Introduction: Disability and Science in the U.S.

To understand the relationship between American science and disability, one first needs to delineate what is meant by disability and who is considered disabled. This, however, is not easy. Experiences and definitions of disability encompass a wide range of experiences, backgrounds, and conditions. In all times and cultures, there have been individuals whose minds, bodies, or senses were considered different from those of the majority. Yet whether they were seen as disabled, deviant, or pathological depends much on the surrounding society, culture, and not the least, the role and influence of science and medicine. Before widespread access to eyeglasses and optometric services, severe short-sightedness, for example, would have limited someone’s ability to participate in daily life, although they and their surroundings might have found ways around these limitations. Reversely, someone who today would be diagnosed with a mild intellectual disability probably would not have registered as different in most premodern societies.

Looking at disability as a phenomenon determined by society, history, and culture is called the sociocultural model of disability. It is used, in some much-discussed shape or form, in disability history and studies, but increasingly also beyond these fields (Shakespeare 2007; Rembis 2019). It is often contrasted with a medical-pathological model that considers disabilities pathological traits that are more or less identical across history and cultures; have caused suffering and limitations; and should consequently be cured, prevented, or normalized. Inherent in this medical-scientific approach to disability is a progress narrative that reflects a larger narrative of individual and social progress through science. This still-ongoing trend to define disability as a problem to be solved by science, medicine, and technology has obscured its social and political dimensions and has sidelined disabled people’s demands for equal rights and participation.

Calling this the medical model, thus, is shorthand for a whole range of sciences and disciplines which have defined and treated different kinds of disabilities. Moreover, the very distinction between medical and social depends on our modern, Western understanding of science. Thus, one cannot understand the relationship between disability and science without looking at the changing role of science and medicine in society. For this chapter, science will be defined broadly, including not only the natural sciences and medicine (thus avoiding the history of science vs. history of medicine divide discussed in the historiography section), but also the social and human sciences. They, too, played an important role in shaping our understanding of disability.

In the next section, I will trace this relationship between science and disability with a focus on the U.S. American context. Broadly, one can distinguish three phases: During the middle and late
nineteenth century, the rise and professionalization of science and scientific medicine went hand in hand with shaping the modern categories of norms and the normal, and as its opposite, or pathological fringe, disability. Of course, the rise of modern science and medicine did not happen independently of the rise of the modern nation-state, with its need to measure, quantify, and improve its citizens, and of industrialized capitalism, with its need for a standardized worker. Science and medicine were very much part of this search for an ideal citizen and productive worker and, in turn, of the pathologization of population groups who, by the sociopolitical standards of the time, did not fit these ideals.

The scientification of society and, simultaneously, the pathologization of disability found its high point roughly during the first half of the twentieth century, a period which spanned the Progressive Era with its belief in a better future via scientific progress, and in the 1940s and 1950s, the establishment of the state-funded, large-scale infrastructures of research that still shape current science and biomedicine. It also spanned the rise and partial demise of eugenics, which I will use as a case study for these developments. Finally, I will look at challenges both to the medical-scientific model of disability and to the authority of the scientific and medical expert from roughly around the middle of the twentieth century. I will close with some observations on the relationship between science and disability today.

The Nineteenth-Century Rise of Science and Medical Models: Delineating Normalcy and Disability

It has sometimes been argued that in premodern times, the lives of people with disabilities were generally miserable, that they were excluded and stigmatized, lived in poverty, and depended on charity. This, however, is a progress narrative that disregards individual agency and the intersectional influences of factors such as gender and age, socioeconomic, racial, and ethnic status, which determined what was considered a disability and how it influenced a person’s life (Altshuler and Silva 2017; Boster 2014; Nielsen 2012, Nielsen 2019). In fact, until the late nineteenth century, the term disability was not much in use. Rather, disability experiences fell under the larger umbrella of “infirmity” or “affliction,” which captured a much larger range of illness, frailness, or adverse circumstances (Baynton 2001). How people made sense of these circumstances varied, although in the Western world, Christian beliefs about suffering, the God-made worldly order, and charity toward the less fortunate played a big role. In a pre-capitalist (for the U.S.: settler-colonial) household economy, family members of all ages usually lived and worked together, to the best of their skills and abilities (Soldatic and Grech 2016). In the U.S., the plantation economy and its dependence on slave labor also influenced perceptions of disability. The bodies of African American slaves were evaluated for their physical and reproductive performance, and disability could have severe consequences. At the same time, pretending to be impaired in some form could also be a strategy of slave resistance. Moreover, contemporary science pathologized the behavior of slaves who repeatedly tried to escape to freedom, while claiming that freedom would have a disabling effect on black people’s bodies and minds (Baynton 2001; Downs 2008; Boster 2014; Barclay 2014, 2018). Native American perceptions and beliefs about disability present yet another example of the variety of possible perceptions (Weaver 2015).

Such older beliefs about the moral or religious components of disability have not entirely disappeared. Yet during the middle and late nineteenth century, industrialization, modernization, the rise of modern science and medicine, and in turn, their professionalization profoundly changed definitions of disability and the lived experiences of people labeled as disabled. Within the limited range of this contribution, it is impossible to delineate all fields and sciences involved in this process. Nevertheless, there were some general trends and developments in American science and society that impacted definitions of disability.
Historians of science, medicine, and disability have shown that science has created the very questions, categories, and problems it set out to explore. Scientists did so via quantifying and qualifying, creating ever new methods and instruments that aimed to depict a measurable, objective reality. This notion of scientific objectivity has been a much-discussed topic in the history of science. Defining what counts as objective, as a scientific fact rather than a subjective opinion, has been a fraught process of valuing certain kinds of data and perspectives while excluding or devaluing others as subjective (Fleck 1979 [1935]; Daston and Gallison 2018; McGuire 2020). Although definitions of objectivity vary markedly across different disciplines, there are two general trends: first, toward accepting (only) what is visible or observable to the scientist and/or is quantifiable via various instruments or technologies of measurement. Individual phenomenologies and experiences, on the other hand, that are mostly amenable via qualitative narratives were, in turn, devalued as subjective, not neutral (McGuire 2020). Second, what counted as objective or neutral was, and often remains, a reflection of the norms set by predominantly white, male, and able-bodied scientists. It led to the labeling of certain bodies and minds as “abnormal,” while at the same time excluding them from “normal” research (McGuire 2020). This process was not exclusive to disability but also played out, for example, in the way various products and services have been normed for an average—young and healthy—male person (Prescott 2007).

The concept of a measurable scientific objectivity is closely connected with the search for norms and normalcy. Indeed, the very concept of the normal was an invention of nineteenth century science and medicine, trickling from the natural to the human sciences. Belgian statistician Adolphe Quetelet (1796–1875) can be attributed with first applying the mathematical concept of normal distribution to human qualities and thus creating the idea of an average man (Quetelet 1843; McGuire 2020). During the nineteenth century, scientists from various disciplines became concerned with distinguishing the normal from the pathological by drawing quantifiable, measurable lines between the two, thus creating a range of norms and standards (Cryle and Stevens 2017). The classical study of this process comes from philosopher of science George Canguilhem, who distinguished between individual normalcy and normalcy as average, and criticized the conflation of the former with the latter (Canguilhem 1978).

Conflating normalcy with average, and abnormality with pathology, had profound consequences for perceptions of disability (Davis 1995; McGuire 2020). As historian Douglas Baynton writes, the “cultural meanings of the normal produced in tandem with disability” (Baynton 2011a, 35). Baynton looks beyond science for the influences driving this desire for normalcy and points to the pervasive nineteenth-century belief in progress through science, evolution, and industry. For the emerging modern state, statistics and social sciences became a tool for qualifying and quantifying their populations in order to maximize their “quality” and promote efficient industrial growth. Those who could not compete were seen as a hindrance, a drain on resources (Baynton 2011a; Rose 2017).

Modern notions of normalcy and deviance developed alongside a new sense of how humans viewed themselves and their place in history and nature. The rise of evolutionary thought and (social) Darwinism, Baynton argues, replaced an older and static worldview—oriented in the God-given Natural (and its counterpart, the monstrous)—with a dynamic perspective that aimed to empirically appraise the present in order to move toward a better future. In the imperialist and colonialist mindset of the time, evolution had produced different human races with various levels of civilization, with the highest evolutionary level assigned to Western industrialized nations. This framework pathologized any deviation from the norm of the white, male, able-bodied bourgeois citizen, be this aberration in gender, race, or disability. The latter was seen as an atavistic, “backward” phenomenon, or as a matter of arrested or retarded development. Maybe the clearest example is that of Down syndrome, long known as “Mongolism.” When, in 1866, British physician John Langdon Down described characteristic traits of individuals with Down syndrome, he considered them to be a “retrogression” or “degeneracy” to a supposed Mongolian racial type. It is important to note, however, that Langdon
Down believed that this was proof of the permeability between human races and that he promoted improving the education of people with Down Syndrome (Langdon Down 1866; Wright 2011). With the dawn of the eugenic era, however, physicians, scientists, and educators increasingly thought of disability as something fixed and non-improvable, all the while perpetuating its association with racial otherness and low evolutionary status.

How did these developments affect the lives of individuals labeled as disabled? The professionalization of science, the authority of the (usually white, male, able-bodied) scientific expert, and the favoring of “neutral” and “objective” measurements over “subjective” experiences and phenomenology devalued and decentered lay and patient perspectives. It was scientists who devised research programs and therapeutic regimes and who decided what and who was counted and heard. This exclusion from science usually delegated individuals with disability to being objects of research or treatment or, at best, consumers or customers of certain goods and services. Recent research on the rise of capitalism, (mass) consumerism, and mass advertising has highlighted the potential agency of the disabled consumer in a matrix of socioeconomic resources or lack thereof. Certainly, individuals with disabilities sought expert help and bought or tinkered with technologies such as prosthetics, hearing aids, or wheelchairs that promised different levels of functionality, the (appearance of) normalcy, or civic and social participation (Wolfsohn 2018; Williamson 2019; Williamson and Guffey 2020; Virdi 2020). Others had less or no choice and were subjected to research and treatment that violated their rights and was detrimental to their development and well-being. Such research or treatment pursued the goal of eradicating what made people with disabilities different, to make them appear normal, a normalcy that was created and validated by scientific and medical research (Branson and Miller 2001; Schmidt 2020).

A good example is the prohibition of sign language in schools for the deaf from roughly the 1880s to the 1960s. While sign languages had been accepted as natural languages earlier in the nineteenth century, and had been the preferred method in deaf education, by the late nineteenth century, they were increasingly seen as a primitive, evolutionary backward form of communication. It was speech, many contemporaries believed, that separated humans from animals, and thus deaf people needed to learn oral speech to become fully human and civilized. This method, called oralism, explicitly presented itself as the scientific and progressive method leaving behind old-fashioned beliefs (Baynton 2011b). However, the fact that most deaf people did not learn to speak and lipread sufficiently—and thus had no access to the educational content their schools were teaching—makes evident that the pursuit of normalcy was more important than individual outcomes. Deaf people have long pointed out that oralism is a form of language deprivation that violates the right of the deaf child to early access to visual language (Humphries et al. 2019).

Not only were the perspectives and experiences of people excluded from science and medicine, they themselves were routinely excluded from higher education and, consequently, from pursuing a career in science and medicine. There were, of course, notable exceptions, for example inventor Thomas Edison, who was deaf, or ethnologist Margaret Mead, who was hard of hearing. In writing about these scientists, one can observe two general trends: either their disability takes on an overly large role in an inspirational narrative of tragedy and overcoming, or it is glossed over or not mentioned at all. It is more useful, however, to use a nuanced approach that considers different phenomenological perspectives, experiences, as well as structural barriers and discrimination (Lang 1994).

The nineteenth-century shift toward medical-scientific approaches is not exclusive to disability. In fact, we can only understand the relationship between science and disability from an intersectional perspective that also takes into account the overlapping categories of gender, class, or race. These intersections are both real—in the sense of lived experiences—and constructed by science and society. Thus, disability has been used as metaphor to explain and justify the supposed inferiority of women to men, or non-white to white people, for example, when women were defined as a deficient specimen compared to the male norm or African Americans as becoming disabled by freedom.
or civilization. Vice versa, once disability was used as a justification for the inequality and inferiority of certain groups, those who were, for example, disabled, black, and female were doubly or triply stigmatized and excluded. Looking at how science was (ab)used to justify exclusion or access to citizenship, education, or the right to vote remains a particularly fruitful area of research in disability history, with relevant implications for the present (Baynton 2001).

The Eugenic Era, 1900–1950: Science as a Solution to Social Problems

Eugenics is a prime example for what happens when science is seen as the solution to social problems, and what this means for the people who are defined as such a problem. The long history of eugenics shows how social beliefs influenced the making of scientific norms, how bodies that fell outside of these norms were pathologized not only as physically deviant but also as a threat to the social and moral order, and how this pathologization intersected with race, class, and gender.

The term eugenics was coined in 1883 by Francis Galton, a younger cousin of Charles Darwin, as the science of breeding better humans. Galton admired Darwin’s work and applied it, more explicitly than Darwin, to human societies. Darwin was mostly descriptive, concluding from his observations how the natural world—of which humans were part—had come to be as it was. Galton, on the other hand, was prescriptive: for him, understanding how nature worked, and, in particular, how hereditary traits shaped individuals and societies, was a tool to actively shape their development. Thus, eugenics has also been defined as the self-direction of human evolution (Cowan Schwarz 1985; Comfort 2012).

Eugenics was both a science and a social movement, an ideology that permeated other disciplines and guided policies and politics. It was marked by a strong biological or hereditary determinism, the belief that not only physical but also moral and intellectual traits are inherited, passed on from generation to generation, leading to a selection process within societies and across different Nations and people, in which those with better traits—the most able, gifted, and hardworking—rose to the top. This social Darwinian worldview thus justified social structures and privileges, equating social status with social, physical, and moral worth. Vice versa, low social status was indicative of physical, moral, and intellectual inferiority. Eugenics thus is based on the belief that the inequality between different groups and individuals was naturally justified (Bashford and Levine 2012).

Eugenics was both pessimistic and optimistic. It was characterized by pessimistic fears of degeneration that were typical for the late nineteenth and early twentieth century: the belief that modern society and culture had moved away from the “natural” order of things—namely, natural selection of the fittest and strongest—and was in decline, even in danger of extinction. These fears of decline and degeneration focused on groups that seemed to violate social and morals norms: the proletariat, poor immigrants, single mothers, those typed as racially other, and people with physical or intellectual disabilities or mental illness. Increasingly, these groups were seen as a defective race of their own, a perception that became particularly evident in the moral panic over the supposedly uncontrolled and exponential reproduction of the so-called “feeble-minded” (Carey 2010). Eugenics promised the scientific control of these threatening developments. It was, thus, based on the optimistic belief that modern science could govern human behavior, revert dysgenic developments, and lead to a better future. It did so by sacrificing the civic and reproductive rights of those considered inferior to the supposed survival of the community. Those considered weak, sick, or disabled were seen as a social burden (Stern 2016; Kline 2005).

Eugenic thought influenced medicine and public health, welfare and immigration policies, and access to reproductive care into the 1960s at least. Probably most widely known are the sterilization laws that were in place in most U.S. states from the 1910s into the 1970s. They were promoted and implemented as a scientific tool to control a social problem and gave immense power to people in medical professions, public health, and administration. Its victims were predominantly from the lower
classes, people of color/native origin, single women, and/or institutionalized because of (supposed) mental illness or intellectual disabilities (Ladd-Taylor 2020).

It is less known that eugenics also influenced immigration policies and legislation. Yet already the very first major immigration act of 1882 deemed people with supposed physical or mental defects ineligible for immigration. People with disabilities were considered a potential burden on the public, not only because they might be unable to find employment, but also because it was feared that they would pass on their “defects” to their then American children. These laws were enforced via health inspections that immigrants had to undergo at ports of entry, most famously at Ellis Island, before being allowed to enter the country. Those who were deemed somehow “defective” because they were, for example (partially) deaf, blind, appeared to have a poor constitution, or looked unusual were rejected and deported (Baynton 2016; Dolmage 2018).

How, when, and if, at all, eugenics ended has been hotly debated. An earlier generation of historians argued that by the 1940s, geneticists had recognized that eugenics was a racist pseudoscience that found its culmination in the Holocaust. They posited that it was replaced by human genetics, an objective medical field that professionalized around the goal of understanding human heredity to prevent suffering (Ludmerer 1974; Kevles 2004; Schwartz Cowan 2008). This, however, is a profoundly ableist interpretation and one that depends on the self-portrayal of a generation of geneticists that were very much implicated in eugenics. Moreover, it relies on the unquestioned equation of disability with suffering, as best detected and prevented with an ever-increasing range of prenatal technologies. As disability scholars and activists have pointed out, the eugenic impulse to value certain lives over others, and to use science to achieve this, persists until today (Kerr and Shakespeare 2002; Miceli and Steel 2007).

**Shifting Perceptions and Divergent Solutions to Disability From the 1950s to the Present**

The second half of the twentieth century was marked both by the rapid establishment and expansion of biomedicine and biotechnology with their continuing promise of eradicating disease and disability and by diversifying definitions of disability in science and society. The middle decades of the twentieth century saw the rise of new fields and disciplines such as cellular and molecular biology, medical genetics, or biomedical computing. In many of these fields, the U.S. emerged as a world leader, filling the gap left by previous centers of research in war-destroyed Europe and competing with the Soviet Union in the arena of Cold War science. State-funded, large-scale research infrastructure and funding were to secure this ideological superiority. Historians of science have explored in detail how the new knowledge produced in these fields changed perceptions of life and how it could be manipulated, and what disease was and how it could be cured. Disability, however, has been curiously absent from these histories, appearing, if at all, in debates over the history of disease, eugenics, or genetics. Vice versa, disability history often treats the decades between 1940 and 1960 as an intermediate period. Many people with disabilities, including those who would later become leaders in the disability rights movement, continued to experience science and medicine as forces that pathologized their very existence. The polio generation—those affected by a series of polio epidemics in the 1940s and 1950s—and their often traumatizing experiences with hospital and rehabilitation staff are a good example (Kriegel 1964; Silver and Wilson 2007).

There was, however, in the mid twentieth century United States, a renewed attention on and interest in disability as a social issue. Initially, it was triggered by the immense task to rehabilitate the wounded soldiers returning from World War II. For this task, ample funding was made available on the state and federal level, including research into new and innovative approaches. In some ways, then, post–World War II rehabilitation was marked by the old belief that disability was a problem solvable by science. But there was now a wider set of sciences involved (Williamson 2019). In
particular, the involvement of the social sciences brought in new perspectives and approaches. This involvement, too, was indicative of larger trends. In mid-century America, the social sciences—sociology, anthropology, or psychology—gained immensely in social and academic prestige as fields who could explain, and thus potentially help govern, individual behavior and social phenomena. This has sometimes been seen as the turn from biologistic to cultural models of explanation for individual behavior and social problems, but it is important to note that this shift was ambivalent (Fontaine and Pooley 2021; Teslow 2016).

Nevertheless, by the 1940s, there was room for sociological and psychological approaches to disability in fields that had been purely medical before. After World War I, rehabilitation specialists had mainly come from medical fields and had focused on restoring wounded veterans to the workforce, mainly by providing them with prostheses and occupational therapy. During World War II, however, the realization grew that for rehabilitation to be successful, one had to understand the psychological processes involved in adapting to disability. These individual and societal reactions to disability and people with disabilities became a new field of research for the social sciences, and in turn, rehabilitation psychology emerged as a field of its own. In the 1940s and 1950s, a small but influential group of Gestalt and social psychologists looked at disability as part of larger research questions such as the relationship between body and mind, individual and social values, or individual or societal reaction to difference, adversity, and change. They concluded that disability was negotiated in interpersonal relationships and that it was often the expectations, stereotypes, and unease of the nondisabled side that had a disabling effect. Exploring the experiences of people with disabilities, they also questioned the tenet of a universal standard of normalcy, concluding that it might be psychologically harmful (Barker et al. 1946; Dembo et al. 1956; Schmidt 2017).

This is not to say that such research was free of ableist assumptions, nor that it was universally influential. Yet one can detect, from the 1940s, different kinds of scientific approaches to disability that looked at it less as a medical issue but as a phenomenon subjected to and determined by historical, cultural, and social influences. Moreover, such research took place in a social context pervaded by debates over race relations, the status of minorities in American society, civil rights, and civil rights movements. It is not surprising, then, that social scientists came to the conclusion that people with disabilities too were one of America’s oppressed minorities and that they experienced bias and discrimination similar to members of racial, ethnic, or religious groups. These debates and movements also were a catalyst for the disability rights movement that began to form in the late 1960s and early 1970s. Stemming from personal experiences with an oppressive and often humiliating medical and rehabilitation system, activists challenged the authority of medicine and scientific/medical experts to determine what and what not they were able of. This rejection of the medical model of disability in favor of a social model was foundational for the disability movement, yet as will become clear in the conclusion, this did not mean a rejection of scientific and sometimes biologistic understandings of disability.

**Conclusion: Science and Disability, a Complicated Picture**

If we look at the relationship between science and disability in the early twenty-first century, the picture is ambivalent and complex. On the one hand, there is an almost unbroken and widespread belief in science and medicine as the progressive solution to disability. Certainly, new technologies and the possibilities to tinker with them have changed the lives of everyone, including people with disabilities, and have made access to certain aspects of life, education, or work easier. At the same time, these technologies are not neutral and can produce new barriers or perpetuate bias and prejudice. The perspectives of people with disabilities and their call for social change rather than technological fixes are still often disregarded. This becomes obvious, for example, in the repeated media hypes over yet
another sign language glove or miracle wheelchair that were developed without their input and that miss their needs (Hamraie 2017; Williamson and Guffey 2020).

On the other hand, the lines of normal have become more blurred and less prescriptive. Across American society and across different fields of science, there has been a postmodern splintering in defining what is considered normal and pathological and what the respective solutions should be. There are a variety of reasons for this development, ranging from changes within science and medicine to larger social trends. As described in the previous section, various sciences, disciplines, and professions have come to different conclusions as to what disability is and whether it is primarily a social-cultural or a medical phenomenon. And while scientists certainly still enjoy high social status and respect, they now face more public scrutiny. Not the least, the line between scientists and people with disabilities have become more blurred. With the Education of Handicapped Children Act of 1975 (EHA, replaced with the 1990 Individuals with Disability Education Act) and the passing of the Americans with Disabilities Act (ADA) in 1990, more people with disabilities have entered higher education and have themselves become professionals in various scientific fields, bringing in their inside perspectives, although they still face numerous challenges and discriminations.

Technology, itself, also has changed our understanding of what is natural and normal and of what humans should aspire to be. The extended use of digital technologies in daily life, their miniaturization, and the blending of biology and technology in medicine has raised concerns, but also futuristic hopes and visions about what makes humans human. Transhumanism, in particular, has picked up on a longer tradition of using science and technology to create altered human bodies and minds. While this discourse has often devalued people with disabilities, they have also shaped it. Thus, some people with cochlear implants (CIs), for example, have defined themselves as a kind of Cyborg and have shared how they experience hearing with a CI as qualitatively different and more manipulable (Hall 2018; Eilers et al. 2014; Park 2014).

Together with other minority groups and civil rights activists, people with disabilities have challenged our understanding of normal, arguing that disability is part of the valuable and indispensable human diversity of cultures, sexual orientations, bodies, and minds. Increasingly, such arguments about diversity refer not only to culture but also to biology, borrowing from the ecological concept of natural diversity (and diversity loss) (Bauman et al. 2014). In disability activism and disability identity politics, there has been a trend, too, toward a kind of biological, genetic, or neurological essentialism. Take, for example, the reframing of autism not as a pathological deviation but as a form of neurodiversity (Jurecic 2007). For people with autism, this framing of autism as being rooted in a different—but not deficient or inferior—brain structure rejected the notion that they or their families were at fault for behavior that is seen as deviant. Defining autism as valuable neurodiversity has opened the path for embracing their difference and arguing that society should accommodate different kinds of thinking, learning, and interacting. A similar argument has been made, for example, for ADHD (Armstrong 2011). Scholars in Deaf studies have similarly recurred to the biosciences to argue, for example, that the genes for deafness are part of human biodiversity and, thus, worth preserving (Lane, Pillard and Hedberg 2001). One can see this as a reclaiming of science and medicine by people who had long been excluded from it. At the same time, however, this rhetoric reveals a larger trend to value certain kinds of scientific knowledge and scientific facts over others—and thus, also, certain kinds of diversity and identity. If something is anchored in one’s brain or one’s genes, thus the line of arguing, it is consequently an “objective” biological or neurological fact that is neutral and objective. To those familiar with the history of science and disability, the potential problems of such claims to neutrality and objectivity should be obvious. Not the least, they are deeply entwined with Western ideas of objectivity, neutrality, and the duality of body and mind. Some scholars have questioned these assumptions, yet the effects of such interventions on disability studies, disability identities, and science at large remain to be seen (Scully 2008; Martiny 2015; Schalk 2018).
Historiography

Just like with science and disability, the relationship between the history of science, medicine, and technology on the one side and disability history and studies on the other has been contentious. Classical history of medicine and science was mostly concerned with histories of (mostly male and white) professionals, institutions such as hospitals and laboratories, and with new technologies, therapeutics, and their dissemination. From the 1980s on, the general turn toward social and cultural history meant that history of medicine, too, began looking more at social and cultural determinants of health and illness, patient and consumer perspectives, and gendered experiences. Yet while the history of medical illness has long been considered a socially constructed phenomenon, the same conclusion was not applied to disability. It was usually at best a marginal category of analysis, and medical definitions and perspectives were rarely ever questioned (Linker 2013). Even in the history of eugenics, which has proliferated from the 1990s on, disability and the perspectives of individuals with disability often were only marginal to the analysis. It was only through the influence of disability history and studies that during the early 2000s the history of science and medicine have slowly come to include disability as an analytical category.

Disability history and studies are much younger fields, establishing themselves in academia in the 1990s in the wake of disability activism. Often, the first generation of scholars were disability activists themselves whose experiences influenced their scholarship. Thus, sociologist Irving K. Zola wrote on the history of the self-help movement and emphasized the importance of user-driven rehabilitation (Zola 1988, 1993; Zola and Mairs 2004), historian and activist Paul K. Longmore founded the San Francisco State Institute on Disability (now Paul K. Longmore Institute) (Longmore and Umansky 2001; Longmore 2003), and Rosemary Garland-Thomson has published seminal work on seeing disability (Garland-Thomson 1997, 2008, 2015). This inside perspective remains important in disability history and studies, as does an explicitly activist political bend that some consider an invaluable and essential part of the field, separating it from other fields of history, in particular the history of medicine. In disability history, the history of medicine has sometimes been seen as complicit in perpetuating the medical model of disability and excluding the perspectives and lives of disabled people (Kudlick 2013). Looking back, there is certainly a lot of truth in this assessment. Yet the two fields can profit much from each other, and more recent work demonstrates how enriching this perspective is (Virdi 2020; McGuire 2020; Schmidt 2020). Most of these works take an intersectional approach, in which definitions and experiences of disability are explored alongside other analytical categories, for example, in the study of race and gender and their relation to disability (Schalk 2018).

Interestingly, the debate over the relationship between disability history and history of medicine played out with history of science as a mostly unengaged and unaware bystander. Even more so than in the history of medicine, disability was a non-category in the history of science, until very recently. Even when the field moved toward situating knowledge as socially constructed within certain professional, social, cultural, or national contexts, disability (unlike, sometimes, gender, race, or ethnicity) did not emerge on the radar of historians of science. Again, however, there is much to gain from bringing together both fields. Indeed, disability history often borrows from the history of science and, in doing so, can correct and enrichen its narrative. The social model of disability, for example, builds on a social constructivist model of science, and recent work on the phenomenologies of disability are built on and challenge older phenomenologies of knowledge (Martiny 2015). Histories of professional paradigms in various sciences can help further a more nuanced understanding of the relationship between science and disability.

Disability scholars have pointed out that disability history and studies should not be reduced to encounters with the medical world, that people with disabilities should not primarily be seen as patients (Wilson 2013), and that disability history is a much wider field than the history of medicine and disability. Looking at disability, science, and technology, the picture is a bit different. In our daily
lives, we are in almost constant interaction with some kind of (digital) technology that we use for work, leisure, and social interaction. The ways in which people with disabilities have been excluded from such technologies, for example, how certain technologies have been labelled as assistive, but also how technoscience can be “cripped” has recently produced exciting new scholarship (Hamraie and Fritsch 2019; McLean 2020).

To sum up: while disability has established itself as an analytic category and while the history of science and medicine always should take into account disability, disability history and studies cover many areas unconnected to the history of science, medicine, and technology; and the lives and experiences of individuals with disability should never be reduced to questions of diagnosis, cure, scientific exploration, or assistive technology. Nevertheless, the history of science, medicine, and disability remains a rich and exciting field with many areas still unexplored.

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