
Technological Change and the Development of Liability for Fault: A General Introduction

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1. Introduction

The group researching this part of the European Legal Development Project has been examining the problems arising from several specific technological developments occurring at approximately the same time across Europe. Our main interests have been the responsiveness of law to technological change, the similarity and diversity of the legal solutions provided in different jurisdictions and how social change has contributed to consolidate them, make them evolve or substitute them by others.

Jonathan Morgan (University of Cambridge) has written the English report and Yvonne Salmon (EUI Florence), the French one. Jens Scherpe (University of Cambridge) has contributed the German report and Chiara Favilli (University of Pisa) has drafted the Italian report. Jordi Ribot and I (University of Girona) have been in charge of the Spanish report. Over a time-span of two years we met several times in Cambridge and in Girona to discuss our papers as they were progressing. To all of them I owe my gratitude, since working with them and learning from them has been a challenging experience.

In our part of the Project we have studied three examples of changes brought about by technological change in certain detail:

- (1) The first refers to the escape of sparks from steam engines from the middle of the nineteenth century (the historical starting point of this research project) until steam engines were replaced by more efficient diesel or electric locomotive engines.
- (2) The second example refers to the response of the legal system and, in particular of tort law, to damage caused by exploding boilers and, more specifically, to personal injury caused to factory workers until

the time when Workers' Compensation Acts came to the rescue of the victims at the end of the nineteenth century.

- (3) Finally, our third example is asbestos-related industrial disease, from the middle of the twentieth century to our present time.

2. Railway sparks burning crops

In 1846, Robert Ritchie, an English civil engineer, expressed in his book on railways the spirit of the time as regards the prospects of the technological development:

That railways should have effected such vast and important changes in this country in so short a period as thirty years, through the medium of steam as a motive power, must stamp the era in which we live as one of the most enterprising in British history ... and this spirit is fast extending itself over our Transatlantic Colonies, both in British America and The West Indies, and will soon be developed in Australia.

These important changes, he added, were not confined to Britain and its Colonies, since 'In the Spanish settlement of Cuba, railways have for some years been in existence' and 'on the continent of Europe great progress in railways has already been made, chiefly in France, Belgium and Germany'. In his enthusiasm he concluded that:

in a short time every country in Europe will be intersected with railways; and perhaps at no very distant period continuous railways will be constructed across Europe into the centre of Asia, and even perhaps to the capital of China itself.¹

As is well known, Great Britain was the pioneer of steam railway transportation, with a 26-mile (40 km) line from Stockton to Darlington (1825), followed by a 35-mile (54 km) line from Liverpool to Manchester (1830) which was the first inter-city passenger railway in the world. In Germany, the track length expanded rapidly from only 61 km in 1835/36 (and none in Prussia) to almost 43,000 km in 1879 (almost 27,000 km of which were in Prussia). In France, by contrast, although trains both for freight and for passengers were put to use as early as 1837, the development was much slower, with only 3,546 km of track in use in 1852 and 17,440 in 1870. In Italy and Spain, the developments were both much more modest and much slower. When the

¹ Robert Ritchie, *Railways: their Rise, Progress and Construction, with Remarks on Railway Accidents and Proposals for their Prevention* (London: Logman, Brown, Green and Longmans, 1846), pp. 1–3.

Kingdom of Italy was proclaimed in 1861, only 2,521 km of rail-track were in operation, reaching the figure of 7,780 km by 1876. Spain, after a first train operated in Cuba in 1837, had to wait until 1848 to see a train operating on Spanish soil, and the roughly 220 km of track that were in operation in 1850 expanded to only around 9,000 km by the middle of the 1880s.

The increase in steam locomotive lines and traffic also gave rise to an increase in accidents. Ritchie, with the insight gained through living in a pioneering country, asserted that the increase in the number of accidents had 'created well-grounded alarm as to the efficiency of the system itself and led, as we have seen, to the consideration of whether a safer method of traction could not substitute it'.² The most alarming consequences of these accidents were, without any doubt, death and personal injury caused to railway workers and passengers. Great concern to land-owners was also caused by sparks escaping from locomotives and burning crops and fields.

Escaping sparks is the paradigmatic example illustrating the legal conflict between activities related to the rising industrialisation and traditional land use. A simplistic approach might entertain the idea that the conflict was solved either in favour of railway companies or in favour of land-owners. In those nations where land property was more important due to the predominantly agrarian character of the country, the conflict was bound to be resolved in favour of land-owners. Conversely, where land property was not so important and the controlling interest was the expansion of the new technology of railway transportation, the conflict would have been resolved in favour of railway companies. Such oversimplification could be used to explain why Prussia, with an 1838 Railways Act establishing strict liability of railway operators, which modern scholarship has qualified as 'a law designed to benefit the landowning *Junkers*',³ seemed to follow a pro-land-owner approach. By contrast, the English approach, clearly leaning towards a negligence rule, seemed to favour the interests of the rising railway industry. However, a more nuanced multi-factor approach is required. Sometimes, in the same historical period, different courts of the same country reached conclusions which seem incompatible with each other and even nonsensical. The variety of solutions was even greater when we bear in mind that at the beginning of the period, Italy and Germany were not unified, and

² *Ibid.* p. 361.

³ John M. Kleeberg, 'From Strict Liability to Workers' Compensation: The Prussian Railroad Law, the German Liability Act and the Introduction of Bismarck's Accident Insurance in Germany, 1838–1884' (2003) 36 *New York University Journal of International Law and Policy* 53 at 72.

the courts and legislatures of the different kingdoms followed different approaches. Industry and doctrinal writing lamented a lack of certainty. In fact, none of the solutions seems to have had the purpose of subsidising the nascent industry through legal rules, or of moulding private law to accommodate the needs of the entrepreneurial classes. However, all the solutions adopted, with nuances that varied from country to country and over time, enabled the development and expansion of the technological and social changes that were brought about by the railways.

(a) *Legal devices used to solve conflicting interests*

In most countries studied in this volume, from the start of the operation of railways it was discussed whether, in the case of a crop being burned by escaping sparks, land-owners could avail themselves of an injunction in order to stop railway activity, and in the case that they could not, to which other remedies they could have access. In particular, the main point of discussion was whether a claim for damages could be brought without the need to prove fault or whether land-owners could obtain compensation only after fault of the railway company had been established.

(b) *Application of property law rules vs. liability rules*

The possibility of bringing an injunction was generally rejected. The railway operators had obtained an authorisation from the public authorities. Therefore, it was considered that a private individual could not stop an activity that had been expressly warranted by the public authority.

Then a second question arose: did this authorisation also entail a permit to cause damage to others, a sort of *carte blanche* for the damage resulting from its operation?

In Germany, cases dealing with fires caused by escaping sparks were mostly argued on the basis of property law rules rather than tort law rules.⁴ After some initial hesitation, it was held in 1859 that neither the authorisation of the railway operation nor the fact that it used state-of-the-art technological equipment to prevent the escape of sparks gave rise to a defence. The court compared the position of the claimant to a person who would be compensated had his or her land been expropriated, and awarded damages.⁵ Similarly, in a landmark decision in 1886, the Reichsgericht awarded damages under the *actio negatoria*, despite

⁴ Germany, below p. 136 *et seq.* ⁵ Germany, below p. 145.

explicitly finding that the railway company was not at fault. It argued that since the claimant was barred from obtaining an injunction due to the fact that the railway operated under authorisation, not allowing him to claim damages would amount to an unacceptable infringement of his property rights, i.e. to a sort of latent or indirect expropriation.⁶ The same interpretation was maintained after the Bürgerliches Gesetzbuch (BGB) was passed. In two 1904 decisions, the Reichsgericht held that, although the BGB did not provide for a damages award in these cases, compensation had to be awarded regardless of whether the defendant was at fault or not. The reason was that when there was no authorisation by the public authority, the claimant could obtain an injunction (§1004 BGB). Such authorisation, however, deprived him of this possibility and if no damages were awarded, the claimant would be left without any protection, and this situation would amount to an expropriation.⁷

Some decisions followed a similar line of thought in Italy and France. Starting from the idea of the sanctity of property, damage to property was considered a sort of indirect expropriation which nobody could be compelled to endure without receiving just compensation in exchange. Since the defendant was acting in the general interest, the claimant was not entitled to an injunction that prevented the operation of the railway, but only to compensation for the harm suffered.

Thus, a decision on 12 March 1877 of the Court of Appeal of Florence held that the railway operator was obliged to compensate the land-owner because:

property is sacred and inviolable, both for private individuals and for the State; and nobody is obliged to transfer it or suffer any sort of material diminution in it, even for works and enterprises of public interest (this would be in its effects a sort of indirect expropriation) without appropriate and just compensation (art. 438 c.c.). Because the licence obtained did not certainly include the right to set neighbouring property on fire ... but current and permanent damage only and solely for this damage established a preventive compensation.⁸

Almost forty years later in a decision of 18 May 1914, the Court of Cassation of Florence insisted on this idea and added that the harm had been imposed on the claimant in the name of public interest and that ‘the *immissio in alienum* was therefore the infringement of the right of another person, a *damnum non iure datum*, and, therefore a “colpa aquiliana”

⁶ Germany, below p. 171. ⁷ Germany, below pp. 173–4.

⁸ App. Firenze, 12 March 1877, *Foro it.*, 1877, I, c. 36, and Italy, below pp. 192 *et seq.*, 198.

[sic]. An exception to this rule would amount to a limitation of property. Such limitation can only be established by law.⁹ Similar decisions were handed down by courts in Naples (1911) and Bologna (1914), usually mixing justifications from property rules with fault liability rules, until 1915, when case law underwent a U-turn.¹⁰ As Rodotà has pointed out, on occasions like these the courts did not take the opportunity offered by liability for fault to turn the balance in favour of the interests more favourable to industry, but quite the opposite: their approach aimed at reducing, as much as possible, the importance of the yardstick that fault offered.¹¹

The intertwining of property rules and liability rules and a similar departure from a stringent interpretation of fault as an infringement of a duty can also be found in France, where courts considered that establishing an activity which, by its nature, inconvenienced neighbours to a greater extent than traditional activities would constitute fault and had to be compensated for. In this sense, courts held, for instance that ‘it would be unjust if a proprietor found himself suddenly harmed and inconvenienced by the use to which his neighbour put his property’ (Metz, 16 August 1820) or that ‘the exercise of the right to property ceases to be legitimate and becomes a fault from the moment that it seriously harms the right of the neighbour’ (Cass., 3 December 1860).¹² Thereby, the courts considered that, although establishing an industry that abnormally inconvenienced neighbours was not fault in itself, the effects of the operation of such industries was ‘fault’ and, accordingly, neighbouring land-owners could claim damages for the burned crops even if the railway company had taken all possible measures to prevent the harm from taking place.¹³

It is within this context that decisions, which would seem nonsensical when analysed with our present understanding of fault liability, regain a coherent meaning. This is, for instance, the case of the well-known 1861 decision of the Court of Appeal of Munich, where the court held that the condition of the existence of a culpable act (*culpable Handlung*) was always met since ‘the operation of a locomotive as such is necessarily a culpable act’.¹⁴

Along the same lines, other decisions paid lip-service to the fault requirement and compensated for damage suffered by land-owners by applying a

⁹ Cass. Firenze, 18 May 1914, *Giur. It.*, I, 1, 1914, p. 999, and Italy, below p. 194 *et seq.*

¹⁰ See below Italy, p. 199 *et seq.*

¹¹ See S. Rodotà, ‘Proprietà e industria. Variazione intorno alla responsabilità civile’ *Pol. dir.* 1978, 421–6.

¹² France, below p. 97. ¹³ France, *ibid.* ¹⁴ Germany, below p. 145.

very loose and vague notion of fault. This was done, for instance, in Italy, in cases decided in the 1860s, either by considering that the emission of sparks showed a defective adoption of the precautionary measures (a sort of *culpa in re ipsa*) or by introducing a sort of ‘presumption of fault’ of the railway companies which could be rebutted only by proving force majeure or contributory negligence of the victim, but not by proving that the defendant had acted with due care.¹⁵ Something similar happened in Germany where, for instance, the Court of Appeal of Munich in 1853 held a railway company liable for the ensuing damage because escaping sparks ‘could only be explained by the employee’s negligence or insufficient measures to prevent the sparks’.¹⁶

Although these solutions did not formally disregard the principle of fault liability, in practice they converted it into strict liability.

(c) *Establishing a strict liability rule*

Another possible device to protect land-owners was to establish strict liability in order to force railway companies to internalise all the costs created by their activity. This was done by the legislature in Prussia and by the courts in France in the wake of the *Teffaine* case.

The paradigmatic (and quite a minority example) of a strict liability rule established by the legislature is to be found in §25 of the Prussian Railway Act of 1838, which provided that:

the company is liable for all damage occasioned during train transport to goods transported and persons as well as to other persons and goods, and the company can only exonerate itself from this liability by proving that the damage was caused through fault of the claimant or by an inevitable event.

and added that ‘the dangerous nature of the undertaking as such is not such an event as to exonerate from liability’. This provision was considered to cover personal injury, damage to transported goods and damage to ‘any other goods’, the latter including damage to neighbouring land.¹⁷ The Act, passed in 1838, was enacted only four days after the first Prussian railway line was opened and the driving force behind it was not an obscure and petty civil servant, but Friedrich Karl von Savigny himself, the same great man who had looked with indifference on delictual liability without fault in his academic works.¹⁸

¹⁵ Italy, below p. 192 *et seq.* ¹⁶ Germany, below p. 145.

¹⁷ See Germany, below p. 140 *et seq.* ¹⁸ See Germany, below p. 141.

Savigny poured new wine into old wineskins to meet the needs of regulation brought about by technological change. He had in mind two classes of injured plaintiffs, i.e. passengers and land-owners, and drew inspiration from different sources to attain the same result. According to his proposal, passengers should be able to bring their claims under strict liability because the railway was like an innkeeper and, traditionally, innkeepers were strictly liable for injuries to travellers. In the case of damage caused to land by escaping sparks, he contended that often nobody is at fault and since the damage they cause cannot be prevented, the company should be liable for it unless the claimant had contributed to the damage himself or the damage had been caused by force majeure.¹⁹

It seemed difficult, however, to justify why Savigny favoured strict liability for damage caused by railway operation and not in the case of other industrial activities, such as the operation of factories or steamboats, which also involved the use of machines posing similar dangers. Savigny contended that the grounds for this exception to liability based on fault were that, by contrast to other industrial activities, the operation of railways by its own nature could not be subject to preventive measures, since tracks cover vast distances. This presented a risk to land-owners and people living close to the railway, and making them bear the risk and the damage would have amounted to an uncompensated expropriation for the benefit of railway operators.²⁰ The Prussian state had already granted railway companies the land they required through expropriation and Savigny saw strict liability as a fair measure in exchange for it.²¹

It must be stressed, however, that strict liability did not mean that land-owners suffering fire caused by escaping sparks obtained compensation in any case. First of all, other rules within the tort law system then existing prevented that from happening. This was the case, in particular, for contributory negligence, a defence which proved quite successful since it was understood as an 'all or nothing' rule and the slightest contributory negligent conduct of the victim was sufficient to rule out the claim.²² Furthermore, assumption of risk or limitation of liability through contract were possible (in this latter case, at least until the defence was declared void in 1869).²³ Moreover, the courts were quite restrictive, excluding

¹⁹ See Germany, below p. 141 *et seq.* See also Kleeberg, above note 3, at 68–9.

²⁰ See Germany, below p. 142. ²¹ See, in this sense, Kleeberg, above note 3, at 69.

²² See Germany, 143. See also Kleeberg, above note 3, at 73–4.

²³ See Germany, below pp. 146–7. See also Kleeberg, above note 3, at 75 *et seq.*

consequential damage and, by using one device or another, rejecting compensation in the majority of cases.²⁴

In France, the 1896 *Teffaine* case gave a new meaning to article 1384, paragraph 1 of the Code civil (C civ.) by establishing a new system of liability based on the custody (*garde*) of any injury-producing thing. After this, the courts also extended strict liability (or at least, a 'stricter' form of liability) to damage caused by escaping sparks. So, for instance, and among many other decisions, the Court of Appeal of Toulouse, on 6 May 1902, held a railway company liable under article 1384, paragraph 1 C civ., in spite of the fact that the locomotive had been furnished with equipment to prevent sparks from escaping and that no recklessness or negligence of the railway company had been shown.²⁵

(d) *Establishing a stringent fault liability rule*

A stringent notion of fault liability of railway operators for damage caused by sparks was, from the outset, a well entrenched position in England and in Spain, and it became the prevailing approach of the Italian courts after 1915.

As early as in 1832 (*R v. Pease*) it was decided in England that when an Act of Parliament had authorised a railway, an action for nuisance could not lie for running trains along the railway. It would not have been acceptable that an activity which Parliament had expressly sanctioned and which inevitably interfered with passage through the land was effectively rendered unlawful by the law of nuisance and thus could presumably be prohibited by an injunction. Therefore, from the very early cases, claims for damage caused by sparks escaping from locomotives had to be framed as an action for negligence against the defendant railway. Moreover, fault was not presumed and had to be established by the defendant.²⁶

It has been pointed out that during the railway boom, the legislated expropriation of property by railway companies became national policy in England, and that by the 1840s, the power to expropriate private land was routinely bestowed on any group which put forward a plan which they declared to be for public benefit.²⁷ Since railway entrepreneurs had been granted this extraordinary power of expropriation, the single absolute

²⁴ See in more detail Germany, below p. 144. See also Kleeberg, above note 3, at 75 *et seq.*

²⁵ See in more detail France, below p. 98 *et seq.* ²⁶ See England, below p. 41 *et seq.*

²⁷ See R.W. Kostal, *Law and English Railway Capitalism 1825–1875* (Oxford: Clarendon Press, 1994), p. 177.

right of a land-owner was considered to be his right of compensation and, therefore, railway entrepreneurs had no right to complain of being obliged to purchase land at very high prices if they wanted to establish new lines.²⁸

From the start, railway companies had to pay very high prices for the land they bought, and as the railway industry became more competitive, large payments for small amounts of land became more commonplace:²⁹ the equation of economic development with public interest provided the central ideological justification for the invasion of the land by the railway. As Kostal has pointed out, it seemed that land-owners and railway operators had secured what they each wanted most: whereas the former became rich through the high monetary compensation and could also enjoy the world's most advanced domestic transportation system, the latter had promptly obtained the material foundation for their 'vast operational enterprises'.³⁰ Within this context, it does not seem surprising that, unless the railway company was at fault, the courts were reluctant to further compensate land-owners when the operation of railways burnt crops. Moreover, from a doctrinal point of view, such compensation would not have fitted very well within an action for nuisance which, in the face of parliamentary authorisation, would have had to be brought without the possibility of claiming an injunction.

There were, however, attempts to change the prevailing approach of the courts. Notably, Lord Bramwell argued, for instance, that the authorisation clause which gave railway companies the power to run trains had nothing to do with the authorisation of nuisance; or, that the lack of compensatory provisions would amount to derogation of property rights without compensation; or, that in order to produce an efficient resource-allocation, an activity must bear all the costs that it creates for society.³¹

In practice, however, fault liability was impossible to enforce, *inter alia*, because bringing an action was very expensive and proving fault of the defendant very difficult. In England, this gave rise, at the beginning of the twentieth century, to the felt need to provide some sort of compensation for farmers whose crops had been burnt by sparks without requiring them to prove fault. After several setbacks, the Railway Fires Act 1905 was finally passed, establishing that farmers could recover damage caused to crops without the need to prove fault up to the amount of £100; when damage exceeded the statutory limit, farmers might still bring an action in negligence. It appears that in 99 per cent of the cases, this amount

²⁸ *Ibid.* p. 180. ²⁹ *Ibid.* pp. 150–1. ³⁰ *Ibid.* p. 180. ³¹ See England, below p. 43 *et seq.*