the courts since each side now knows that they may need to justify their actions to a judge, increasing fairness as people bargain in the law's shadow (Mnookin and Kornhauser 994). The inclusion of beekeeping into decision-making processes about how, when, or whether to spray – with civil liability only an implied background – may allow greater efficiency through compromise and bargaining, and *Anderson*'s extension of a duty of care to landowners may go some distance towards reducing stress on bees.

3. Hosting Hazards

In addition to a landscape made hostile by a legal fiction that property boundaries are precise denotations of excludable territory, landscape-level hostility has also thus far been legally permitted by forms and standards of knowledge and ignorance that have allowed makers and users of neonicotinoid pesticides to avoid negligence suits and resultant liability. *Anderson* demonstrates the importance of negligence, which is usually expressed as a four-part test: (1) that a duty of care existed between the parties; (2) that the respondent breached that duty; (3) that the respondent's breach caused the plaintiff's harm; and (4) that the plaintiff suffered actual damage for which money is a remedy. Claims to knowledge and ignorance matter here because the duty of care was clarified by the British House of Lords in *Donoghue v. Stevenson* (1932) AC562 to exist when the respondent 'would have foreseen, and could have avoided, the

consequences of his act or omission' (*Donoghue* majority, 71). Scientific standards of evidence and knowledge struggle here to translate into a legal genre; the standard of a preponderance of the evidence in a civil suit is qualitatively different from standards of statistical significance or experimental control used in natural sciences. To put this in the context of neonicotinoids, if manufacturers could reasonably foresee that their product would cause harm to users or their neighbours, that manufacturer would be exposed to liability for breaching a duty of care if a damaged beekeeper could demonstrate that the manufacturer's breach caused the damage. Ignorance here constitutes a defence: a reasonable person would not have been able to foresee this harm, so no duty of care exists.

Ignorance is a choice made under conditions of power differentials between manufacturer, beekeeper, and public interests. The will to ignorance has both banal and sinister varieties. John Gerring describes the banal version when he notes that 'What one finds is contingent upon what one looks for, and what one looks for is contingent to some extent upon what one expects to find' (351). Every researcher has a worldview that directs them to look in some places and for some things to the exclusion of others (Haraway 'Situated Knowledges'; Elliot). However, there is a more sinister and wilful version of the will to ignorance that either averts its gaze from inconvenient subjects, or that addresses those subjects in such a manner as to create knowledge favourable to a particular interest. The strategic aversion of the gaze has been described as 'undone science' (Hess 'Alternative Pathways'; Frickel et al.) and 'strategic ignorance' (McGoey), both of which are disfavoured by the political economy of the field (Hess 'Undone Science'). Even when commercial beekeepers are in a position to contribute to regulatory approaches, they often disengage for fear of causing a rift with landowners (Durant). Ulrich Beck and Peter Wheling describe what remains undone, unseen, and unrecorded as *non-knowledge* from which or by which our politics and law are poorly structured to address claims or provide remedy (35). Under conditions of non-knowledge or ignorance, a duty of care is very difficult to assert in a legal context.

Yet, it is not only ignorance or non-knowledge that circumscribes the duty of care, the politics of knowledge – of what we do know and what it means – that have been particularly important for liability claims due to neonicotinoid use. Böschen et al. argue that regulatory

bodies tend to favour knowledge created in highly controlled environments with simple causal mechanisms asserted at a high degree of statistical probability, while discounting knowledge created in less controlled environments, with complex causal mechanisms, or with lower degrees of certainty. These preferences for some types and certainties of knowledge over others marginalizes the complex interactive causation now accepted as the best explanation for Colony Collapse Disorder (Goulson, et al.; Sponsler et. al 2019; Siviter, Koricheva et al.; Tosi et al. 'Lethal, Sublethal'), as well creating a preference for academic laboratory-style knowledge over the experiential knowledge of beekeepers (Suryanarayanan and Kleinman). Preferring simple explanations at a high degree of certainty over complex explanations at a lower degree of certainty creates a preference for false negatives over false positives, building in a bias that neonicotinoids are having no effect on bees (Kleinman and Suryanarayanan 'Dying Bees' 498).

Both the will to ignorance and the politics of knowledge are evident in the pending Canadian class action suit, *Sun Parlor Honey Ltd. v. Bayer Cropscience*. Bayer is the largest producer of neonicotinoids in Canada, and it has been battling a negligence suit by Canadian beekeepers for over a decade. The suit, certified as a class action in 2018, contends that Bayer was and is negligent in both its design and development, as well as its distribution and sale, of neonicotinoids. The suit argues that the harm caused by neonicotinoids was reasonably foreseeable based on the regulatory actions to restrict or ban neonicotinoids in France, Germany, Italy, Japan, and eventually the European Union. Complaints to, and reports by, Health Canada's Pest Management Regulatory Agency that conclude that it is 'highly probable' that neonicotinoids have 'caused' bee mortality are offered as evidence that in the specific instance of Canada Bayer knew or should have known that its neonicotinoids were hazardous to bees, and had a duty of care not to design, develop, market, and sell products known to be harmful to bees in the course of their ordinary use (*Sun Parlor Honey*, 23).

Sun Parlor Honey shows the possibility for negligence claims to overcome local regulator deficits by asserting a global basis for knowledge underlying a duty of care. In contrast to a regulatory logic that statutes and rules describe the full world of legal obligations, a negligence framework makes the case that a duty of care is based on global knowledge, rather than on the specifics of a particular jurisdiction. On a regulatory basis, Bayer's products in Canada are not

subject to European Union regulation, but as a company regulated by the European Union, their knowledge of the reasons for European Union regulation creates a global duty of care. That is the claim behind the *Sun Parlor Honey* case at least, and its litigation may reveal the prospects for common law negligence to create uniform responsibilities for pesticide producers. In 2018, the case was certified as a class action for all Canadian beekeepers, and it continues to gather members of the class.

Unsurprisingly, opposition to the use of tort law as a shadow regulatory apparatus has been significant. Douglas Kysar, following Zipursky, makes a case that the whole historical tradition of private common law is the adjudication of particular disputes rather than righting general wrongs or optimizing social incentives: 'Far from a general purpose regulatory device, tort law adjudicates claims of *specific* victims that they have been injured by the conduct of one or more *specific* wrongdoers' (57, *emphasis original*). Tasking a court with more than the adjudication of narrow disputes stretches the law beyond its purpose and tradition, Kysar argues, and asks judges to fulfill economic tasks for which they are not equipped. However, the judiciary is aware that any rule of negligence creates a social incentive structure which will in turn guide future action (Levmore 1150). In the absence of an effective and updated regulatory state, class action suits like *Sun Parlor Honey* remain the most effective, and often the only, way of constraining corporate excesses (Fitzpatrick 18).

Against Sun Parlor's argument that global knowledge of how dangerous neonicotinoids are for bees creates a duty of care, Bayer has worked to create an alternative knowledge base that casts doubt on the link between neonicotinoids and honeybee deaths. Kleinman and Suryanarayanan detail the methods Bayer has used to create evidence that there is no link, including the use of highly controlled laboratory experiments over very short periods of time that preclude both interactive effects with other pesticides or cumulative exposure over time, as well as coopting beekeepers into research where Bayer determined all of the parameters and refused beekeeper requests to expand the parameters ('Ignorance and Industry' 185-188). By creating a body of alternative knowledge showing no link between neonicotinoids and bee deaths, Bayer shapes the path of future research as new studies need to respond to their work (Kleinman and Suryanarayanan 'Dying Bees' 508).

The outcome of *Sun Parlor Honey* will go some way toward clarifying whether Bayer has a duty of care to avoid harm to bees based on global knowledge rather than national or local regulation. Such a duty of care would not only form the basis for future negligence suits, it also has the potential to provide incentives to corporations and landowners to make the landscape – both physical and legal – less hostile to bees.

Conclusion

It is tough to persist on a hostile landscape, as the declines in bee populations over the past two decades have shown. While law is not often thought of as a primary cause of that hostility, this paper has shown how applications of negligence to the use of pesticides in *Anderson v. State Department of Natural Resources* (2015) in Minnesota and *Sun Parlor Honey Inc. v. Bayer Cropscience* in Ontario have the potential to create a framework to make the landscape more hospitable to bees. Doing so may change our legal concepts of property borders and authoritative knowledge, creating a conceptual framework for the landscape that welcomes pollinators.

Dave Goulson has recently argued that we are in the midst of an 'insect apocalypse' as we have seen a decline of 75% or more in insect biomass since the 1970s in many industrialized countries, but we are in danger of missing these declines since insects lack the charisma of large mammals or colourful fish. Goulson asks a challenging question - *Do not the rest of the organisms on our planet have as much right to be here as we do?* – that implicates the very right to persist, to cross a boundary, to land on a plant, to live in a world that is not hostile ('The Insect Apocalypse', R971). Recognizing our duty of care toward bees is one step toward remaking our landscape to afford bees an ability to live.

Notes

[1] Phiri et al. include Russia, Mongolia, and the Korean Peninsula in their counts for Europe (see Figure 1).

[2] The framing using legal concepts of property and property rights throughout this article is a choice to centre a legal discourse rather than an ethical or moral one. The work and labour of domestic bees poses many important questions not addressed here, including what it would mean for them to have self-determination (see Blattner 'Animal Labour'; Guha-Majumdar), to work in ways that do not contribute to their alienation (see Bachour) or exploitation (see Eisen; Battistoni). Practical steps for moving toward what James Hevia calls a 'shared ontological status and common experience' remain for another project (Hevia xi; Haraway *Staying with the Trouble*).

[3] The two related claims were that the application was done off label in violation of state statute and so was negligent *per se,* and that it violated the beekeepers' real property rights in killing their bees by creating a private nuisance.

[4] One further limitation under FIRFA, as Emily Knobbe notes, is that seeds laced with neonicitinoids arguably escape regulation entirely by being classified as *devices* rather than chemicals, placing them outside the regulatory scope of FIRFA (see Knobbe 235).

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