

The History of “Impairment”

by Mara Mills and Dan Bouk*

ABSTRACT

Impairment is a key term in Anglophone disability studies and medical discourse, referring to physical difference, limitation, or injury. Yet its history has been obscured or misunderstood. When disability scholars and activists critique the definition of impairment, they generally place the concept in the genealogy of medicalization and inappropriate pathologization. This article, in contrast, traces the development of the impairment concept to the offices of modern American corporations, where actuaries played a key role alongside doctors as they employed new information technologies to quantify risk. Life insurance companies defined impairments, established surveillance systems to discover them, and created databases held by secretive institutions such as the Medical Information Bureau (MIB), with the help of early computing innovators including Melvil Dewey and Herman Hollerith. Beneath the seemingly objective measurement of physical traits, impairments ultimately signified to private corporations the possibility of financial loss or a justification for discrimination.

WHY IMPAIRMENT MATTERS

Impairment is often taken to be a word without history—certainly without a history that matters to experiences in the present. A central concept in Anglophone disability studies as well as medical discourse, *impairment* refers to physical difference, limitation, or injury.¹ Disability scholars and activists engage *impairment* as a descriptive term, if not an objective or neutral one. When the concept of impairment is critiqued, it is generally placed in the genealogy of medicalization and inappropriate pathologization.

Yet the history of impairment is as bureaucratic and actuarial as it is medical. Doctors played a role in shaping impairment, but many of their early contributions had little to do with care or with molding bodies—they were not engaged in what Michel

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¹ On the specificity of the term in English, Elsbeth Bösl notes that *impairment* “can hardly be translated into German.” See “Wie sich Disability History und Wissenschafts- bzw. Medizingeschichte begegnen könnten: Das Beispiel Querschnittslähmung,” in “*Disability Studies*” meets “*History of Science*”: *Körperliche Differenz und soziokulturelle Konstruktion von Behinderung aus der Perspektive der Medizin-, Technik- und Wissenschaftsgeschichte*, ed. Dominik Groß and Ylva Söderfeldt (Kassel, Germany: Kassel Univ. Press, 2017), 15.

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Foucault would call anatomo-politics.² Instead, doctors in the United States teamed with actuaries, library technologists, and corporate executives to manage risk in a population, engineering that population for economic ends—an example of what M. Murphy calls the “economization of life.”³ These medico-actuarial and managerial teams exercised “infopower,” binding individuals to their data by creating records that stuck to them and influenced their access to resources throughout their lives.⁴ Impairment emerged to serve American life insurance companies, who joined with Melvil Dewey’s Library Bureau in the 1890s to exploit and popularize a new technology—the card index exchange—to pool surveillance data on their applicants’ “impaired risks.” In turn, these companies advanced their own financial interests using shared impairment data, employing it to “tame chance” while gambling on the comparative likelihood of individuals’ deaths.⁵ In the first decade of the twentieth century, impairment also became an informational proving ground for computation, through large-scale life insurance studies that calculated risks of early mortality using Hollerith cards, abstracting medical exams and patient testimonies to numeric codes at even broader scale.

Within the “medical model of disability,” impairment and disability can hardly be disentangled. The medical model individualizes disability and emphasizes cure.⁶ The “social model,” by contrast, draws a sharper distinction between impairment and disability, taking the latter to be the result of such factors as stigma, economics, and architectural or design exclusions. Disability theorist Tobin Siebers puts it this way: “The social model opposes the medical model by defining disability relative to the social and built environment, arguing that disabling environments produce disability in bodies and require interventions at the level of social justice.”⁷ According to the social model, then, impairments become disabilities only in particular settings—for instance, when someone who uses a wheelchair encounters sidewalks without curb cuts. Alternatively, disabilities can be entirely constructed with no foundation of impairment at all; a prejudicial milieu can cause anatomical or behavioral difference to be inappropriately medicalized, as was historically the case with homosexuality. A social justice approach further understands the category of “disabled people” to be a political coalition. As Simi Linton explains, disabled people are “all bound together, not by this list of our collective symptoms but by the social and political circumstances that have forged us as a group.”⁸

The impairment/disability couple, which figures so centrally in disability studies, is usually attributed to the Union of the Physically Impaired Against Segregation, a British activist group that published a manifesto defining these terms in 1976, titled

² Michel Foucault, *The History of Sexuality: An Introduction*, trans. Robert Hurley, vol. 1, *The Will to Knowledge* (New York: Pantheon Books, 1978 [1976]), 139.

³ M. Murphy, *The Economization of Life* (Durham, NC: Duke Univ. Press, 2017).

⁴ On “infopower” in the context of Foucault’s biopower and anatomopolitics, see Colin Koopman, “Diagnostics: Toward a Political Theory for Informational Persons,” in *How We Became Our Data: A Genealogy of the Informational Person* (Chicago: Univ. of Chicago Press, 2019), 153–72.

⁵ Ian Hacking, *The Taming of Chance* (Cambridge: Cambridge Univ. Press, 1990).

⁶ Bruce Henderson, “Impairment,” in *Encyclopedia of Disability*, ed. Gary Albrecht (London: SAGE, 2006), 1:438.

⁷ Tobin Siebers, *Disability Theory* (Ann Arbor: Univ. of Michigan Press, 2008), 25. On the ways the disability studies critique of the medical model has been taken up and adapted by the medical professions themselves, see Andrew J. Hogan, “Moving Away from ‘The Medical Model’: The Development and Revision of the World Health Organization’s Classification of Disability,” *Bulletin of the History of Medicine* 93, no. 2 (2019): 241–69.

⁸ Simi Linton, *Claiming Disability: Knowledge and Identity* (New York: New York Univ. Press, 1998), 4.

Fundamental Principles of Disability.⁹ This document states, "What we are interested in, are ways of changing our conditions of life, and thus overcoming the disabilities which are imposed on top of our physical impairments by the way this society is organised to exclude us."¹⁰ Scholars in the emerging field of disability studies, however, soon began contesting the tidy physical/social division between impairment and disability. Writing in 1996, Margrit Shildrick and Janet Price argued that it naturalizes impairment as a "bodily given," overlooking the ways "medical and welfare systems" designate certain phenomena as pathological in the first place—and regulate them—while denying medical credibility and resources for others (e.g., contested illnesses such as myalgic encephalomyelitis/chronic fatigue syndrome).¹¹ Along the same lines, Shelley Tremain insists that variation is framed or constructed as "impairment" in medical discourse: "Impairments are not intrinsic defects that demand to be corrected or eliminated (as the 'medical model' assumes), but rather are descriptively neutral human characteristics fundamental to human existence."¹² Michael Rembis recently surveyed thirty years of attempts to reframe impairment in disability studies, and concluded that the concept is not a linguistic universal; moreover, what we take to be impairments in English are "socially created and historically contingent."¹³ Far from apolitical, impairment is also mass-produced within contexts such as empire, impoverishment, war, and enslavement.¹⁴

Despite the significance of *impairment* as a keyword, and decades of debate about its definition, little work has been done to explain the roots of this concept as it came to be understood in English. In her 1984 book *The Disabled State*, Deborah A. Stone linked the modern definition of impairment to workers' compensation law. Reviewing the history of the *Guides to the Evaluation of Permanent Impairment*, first published by the American Medical Association (AMA) in 1958 and still a leading impairment rating tool in the United States, Stone concludes, "The professional concept of impairment represents an effort to define and quantify the elements of inability to work."¹⁵

Handbooks for physicians examining applicants for injury compensation benefits, the AMA *Guides* have always taken into consideration a combination of statistical norms and workplace functions rather than sheer diagnosis. For example, "loss of

⁹ For an example of this attribution, see Colin Barnes and Geof Mercer, "Understanding Impairment and Disability: Toward an International Perspective," in *The Social Model of Disability and the Majority World*, ed. Barnes and Mercer (Leeds: Disability Press, 2004), 2.

¹⁰ Union of the Physically Impaired Against Segregation, "Aims," in *Information Pack for Members* (London: Union of the Physically Impaired Against Segregation, 1976), 4, <https://tonybalwinson.files.wordpress.com/2014/06/upias-information-pack-for-members.pdf>.

¹¹ Margrit Shildrick and Janet Price, "Breaking the Boundaries of the Broken Body," *Body and Society* 2, no. 4 (1996): 97, 98. For myalgic encephalomyelitis/chronic fatigue syndrome, see Rogers, "A Syndrome in Search of a Virus: ME/CFS, Disease Paradigms, and the Social Function of Pathogens," this volume.

¹² Shelley Tremain, "Biopower, Styles of Reasoning, and What's Missing from the Stem Cell Debates," *Hypatia* 25, no. 3 (2010): 598.

¹³ Michael Rembis, "Challenging the Impairment/Disability Divide: Disability History and the Social Model of Disability," in *Routledge Handbook of Disability Studies*, 2nd ed., ed. Nick Watson and Simo Vehmas (New York: Routledge, 2020), 380.

¹⁴ See Aparna Nair, "Enumerating Infirmity: Disability, Demography and Empire, 1820–1950"; Eric J. Harvey, "The Blind and Their Work in Mesopotamia in the Third and Second Millennia BCE"; and Jacob Steere-Williams, "Carbolic Colonialism: Plague, Public Health, and Disability in British India," this volume.

¹⁵ Deborah A. Stone, *The Disabled State* (Philadelphia: Temple Univ. Press, 1984), 112.

a major portion of the nose” counts for as much as 50 percent “impairment of the whole person”—it is judged to be a “disfigurement so severe that it precludes social acceptance” even if it does not strictly impact function.¹⁶ Contrary to the predominant narrative in disability studies, the impairment/disability distinction has a long history in the medical field itself. And even within “the medical model,” impairment is inflected by social factors—industrial labor, race, gender, geographic location—which may explain the longstanding intractability of this term for disability theory. In the most recent edition of the *AMA Guides*, *impairment* is defined as “a significant deviation, loss, or loss of use of any body structure or body function” measured according to degree of impact on “activities of daily living.” These activities are largely social, and include: sensory function, travel (e.g., driving), climbing stairs, self-care and hygiene, communication (writing, typing, seeing, hearing, speaking), sleep, and sexual function. *Disability* refers to “activity limitations and/or participation restrictions” at a broader scale.¹⁷

There is also an untold, earlier history of the impairment concept, centered on lifespan, or “life itself,” rather than ability to work. More than half a century before the publication of the *AMA Guides*, and influencing their design, impairment began to be formalized as a tool in the US commercial life insurance industry for rating, rejecting, and surveilling people. Impairment became part of the project of training American doctors to conduct examinations for life insurers, blending medical knowledge with financial considerations (fig. 1). Unlike their peers in the United Kingdom, American underwriters were initially much less willing to insure what they called “impaired risks,” who seemed unlikely to “live to old age.”¹⁸ According to the 1906 edition of *Principles and Practices of Life Insurance*, published by actuaries Nathan Willey and Henry Moir, *impaired* was “an adjective often used to distinguish a person who is unsuitable for the issue of a policy of insurance in the healthy class; literally, below par; not equal to the average.” *Risk* referred to “chance of loss”—namely, financial loss.¹⁹ Insurers often called people themselves “risks,” hence an “impaired risk” was someone either denied an insurance policy or charged additional premiums as a result of their health, heredity, age, habits, occupation, and—quite overtly in the nineteenth century—race and gender.²⁰

We argue that the task of identifying impaired risks encouraged medical examiners, medical directors, and actuaries for US life insurance companies to systematically catalog “impaired” anatomical features and abilities that might disqualify a person from a policy. These evaluations were initially based on the professional judgment of the medical examiner. By the 1890s American life insurance companies adopted

¹⁶ American Medical Association, *Guides to the Evaluation of Permanent Impairment*, 5th ed., ed. Linda Cocchiarella and Gunnar Andersson (Chicago: American Medical Association, 2000), 256.

¹⁷ *AMA Guides to the Evaluation of Permanent Impairment*, 6th ed., ed. Robert D. Rondonelli et al. (Chicago: American Medical Association, 2023), 5. “Instrumental activities of daily living” are even more obviously social and include “care of pets” and “financial management” (7).

¹⁸ Charles Lyman Greene, *The Medical Examination for Life Insurance and Its Associated Methods: With Chapters on the Insurance of Substandard Lives and Accident Insurance* (London: Rebman, 1901), 23; Timothy Alborn, *Regulated Lives: Life Insurance and British Society, 1800–1914* (Toronto: Univ. of Toronto Press, 2009), 272.

¹⁹ Nathan Willey and Henry Moir, *Principles and Practice of Life Insurance*, 7th ed. (New York: Spectator, 1906), 16, 26.

²⁰ Consider, for instance, medical examiner Charles Lyman Greene’s comment, “The duration of any life depends upon race, morals, occupation, habits, environment, family history, medical history, and the physical condition.” Greene, *Medical Examination*, 36.

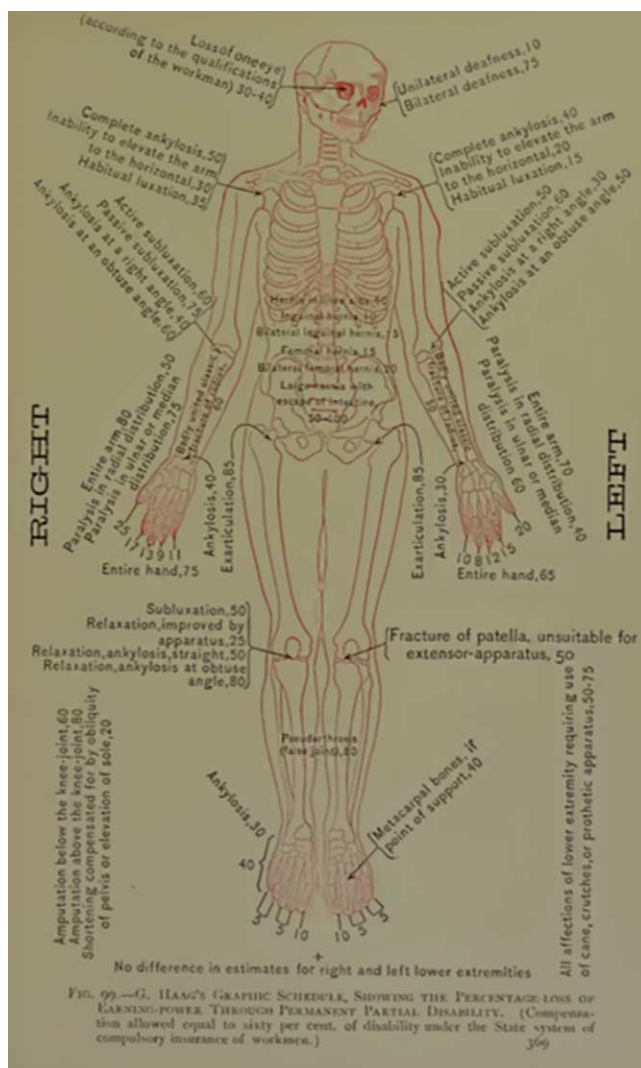


Figure 1. German “graphic schedule” for workers’ compensation, c. 1900. The figure is labeled with “the percentage loss of earning-power through permanent partial disability” of the various body parts. Reprinted from Charles Lyman Greene, *The Medical Examination for Life Insurance* (London: Rebman, 1901), 369.

new technologies and procedures for office administration, hoping to streamline work and control costs as their policies ballooned into the millions, and “impairment” emerged at this medico-actuarial-administrative nexus as a compact form of human data. Martin Campbell-Kelly has pointed out the sophisticated data-processing techniques that developed in the insurance industry before automation. Insurance, he writes, “is perhaps the purest example of an ‘information-based’ industry—that is, an industry whose sole activity consists of gathering, processing and distributing information.”²¹

²¹ Martin Campbell-Kelly, “Large-Scale Data Processing in the Prudential, 1850–1930,” *Accounting History Review* 2, no. 2 (1992): 118. Writing about the UK context, where insurance companies were founded earlier, Campbell-Kelly dates a shift in administrative practices to the 1870s.

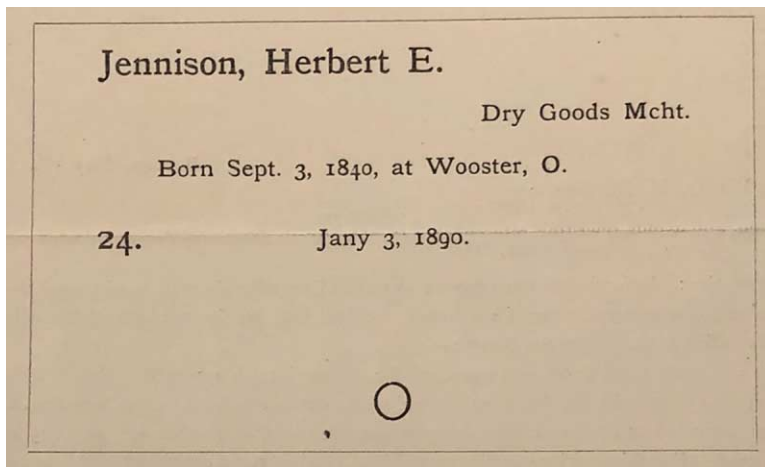


Figure 2. Library Bureau rejection card, 1890. Life insurers were to mail lists of rejected applicants to the Library Bureau, where rejection cards for each individual would be printed and distributed to all participating companies for filing in a card index system. H. E. Davidson to Frank Wells, draft prospectus from the Library Bureau to the Association of Life Insurance Medical Directors, May 5, 1890, Melvil Dewey Papers (box 62, folder 1), Rare Book and Manuscript Library, Columbia University in the City of New York.

One basic technique, borrowed from the library sector, shifted recordkeeping to new file cards. In an 1890 prospectus, the Library Bureau described its “card index” as “a series of cards, with one reference written or printed on each card, the cards standing on edge in trays, boxes or drawers, arranged in strict alphabetical or numerical order.” Such indices had already been installed in various forms by a few large insurers for internal use, according to this sales pitch, and might be further deployed for the efficient and secret exchange of personal data between insurers. The Library Bureau proposed to receive lists of daily insurance rejections from each insurance firm, which it would translate into mass-printed sets of alphabetized cards ready to be added to each company’s master index of people whom other companies had deemed uninsurable (fig. 2).²² That proposal succeeded, with impairment being the data that companies exchanged to alert each other of “poor risks.”

Life insurance companies amassed significant mortality data from policyholders and rejected applicants alike, and medical directors began working with actuaries to make risk classification a standardized, statistical process. As Oscar Rogers, the director of New York Life, explained in 1907, “all the factors which go to make up the value of a risk” began to be assigned “numerical equivalents in terms of a given standard,” and were then summed to express the total risk.²³ “Impairment” became the life insurance term for “substandard” factors—risks of death *and* expense—measurable in

²² H. E. Davidson to Frank Wells, draft prospectus from the Library Bureau to the Association of Life Insurance Medical Directors, May 5, 1890, folder 1, box 62, Melvil Dewey Papers, Columbia Univ. Archives, NY. On the technology of the card index or file more generally, see Markus Krajewski, *Paper Machines: About Cards and Catalogs, 1548–1929*, trans. Peter Krapp (Cambridge: MIT Press, 2011); Craig Robertson, *The Filing Cabinet: A Vertical History of Information* (Minneapolis: Univ. of Minnesota Press, 2021).

²³ Oscar H. Rogers, *Medical Selection and Substandard Business: An Address before the Eighteenth Annual Meeting of the Association of Life Insurance Medical Directors, New York, N.Y. October 23rd, 1907* (New York: [New York Life Insurance Company], 1907), 10.

degree and rated in comparison to a population. With impairment, in other words, the qualitative became not just quantitative but reducible to a numeric code; illness experience and human variability were rendered into a discrete format.

This article emerges after years of speculation between the authors that our respective areas of expertise—quantification in the history of disability for Mills and life insurance for Bouk—have more than a passing affinity with each other.²⁴ In what follows, we extend Bouk's previous history of "personal data," to consider the ways insurers invented impairment to "stand in for us in bureaucracies."²⁵ Impairments manifest as "data doubles," to borrow a term coined by sociologists Kevin Haggerty and Richard Ericson, representing us to insurers, hospitals, workplaces, and schools, often with direct and significant consequences.²⁶ The standardization and popularization of impairment as a concept can specifically be traced to the founding of the Medical Information Bureau (MIB) in 1902, a collaboration among US life insurers to aggregate risk and mortality data that continues to serve as a clearinghouse for personal data today.²⁷

The MIB took over from the Library Bureau with the goal of increasing the massive dataset on risk shared among companies; namely, by circulating "impairment cards" on applicants rather than just names of rejections. Medical directors and actuaries subsequently made impairment computable using Hollerith tabulating cards. Patient responses on medical history forms, solicited by insurance companies and interpreted in written notes by medical examiners, were abstracted to codes that could be punched on a Hollerith card for each person, or "risk." These codes referred specifically to type of impairment, with impairments ranked and tallied according to mortality risk based on prior statistical studies. Other numerical codes were assigned for related information, such as first onset of impairment and number of occurrences. "Cure" was, in fact, remote from this logic: many impairments became what we would now call "preexisting conditions" that might follow a person around forever.²⁸ More to the point, impairments

²⁴ For Mills on the quantification of disability, see "Deafening: Noise and the Engineering of Communication in the Telephone System," *Grey Room* 43 (2011): 118–43; and "Testing Hearing with Speech," in *Testing Hearing and the Making of Modern Aurality*, ed. Viktoria Tkaczyk, Mara Mills, and Alexandra Hui (Oxford: Oxford Univ. Press, 2020), 23–48. For Bouk, see "The History and Political Economy of Personal Data over the Last Two Centuries in Three Acts," in *Data Histories*, ed. Elena Aronova, Christine von Oertzen, and David Sepkoski, vol. 32 of *Osiris* (2017): 86.

²⁵ Parts of the story told in this article have been treated previously, to different analytical ends, in Bouk, "History and Political Economy of Personal Data," and in Bouk, *How Our Days Became Numbered: Risk and the Rise of the Statistical Individual* (Chicago: Univ. of Chicago Press, 2015), chs. 3 and 6.

²⁶ Kevin D. Haggerty and Richard V. Ericson, "The Surveillant Assemblage," *British Journal of Sociology* 51, no. 4 (2000): 605–22.

²⁷ On the recent history of the MIB, which is made difficult by the institution's secrecy, see Simson Garfinkel, *Database Nation: The Death of Privacy in the 21st Century* (Cambridge: O'Reilly, 2000), 138. Garfinkel notes, "MIB has been the subject of ongoing controversy since the 1970s, when its existence first became generally known. At the root of the controversy is the organization's penchant for secrecy. For many years, insurance agencies consulted MIB without telling applicants about the files. MIB was not mentioned in the few books on consumer issues and consumer privacy. MIB even had an unlisted phone number."

²⁸ In the early twentieth century, actuaries became concerned about preexisting conditions in the case of accident insurance. Writing in 1915, for instance, B. A. Page cautioned against issuing standard accident policies to "hunchbacks," people with hemophilia, and even those with varicose veins because their "pre-existing diseases" made them prone to injury and slow to heal. Page, "Accident Underwriting," in *Accident and Health Insurance*, ed. H. P. Dunham and J. L. Rhodes (Hartford, CT: Insurance Institute of Hartford, 1915), 43.

were not identified in order to be treated—they were invented as codes to help insurers place good bets, using an efficient automated system, on applicants who were likely to be inexpensive. Impairment was a form of information that could lead to a person's exclusion from insurance or the workplace; it could also be a source of profit, a reason to charge an insurance applicant a higher rate.

That key figures in the drive to organize and tabulate the world's information at the turn of the twentieth century collaborated with insurance companies in the making of impairments makes plain that mortality and disability were big business. Impairments, alongside other medical information and personal statistics, were an early proving ground for database construction and automated computing—and for managing human lives as computable numbers. Dewey's Library Bureau pivoted from cataloging books to cataloging people's health data for insurers in 1890, laying the groundwork for the MIB.²⁹ Herman Hollerith himself consulted on the later project to analyze aggregated impairment data, an effort spearheaded by actuaries and physicians at one of the nation's largest companies, New York Life. Hollerith got his start in punch card tabulation working with census data in the late nineteenth century. His company, eventually renamed IBM (International Business Machines), drove computing and automation in the twentieth. The concept of impairment disseminated from life insurance to accident and health insurance via companies that issued policies for all three, and then into popular discourse. Like holes in a punch card, impairments still perforate us today and allow us to be sorted, rated, and predicted. The MIB itself continues to collect impairment data on an even grander scale, having expanded its purview to health insurance.

This history makes clear that impairment has never been purely "medical." Far from the giants of nineteenth-century physiology who populate George Canguilhem's history of the normal and the pathological (e.g., Auguste Comte and Claude Bernard), it is the forgotten medical directors of life insurance companies, working in tandem with actuaries, who gave us impairment.³⁰ Their selection and rating systems combined medical examinations (mediated by calibrated technologies for weighing bodies, measuring blood pressure, and chemically analyzing urine) with large-scale statistical and computational studies of subsequent mortality. Life insurers turned impairments into discrete objects of knowledge adhering individuals to high-stakes bureaucratic systems, even as that concept came to be understood as a relatively straightforward medical attribute. Social factors powerfully shaped every step, from the constitution of the underlying database that was at first mainly limited, through discriminatory practices, to white American men, to the selection of "principal impairments" that included behavior ("unsatisfactory habits as to alcohol"), to a factoring-in of risky "habitats" and occupations (without acknowledging the class inequality and racism shaping those positions).³¹ At the same time, the mechanics of the punch card individualized impairment, and made no room for economic or social causes and solutions for ill health.

The moral economy of impairment is strongly linked to the commercial life insurance context in which the concept arose. Individual responsibility, financial accumulation centered on the (white) nuclear family, and the crass opportunism of speculating

²⁹ Gerri Flanzraich, "The Library Bureau and Office Technology," *Libraries and Culture* 28, no. 4 (1993): 403–29.

³⁰ Georges Canguilhem, *The Normal and the Pathological*, trans. Carolyn R. Fawcett with Robert S. Cohen (New York: Zone Books, 1989).

³¹ Arthur Hunter and Oscar H. Rogers, "Ratios for the Principal Impairments," *Transactions of the Actuarial Society of America* 22 (1921): 342–56.

on mortality—not social welfare or even personal wellbeing—structured the life insurance industry in the United States.³² Even as commercial insurance shared (or socialized) the risks of many millions, it promoted an ideology of “equity” or “fairness” that insisted individuals should, as much as possible, not have to subsidize the higher costs of those who faced higher risks of untimely death. Although *equity* implies “justice” in some contexts and “disinterestedness” in others, for insurers it refers to a narrowly defined “evenhandedness” premised on the firm’s ability to precisely and accurately assess each individual’s level of risk—and individualize accountability, even if the risk ultimately had social causes.

Beneath the seemingly objective measurement of physical traits, impairments ultimately signified to private corporations the possibility of financial loss or a justification for discrimination. In other words, impairment is underpinned by not just an actuarial logic but also a commercial one.³³ Although one might imagine people with impairments to be those who most need insurance, *impairment* according to this mindset implies that one who is impaired is deserving of future injury, early death, and great personal expense. Impairments were pitched as a means of providing “greater justice . . . to individual lives” and as a means to remove “personal bias” from the evaluation of risks.³⁴ But the creation of standardized, objective impairments more directly benefited actuaries, medical directors, and their corporate employers, opening up new avenues of business while expanding the industry’s infrastructure of medical surveillance.

BEFORE IMPAIRMENT: INJURIES AND ACCIDENT INSURANCE

Scholars have linked the modern concept of “disability” to accident insurance, where the term began to denote temporary or permanent “inability to work.” Ian Hacking argues that modern disability law and the notion of the “accident” itself can be traced to the early years of railway travel in the United Kingdom: “The railroad created the accident,” he writes, continuing: “The word has always meant, among other things, something that happens by chance or is uncaused. . . . But our present specific meaning—something sudden, bad, harmful, and destructive—derives almost entirely from the railway accident.”³⁵ Disabling injuries might warrant compensation, but these injuries did not yet correspond to a classification system of weighted “impairments.”

In 1849 the Railway Passengers Assurance Company began selling accident insurance to travelers—the first of its kind. Policies could be purchased along with a ticket. If an accident occurred, medical examiners were hired by both sides to testify in court

³² On “moral economies” see E. P. Thompson, “The Moral Economy of the English Crowd in the Eighteenth Century,” *Past and Present* 50 (1971): 76–136. On the moral economy of twentieth century insurance in the United States see Caley Horan, *Insurance Era: Risk, Governance, and the Privatization of Security in Postwar America* (Chicago: Univ. of Chicago Press, 2021); Helen Zoe Veit, “‘Why Do People Die?’ Rising Life Expectancy, Aging, and Personal Responsibility,” *Journal of Social History* 45, no. 4 (2012): 1026–48.

³³ Indeed, when defending the limited datasets of certain life insurance investigations, actuary Arthur Hunter explained, “Investigations are not made for academic purposes, but for business purposes.” See “Method of Making Mortality Investigations by Means of Perforated Cards, Sorting and Tabulating Machines, with special reference to the Medico-Actuarial Mortality Investigation,” *Transactions of the Actuarial Society of America* 11, no. 43 (1910): 263.

³⁴ Arthur Hunter, “Insurance on Sub-standard Lives,” *Annals of the American Academy of Political and Social Science* 70 (1917): 49, 53.

³⁵ Ian Hacking, *Rewriting the Soul: Multiple Personality and the Sciences of Memory* (Princeton, NJ: Princeton Univ. Press, 1995), 185.

about the extent of injuries and whether or not the traveler was “permanently disabled,” meaning, in the words of one British medical examiner in 1868, “unable to resume their ordinary occupation.”³⁶

The words *impaired* and *impairment* appear infrequently in the medical and insurance literature surrounding nineteenth-century railway accidents, referring only in a general, descriptive sense to injuries such as “impairment of nervous forces” or “impairment of health.”³⁷ Railway passengers were not examined before their trips, so they were not assessed as “impaired risks” for insurers, nor were specific preexisting “impairments” ever anatomized.³⁸ Beyond the sphere of accidents, contemporary medical textbooks occasionally used the word *impair* to characterize broad functional issues (e.g., “impaired hearing”), but never in the precise, codable sense that would arise in life insurance (e.g., “suppurative middle ear disease” as *an impairment*).³⁹ Elsewhere in the insurance industry, discussions of “impairment of capital”—identifying the term with financial loss—began to surface in the 1860s.⁴⁰

A redefinition of the impairment concept took place at the end of the nineteenth century in the United States. This was, so far as we can tell, the time and place in which people as impaired risks began to be anatomized into collections of objectified, standardized impairments. Individuals felt the consequences of this transformation—even if they were seldom aware of it—in their interactions with commercial life insurers. To understand the origins of the impairment concept, we must look more closely at that industry.

Modern life insurance took root in the United Kingdom in the eighteenth century and flourished there throughout the nineteenth century. Timothy Alborn, in his history of the industry, has emphasized the many and varied ways that insurers shaped people’s lives: they propagated stories of hazard and uncertainty in commercial society (thus making insurance more appealing) and they propped up the ideal of a sole male breadwinner responsible for taking care of wife and children, even in death (through his insurance payout); they opened the world of investment to many ordinary families, as forerunners to today’s pension plans and mutual funds, and in the process they taught those to whom they sold policies how one should place a monetary value on a life (which meant valuing lives according to their current and future earning potential); and they thrust individuals into contact with new biopolitical developments, shoving mortality table and life expectancy charts into people’s hands, while millions of insurance applicants (called “assurance” in the United Kingdom) visited doctors to

³⁶ John Charles Hall, *Medical Evidence in Railway Accidents* (London: Longmans, 1868), 52, 51.

³⁷ Citations taken from a pamphlet of articles reprinted from the *Lancet* that was particularly influential at the time. *The Influence of Railway Travelling on Public Health* (London: Robert Hardwick, 1862).

³⁸ When accident insurance for railway travelers was later taken up in the United States, it was sometimes denied to “crippled” applicants who were thought to be less able to protect themselves from serious injury. Armand Sommer, *A Manual of Accident and Health Insurance* (New York: Spectator, 1928), 17. On railway accidents in the United States as gendered and racialized events, see Barbara Young Welke, *Recasting American Liberty: Gender, Race, Law, and the Railroad Revolution, 1865–1920* (Cambridge: Cambridge Univ. Press, 2001).

³⁹ Association of Life Insurance Medical Directors and Actuarial Society of America, *Medico-actuarial Mortality Investigation*, vol. 1 (New York: Association of Life Insurance Medical Directors and Actuarial Society of America, 1912), 112.

⁴⁰ As one example, see *Fourteenth Annual Report of the Superintendent of the Insurance Department, State of New York* (Albany, NY: Weed, Parsons, 1873), viii.

undergo thorough examinations that could disqualify them from receiving policies—this at a moment when regular medical physicals and checkups were practically unheard of.⁴¹ At its peak in the mid-nineteenth century, the life assurance industry in the United Kingdom covered half of all individuals in the world who held policies, to the tune of hundreds of millions of pounds.⁴² That great reach and enormous financial concentration made insurance a power to be reckoned with and a power that could influence how people reckoned.

Across the Atlantic, according to Sharon Ann Murphy, US life insurers in the 1830s and beyond found success, like many of their British models, by appealing to the rising urban middle class—households that depended in one way or another on the income of a male head, whether a doctor, merchant, or a member of the clergy. Insurers highlighted the uncertainties faced by those who had no landed wealth or other forms of security, uncertainties tied to deaths, but also uncertainties that came with exposure to market economies. While most early American life insurance thus covered well-off white men and supported the ascendant doctrine of a separate sphere for women, Murphy points out that some firms propped up another social and economic institution (slavery) as they insured enslaved people, whose beneficiaries should they face an untimely death were not family or loved ones but their enslavers.⁴³ Michael Ralph has argued that the history of slave insurance challenges celebratory narratives tying life insurance to the production of liberal individuals—modern life insurance, he writes, was just as influential in making workers more exploitable.⁴⁴ However, when insurers “tried to understand whether enslaved people were worthy of insuring,” Ralph notes, they “did not use the language of ‘impairment’”—because “medical examiners and insurance agents understood themselves to be examining people as property.”⁴⁵

In the closing decades of the nineteenth century, US-based life insurers surpassed their British predecessors as the largest firms in the world, selling policies around the globe and even in the United Kingdom.⁴⁶ Domestically in 1900, all US companies combined promised over \$6 billion in protection on “ordinary” policies aimed at the middle classes and an additional \$1.5 billion on “industrial” policies designed for working-class men, women, and children.⁴⁷ With great size came corresponding influence and power. Morton Keller has explained the mindset of the men leading US firms as they ascended: “The size of their investment capital and the connections of their officers and directors put them into intimate contact with the most powerful circles of high finance. The controlling values of the great financiers—centralization, rationalization,

⁴¹ Alborn, *Regulated Lives*.

⁴² Alborn, *Regulated Lives*, 51.

⁴³ Sharon Ann Murphy, *Investing in Life: Insurance in Antebellum America* (Baltimore, MD: Johns Hopkins Univ. Press, 2010).

⁴⁴ Michael Ralph, “‘Life . . . in the midst of death’: Notes on the Relationship between Slave Insurance, Life Insurance and Disability,” *Disability Studies Quarterly* 32, no. 3 (2012): <https://doi.org/10.18061/dsq.v32i3.3267>.

⁴⁵ Personal communication, February 3, 2022.

⁴⁶ One of the biggest US firms, New York Life, insured nearly sixty thousand British customers in 1895, nearly one hundred thousand in 1900, and over two hundred thousand in 1905, reaching a peak of over \$22 million in annual premium income on just short of half a billion dollars of insurance in force. Morton Keller, *Life Insurance Enterprise, 1885–1910: A Study in the Limits of Corporate Power* (Cambridge, MA: Belknap Press of Harvard Univ. Press, 1963), 83. See also Jonathan Levy, *Freaks of Fortune: The Emerging World of Capitalism and Risk in America* (Cambridge, MA: Harvard Univ. Press).

⁴⁷ Keller, *Life Insurance Enterprise*, 286.

giantism—also were those of the life insurance magnates. By 1900 the most exciting thing about the insurance business for [company directors] was its investing power.”⁴⁸ The people in charge of the biggest US insurers wanted growth: more policies, more premiums, more money to invest. That desire played a crucial role in the definition and standardization of impairments.

THE DOUBLE BIND OF THE MEDICAL EXAMINER

The modern concept of impairment emerged amid debates over how to choose policyholders and the tension between company growth and insurance logics of equity and safety. Life insurers employed medical men to serve as gatekeepers, but even as they safeguarded the risk pool, these doctors were seen by company heads as impediments to growth. Medical examiners were supposed to protect the company from extending policies to individuals who knew themselves to be about to die. They set the boundaries for what amounted to normal and what was unduly deviant. Rather than committing themselves to a medical or political ethos of social welfare, they upheld the logic of private life insurance that people should not have to bear the excess risk of others. According to this logic, the most equitable or fair insurance was the insurance that excluded or charged more from those who were deemed greater risks, often by dint of disease or gender or race or nationality.⁴⁹ The job of the medical examiner became one of deciding who deserved to be allowed into the company and who did not. Those determined to be relatively healthy (who were by design white and assumed to be relatively well-off) were good “risks” and could get insurance. The others—somewhere between 10 and 20 percent of applicants (also white and middle-class at this time)—were rejected. Every rejected individual stood for a possibly excessive hazard avoided, but it also represented a policy premium foregone.

It is worth pausing here to consider how doctors initially made these judgments. External medical examiners were paid a small fee to make careful examinations of applicants and were even expected to perform their own chemical analyses of urine samples. A whole genre of books was born to teach doctors how to see “prospects” as insurers wanted them seen—one channel by which insurance logics disseminated into the broader medical community. The writer of an 1885 manual for insurance examiners, who was himself the medical director for Fidelity Mutual Life Association (Philadelphia), painted a picture of the “perfect man”: “an individual whose system is devoid of any inherited taint or actual lesion which would lessen the anticipation of his probable life tenure.”⁵⁰ Yet most men—including most insured men—were imperfect (and most of those insured *were* men, with women treated as a separate, often suspect, class). The question was: who was too imperfect to be insured?

⁴⁸ Keller, *Life Insurance Enterprise*, 139.

⁴⁹ On the early modern origins of insurers’ ideas about fairness, see Antonio J. Heras, Pierre-Charles Pradier, and David Teira, “What Was Fair in Actuarial Fairness?,” *History of the Human Sciences* 33, no. 2 (2020): 91–114; Deborah A. Stone discusses these ideas of “actuarial fairness” as they manifest in health insurance: “The Struggle for the Soul of Health Insurance,” *Journal of Health Politics, Policy and Law* 18, no. 2 (1993): 287–317. For more on the implications of these ideas in debates about algorithms, see Roderigo Ochigame, “The Long History of Algorithmic Fairness,” *Phenomenal World*, January 30, 2020, <https://www.phenomenalworld.org/analysis/long-history-algorithmic-fairness/>.

⁵⁰ Jeremiah R. Levan, *A Treatise on Medical Examination for Life Insurance* (Philadelphia: W. F. Fell, 1885), 162.

Manuals discussed in depth a variety of conditions that might lead to the conclusion that a life or "risk" was too "impaired" to be insurable. It was not uncommon to read a sentence such as this, explaining why epilepsy was a problem: "Not that it necessarily shortens life *per se*, but because even without this usual result it may impair the mental faculties, or dispose to accidents, which essentially impair the risk."⁵¹ Readers of such manuals learned that blindness and deafness separately each made a risk at least somewhat suspect, while their coincidence in one person made a risk "simply not insurable."⁵² The reasoning went like this: "The ear may be as ready and useful in detecting danger and avoiding injury as the eye."⁵³ Insurers expected people to be able to, literally, watch out for themselves, and if a doctor judged that they could not, then the risk would be denied insurance protections. A person who had lost limbs to "mechanical" injury or accidents could still be insured, but lost limbs that signified underlying disease led to rejections, foreshadowing the risk logic of "impairment."⁵⁴ Throughout such books published in the nineteenth century, lives or constitutions might be deemed "impaired," but the noun form of that word, *impairment*, was seldom used and certainly never in any consistent or systematic way.

REJECTION EXCHANGES AND THE BUREAUCRATIC UNDERPINNINGS OF IMPAIRMENT

Medical directors in the leading companies turned to cooperation and professionalization to shore up their place within the industry and to fend off possible challenges to their work by other members of management who cared most about short-term growth in policy numbers. Also among those who wanted growth were company agents who made commissions by selling policies, and Theodore Porter has shown that one reason medical directors banded together and sought objective methods was to justify their decisions in the face of criticism from agents.⁵⁵ That sort of criticism often arose when one company accepted an individual as healthy whom another company had just rejected, which may explain why medical directors were so receptive to Herbert Davidson, the president of Dewey's Library Bureau, when in 1890 he wrote to their new professional association with a proposal: to establish a "rejection exchange" or "rejection league" using the familiar card catalog in new ways. Firms would pay a monthly fee to receive daily mailings of cards printed with information about applicants rejected anywhere else in the network.⁵⁶ A year earlier a private company had begun selling its own information about people who had been previously rejected by other companies, a sign that the service was desired.⁵⁷ Leading US insurers quickly joined the new rejection exchange, run by the Library Bureau, so that one company's negative judgment of an individual (and the basis for that judgment) would follow him from firm to

⁵¹ J. Adams Allen, *Medical Examinations for Life Insurance* (Chicago: Clarke, 1866), 24.

⁵² Levan, *Treatise on Medical Examination for Life Insurance*, 19.

⁵³ Levan, *Treatise on Medical Examination for Life Insurance*, 19.

⁵⁴ Levan, *Treatise on Medical Examination for Life Insurance*, 22.

⁵⁵ Theodore M. Porter, "Life Insurance, Medical Testing, and the Management of Mortality," in *Biographies of Scientific Objects*, ed. Lorraine Daston (Chicago: Univ. of Chicago Press, 2000), 226–46.

⁵⁶ Flanzraich, "Library Bureau and Office Technology," 406–7; H. E. Davidson to Frank Wells, May 5, 1890, folder 1, box 62, Melvil Dewey Papers; "Record of M.I.B." at 2–4 in folder Medical Information Bureau 1916, M11, RG/13-Subject Files, MetLife Archives, Long Island City, NY.

⁵⁷ Holmes Mercantile Agency, which functioned somewhat like a credit bureau. *Our Society Journal*, July 1889, 15; "Holmes Mercantile Agency" (advertisement), *Spectator*, July 6, 1899, v.

firm. Insurers in the United Kingdom soon followed suit, creating their own “Registry of Declined Lives” to share information about people whom a company had rejected.⁵⁸

The Library Bureau, founded in 1876, innovated in library methods and supplies such as filing cabinets, folders, and cards. They developed “card indexing systems” for businesses in the following decade, similar to their library card catalogs (fig. 3). Gerri Flanzraich has shown that the rejection exchange was facilitated by a “card index exchange” based on the cooperative cataloging of the American Library Association.⁵⁹ Because cooperative cataloging operated on subscription, one Library Bureau employee noted in 1893, “These exchanges once they are established are the best elements in our business.” The massive scale of life insurance meant ever more cards to be printed and exchanged.⁶⁰ Insurers were asked to send the names of rejected applicants to the Library Bureau, who would reproduce them on cards to be distributed to all subscribing insurance companies. Insurers would then file rejection cards alphabetically for easy retrieval, to be checked whenever someone new submitted an application—a surveillance strategy that initially blocked those deemed “impaired risks” from obtaining life insurance from any company. The life insurance rejection exchange model quickly inspired other industries (like brass and iron manufacturing) to collect and circulate employee data, setting up Library Bureau exchanges with coded cards for secretly sharing information about fired or otherwise discharged employees (e.g., their “physical condition” and whether they were union members, strikers, drinkers, “lazy,” or found to have a “bad disposition”).⁶¹

However, American medical directors could see another possible way to bolster their position within companies. They could turn medical gatekeeping into a source for growth by supporting insurance on “substandard” lives. The idea of charging more from those who might otherwise be rejected wasn’t new to American companies, but the few firms that had tried up until the mid-1890s had never thrived.⁶² In Britain, by contrast, the practice had been widespread for half a century. Alborn explains, “The increasing prominence of the medical examination after 1850 accompanied a related shift towards ‘rating up’ risky lives by charging them as if they were several years older than their actual age.” In practice these upratings were often “blatantly arbitrary” and seldom based on statistics, but they worked well enough to attract business from those who would otherwise not be insured while still protecting the insurer’s profits.⁶³ In 1896 the first major US insurer, New York Life, started insuring substandard risks and over the next decade issued over 130,000 policies for \$228.8 million of insurance.⁶⁴ Other US companies followed.

In the meantime, New York Life’s medical director, Oscar Rogers, chaired a committee that redesigned the rejection exchange, elaborating a classification and rating system for “impairments.” On June 3, 1902, the committee presented the idea of launching a more comprehensive Medical Information Bureau to medical directors

⁵⁸ Alborn, *Regulated Lives*, 236, 367n53.

⁵⁹ Flanzraich, “Library Bureau and Office Technology,” 406.

⁶⁰ W. E. Parker to Melvil Dewey, December 28, 1893, folder 3, box 62, Melvil Dewey Papers.

⁶¹ F. W. Chamberlain, “System for Employers’ Association Bureau,” *Library Bureau Special Bulletin*, February 4, 1904, box 100, Melvil Dewey Papers.

⁶² Hunter, “Insurance on Sub-standard Lives,” 39.

⁶³ Alborn, *Regulated Lives*, 271.

⁶⁴ Rogers, *Medical Selection and Substandard Business*, 15.

L. B. Automatic index

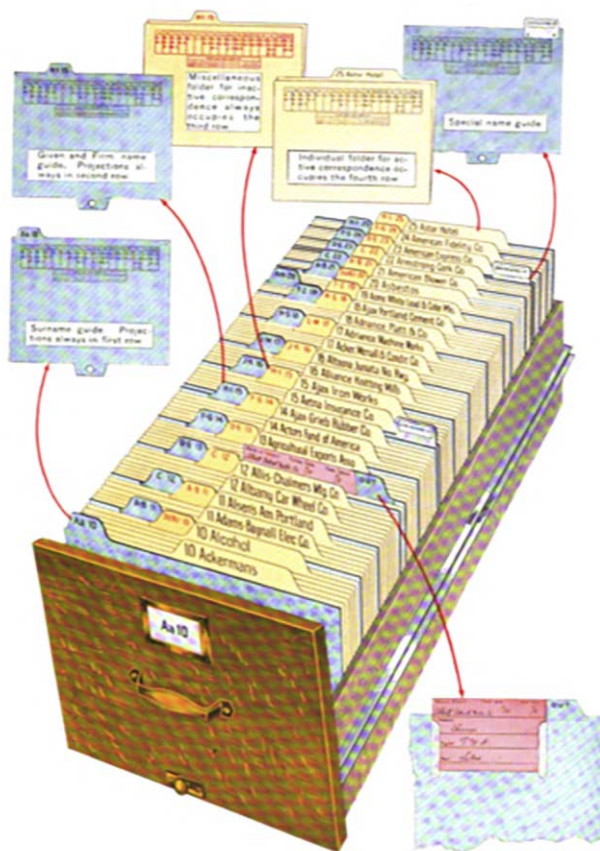


Figure 3. One version of a Library Bureau (L.B.) card index. Reprinted from Library Bureau, Vertical Filing (New York: Library Bureau, 1917), 18.

representing the largest firms, who affirmed the committee’s recommendation—and the MIB was born. The original rejection exchange had, as its name implies, only required that cards be shared with names for individuals a company had rejected. With the redesigned bureau, whenever a company evaluated an individual and found that person wanting, they were required to share the person’s name *and* the grounds for deeming them a poor risk—in other words, their impairments, which companies like New York Life were already building systems to track (fig. 4). The number of people whose data would be shared grew substantially—now one company’s negative judgment, even if it didn’t result in a rejection, would follow a person whenever they sought a policy from any of the nation’s leading insurers.

The recommendations advanced by Rogers’s committee report proposed that “to this [Medical Information] Bureau shall be notified all applicants for insurance whose examination discloses any of the impairments named in the subjoined list.” (The list, unfortunately, is not subjoined in our copy of this report, which was excerpted in a collection and filed in the MetLife archives—and which we have not found published

No.		AGE OF ENTRY _____								
		LOSS NUMBER _____								
BORN _____										
NAME _____		STATE _____ Co. _____								
OCC'N _____										
AMOUNT	KIND	DATE OF ENTRY		DATE OF EXIT						
0	1	2	3	4	5	6	7	8	9	○
CAUSE OF DEATH _____										
MODE OF EXIT _____		DURATION _____								
ACC. PERIOD _____		CLASS _____			NO. OF PAID-UP POL. _____					
2482. SEPT., 1901.										

Figure 4. New York Life Mortality Card, c. 1908. Next to the numbers 0–9 would be listed impairment codes; for instance, a 6 added after the 3 stood for mitral heart murmur (“36”). Reprinted from Arthur Hunter, “Note on an Approximate Method of Making Mortality Investigations,” Transactions of the Actuarial Society of America 10, no. 38 (1908): 362.

elsewhere. The MIB took its secrecy seriously.⁶⁵ Member insurers were required to submit data on every person registering an impairment, whether they accepted that person (on standard or substandard terms) or rejected them. The impairments were “represented by symbols” on the paper file cards like those that Dewey had evangelized to organize books.⁶⁶ As research by historian R. Carlyle Buley shows, in succeeding years, the new institution would frequently be called the Medical *Impairment*

⁶⁵ For just one of many examples, consider a Library Bureau tract that acknowledged the work of “re-checking of policy holders’ indexes and impairment records at yearly intervals” for individual companies, while obliquely alluding to “certain interchange of confidential information” that “cannot be detailed here.” Library Bureau, *Insurance Economies* (Boston: Library Bureau, 1925), 27, 29.

⁶⁶ “Record of M.I.B.,” folder Medical Information Bureau 1916, M11, RG/13-Subject Files, MetLife Archives.

Bureau, an error that reveals much. The point of the organization was to share a particular kind of information—it was to serve as a clearinghouse or registry of impairments.⁶⁷ Such information would be of value to medical examiners in the gatekeeping process and to companies, like Rogers's New York Life, that now sought to sell substandard insurance to those with impairments.

The reach of the MIB grew over its first decade of operation and soon inspired copycats. In 1908 the MIB began to require life insurance firms with accident and health branches to submit information obtained from *any* branch to the card exchange. In 1909 the medical directors behind the MIB agreed to require that member companies submit reports about "all impairments found upon preliminary or tentative medical examinations *without signed applications*" as well as any impairments discovered when an insured individual wanted to somehow change their policy.⁶⁸ Basically, any time a person appeared before one insurance company doctor, they laid their impairments bare to all member companies—for the most part unknowingly. Conference proceedings from the 1910s and 1920s reveal that life insurers were exceedingly anxious about "deceptive" impairment cards, resulting when a discerning applicant, rejected by one firm, applied to another under an intentionally misspelled or maiden name.⁶⁹ In turn, the threat of defamation lawsuits by applicants who discovered the unchecked circulation of their health records prompted massive deception and concern to "control leaks" on the parts of insurers themselves.⁷⁰

Debates in later years show medical directors affirming the importance of their peers reporting any and all impairments discovered in the course of business from any reputable source, and not just in the course of a medical exam. Among the impairments that appear in confidential MIB meeting minutes as either typical examples or frequently present, we find albuminuria (or the presence of the protein albumin in a urine sample, which was understood at the time to be a cause of illness and is now tied to kidney disease), history of syphilis infection, evidence of "speculation" (coded as 807 and meaning, presumably, gambling), and repeated mentions of "808s," referring to the MIB code for excessive use of alcohol.⁷¹ In 1910 an insurance association that catered to younger or smaller insurance companies, most located in the Midwest or West—the American Life Convention—founded its own version of the MIB, calling it the Bureau of Information. It too adopted the language of "impairment" and dealt in "impairment cards."⁷² Impairments in these contexts were not strictly medical or simply the sort of thing a doctor might discover during an examination. Impairments were whatever the official list of impairments said they were, from histories of disease to abnormal results of chemical urinalysis or blood pressure readings to behaviors deemed risky or immoral, such as drinking or dicing. Absent from these discussions

⁶⁷ R. Carlyle Buley, *The American Life Convention, 1906–1952: A Study in the History of Life Insurance* (New York: Appleton-Century-Crofts, 1953).

⁶⁸ "Record of M.I.B.," p. 11, folder Medical Information Bureau 1916, M11, RG/13-Subject Files, MetLife Archives; emphasis ours.

⁶⁹ Carl Stutsman, "Female Risks," *Proceedings of the Eleventh Annual Meeting of the Medical Section of the American Life Convention* (1921): 252–53.

⁷⁰ "Record of M.I.B.," pp. 31–32, folder Medical Information Bureau 1916, M11, RG/13-Subject Files, MetLife Archives.

⁷¹ Record of M.I.B.," pp. 15–19, folder Medical Information Bureau 1916, M11, RG/13-Subject Files, MetLife Archives.

⁷² Buley, *American Life Convention*, 361–63.

Table I—Example of MIB report

Coded Report*	Interpretation
CANUCK, John A.	Name
16FB20 ONT	Birthdate and Place
PHYS	Occupation
CANADA	Area of Residence
(shown as a letter)	
13MY77	Date of Report
123AB-345CD-789EFG	— ECG, two or more, last within 1 year, normal
	— Gall bladder disorder. Treated by surgical operation within 2nd year.
	— Duodenal ulcer, two or more attacks, most recent attack within 3-4-5 years, under treatment not surgical.

***Codings shown for medical conditions are hypothetical examples and not those in actual use**

Figure 5. Hypothetical MIB card with impairment codes (and explanations), c. 1977. R. D. Atkinson, "Medical Information Bureau: What It Is, and What It Isn't," *CMA Journal* 117 (1977): 807. Courtesy of CMA Journal.

of impairment is any mention of blindness, deafness, or any degree of paralysis. That absence likely reflects an assumption of exclusion for people with such disabilities from the protections of insurance.

Establishing the MIB, with its paper card files, allowed individuals and their impairments to be tracked and managed (fig. 5). Data from the MIB would soon also be taken up for large-scale statistical research to refine insurers' catalog of impairments and gain greater knowledge of their effects on mortality risk. Insurers' medical men had previously conducted scattered studies drawn from their records of their institutions or private accumulated records.⁷³ In the 1890s, probably driven by the same pressures that led to the rejection exchange and the turn to substandard insurance,

⁷³ See, for instance, Mutual Life Insurance Company of New York, *Preliminary Report of the Mortuary Experience of the Mutual Life Insurance Company of New-York. From 1843 to 1874* (New York, 1875). Such studies were common in Britain even earlier in the nineteenth century. See Alborn, *Regulated Lives*, 284–88.

medical directors put new energy into studying data that life insurance companies had amassed about particular conditions to identify risks based on statistics. In 1896, for instance, Dr. Albert Wood of State Mutual Life Insurance Company published a study titled "Appendicitis as It Affects Life Insurance Risks," concluding that people who had experienced appendicitis were insurable, even if they did not have an appendectomy, depending on the amount of time that passed after their first attack.⁷⁴ Wood initially surveyed other life insurance companies about their policies, finding them to be hopelessly arbitrary. The previously published mortality statistics for appendicitis were equally imprecise. He then turned to medical examiners, asking them to look at their case files and calculate the average time that elapsed between attacks in the case of repeat bouts. Based on this data, Wood determined that appendicitis made someone an impaired risk, but nevertheless insurable after a certain number of symptomless months.

Another class of study that became popular around that time was the rejection study, which required investigators to find people who had previously been rejected and determine whether they were more likely to die than those accepted by a company. In 1893 Dr. Edward Hamill of Prudential Insurance Company of America presented the results of a study of his company's rejected risks to an audience at Chicago's Columbian exposition.⁷⁵ Rogers conducted his own rejection study around that same time: he traced the fates of twenty-five thousand rejected people to see if their lives were in fact shorter. The results were ambiguous.⁷⁶

COMPUTING IMPAIRMENT

A fundamental shift occurred when medical directors teamed with their colleagues in life insurance actuarial departments to move from statistical methods to actuarial methods. A statistical study might, for instance, compare rates of mortality among people who were classified as overweight. Such a study became actuarial when the ages of those overweight people were taken into account and their mortality rates were compared to those mortality rates expected for similarly aged individuals. Unlike the physiological concept of "abnormality," the actuarial approach to "impairment" imbued the concept with a sense of cost, ranked "severity," and a seeming predictive capability regarding one's future. Rogers also paved the way here, turning to New York Life's actuaries to conduct studies in support of plans for selling substandard insurance.⁷⁷ In 1898, a young actuary named Arthur Hunter joined New York Life and became Rogers's junior partner. Hunter, in 1911, argued that his relationship with Rogers was pivotal: "With the advance in knowledge of the mortality under different conditions and with the increase in competition, it became necessary for the Medical Director to have a knowledge of statistics, and for the Actuary to learn the views of the Medical Director in order to properly compile statistics bearing on the selection of

⁷⁴ Albert Wood, "Appendicitis as It Affects Life Insurance Risks," *Medical Record: A Weekly Journal of Medicine and Surgery*, August 22, 1896, 253–58.

⁷⁵ Frederick L. Hoffman, *History of the Prudential Insurance Company of America* (Newark, NJ: Prudential, 1900), 309. See also Walter S. Nichols, "The Value of Medical Examinations in Industrial Insurance," *Transactions of the Actuarial Society of America* 3, no. 10 (1893): 225–31.

⁷⁶ Rogers, *Medical Selection and Substandard Business*, 4.

⁷⁷ Lawrence F. Abbott, *Story of NYLIC: A History of the Origin and Development of the New York Life Insurance Company from 1845 to 1929* (New York: New York Life Insurance Company, 1930), 280–81.

risks.”⁷⁸ By that point, many of Hunter’s colleagues agreed: two years earlier, in 1909, the Actuarial Society of America had joined with the Association of Life Insurance Medical Directors to conduct an investigation of the mortality implications of a variety of “impairments,” with Hunter and Rogers taking leading roles. The study began with impairments used secretly in the MIB and by insurers, but now generated more precise mortality data tied to impairments, which in turn shaped MIB future practices.

The Medico-Actuarial Mortality Investigation, as this joint endeavor would be called, included 168 hazardous occupations, 99 medical impairments, 15 locales, and 9 classes dealing with race and sex. For this study, impairments were distinguished from occupation, location, race, sex, and “build” on the Hollerith cards that the study used (with nine columns devoted to registering impairments and three to occupation, one to build, and two to “habitat”) as well as in the published results (fig. 6).⁷⁹ Its introductory volume dealt mostly with height and weight data (called “build”), which insurers increasingly made the foundation of insurability judgments.

The Library Bureau had initially joined forces with Hollerith from 1896 to 1899, agreeing to provide cards for the latter’s sorting and tabulating machinery, specifically for Hollerith railroad accounting and national census contracts.⁸⁰ Hollerith was also interested at that time in breaking into the life insurance industry, which already employed Library Bureau card catalogs for internal use. JoAnne Yates has detailed the “coevolution” of the insurance and tabulating industries, including the early adoption of Hollerith and other punch card computing equipment for a range of “labor-saving” administrative projects beginning in the 1890s.⁸¹ Actuarial studies of impairment built on prior industry expertise with this new mode of data processing (fig. 7). Hollerith machines allowed actuaries to quickly sort thousands of cards into simple or complex (i.e., multiple) cases of impairment; to sort cards that combined other impairments with “overweight”; to add cards in a particular impairment category; or to pull out specific impairments by age group for the mortality investigations. As computable information, impairment benefited life insurance companies, not those with impaired lives.

The Medico-Actuarial volume on “medical impairments” came out in 1914—the fourth volume in the series.⁸² This publication, and the conference papers surrounding it, helped to popularize the term *impairment*. The study’s design began by excluding most people with medical impairments (sometimes called defects): it did not include uninsured people who had been rejected because of a medical exam; it did not even include people who had been examined and then forced to accept a substandard policy. The study, in an effort to determine the causal power of each impairment to lead to early death, sought to create statistical classes of people who were “normal” and healthy in every respect, except for the presence of one impairment. As a result, as

⁷⁸ Arthur Hunter, “Selection of Risks from the Actuarial Standpoint,” *Transactions of the Actuarial Society of America* 12, no. 45 (1911): 2.

⁷⁹ Association of Life Insurance Medical Directors (ALIMDA) and Actuarial Society of America (ASA), *Medico-Actuarial Mortality Investigation*, vol. 1 (New York: ALIMDA and ASA, 1912), 136.

⁸⁰ H. E. Davidson to Melvil Dewey, January 17, 1896, folder VI (Library Bureau 1896), box 62 (Library Bureau 1889–1897), Melvil Dewey Papers. See also Krajewski, *Paper Machines*, 101.

⁸¹ JoAnne Yates, “Co-evolution of Information-Processing Technology and Use: Interaction between the Life Insurance and Tabulating Industries,” *Business History Review* 67, no. 1 (1993): 1–51.

⁸² ALIMDA and ASA, *Medico-Actuarial Mortality Investigation*, vol. 4 (New York: ALIMDA and ASA, 1914). The volume’s title is “Mortality among Insured Lives Showing Medical Impairments—Defects in Physical Condition, in Personal History or in Family History.”

1587	10 30		Year Issue	Duration	12 Cause Death	Occupation	12 SPL CLZ	IMPAIRMENTS			Y BLD	Kind of Policy	Amount of Insurance	Habitat			MEDICO ACTUARIAL MORTALITY INVESTIGATION
	X 2040	Policy Number						Age Issue	X	X 11				X 11	X 11	X	
0	0	0 0 0 0	0 0	0 0	0 0	0 0 0	0 0	K	0 0	K	0 0	0 0 0 0	0 0	0 0	0 0	0 0 0	
1	1	1 1 1 1	1 1	1 1	1 1	1 1 1	1 1	A	1 1	A	1 1	1 1 1 1	1 1	1 1	1 1	1 1 1	
2	2	2 2 2 2	2 2	2 2	2 2	2 2 2	2 2	B	2 2	B	2 2	2 2 2 2	2 2	2 2	2 2	2 2 2	
3	3	3 3 3 3	3 3	3 3	3 3	3 3 3	3 3	C	3 3	C	3 3	3 3 3 3	3 3	3 3	3 3	3 3 3	
4	4	4 4 4 4	4 4	4 4	4 4	4 4 4	4 4	D	4 4	D	4 4	4 4 4 4	4 4	4 4	4 4	4 4 4	
5	5	5 5 5 5	5 5	5 5	5 5	5 5 5	5 5	E	5 5	E	5 5	5 5 5 5	5 5	5 5	5 5	5 5 5	
6	6	6 6 6 6	6 6	6 6	6 6	6 6 6	6 6	F	6 6	F	6 6	6 6 6 6	6 6	6 6	6 6	6 6 6	
7	7	7 7 7 7	7 7	7 7	7 7	7 7 7	7 7	G	7 7	G	7 7	7 7 7 7	7 7	7 7	7 7	7 7 7	
8	8	8 8 8 8	8 8	8 8	8 8	8 8 8	8 8	H	8 8	H	8 8	8 8 8 8	8 8	8 8	8 8	8 8 8	
9	9	9 9 9 9	9 9	9 9	9 9	9 9 9	9 9	J	9 9	J	9 9	9 9 9 9	9 9	9 9	9 9	9 9 9	

Figure 6. Hollerith card for general mortality investigation by life insurance companies, with columns for registering impairments. Reprinted from *Medico-actuarial Mortality Investigations, vol. 1* (New York: Actuarial Society of America, 1912), 136.

Yr	Policy No.			True Age	Y.L.T.	Reli- dence	Occupation	Amount Ins. 1st year			Y Increment	Kind	Dividend Class	Year Issued	Duration	12 SE	1st	Impairments			Rating	0 P 1 2 3 4 5 6 7 8 9																		
	0	1	2	3	X	X	X	0	0	0	X							X	X	X																				
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
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NEW-YORK LIFE INSURANCE COMPANY

Figure 7. Hollerith card used for New York Life Insurance applicants in 1910, including a penultimate column for "rating." Double mortality was rated 200, 1.5 times mortality was rated 150, and these numbers were rounded to two figures for the punch card. Reprinted from Arthur Hunter, "Method of Making Mortality Investigations by Means of Perforated Cards, Sorting and Tabulating Machines, with Special Reference to the Medico-actuarial Mortality Investigation," Transactions of the Actuarial Society of America 11, no. 43 (1910): 262.

the study noted, "Where an excess mortality is shown, it should be remembered that it is the mortality of a class, super-select except for the impairment in question."⁸³

The "impairments" researched by the Medico-Actuarial study parallel the scheme of the MIB, probably because the MIB and Medico-Actuarial studies drew from the same pool of historical life insurance data. At the top of the list of impairments to study was syphilis, followed by a number of urinalysis results (such as the presence of sugar or albumin in the urine), then tuberculosis, and then numerous inquiries into habits of alcohol consumption. A variety of diseases or symptoms followed, including a history of rheumatism, gout, asthma, or unoperated appendicitis. Several impairments had to do with the pulse being irregular, intermittent, or quick. Nearly an entire page of the four-page summary results was devoted to different degrees of overweight. Impairments could result from a family history of paralysis, insanity, cancer, or heart disease. Impairments here also included "amputation of thigh," infantile paralysis, epilepsy, and "total deafness." In those last cases the number of policies studied was quite small, presumably because companies seldom insured individuals who were paralyzed, subject to seizures, or deaf. Blindness does not show up as an impairment, likely because insurers continued to count blind people as uninsurable.⁸⁴ A 1910 medical examiner manual published by Prudential informed its doctors that a history of epilepsy, "existing paralysis," and "total blindness" (but not blindness in one eye) all resulted in a disqualification—the same was not true for deafness.⁸⁵

With the Medico-Actuarial study, the insurers' gaze narrowed, their object of study fractionated. Actuaries had previously focused on "lives"—a "risk" was a life, a person. An "impaired life" described a person who was expected to be exceedingly likely to die before the actuarial tables said a person of their age should. Now doctors and actuaries teamed up to consider the mortality experience of bodies characterized by one or several "impairments." Lives, in that context, became bundles of impairments, aggregated risks. Impairment was a rating system for bodies, as well as a punch card coding system for attaching lives to bureaucratic structures. Insurers kept track of impairments over time through the MIB and they assigned precise, predictive values to each impairment they tracked—even if individuals themselves rarely learned the details of these ratings.

VALUING IMPAIRMENT

Working with actuaries, life insurance medical directors rated, or *valued*, each impairment to work within what they called "the numerical method" for quantifying risk—which estimated and scored the extent to which a combination of impairments increased the likelihood of mortality. The mass production of impairment valuations that began in life insurance companies attached a dollar amount to impairments when it came to setting rates for substandard policies. Impairment and its valuation soon moved into the new field of workers' compensation in the United States, as well as the growing spheres of health insurance and public health. As the term entered popular

⁸³ ALIMDA and ASA, *Medico-Actuarial Mortality Investigation*, 4:5.

⁸⁴ ALIMDA and ASA, *Medico-Actuarial Mortality Investigation*, 4:28–31.

⁸⁵ Prudential Insurance Company of America, *Information and Suggestions for Medical Examiners: Ordinary Department* (Newark, NJ: Prudential, 1910), 22–25.

discourse, its industry origins were mostly forgotten. Taking on an air of disinterested scientific description, “impairment” became most commonly associated with practices of medical diagnosis and treatment.

The numerical method began with Rogers and Hunter at New York Life, where it was intended to facilitate both the partial automation of many gatekeeping decisions and the pricing of substandard policies. It debuted in 1904, allowing a clerk without medical training to examine a physician’s report on an applicant, identify all the “impairments” indicated (as well as other factors, like residence or occupation), and then sum all the values attributed to those impairments and factors, based at first on the results of New York Life’s own data along with a specialized actuarial study published in 1903.⁸⁶ A score that was too high would disqualify a person from getting insurance or trigger a closer examination by a medical director. A borderline score could be handed over to an actuary who would design a policy that, in one way or another, effectively raised the price of the insurance in proportion to the extra risk indicated by that person’s impairments.

The numerical method had its critics, especially among actuaries who pointed out that impairments and other factors were not really additive: working in a healthy occupation didn’t necessarily counteract the increased mortality indicated by high blood pressure, for instance, and some impairments likely caused greater danger when combined than addition would indicate. Prudential’s actuary, John K. Gore, distrusted numerical rating and resisted using study results to create standard industry ratings. Even so, he was a firm supporter of ongoing studies of impairments like the Medico-Actuarial Investigation, and he argued that such studies were universally welcomed in the industry.⁸⁷ By 1950, Prudential’s associate actuary would acknowledge “considerable criticism of the numerical rating method when it was first announced” and then go on to assert that those criticisms were misplaced.⁸⁸ In fact, all the leading companies eventually succumbed to the attraction of automating (or semiautomating) the valuation of impairments, a process that involved some mechanical tabulation with punch cards in concert with the rote, standardized work of lay clerks following firm rules. Books, too, made the mass production of impairment designations by people without expertise possible, as is indicated in a history of Metropolitan’s rating practice by its longtime statistician: “Rating manuals for medical impairments have been prepared so that the major part of the selection can be done by carefully trained lay personnel, under the guidance of the Medical Division.”⁸⁹ One of the last holdouts among the largest

⁸⁶ ASA, *Experience of Thirty-Four Life Companies upon Ninety-Eight Special Classes of Risks* (New York: ASA, 1903); Rufus Weeks in *Testimony Taken Before the Joint Committee of the Senate and Assembly of the State of New York: To Investigate and Examine into the Business and Affairs of Life Insurance Companies Doing Business in the State of New York*, vol. 2 (Albany, NY: State Printers, 1905), 1111–12; and Rogers, *Medical Selection and Substandard Business*, 7.

⁸⁷ Gore responded to Hunter and Rogers’s proposals in the discussion following Oscar H. Rogers and Arthur Hunter, “The Need in Medical Selection of Standards by Which to Measure Border-Line Risks,” *Transactions of the Actuarial Society of America* 17, no. 56 (1916): 281–89 and 18, no. 57 (1917): 164–69 at 164.

⁸⁸ Pearce Shepherd, “Principles and Problems of Selection and Underwriting,” in *Life Insurance Trends at Mid-century*, ed. David McCahan (Philadelphia: Univ. of Pennsylvania Press, 1950), 53.

⁸⁹ Louis I. Dublin, *A Family of Thirty Million: The Story of the Metropolitan Life Insurance Company* (New York: Metropolitan Life Insurance, 1943), 407.

companies was Mutual Life, which stuck to its "individual method" of evaluation until 1941 and then finally gave in.⁹⁰

The marketing of substandard policies usually depended on numerical rating. Broad statistical evidence suggests that most of those granted substandard policies would otherwise have been rejected outright. Prudential, for instance, reported a rejection rate for ordinary policies of just over 15 percent in 1899.⁹¹ That is similar to figures we've seen given by other companies or individuals around this time. Fifty years later, a Prudential official reported: "The underwriting process results in approval of 85 percent of the applications at standard rates, approval of 10 per cent on some substandard basis, and rejection of 5 per cent. These figures represent the results of a group of ordinary companies as determined by the Institute of Life Insurance and they are fairly typical of results for any ordinary company doing a reasonable substandard business."⁹² Ten percent of those who would once have been rejected had instead been offered insurance—but they were offered it at a higher rate and with no guarantee that a rejection would have been justified in the first place.⁹³

Impairment valuation had an impact on millions of lives through numerical rating and substandard insurance, so it isn't surprising that the study of those valuations remained a major, ongoing endeavor. Insurers ran another impairment study in 1929 intended primarily to define high blood pressure readings more precisely as impairments—followed by a blood pressure study in 1939. Further impairment studies were launched in 1936, 1938, and 1951.⁹⁴ Each study refined and expanded the list or studied the effects of different combinations of impairments. Mortality rates documented by insurers' experience and actuarial studies served as the basis of impairment values. An impairment could be removed or its value decreased only if specialized studies revealed that it had little to no effect on average mortality rates.

FROM IMPAIRMENT TO DISABILITY

The impairment concept found new institutional homes outside life insurance, and beyond mortality accounting, thanks to workers' compensation and public health reforms. In the early decades of the twentieth century, the legal mechanisms like tort law that had long been the only resort for those who suffered lost wages after accidents finally buckled under the pressures of industrial society. Historians differ as to

⁹⁰ Shepard B. Clough, *A Century of American Life Insurance: A History of the Mutual Life Insurance Company of New York, 1843–1943* (New York: Columbia Univ. Press, 1946), 295.

⁹¹ Hoffman, *History of the Prudential Insurance Company*, 309.

⁹² Shepherd, "Principles and Problems of Selection and Underwriting," 54. The rates were lower for Metropolitan in 1943: about 4 percent rejection rate and 4 percent granted substandard. Dublin, *Family of Thirty Million*, 408.

⁹³ By the 1970s, a greater percentage of applicants received standard policies, and substandard policies made it so that rejections were nearly eliminated: "Generally speaking, out of 100 applicants for insurance, 90 to 92 will prove insurable at normal or standard premium rates, 5 to 8 will be insurable on some modified premium basis, and 2 to 4 will be uninsurable." Gaylord L. Paine, "Risk Selection and Substandard Risks," in *Life and Health Insurance Handbook*, ed. Davis W. Gregg and Vane B. Lucas (Homewood, IL: Dow Jones-Irwin, 1973), 195.

⁹⁴ E. A. Lew, "Insurance Mortality Investigations of Physical Impairments," *Journal of the American Association of University Teachers of Insurance* 21, no. 1 (1954): 43–55. On the evolution of the "risk factor," which is a cousin concept to the impairment, see William G. Rothstein, *Public Health and the Risk Factor: A History of an Uneven Medical Revolution* (Rochester, NY: Boydell & Brewer, 2003).

whether there was in fact an industrial accident crisis or, rather, changing ideas about the acceptability of accidents.⁹⁵ In the United States, individual states rolled out a series of workers' compensation laws in the 1910s, which built an insurance system, contributed to by employers, that paid standardized amounts to individuals based on their pre-injury wage and the particular kind of injury, increasingly specified as a degree of "impairment."⁹⁶ These systems relied on tables that indicated the proper pension rate (in the case of enduring losses or injuries) "proportionate to the degree of impairment." Looking to life insurance as a field that had established "a sound actuarial basis," compensation insurers worked to refine the "medico-statistical studies" supporting their own injury ratings in the 1920s.⁹⁷

On the one hand, compensation programs discouraged employers from maintaining dangerous workplaces, because insurance rates increased with number of claims, while at the same time those programs tried to keep injured individuals and their families out of poverty. On the other hand, "impairment" signaled to employers the risks of future injury to oneself or others, inability to work (as opposed to mortality), and indemnity payments. One price of this shift was an intellectual and moral reduction of injury. Nate Holdren argues: "Under these laws, injury was routinized conceptually, rendered easily knowable and valuable in dollars. The value of injury was defined by the going price for labor power on the labor market. Payment for injury would become as regular, brisk, and business-like as the ongoing maiming and killing of employees."⁹⁸ Another unexpected cost was the casting of capable workers with impairments out of the workforce, as the newly "disabled."

The modern concept of disability, an umbrella category for a previous miscellany of conditions, disseminated ever more widely in the United States with the passage of workers' compensation laws.⁹⁹ Working-class people who might not have been able to afford private accident insurance now found themselves compensated for certain (but not all) workplace injuries and labeled temporarily or permanently "disabled." In a more profound shift, as Sarah F. Rose has argued, many firms began requiring preemployment health examinations to screen out applicants who seemed likely to cause accidents or incur disability compensation costs. These people, too, became the disabled, excluded against their wishes from the workplace and simultaneously censured for "idleness" and lack of self-sufficiency.¹⁰⁰ Life insurers' impairment valuations informed industrial medical examiners, who screened out applicants with impairments ranging from epilepsy to tuberculosis to missing digits. These impairments might be disabling in and of themselves, or merely indicators—"risks"—of future disablement. While a person awarded compensation for some degree of physical impairment would likely know that judgment, the person denied a job for some screened-for

⁹⁵ John Fabian Witt, *The Accidental Republic: Crippled Workmen, Destitute Widows, and the Remaking of American Law* (Cambridge, MA: Harvard Univ. Press, 2004).

⁹⁶ On the transfer of the impairment concept to workers' compensation from the life insurance industry, see Nate Holdren, *Injury Impoverished: Workplace Accidents, Capitalism, and Law in the Progressive Era* (Cambridge: Cambridge Univ. Press, 2020), 175–76.

⁹⁷ E. H. Downey, *Workmen's Compensation* (New York: Macmillan, 1924), xxii, 52.

⁹⁸ Holdren, *Injury Impoverished*, 112.

⁹⁹ For the history of disability in the French welfare state, see François Ewald, *The Birth of Solidarity: The History of the French Welfare State*, ed. Melinda Cooper, trans. Timothy Scott Johnson (Durham, NC: Duke Univ. Press, 2020).

¹⁰⁰ Sarah F. Rose, *No Right to be Idle: The Invention of Disability, 1840s–1930s* (Chapel Hill: Univ. of North Carolina Press, 2017), 13.

impairment might not ever hear that reason. Impairments could play important roles without those roles becoming known to those affected.

The most remarkable transformation of impairments took place in the context of public health reform, as the concept shed its history and came to look like simple, medical fact. A key institution here was the Life Extension Institute (LEI), founded in 1913 by economist and health reformer Irving Fisher with the insurance doctor Eugene Lyman Fisk. The Life Extension Institute was a small startup, but behind it stood the massive resources of one of the country’s largest life insurers, Metropolitan Life. Metropolitan signed on to guarantee a free medical examination for a large portion of its more well-off policyholders. In the meantime, the LEI advertised widely its examination services—based on the examinations used for life insurance, but more intensive. Those examinations revealed “impairments” to the people examined and LEI advertisements and press releases trumpeted news of the impairments discovered in the population. A 1916 news story carried the LEI’s warning that its surveys had revealed “conditions of impairment which are truly astounding.”¹⁰¹ Fisher delivered a 1917 lecture at Vassar College at which he bragged: “Through this Institute we have secured for the first time some real statistics as to the extent of physical impairments.”¹⁰² This wasn’t strictly true, since insurers had their own records of impairments, but Fisher was right that the LEI was one of the first institutions bent on getting ordinary people to look at such (alarming and alarmist) statistics.¹⁰³

Fisher and Fisk published a book-length advertisement for the LEI in 1915, titled *How to Live*, which came out in many editions and reprintings over the succeeding years. There too the men revealed “Impairments Unsuspected,” as one section title proclaimed: “Among large groups of clerks and employe[e]s of banks and commercial houses in New York City with an average age of 27 and all supposedly picked men and women, only 1 per cent. were found free of impairment or of habits of living inviting impairment.” The impairments looked like insurance impairments—heart trouble, high blood pressure, albumin in the urine—with a few new characteristics added on, such as infected gums or uncorrected faulty vision.¹⁰⁴

In a new foreword to the 1918 edition of *How to Live*, former US president William Howard Taft raised new alarms brought on by mobilization (and mass health screening) for the Great War. “At the foundation of national strength lies human vitality,” wrote Taft. He continued, “The test of war, however, revealed the startling degree of physical insufficiency that characterizes civilized man all over the world.” Taft cited a report by the provost marshal general stating that 40 percent of those examined for the draft “were disqualified for active military service because of physical defects.” This, he argued, understated the problems in the US population: the figures “did not by any means include all who had physical impairments; for many were accepted

¹⁰¹ “The Extension of Human Life: The Men and Women of To-day Seem to Die as Soon as They Grow Up,” *Washington Post*, May 14, 1916.

¹⁰² Irving Fisher, *Life Extension: A Talk at Vassar College* (Poughkeepsie, NY: Vassar College, 1917), 9.

¹⁰³ On the Life Extension Institute, see Veit, “‘Why Do People Die?’” 1026–48; Tamara Kneese, “A Responsible Death: Valuing Life from Mortality Tables to Wearables,” in *The New Death: Mortality and Death Care in the Twenty-First Century*, ed. Shannon Lee Dawdy and Tamara Kneese (Albuquerque: Univ. of New Mexico Press, 2022), 73–103.

¹⁰⁴ Irving Fisher and Eugene Lyman Fisk, *How to Live: Rules for Healthful Living Based on Modern Science* (New York: Funk and Wagnalls, 1915), 136–37.

with certain forms of serious infection which could be treated at the camps.” Taft judged the results of the draft examinations a confirmation of the LEI’s earlier warnings of rampant impairment.¹⁰⁵ In the body of the book, Fisher and Fisk further absorbed evidence of “defect” from military studies and translated it into “impairment.”

Defect is a term with its own history and trajectory, one long tied to powerful regimes of selection, inspection, and screening—particularly at national borders. This process of “selection,” Douglas Baynton has suggested, was “adapted from animal breeding and evolutionary science” in countless biopolitical procedures for sorting humans and shaping populations: medical inspection of immigrants, preemployment screenings, eugenic reproductive selection, and—as we have shown—medical examinations for life insurance.¹⁰⁶ In the 1910s and 1920s, insurers, industrial physicians, and health reformers all worked with and fought over the language of impairment and defect, tussling over what the difference was between the concepts, and how properly to define or value various impairments or defects.¹⁰⁷ In this context, impairment came to look like simply a medical concept, one concerned with cure—like something that belonged to what would come to be called the “medical model” of disability. Such appearances were deceiving.

CONCLUSION: REVALUING IMPAIRMENT

As we have sketched the roots of the impairment concept, we keep in mind disability scholar Jan Grue’s caution that words continually take on new meanings, and are not identical to analytical categories or to phenomena themselves. Regarding disability, Grue writes, “We are often tempted to conflate disability as an *analytical category* with disability as a *word*. This is an error. The *word* ‘disability’ means many things in many different contexts.”¹⁰⁸ Compared to disability, the word *impairment* has received little etymological play since its popularization in the early twentieth century.

Only recently have scholars in disability studies begun to redefine and revalue impairment, or look for alternate terms entirely for physical variation. Some have reconsidered the political potential of impairment, noting that the social model of disability minimizes or ignores embodied constraints like pain, illness, and fatigue. Alison Kafer summarizes this position in her 2013 book *Feminist, Queer, Crip*:

The social model with its impairment/disability distinction erases the lived realities of impairment; in its well-intentioned focus on the disabling effects of society, it overlooks the often-disabling effects of our bodies. People with chronic illness, pain, and fatigue have been among the most critical of this aspect of the social model, rightly noting that social and structural changes will do little to make one’s joints stop aching or to alleviate back

¹⁰⁵ William Howard Taft, “Foreword to the 15th Edition,” in Irving Fisher and Eugene Lyman Fisk, *How to Live: Rules for Healthful Living Based on Modern Science*, 15th ed. (New York: Funk and Wagnalls, 1917), ix–x.

¹⁰⁶ Douglas C. Baynton, *Defectives in the Land: Disability and Immigration in the Age of Eugenics* (Chicago: Univ. of Chicago Press, 2016), 6.

¹⁰⁷ See, for instance, Louis I. Dublin, Eugene Lyman Fisk, and Edwin W. Kopf, “Physical Defects as Revealed by Periodic Health Examinations,” *American Journal of the Medical Sciences* 170, no. 4 (1925): 576–94; John S. Billings, “Need for Standards for Recording and Classifying Defects and Impairments,” *American Journal of Public Health* 10, no. 5 (1920): 410–14.

¹⁰⁸ Jan Grue, “Now You See It, Now You Don’t: A Discourse View of Disability and Multi-disciplinarity,” *Alter* 11, no. 3 (2017): 177.

pain. Nor will changes in architecture and attitude heal diabetes or cancer or fatigue. Focusing exclusively on disabling barriers, as a strict social model seems to do, renders pain and fatigue irrelevant to the project of disability politics.¹⁰⁹

In response to these criticisms, other scholars have proposed new vocabulary and new theories for disability studies. Julie Livingston uses the term *debility* to encompass impairment, chronic illness, and senescence, borrowing from the notion of *bogole* in Botswana. Siebers suggests that social construction be replaced by a "new realism of the body" foregrounding physical variation.¹¹⁰

Still other scholars have resignified and reclaimed the impairment concept itself. In *Diminished Faculties: A Political Phenomenology of Impairment*, Jonathan Sterne surveys a wild profusion of impairments, defining the term as "a productive distortion of an ability" that is "not always disabling."¹¹¹ Karen Soldatic and Shaun Grech argue that the concept should be mobilized to draw attention to the national and transnational forces and inequities that lead to the *production* of bodily impairment in the first place. In particular, the current emphasis within disability activism on ensuring the rights of, and increasing accessibility for, those with impairments erases the way the Global North exploits and generates impairment in the Global South. They propose a geopolitical turn in thinking about impairment, with the goal of securing recognition and reparation for prior colonial and capitalist exploitation. Impairment, they argue, can be made into a "collective claim for justice."¹¹²

While impairment is now often used in its narrowest sense to refer simply to physical difference or injury, we suggest that the origin of the term and the isolation of "impaired" traits are tied to the logics of risk, quantification, and infopower in the insurance industry.¹¹³ With this article, we also hope to spur critique of the actuarial approach that still inflects impairment, including: the framing of people as financial risks to one another, disregarding the universal premise of human variation; the rating of impairments with regard to "severity," which works against cross-disability coalition;¹¹⁴ the neglect of unquantifiable or nondiscrete illness experiences; and the particularly harsh stigmatization of "overweight," addiction, or sexually transmitted infections—phenomena that remain on the margins of disability community. We encourage further resignification, rather than chaining impairment to the medico-actuarial context.¹¹⁵

¹⁰⁹ Alison Kafer, *Feminist, Queer, Crip* (Bloomington: Indiana Univ. Press, 2013), 7.

¹¹⁰ Julie Livingston, *Debility and the Moral Imagination in Botswana* (Bloomington: Indiana Univ. Press, 2005); Siebers, *Disability Theory*.

¹¹¹ Jonathan Sterne, *Diminished Faculties: A Political Phenomenology of Impairment* (Durham, NC: Duke Univ. Press, 2021), 194.

¹¹² Karen Soldatic and Shaun Grech, "Transnationalising Disability Studies: Rights, Justice and Impairment," *Disability Studies Quarterly* 34, no. 2 (2014), <https://dsq-sds.org/article/view/4249/3588>.

¹¹³ Disability historians also apply the term *impairment* to time periods when it was not an actors' category, contrasting its "physical" nature with "disability" as something socially constructed. Stefanie Hunt-Kennedy, for instance, suggests that the conceptual distinction between impairment and disability can be traced to "the capitalist world of Atlantic slavery" when *superannuated*, *infirm*, and *invalid* were the words in common use. Our approach here is to insist that impairment itself has a history, and it has never been simply or self-evidently physical. See Hunt-Kennedy, *Between Fitness and Death: Disability and Slavery in the Caribbean* (Urbana: Univ. of Illinois Press, 2020), ch. 3.

¹¹⁴ For a critique of the phrase "severely disabled" and the ranking of disability in relation to a norm, see the introduction to Robert McRuer, *Crip Theory: Cultural Signs of Queerness and Disability* (New York: New York Univ. Press, 2006).

¹¹⁵ On "claiming" medical and other structural terms for activist or individual purposes, see Linton, *Claiming Disability*.

Yet we also acknowledge that quantitative valuations of impairments and the medico-actuarial context continue to exert power over the lives of individuals, particularly over those whose bodies or behaviors are deemed to be deviant. The MIB continues to exist and share data about those flagged by an underwriter as having an impairment. To this day, people get insurance, face discriminatory rates, or are rejected because of impairment reports. In 2022 the MIB website sports the slogan: “MIB Helps Maintain an Equitable Marketplace for Insurance.”¹¹⁶ That word *equitable* draws on a deep well of insurance equity talk that has insisted that the risks of only a certain amount of deviation from normal, average, or ideal can be shared—it is an ideology that holds that those with “preexisting conditions” deserve to pay more or should be denied coverage (so that others don’t unfairly bear their burdens). Recent work by privacy researchers including Danielle Citron and Sarah Lamdan reminds us that the MIB is now just the tip of the iceberg when it comes to the data broker industry and its role in allowing insurers to gain access to personal health data.¹¹⁷ The sharing of data and continued research into impairments maintains a system that seeks to justify discrimination against those 10–15 percent not eligible for standard policies in the United States, and it upholds an ideology of individualized, precisely quantifiable risk that undermines any search for social causes and assistance, as well as appeals to solidarity with regard to impairment and disability.

¹¹⁶ MIB, “The Facts about MIB’s Underwriting Services,” MIB, accessed September 12, 2023, https://www.mib.com/facts_about_mib.html.

¹¹⁷ Danielle Keats Citron, *The Fight for Privacy: Protecting Dignity, Identity, and Love in the Digital Age* (New York: Norton, 2022), 13; Sarah Lamdan, *Data Cartels: The Companies That Control and Monopolize Our Information* (Stanford, CA: Stanford Univ. Press, 2023).