THE PERCEPTION OF INCURABILITY: LEPROSY, DISCRIMINATION, AND THE MEDICAL TRUTH

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Society has acutely feared the infected, the sick, and the unknown. History has recorded the discriminatory stories of the infected victim. Many of these stories remain either silenced or biased, but they, nevertheless, unveil a rigid pattern of a type of discrimination that incorrectly blurs the line between the victim and the culprit. Such discrimination is still pervasive today, and the law has often been its conduit. Fear has continually plagued those who should be shielded under the law and the advancement of medicine rather than condemned by the legal and penal system. History often repeats itself, but it does not have to.[1]

ABSTRACT

People suffering from leprosy, as well as their families, have been and continue to be subjected to highly discriminatory treatment around the world, including India. This discrimination is not restricted to social behavior, but is also practiced by the means of laws and legal institutions. These laws severely restrict the liberty of Leprosy Affected Persons ("LAPs") in various ways. The historical justification for these laws has always been that society as a whole has to be protected from LAPs, as there is a risk of spreading the disease to otherwise healthy people. The assumption clearly is that leprosy is a communicable and an incurable disease—the perception of incurability.

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[1] Joseph Allen Garmon, Comment, *The Laws of the Past Versus the Medicine of Today: Eradicating The Criminalization of HIV/AIDS*, 57 HOW. L.J. 665, 665 (2014).

This Article subjects this assumption to close scrutiny. After describing the perception of incurability, the Article examines the perception from a medical and scientific standpoint and finds that the perception is not based on, or supported by, known medical facts—the refutation of the perception of incurability. Having thus refuted the perception, the Article then examines (as a case study) certain Indian Parliamentary statutes, and exposes the perception of incurability and communicability of leprosy that is the basis of these statutes. These legislations are then examined from the standpoint of constitutional protections of equality and liberty that are protected as fundamental rights by the Indian Constitution. The Article concludes by arguing that the refutation makes the constitutionality of these statutes suspect.

I. INTRODUCTION

Leprosy is widely considered to be an incurable disease, and almost two-thirds of all human beings suffering from leprosy are found in India.[2] The public perceives leprosy as a highly contagious disease that spreads by touch

[2] Bhushan Kumar, Editorial, *World Leprosy Day 2015: Renewing Commitment for a Leprosy Free World!*, 141(1) INDIAN J. MED. RES. 1, 1 (2015).

or even by sharing the same space with a leper.[3] In Hindu mythology, leprosy is a disease reserved only for the highest class of sinners.[4] These age old perceptions regarding leprosy in India continue to shape the public perception even today.[5] These perceptions, mostly old and some new, are based on a particular understanding of leprosy as a disease. For several centuries, leprosy has existed in India. Also known as 'Manson's Tropical Disease,' it exists in tropical regions of the world like India, Brazil, and Myanmar.[6] This explains why India and Brazil combined are home to the majority population of human beings suffering from leprosy.[7] Leprosy has also been a particularly difficult disease to understand and cure. Scientists have been studying the causes and cures of leprosy for several decades, and medical research in this area is still ongoing. However, cures have indeed been found, and leprosy is no longer the incurable disease that it once was.

Traditionally in India, lepers as well as their families were, and continue to be, subjected to ostracization, degradation, and discrimination.[8] Compounding this problem is the fact that an overwhelming majority of Leprosy Affected Persons ("LAPs") in India are illiterate.[9] This discrimination, to a large part the cause of traditional Hindu apathy towards leprosy, continues to be widely practiced in modern day India.[10] Owing to illiteracy and unawareness, many people in India continue to believe that leprosy is a hereditary disease.[11] Studying the status of LAPs in the Indian state of Jharkhand, Majumdar notes:

> Leprosy is not a hereditary disease, as people believe it to be. Nor [are] all leprosy affected people [] infectious whereas [a] majority of

[3] *See* Sukhbir Singh et al., *Knowledge, Belief and Perception of Leprosy*, 23 DISABILITY, CBR & INCLUSIVE DEV. 67, 71 (2012), http://dcidj.org/article/view/179/99 [https://perma.cc/YLN5-LWXM] [hereinafter Singh et al., *Perception of Leprosy*].

[4] *See id.* ("[L]eprosy is regarded as a form of punishment for wrong actions or deeds committed sometime in past or present life. Very few respondents believed that leprosy was caused by a bacterium. More than two-fifths (45.7%) believed that skin-to-skin contact with an infectious person could be a possible cause. Breach of taboos and intake of wrong food were regarded as possible reasons, by 39.2% and 37.1% respectively.").

[5] *See, e.g.*, P. S. S. Rao et al., *Extent and Correlates of Leprosy Stigma in Rural India*, 80(2) INDIAN J. LEPROSY 167, 167 (2008).

[6] *See* MANSON'S TROPICAL DISEASES: A MANUAL OF THE DISEASES OF WARM CLIMATES (Phillip Manson-Bahr ed., 11th ed. 1940).

[7] N. Majumdar, *Socio-Economic and Health Status of Leprosy Affected Person: A Study in Jharkhand*, 87(3) INDIAN J. OF LEPROSY 145, 146 (2015).

[8] *Id.* "In India and world over Leprosy Affected Persons (LAPs) are subordinated and oppressed socially, economically and psychologically by the rest of the society." *Id.*

[9] *Id.* at 145.

[10] *See, e.g.*, *id.*

[11] *Id.* at 146.

> them are non-infectious in nature. Leprosy infection is not carried by air, food or water; it is usually transmitted as a result of close and repeated contact with infectious patients. Infection is also believed to spread through nasal discharges. Leprosy affects all socio-economic strata, however, mostly the people from lower economic strata are more prone to be infected by the disease as most of them stay in crowded and unhygienic conditions in both rural and urban areas.[12]

In the past, leprosy was considered incurable.[13] Little medical research was conducted on it, and drugs were unavailable to cure it. People suffering from leprosy were reluctant to seek medical assistance because they knew that if their leprosy was discovered, they, as well as their entire family, would be ostracized. Today, however, things have changed. Medical research has now been able to pin-point the bacteria responsible for leprosy.[14] Certain people are genetically more susceptible to leprosy,[15] and vaccines and drugs have been developed to cure leprosy. Despite this, the perception in Indian society that leprosy is akin to a punishment reserved for only the highest class of sinners remains.[16] Consequently, lepers and their families continue to be subjected to degrading treatment along with social, legal, and medical discrimination. The objective of this Article is to engage this problem.

This Article argues that the highly discriminatory treatment meted out to lepers and their families in India is not based on any rational understanding of the disease. Rather, it is based on pseudo-facts treated as truth. People continue to believe that leprosy is incurable and that those who suffer from it are a health risk to other members of the society. Consequently, lepers and their families are subjected to degrading treatment not only by their fellow healthy human beings, but also by the law.

By closely investigating the medical facts pertinent to leprosy, Part II of this Article finds that the root cause behind this discriminatory treatment, to which lepers and their families are subjected is the perception of incurability. Therefore, this Article's first objective is to address the problem of perceived incurability by examining the disease of leprosy itself.

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[12] *Id.* (citations omitted).

[13] *See, e.g.*, Franklin Fessenden, *Nullity of Marriage,* 13 HARV. L. REV. 110, 121 (1899-1900) (stating that concealment of an incurable venereal disease renders the person incapable of contracting to marriage). *See also* Joseph R. Long, *Equitable Jurisdiction to Protect Personal Rights,* 33 YALE L.J. 115, 130 (1923-24). *See generally* Thomas Reed Powell, *Administrative Exercise of the Police Power*, 24 HARV. L. REV. 441, 449 (1910-1911).

[14] Lenka & Mahapatra, *Role of Reconstructive Surgery (RCS) in Improving the Quality of Life of Leprosy Afflicted Persons*, 88 INDIAN J. LEPROSY 7, 7 (2016).

[15] David Burgner et al., *Genetic Susceptibility to Infectious Diseases: Big is beautiful, but will bigger be even better?*, LANCET INFECTIOUS DISEASES 653, 655 (2006).

[16] *See* S. Singh et al., *Participation Level of the Leprosy Patients in Society*, 81 IND. J. LEPROSY 181, 182 (2009) [hereinafter Singh et al., *Participation Level*].

Part III of this Article refutes the perception of incurability by a close examination of the scientific and medical literature on the point. This part argues that there is no rational reason to subject lepers and their families to the historical discriminations that they have thus far been subjected to. Having refuted the perception of incurability, there are certain constitutional and legal implications that follow, to which Part IV of this article is dedicated. It is beyond the scope of this Article to comprehensively consider all those implications, and it is for future researchers to build on the arguments presented in this Article. The authors, however, do a limited analysis of the legal implications that follow in the context of Indian matrimonial and transportation laws. These laws are examined from the lens of the perception of incurability and its subsequent refutation. Part V concludes with a summary of the perception of incurability, the scientific and medical evidence that refutes it, and the legal consequences that follow.

II. THE PERCEPTION OF INCURABILITY

A. *Leprosy Defined*

What is leprosy? The following definition by those who have studied this disease is quite useful for the uninitiated in medical science:

> Leprosy is a human disease. It usually starts with a non-itching patch or patches on the skin. These patches may appear on the non-visible parts of the body. Some parts of the skin may become anesthetic and loose [sic] sensation. These patches are prone to be neglected by a person. Unlike other diseases, patches in case of leprosy do not create any discomfort to a person. Similarly, no forewarning is experienced before the appearance of the patches. The neglect of non-itching, painless patches on the skin, loss of sensation in some parts of the skin and change in texture and colour of the skin, which are the early signs of leprosy, may help the disease to progress towards deformity.[17]

It is "a disease that targets the nerves, respiratory tract, skin, nasal mucosa, and eyes."[18] For the initiated, the following technical definition will further clarify—"Leprosy, a disease caused by *Mycobacterium leprae*, mainly affects the skin peripheral nerves and can lead to the development of physical disabilities and potentially visible disfigurement."[19] Leprosy is an old disease. One of the earliest references to leprosy is in early Vedic scriptures

[17] *Id.* at 181.

[18] Garmon, *supra* note 1, at n.102 (relying on the definition as laid down by the National Institute of Allergy and Infectious Disease).

[19] Lenka & Mahapatra, *supra* note 14, at 7.

as well as other religious scriptures.[20] Religious scripture and religious literature, however, are full of misconceptions about leprosy.[21] These misconceptions, based on neither scientific observation nor evidence, continue to perpetuate the perception of incurability. Studies have shown that information and education about the true nature of leprosy results in people having a better understanding of the causes of this disease—yet for some reason the perception that leprosy is hereditary, or is caused by sin, and that the LAP is bearing the burden of his or her sins continue to persist.[22]

B. *The Perception of Incurability of Leprosy*

Leprosy is no ordinary disease; "the problem with leprosy is not what the disease is but what the people believe it to be."[23] People fear what they do not understand and this fear, when applied to leprosy, is amplified because people fear not just the disease but the diseased as well.[24] Leprosy has been a "dreaded and fearful" disease since the 13th century, when LAPs were "thought to present the risk of deadly contagion."[25] Thus in 1898, Justice McSherry of the Court of Appeals of Maryland in *Fairfield*[26] observed:

> The advance of civilization, while in a measure ameliorating his condition, and checking the spread of the pestilence, stripped the disease of none of the dread with which it had always been regarded by

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[20] *Id. See* M. Lavania et al., *Genotypic Analysis of Mycobacterium Leprae Strains from Different Regions of India on the Basis of rpoT*, 81 INDIAN J. LEPROSY 119, 119 (2009) ("Leprosy is a disease of great antiquity having been recognized from Vedic times in India and from Biblical times in the Middle East.").

[21] Lenka & Mahapatra, *supra* note 14, at 7-8. ("Religious and other literature is full of misconceptions prevalent in various communities; important ones are that 'leprosy is hereditary and not curable,' 'dreaded,' 'it is due to curse.' These misconceptions of community, which are prevalent in some sections of Indian society, contribute to stigma.").

[22] *See* G. Saha et al., *Current Perceptions and Practices (KAP) About Leprosy Among Leprosy Patients: A Comparative Study Between High Prevalent & Low Prevalent Districts of West Bengal*, 87 INDIAN J. LEPROSY 1, 4 (2015).

[23] M. S. Raju & P.S.S. Rao, *Medical and Social Concerns of Leprosy Cured After Integration in India*, 83 INDIAN J. LEPROSY 145, 153 (2011).

[24] *See* David Bernstein, *From Pesthouses to AIDS Hospices: Neighbors' Irrational Fears of Treatment Facilities for Contagious Diseases*, 22 COLUM. HUM. RTS. L. REV. 1, 1 (1990).

[25] Charles J. Reid, Jr., *The Canonistic Contribution to the Western Rights Tradition: An Historical Inquiry*, 33 B.C. L. REV. 37, 86 (1991); Vechten van Veeder, *History and Theory of the Law of Defamation,* 3 COLUM. L. REV. 546, 560 n.1 (1903) ("In early times when a person became afflicted with leprosy he was deemed to be legally dead and lost all the privileges of citizenship. The Church took the same view, and, on the day when the sufferer was consigned for life to a lazar-house, performed over him the various solemn ceremonies observed in the burial of the dead. As the leper was subject to the writ of *de leproso amovendo,* the accusation of leprosy as well as the accusation of crime might be held actionable.").

[26] Mayor of Baltimore v. Fairfield Improvement Co., 39 A. 1081 (Md. 1898).

> the great majority of mankind. *The horror of its contagion is as deep-seated to-day as it was more than 2,000 years ago in Palestine. There are modern theories and opinions of medical experts that the contagion is remote, and by no means dangerous*; but the popular belief of its perils, founded on the Biblical narrative,[27] on the stringent provisions of the Mosaic law that show how dreadful were its ravages, and how great the terror which it excited, and an almost universal sentiment, the result of a common concurrence of thought for centuries, cannot, in this day, be shaken or dispelled by mere scientific asseveration or conjecture.[28]

Leprosy presents special problems of perception and consequently gives rise to medico-social issues of great significance. This deep-seated horror of contagion that has been around in the east since the early 13th century, of which Justice McSherry spoke of in 1898, is just as strong today.[29] Even though a court of law, as early as 1898, recognized that the threat of contagion is remote, and even though leprosy is completely curable today (provided the patient reports early),[30] from the moment a person is diagnosed with leprosy, "his roles [sic] in the society gets restricted and constrained in view of the socio-cultural norms of the society."[31] As the disease progresses, the LAP is ostracized from society and removed to a leper colony.[32] "Because of widespread fear of contagion, and because of the particularly gruesome

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[27] *See, e.g.*, Garmon, *supra* note 1, at 682.

> In fact, the earliest documented account of leprosy was recorded on Egyptian papyrus in 1550 B.C. Throughout history, leprosy has been acutely feared, and society's response has been the model of isolation tactics for other diseases. During the Middle Ages, lepers were forced to wear bells and specific clothing to warn others of their status. The stigma attached to the disease produced classic fear responses, which in turn led to erratic legal and public health mandates by governments. In the 1800s, British Colombia placed lepers on an island. Other lepers joined the island and became ridden with depression and debilitating health. This form of 'exiled incarceration' existed until 1957 when the island's last occupant died.

Id. (citations omitted).

[28] *Fairfield Imp. Co.*, 39 A. at 1084 (emphasis added).

[29] *See id.*

[30] Rao et al., *supra* note 5, at 168 ("Leprosy is fully curable with no residual disabilities when the affected person reports early and completes the required multidrug therapy.") (citation omitted); S.M.T. Nardi et al., *Characterization of the Profession/Occupation of Individuals Affected by Leprosy and the Relationship with Limitations in Professional Activities*, 84 INDIAN J. LEPROSY 1, 6 (2012) ("Although currently there is treatment and cure for leprosy, the stigma associated with this disease still exists in society."); Celeste L. Arrington, *Leprosy, Legal Mobilization, and the Public Sphere in Japan and South Korea*, 48 LAW & SOC'Y REV. 563, 563 (2014).

[31] Singh et al., *Participation Level*, *supra* note 16, at 182.

[32] *Id.*

effects of the disease, those afflicted by it traditionally have been shunned by society."[33] On the authority of religious scripture, a LAP is blamed for this disease and the rest of the society feels content in its knowledge that the LAP is bearing the burden of their sins.[34]

The problem caused by the perception of incurability is just as old as the disease itself. As mentioned above, leprosy is one of the oldest diseases known to mankind.[35] Even though leprosy has historically been considered incurable and has been heavily stigmatized,[36] it is in fact incorrect to assert that leprosy is an incurable disease. If the affected person reports early and completes the required Multi-Drug Therapy ("MDT"), leprosy can be fully cured with no residual disabilities.[37] Since the introduction of MDT in India, the total number of leprosy cases has been reduced from 57.6 cases per 10,000 in 1981 to 2.44 cases per 10,000 in 2004.[38] Studies have shown remarkable improvement in LAPs after surgery to the extent that several LAPs did not feel the need to change their occupation.[39] And yet, the stigma and the perception that leprosy is incurable remains widespread in India. In Brazil, where the second largest number of LAPs are found, this perception also continues to exist.[40]

Despite leprosy patients successfully completing MDT, the conditions of

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[33] Joshua R. Floum, *The Federal Rights of Hansen's Disease (Leprosy) Patients at Kalaupapa*, 6 U. HAW. L. REV. 507, 508 (1984).

[34] This has been documented in detail in A. K. Sinha et al., *Leprosy and its Socio-cultural Perceptions in Indian Religion and Ancient Texts*, 82 INDIAN J. LEPROSY 1, 1 (2010).

[35] For an exhaustive historical review of references to leprosy in scripture of all leading religions of the world, *see id.*

[36] *See, e.g.*, Arrington, *supra* note 30, at 563 ("Stigmatized and misunderstood through much of history, the chronic skin ailment leprosy (also called Hansen's disease) has been known to be rarely infectious and fully treatable since the 1950s.") (citations omitted); Rao et al., *supra* note 5, at 167.

[37] Nardi et al., *supra* note 30, at 6; Rao et al., *supra* note 5, at 168.

[38] Raju & Rao, *supra* note 23, at 145; Saha et al., *supra* note 22, at 2.

[39] *See, e.g.*, Lenka & Mahapatra, *supra* note 14, at 10.

> After surgery of 60 LAPs only 20 (33.3%) patients had to change their profession for better economic opportunities/pursuits. That is because these persons were having some residual loss of sensation (in hand and feet) and preferred those professions which did not need much movement. Others (40) did not change their profession, because after rest and physiotherapy following surgery the affected persons felt capable of performing the functions of [the] same old profession which they were doing earlier.

Id.

[40] Nardi et al., *supra* note 30, at 1 ("Over the last decade, the quality of care provided to people with leprosy in Brazil has improved, but studies show that the stigma around the disease and its carriers still persists within society.") (citation omitted); Raju & Rao, *supra* note 23, at 145; Saha et al., *supra* note 22, at 2 ("India continued to record the highest number of new leprosy cases in the world followed by Brazil and Indonesia.").

these LAPs remain unchanged.[41] According to the World Health Organization ("WHO") norms, they should have been treated as cured, yet even after completing the MDT regime, these LAPs are perceived in the eyes of the community as uncured.[42] In some cases, even after completing the MDT regime, the residual problems arising out of medical deformities remain, fueling the perception of incurability.[43] LAPs fight against the disease and against the residual effects of the disease, and are then expected to lead independent lives like normal persons, paying fees in the schools where they study, in hospitals where they buy medicine, and to live a productive life—which they are unable to do.[44] In some cases, the non-availability of treatment, the potential threat of stigmatization, and the possible loss of employment[45] discourages those in early stages of the disease to come forward and seek treatment.[46] Since complete treatment is only possible if the LAP reports early,[47] their failure to report early for various reasons[48] makes complete treatment an impossibility.[49] Thus, late reporting reduces the chance of complete treatment and contributes to the perception of incurability. Late reporting, or in some cases non-reporting, is caused by the perception of incurability as well as other societal factors. This generates a vicious cycle that keeps on fueling the perception of incurability. Perhaps

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[41] Raju & Rao, *supra* note 23, at 146.

[42] *Id.* at 153. *See supra* text accompanying note 117 (describing WHO norms).

[43] *Id.*

[44] *Id.*

[45] Nardi et al., *supra* note 30, at 2 ("Often, while in outpatient treatment, people who *have or have had* leprosy report that they need to stop to work or they have difficulties to perform their work and have restrictions in employability.") (citations omitted) (emphasis added).

[46] *See, e.g.*, T. Jaeggi, et al., *Stakeholders Perspectives on Perceived Needs and Priorities for Leprosy Control and Care, Tamil Nadu, India*, 84 INDIAN J. LEPROSY 177, 177 (2012).

[47] Rao et al., *supra* note 5, at 168.

[48] *See* Singh et al., *Participation Level, supra* note 16, at 184-86. The responses of several respondents to this study, reproduced in this Article (first in Hindi written in Roman script, followed by an English translation), provide strong evidence of loss of employment and social ostracization as key factors that result in patients not reporting their leprosy conditions at an early stage where complete treatment of the disease is possible. The study found that:

> [T]he respondents started restricting their participation in the society with the progression of the disease. They did not want anybody to know about his/her disease status. Due to the strong stigma attached with the leprosy in their socio-cultural settings, they tried to hide their diseased status from the society.

Id.

[49] Rao et al., *supra* note 5, at 168-69 ("However, when treatment is delayed, often due to concealment and other perceived stigma, till visible disabilities occur, secondary problems occur and life-long care become [sic] imperative, and the image of leprosy as a disabling disease persists.") (citations omitted).

this is why "[s]ome patients omit mentioning their disease because for [sic] fear of being forced to take sick leave or even being fired from their job. All these problems can result from social discrimination, physical impairments and/or the activity limitations stemming from complications of the disease."[50] Observations made in a recent order passed by the Supreme Court of India shows that the Court is not entirely unaware of these societal conditions.[51]

In addition to the disease, LAPs suffer from the stigmatization to which their own society subjects them. LAPs who have been cured without any visible deformities, and are morphologically normal, are also subjected to this stigmatization.[52] The perception of incurability results in the marginalization not just of the actual LAPs, but also of their entire family.[53] Many a times, the LAPs are disowned by their own families.[54] The ancient belief that a LAP is bearing the burden of his or her sins, coupled with and contributing to the perception of incurability, plays its part in this.[55] One study concluded that LAPs "feared that if anybody came to know about their disease status of being leprosy patient [sic], what they would think about them. For them a person who had committed some wrong deeds in his/her past could only suffer from leprosy."[56] All this places an enormous

[50] Nardi et al., *supra* note 30, at 2 (citations omitted).

[51] Sinha v. Union of India, (2014) 16 SCC 390, 391 (India) ("It is averred in the petition that [LAPs] are not allowed to have education, sanitary benefits, community-based rehabilitation as a result of which they are driven to streets and eventually turn to begging or compelled to live in so-called leprosy homes where they are treated as unpersons or aliens.").

[52] Raju & Rao, *supra* note 23, at 154.

[53] Singh et al., *Participation Level*, *supra* note 16, at 186.

[54] Rao et al., *supra* note 5, at 168; S. Thilakavathi et al., *Awareness, Social Acceptance and Community Views on Leprosy and its Relevance for Leprosy Control, Tamil Nadu*, 84 INDIAN J. LEPROSY 233, 238-39 (2012). The following are the remarks on a few respondents recorded in this study:

> As regards to social acceptance and interactions, some of them informed, 'when these deformed people are there in the house, we will always be afraid, whether we will get the disease; if the children go to them, again fear of whether they will get infected . . . because people don't want to get infected with this dreaded disease . . . . When they have children at marriageable age they won't like to have these deformed people in the house; they would think the alliance may go off, if they come to know; so they would like to keep them out of the house . . . they want to keep them away, . . . don't want to invite them for any functions; sometimes even family functions they won't call them.

Id.

[55] *See, e.g.*, David Bernstein, *supra* note 24, at 1 ("When Moses' sister Miriam contracted leprosy, she was cast out of the Israelite community and was not allowed to return until she recovered. The Israelites did not understand the causes of leprosy and interpreted her leprosy as a result of the wrath of God.") (citation omitted).

[56] Singh et al., *Participation Level*, *supra* note 16, at 186.

psychological burden on LAPs[57] because they often subject themselves to self-stigmatization,[58] and degrading and discriminatory treatment, knowing full well that they have been cured of the disease.[59]

III. THE REFUTATION OF THE PERCEPTION OF INCURABILITY

This section of the Article discusses the medical aspects of leprosy in order to understand whether this disease is truly contagious and incurable. Relevant medical literature is engaged with in order to understand whether there is any medical evidence to support the underlying assumptions on which the legal regime, discussed in this Article, is based. This section therefore discusses the true nature of leprosy, beyond its physical appearance; a deep analysis of all the clinical, histopathological, and immunological manifestations of this ancient disease. This section also discusses the cure for leprosy and shows that the disease is normally curable. It begins by an examination of the cause of leprosy, then moves on to a discussion of the disease itself, and finally presents medical evidence that refutes the perception of incurability discussed in Part II-B.

A. *Examination of the Causes of Leprosy*

Leprosy is not a life threatening disease, but it does cause visible deformities that have a psychological impact.[60] Leprosy is a very complex disease to understand, and that is partly why society still attaches stigma to it. This stigmatization leads to discrimination towards a patient even though, with improvements in research and development in medical science, it is possible today to cure leprosy.

Mycobacterium leprae ("*M.leprae*") is the causative micro-organism responsible for leprosy.[61] It was identified in 1874 by Norwegian physician

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[57] Nardi et al., *supra* note 30, at 6; Rao et al., *supra* note 5, at 168; Saha et al., *supra* note 22, at 9. This last study found that 46% of LAPs were depressed in "low-prevalent areas" compared to 31.35% in "high-prevalent areas," 13% of the LAPs continued to believe that their leprosy was a "curse of god," while 22.67% believed that it was their own fault. *Id.*

[58] Thilakavathi, *supra* note 54, at 236-37 (2012) (stating that fifty-five out of seventy-two respondents to this study reported self-stigmatization).

[59] Nardi et al., *supra* note 30, at 6 ("This may increase the difficulties experienced by individuals to cope with the disease causing negative repercussions in their social and professional lives. In the current medical literature, there are several articles that present qualitative reports of patients with leprosy and testimonials about the stigma and prejudice they suffer due to the disease, but there are no works that analyze professions/occupations in respect to activity limitations as assessed by the SALSA scale.") (citations omitted).

[60] Rashmi Sarkar & Swetalina Pradhan, *Leprosy and Women*, 2 INT'L J. WOMEN'S DERMATOLOGY 117, 118 (2016).

[61] Lucia P. Barker, *Mycobacterium leprae Interaction with the Host Cell: Recent Advances*, 123 INDIAN J. MED. RES. 748, 748 (2006).

Gerhard Henrik Armauer Hansen, hence why leprosy is also known as Hansen's disease.[62] *M.leprae* is a very slow growing gram positive, acid fast, curved shaped bacterium which is 1-8µm in length and 0.2-0.5µm in diameter.[63] Human beings and nine-banded armadillos are the only potential natural hosts of *M.leprae*.[64] This makes *M.leprae* research extremely difficult because *M.leprae* bacilli cannot be easily grown in laboratories.[65] However, developments in medical science and technology have made it possible to grow *M.leprae* bacilli on the feet of thymectomized irradiated mice. These are genetically manipulated mice that do not have a potent immune system.[66] To detect *M.leprae* bacteria, a unique surface marker protein known as Phenoloic Glycolilpid I (PGL-1) has been identified.[67] If PGL-1 is identified, that bacteria would be *M.leprae* because PGL-1 is synthesised in large amounts, and is found exclusively in *M.leprae*.[68]

M.leprae is a very slow growing organism—from infection to the actual manifestation of the disease, *M.leprae* takes about 2 to 7 years of incubation time in human beings.[69] In a laboratory setting it takes about 12 to 14 days to double.[70] *M.leprae* is neither very infectious in nature nor primarily virulent.[71] With *M.leprae* infection, the key factor is time. The longer it resides inside the body of an untreated host, the more ways it will find to survive, spread, and infect others, which is a characteristic found in any pathogenic micro-organism.[72] It is important to note that spreading and causing infection is not a trait particular to *M.leprae*. Any and every pathogenic micro-organism can potentially spread and cause infection.[73] The

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[62] Robert L. Modlin, *Th1-Th2 Paradigm: Insights from Leprosy*, 102 J. INVESTIGATIVE DERMATOLOGY 828, 828 (1994) [hereinafter Modlin, *Th1-Th2 Paradigm*].

[63] GREENFIELD'S NEUROPATHY 1666 (Seth Love et al. eds., 8th ed. 2008) [hereinafter GREENFIELD'S NEUROPATHY].

[64] Rahul Sharma et. al., *The Armadillo: A Model for the Neuropathy of Leprosy and Potentially Other Neurodegenerative Disease*, 6 DISEASE MODELS & MECHANISMS 19, 20 (2013).

[65] *See* JAMES J. CHAMPOUX ET AL., SHERRIS MEDICAL MICROBIOLOGY- AN INTRODUCTION TO INFECTIOUS MICROBIOLOGY 451 (Kenneth J. Ryan et al. eds., 4th ed. 2003).

[66] *Id.*

[67] Shirley W. Hunter & Patrick J. Brennan, *Further Specific Extracellular Phenolic Glycolipid Antigens and a Related Diacylphthiocerol from Mycobacterium leprae*, 258 J. BIOLOGICAL CHEMISTRY 7556, 7556 (1983).

[68] *Id.*

[69] CHAMPOUX ET AL., *supra* note 65, at 451.

[70] *Id.*

[71] GREENFIELD'S NEUROPATHY, *supra* note 63, at 1666.

[72] *Factsheet on Leprosy*, WORLD HEALTH ORG. (Feb. 2017), http://www.who.int /mediacentre/factsheets/fs101/en/ [https://perma.cc/W29S-HZGJ] [hereinafter WHO *Factsheet*].

[73] *See, e.g.*, B. Brett Finlay & Stanley Falkow, *Common Themes in Microbial*

reason *M.leprae* is treated with so much hostility is not any underlying medical peculiarity, but rather the perception of incurability coupled with the physical deformities leprosy can cause. Medical research has found that "early detection will result in the prompt initiation of multidrug therapy, thereby increasing the possibility that both the prevalence and the incidence of leprosy can be further reduced."[74] In other words, if detected early, not only can leprosy be completely cured without allowing it to cause physical deformities in the host human body, but the chances of spreading and infecting can also be eliminated.

M.leprae proliferates mainly in tissues at the relatively low temperature of approximately 30 degrees Celsius.[75] It infects skin, mucous membranes, the anterior chamber of the eyes, testicles, and the peripheral nervous system.[76] It shows a unique and specific tropism for macrophages, Schwann cells, and endothelial cells.[77] A tropism, in this context, means a particular likeliness on the part of *M.leprae* bacteria to attack specific cells in the human body.[78] Like every other microorganism, *M.leprae* also possesses different proteins on its outer protective capsule; one such abundant component is Lipoarabinomannan ("LAM").[79] LAM is responsible for the failure of antimicrobial function of macrophage.[80] Schwann cells are responsible for protecting nerves by creating a protective layer (myelin sheath) via

Pathogenicity Revisited, 61 MICROBIOLOGY & MOLECULAR BIOLOGY REVS. 136, 160-61 (1997) ("It is now clear that pathogenic bacteria share many mechanisms that cause infection and disease . . . because virulence determinants of bacteria tend to be clustered in discrete regions of chromosome, as well as on bacterial plasmids.").

[74] Romulo Aráoz et al., *Antigen Discovery: A Postgenomic Approach to Leprosy Diagnosis*, 74 INFECTION & IMMUNITY 175, 181 (2006).

[75] *See, e.g.*, GREENFIELD'S NEUROPATHY, *supra* note 63, at 1666-67 ("A symmetric polyneuropathy develops late in the course of . . . leprosy, with a peculiar pattern of sensory loss involving the legs . . . dorsal aspect of the forearms, pinnae of the ears, nose and supraorbital regions. This distribution depends on temperature gradients, as *M. leprae* proliferates more freely in cooler areas."); Paul W. Brand, *Temperature Variation and Leprosy Deformity*, 27 INT'L J. LEPROSY 1, 5 (1959) ("[T]here is probably an optimal temperature for the growth and activity of the leprosy bacillus, and that this optimum is just below body temperature, perhaps only 2 or 3 degrees.").

[76] WHO *Factsheet*, *supra* note 72.

[77] Gilla Kaplan & Zanvil A. Cohn, *Leprosy and Cell-Mediated Immunity*, 3 CURRENT OPINION IMMUNOLOGY 91, 91 (1991).

[78] ANTOINE DANCHIN, GENOMICS OF GC-RICH GRAM-POSITIVE BACTERIA 105 (2002).

[79] *See* Harvey Gaylord et al., *Most Mycobacterium leprae Carbohydrate-Reactive Monoclonal Antibodies are Directed to Lipoarabinomannan*, 55 INFECTION & IMMUNITY 2860, 2860 (1987).

[80] L. David Sibley et al., *Mycobacterial Lipoarabinomannan Inhibits Gamma Interferon-Mediated Activation of Macrophages*, 56 INFECTION &IMMUNITY 1232, 1232 (1988).

myelination and axonal regeneration.[81] *M.leprae* causes damage to Schwann cells resulting in the deterioration of the myelin sheath, which in turn causes damage to the peripheral nervous system, which in turn causes numbness in a subject's hands and feet.[82] Endothelial cells play an essential part in the formation of layers of our skin that we can see and touch.[83] Invasion and multiplication of *M.leprae* in endothelial cells causes inflammatory skin lesions.[84] This tropism explains all the clinical, histopathological, and immunological manifestations of leprosy.[85] This pathogen transfers from nasal droplets, i.e., *via* nasal mucous excretion, and if humans come into *prolonged contact* with bacterial load carrying mucous, they are then susceptible to this disease.[86] However, and most crucially, this infection does not spread by skin to skin contact.[87]

B. *Understanding Leprosy*

Leprosy, or Hansen's disease, is a chronic granulomatous infection of skin tissue and peripheral nerves caused by *M.leprae*, an intracellular bacterium.[88] It is not a simple or static disease, but rather a complex or dynamic state of the human body.[89]

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[81] Allan D.O. Levi et al., *The Influence of Heregulins on Human Schwann Cell Proliferation*, 15 J. NEUROSCIENCE 1329, 1329 (1995). *See also* Ikuhide Kohama et al., *Transplantation of Cryopreserved Adult Human Schwann Cells Enhances Axonal Conduction in Demyelinated Spinal Cord*, 21 J. NEUROSCIENCE 944, 969 (2001).

[82] Eric Spierings et al., *Novel Mechanisms in the Immunopathogenesis of Leprosy Nerve Damage: The Role of Schwann Cells, T Cells and Mycobaterium leprae*, 78 IMMUNOLOGY & CELL BIOLOGY 349, 350 (2000).

[83] *See generally* BRUCE ALBERTS, MOLECULAR BIOLOGY OF THE CELL (6th ed. 2014).

[84] A. A. Kirkaldy et al., *Expression of CC and CXC Chemokines and Chemokine Receptors in Human Leprosy Skin Lesions*, 134 CLINICAL & EXPERIMENTAL IMMUNOLOGY 447, 447 (2003).

[85] *See, e.g.*, Joel Carlos Lastória, *Leprosy: Review of Epidemiological, Clinical and Etiopathogenic Aspects*, 89 ANAIS BRASILEIROS DE DERMATOLOGIA 205, 208 (2014) ("A wide variety of clinical and histopathological manifestations of leprosy occurs due to ability of host to develop different degree of cellular immune response to *M. leprae* which leads to spectral concept of the disease.") (citation omitted).

[86] GREENFIELD'S NEUROPATHY, *supra* note 63, at 1666; J.C. Pedley, *The Nasal Mucus in Leprosy*, 44 LEPROSY REV. 33, 35 (1973).

[87] GREENFIELD'S NEUROPATHY, *supra* note 63, at 1669.

[88] Andrew P. Ustianowski et al., *Interactions Between HIV Infection and Leprosy: A Paradox*, 6 LANCET INFECTIOUS DISEASES 350, 350 (2006).

[89] *See, e.g.*, Peter A. Sieling & Robert L. Modlin, *T Cell and Cytokine Patterns in Leprosy Skin Lesions*, 13 SPRINGER SEMINARS IN IMMUNOPATHOLOGY 413, 413 (1992) ("Leprosy is not a static disease but an extremely dynamic condition, in which immune changes alter the clinical manifestation in the form of 'reactional state.'").

1. Types of Leprosy

Leprosy is widely categorized on two bases. First, on the basis of the number of skin lesions, further sub-divided into two types: (i) Paucibacillary ("PB"), and (ii) Multibacillary ("MB"). Second, on the basis of the bacteriologic index ("BI"), which is a scale used for estimation of the bacterial load inside the body. This basis is further sub-divided into: (i) Tuberculoid leprosy ("TT"), and (ii) Lepromatous leprosy ("LL"). PB or TT are the moderate forms of leprosy, while MB or LL are more severe to the extent that "[*M.leprae*] presents a spectrum of clinical, bacteriological, immunological, and dermatopathological characteristics."[90] In between TT and LL forms of leprosy, there are a number of other intermediate forms of leprosy that have been classified by Ridley-Jopling. These intermediate forms, also accepted by the WHO, are known in the medical field as Ridley-Jopling classifications. These six forms are:

(i) individuals with early inconclusive in-determinant leprosy (I);
(ii) polar Tuberculoid leprosy (TT);
(iii) borderline tuberculoid (BT);
(iv) mid-boarderline leprosy (BB);
(v) borderline lepromatous leprosy (BL); and
(vi) polar lepromatous leprosy (LL).[91]

There are two WHO recommended treatment regimens for this disease. The first is a six-month regime for PB that includes I, TT and BT cases of leprosy classified under BI value ≤ 2. The second is a twelve-month regime for MB that includes BB, BL, and LL classified with a BI value ≥ 2.[92]

2. Clinical and Other Symptoms of Leprosy

Clinical symptoms of leprosy include skin lesions, nerve damage, blindness, hair loss in eyebrows, and other systemic features including damage to the bones, renal system, and nasal mucosa, as well as testicular atrophy.[93] Some symptoms are visible to the naked eye, such as typical skin lesions having macules or plaque, raised edges, reduced sensation, and

[90] Fe Eleanor F. Pardillo et al., *Methods for the Classification of Leprosy for Treatment Purposes*, 44 CLINICAL INFECTIOUS DISEASES 1096, 1096 (2007).

[91] D. S. Ridley & W. H. Jopling, *Classification of Leprosy According to Immunity*: *A Five-Group System*, 34 INT'L J. LEPROSY 255, 256 (1966).

[92] *See* Rep. of the World Health Organization Study Group, Chemotherapy of Leprosy for Control Programmes, WHO Technical Rep. Series No. 675 (1982), http://apps.who.int/iris/bitstream/10665/38984/1/WHO_TRS_675.pdf [https://perma.cc/F872-BG52]; *see also* 6th Rep. of World Health Organization Expert Committee on Leprosy, WHO Technical Rep. Series No. 768 (1988), http://apps.who.int/iris/bitstream/10665/37409/1/WHO_TRS_768.pdf [https://perma.cc/3KVC-XR3N].

[93] Dirk-Jan Menger et al., *Reconstructive Surgery of the Leprosy Nose: A New Approach*, 60 J. PLASTIC, RECONSTRUCTIVE & AESTHETIC SURGERY 152, 153 (2007).

central hypopigmentation.[94] The following quote is very instructive in understanding the implications of this disease:

> In tuberculoid leprosy**,** a cell-mediated immune response forms granulomas, resulting in the destruction of most of the mycobacteria, so that only a few organisms remain in the tissues. Although skin and peripheral nerves are damaged, tuberculoid leprosy progresses slowly and patients usually survive. In lepromatous leprosy**,** the cell-mediated response is depressed and, instead, humoral antibodies are formed, sometimes resulting in hyper-gammaglobulinemia. The mycobacteria are widely disseminated in macrophages, often reaching numbers as high as 10^{10} per gram of tissue. Lepromatous leprosy progresses into disseminated infection of the bone and cartilage with extensive nerve damage.[95]

There are two kinds of adaptive immune responses in our body. One is a cell-mediated immune response, and the other is a humoral immune response. Through different mechanisms and functions, they eliminate different types of pathogenic threats.[96] Cell-mediated immune response, low production of antibodies, and low bacillary count are associated with TT and BT leprosy types, whereas supressed cell mediated-immune response, high antibodies production, and high bacillary count are characteristic features of LL and BL leprosy.[97] Initially, cell-mediated immunity comes into play with a characteristic production of a cytokines IL-2 (that activates TH1-CD4+ cells), IFN-γ, TNF-α, and GM-CSF (that show anti-microbial activity).[98] In humoral immune response, cytokines IL-4, IL-5, and IL-10 come into play.[99] These cytokines "are cross-regulatory, in that the cytokines produced by one [type of cytokine population] are inhibitory to the proliferation and/or action of the other."[100]

M.leprae infection is self-healing as our body's immune response acts against it.[101] However, if the infection reaches Lepromatous leprosy stage,

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[94] *See generally* Einar P. Wilder-Smith & Wim H. Van Brakel, *Nerve Damage in Leprosy and its Management*, 4 NATURE CLINICAL PRAC. NEUROLOGY 656, 656 (2008).

[95] RICHARD A. GOLDSBY ET AL., IMMUNOLOGY 291 (5th ed. 2003) (citation omitted).

[96] ABUL K. ABBAS ET AL., CELLULAR AND MOLECULAR IMMUNOLOGY 5 (9th ed. 2017).

[97] K. A. Wilkinson et. al., *Immune Responses to Recombinant Proteins of Mycobacterium leprae*, 179 J. INFECTIOUS DISEASES 1034, 1034 (1999).

[98] Mashiro Yamamura et al., *Defining Protective Responses to Pathogens: Cytokine Profiles in Leprosy Lesions*, 254 SCI. 277, 279 (1991).

[99] Peter A. Sieling et al., *Immunosuppressive Roles of IL-10 and IL-4 in Human Infection-In Vitro Modulation of T Cell Responses in Leprosy*, 150 J. IMMUNOLOGY 5501, 5501 (1993).

[100] *Id.*

[101] *See, e.g.*, ALFRED S. EVANS & PHILIP S. BRACHMAN, BACTERIAL INFECTIONS OF HUMANS- EPIDEMIOLOGY AND CONTROL 387 (3rd ed. 1998) ("[L]eprosy may be self-healing in

our body's immune system starts acting against itself, thus causing an immune malfunction.[102] *M.leprae* stimulated macrophages and TH2-CD8+ cells produce IL-10 and IL-4, respectively, that have immunosuppressive roles by inhibiting production of IFN-γ.[103] Due to inhibition of IFN-γ, there is a local immunosuppression of cell-mediated immunity.[104] In its course of action, IL-4 downregulates the action of Toll Like Receptors 2/1 (TLR2/1) of monocytes and macrophages that are crucial for hosts' innate defense mechanisms against microbial pathogens.[105] *M.leprae* stimulated macrophages releases IL-10 that further curb production of TH1-CD4+ cells.[106] Additionally, it inhibits the release of TLR2/1- induced cytokines that further suppress production of TNF-γ and GM-CSF antimicrobial cytokines and IL-10, further inhibiting the production of reactive oxygen intermediate in macrophages.[107] This shows the synergistic action of IL-10 and IL-4 as immunosuppressive in nature as observed in leprosy.

Another matter of concern is the state of unstable immune response in borderline patients; reversal reaction or Type 1 reaction ("T1R") and Type 2 reaction ("T2R"), also known as Erythema Nodosum Leprosum.[108] These conditions are systemic inflammatory response characterised by neutrophil infiltration, extra vascular immune complexes, high level of TNF-α and IL-10, and are associated with loss of nerve function and relapse.[109] Patients experience acute inflammation of the skin and nerves.[110] Additionally, episodes of T1R may cause Neurities, which is a painful state involving severe damage and inflammation in nerve cells.[111] A major contributor to TNF-α is produced by a cell wall (lipoarabinomannan-LAM) of *M.leprae*

up to 75% of the cases, but if diagnosed, it is always treated.") (citation omitted); S. G. Browne, *Self-Healing Leprosy: Report on 2749 Patients*, 45 LEPROSY REV. 104, 106 (1974); Malcom S Duthie et al., *Insight Toward Early Diagnosis of Leprosy Through Analysis of the Developing Antibody Responses of Mycobacterium leprae- Infected Armadillos*, 18 CLINICAL & VACCINE IMMUNOLOGY 254, 254 (2011).

[102] Sieling et al., *supra* note 99, at 5501.

[103] *Id.* at 5501-02.

[104] *Id.* at 5501.

[105] *See* Robert L. Modlin, *The Innate Immune Response in Leprosy*, 22 CURRENT OPINION IN IMMUNOLOGY 48, 49 (2010) [hereinafter Modlin, *Immune Response*].

[106] Modlin, *Th1-Th2 Paradigm*, *supra* note 62, at 829.

[107] Modlin, *Immune Response, supra* note 105, at 49.

[108] David M. Scollard et al., *Epidemiologic Characteristics of Leprosy Reactions*, 62 INT'L J. LEPROSY 559, 559 (1994).

[109] Deepika Pandhi & Namrata Chhabra, *New Insights in the Pathogenesis of Type 1 and Type 2 Lepra Reaction*, 79 INDIAN J. DERMATOLOGY, VENEREOLOGY, & LEPROLOGY 739, 742 (2013).

[110] *See* Paul Saunderson et al., *Reversal Reactions in the Skin Lesions of AMFES Patients: Incidence and Risk Factors*, 71 LEPROSY REV. 309, 309 (2000).

[111] GREENFIELD'S NEUROPATHY, *supra* note 63, at 1666.

itself.[112] Nerve damage shows negative as well as positive dysfunction phenomena; in negative phenomena there is weakness, anhidrosis (failure of sweat glands) and anaesthetic patches; while in positive phenomena such as paresthesia (pricking sensation), there is pain and discomfort on touch.[113] If nerve damage (in the autonomic, sensory, and motor nervous systems) is left untreated it will ultimately lead to amputated digits, limb deformities, and skin ulcerations.[114] In several cases of LL, the development of saddle-nose deformity is highly probable.[115] This condition has its own stigma in patients. There is a flattening of the nasal bone, and all nasal turbinate are destroyed.[116]

C. *The Refutation—Research, Development and Cure*

In order to eradicate a disease, there are a few steps that need to be followed. These are: (i) an understanding of the disease; (ii) its diagnosis; and (iii) its successful treatment. India is part of the leprosy elimination strategy with the WHO.[117] Working with the WHO, India launched its National Leprosy Eradication Programme ("NLEP") in 1955.[118]

Proper and early diagnosis of a disease is generally a very important part of its treatment, but in cases of leprosy early diagnosis is critical. If leprosy escapes early detection, then it can very quickly escalate from Tuberculoid leprosy to Lepromatous leprosy, even leading to sensory and motor impairments. Thus, leprosy is a complex disease that requires early detection.[119] The WHO provides three cardinal signs for an accurate diagnosis of leprosy. Presence of any one of these three signs signifies infection with *M.leprae*. This infection could be recent or at an advanced

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[112] R. Manandhar et al., *High Levels of Inflammatory Cytokines are Associated with Poor Clinical Response to Steroid Treatment and Recurrent Episodes of Type 1 Reactions in Leprosy*, 128 CLINICAL & EXPERIMENTAL IMMUNOLOGY 333, 336 (2002).

[113] *See* Einar P. Wilder-Smith & Wim H. Van Brakel, *Nerve Damage in Leprosy and its Management*, 4 NATURE CLINICAL PRAC. NEUROLOGY 656, 657 (2003).

[114] W. H. Van Brakel, *Peripheral Neuropathy in Leprosy and its Consequences*, 71 LEPROSY REV. 146, 147 (2000).

[115] Menger et al., *supra* note 93, at 153.

[116] *Id.*

[117] *See About Us*, NAT'L LEPROSY ERADICATION PROGRAMME, http://nlep.nic.in/about.html [https://perma.cc/7B32-FCBK] [hereinafter NLEP, *About Us*].

[118] *Id.*

[119] P. G. Nicholls et al., *Promoting Early Detection in Leprosy – A Literature Review to Identity Proven and Potential Interventions Addressing Patient-Related Delay*, 77 LEPROSY REV. 298, 299 (2006); Laura C. Rodrigues & Diana N. J. Lockwood, *Leprosy Now: Epidemiology, Progress, Challenges, and Research Gaps*, 11 LANCET INFECTIOUS DISEASES 464, 464, 468 (2011); Wim H. Van Brakel et al., *Early Diagnosis of Neuropathy in Leprosy – Comparing Diagnostic Tests in a Large Prospective Study (the INFIR Cohort Study)*, 2 PLOS NEGLECTED TROPICAL DISEASES 1, 1 (2008).

stage. The three WHO designated signs are: (i) presence of pale (hypopigmented) or reddish skin patches coupled with a loss of sensation; (ii) a thickened or enlarged nerve, with loss of sensation and/or weakness of the muscles supplied by nerves; and (iii) the presence of the acid-fast bacilli in a skin-slit smear test.[120]

However, a misdiagnosis or delayed diagnosis may lead to conditions that are difficult to control. In such a situation, the chances of escalation from Tuberculoid leprosy (where the human immune system is still able to adequately respond and arrest the disease) to Lepromatous leprosy (where the human immune system starts acting against itself) are extremely high with a high risk of relapse.[121] The skin-slit smear test, generally relied upon to diagnose leprosy, does not always correlate with histopathological diagnosis of LL patients.[122]

As discussed above, leprosy has been classified into six different stages starting from Tuberculoid leprosy to Lepromatous leprosy, the first being the least and the last being the most severe.[123] Several advances in medical science have been made in order to accurately detect and more precisely classify the degree of leprosy in patients.[124] Conventionally used 'Fite-Fraco' and ZN staining diagnostic methods are not as accurate and are tiresome to operate.[125] The 'Fite-Fraco' method has been replaced with more sophisticated techniques, such as fluorescent stain microscopy, in order to rapidly and more accurately screen and detect all types of leprosy.[126]

In order to administer an effective treatment, it is important to know the viability of the bacteria inside the host. Sensitive tools, such as Real-Time Polymerase Chain Reaction ("RT-PCR"), have enhanced capacity to accurately identify and determine BI and Morphological Index ("MI").[127] An

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[120] World Health Org. [WHO], *Enhanced Global Strategy for Further Reducing the Disease Burden due to Leprosy (Plan Period: 2011-2015)*, at 18 (2009), http://www.searo.who.int/entity/global_leprosy_programme/documents/enhanced_global_strategy_2011_2015_operational_guidelines.pdf?ua=1 [https://perma.cc/4M82-KSBM].

[121] *See* V. P. Shetty & R. P. Doshi, *Detection and Classification of Leprosy: Future Needs and Strategies*, 80 INDIAN J. LEPROSY 139, 142 (2008).

[122] P. Premalatha et al., *Utility of Bacillary Index in Slit Skin in Correlation with Clinical and Histopathological Alteration in Hansen's Disease: An Attempt to Revive a Simple Useful Procedure*, 6 ANNALS MED. HEALTH SCI. RES. 181, 183 (2016).

[123] Ridley & Jopling, *supra* note 91, at 256.

[124] *See, e.g.*, Deepa Sowkur Anandarama Adiga et. al., *Evaluation of Flurescent Staining for Diagnosis of Leprosy and its Impact on Grading of the Disease: Comparison with Conventional Staining*, 10 J. OF CLINICAL AND DIAGNOSTIC RES. 23, 24 (2016).

[125] *Id.*

[126] Sunil V. Nayak et al., *Role of Fluorescent Microscopy in Detecting Mycobacterium leprae in Tissue Sections*, 7 ANNALS DIAGNOSTIC PATHOLOGY 78, 81 (2003).

[127] Mekonnen Kuraachew et al., *Reverse Transcription- PCR Deletion of Mycobacterium*

improved version of retrospective analysis has also been developed, with the help of DNA extraction via the ZNCF-stained SSS slide method, for PCR to ease whole diagnosis process as well as its application in cross referral of samples.[128]

Another diagnostic tool is PGL-I specific antibody assay, the only currently available antibody based assay that has been extensively evaluated in the field.[129] After testing PGL-I assay, researchers have noted that:

> The results clearly indicate that seropositivity is a major risk factor in development of disease with up to 40% of seropositive contacts going on to develop disease. This assay is also very effective in differentiating MB and PB disease in leprosy. However, a large proportion of Tuberculoid patients are seronegative in the PGL-I test and an additional second test that would provide higher levels of specificity/sensitivity is desired.[130]

Simply speaking, to find out whether the patient is suffering from leprosy, this method attempts to find the bacterial load in a patient's body. Once the presence of bacterial load is confirmed, a correct diagnosis can be reached, i.e., it can be confirmed what kind of leprosy the patient is suffering from, and then a proper course of treatment can be recommended.

Another diagnostic method is an antigen assay. In this method, skin test antigens'—such as *M.leprae* inter-cellular (inside a cell) and extra-cellular (on the cell-wall and cell-membrane)—proteins are extracted and used as immunological diagnostic tools.[131] These antigens are soluble and reactive to their specific B-cell and T-cell counterparts (such as CFP-10 and ESAT-6 proteins).[132] If a human body is infected by *M.leprae* then our immune

Leprae in Clinical Specimens, 36 J. CLINICAL MICROBIOLOGY 1352, 1352 (1998).

[128] R. R. Kamble et al., *Extraction and Detection of leprae DNA from ZNCF-Stained Skin Smear Slides for Better Identification of Negative Skin Smears*, 28 INDIAN J. MED. MICROBIOLOGY 57, 58 (2010).

[129] *See, e.g.*, Sang Nae Cho et al., *Detection of Phenolic Glycolipid I of Mycobacterium leprae in Sera from Leprosy Patients Before and After Start of Multidrug Therapy*, 8 CLINICAL & DIAGNOSTIC LABORATORY IMMUNOLOGY 138, 138 (2001) ("Among the antigens evaluated for immunoassays, phenolic glycolipid I (PLG I) is still the only *Mycobacterium leprae*-specific antigen (8), and it has been widely used for serodiagnosis of leprosy.").

[130] Abraham Aseffa et al., *Report on the First Meeting of the IDEAL (Initiative for Diagnostic and Epidemiological Assays for Leprosy) Consortium Held at Armauer Hansen Research Institution, ALERT, Addis Ababa, Ethiopia on 24-27 October 2004*, 76 LEPROSY REV. 147, 152-53 (2005).

[131] INFECTIOUS DISEASES 170 (Sherwood L. Gorbach et al. eds., 3rd ed. 2004).

[132] FOOD & DRUG ADMIN., *Canada Albicans Skin Test Antigen for Celluar Hypersensitivity Candin* (2009), https://www.fda.gov/downloads/BiologicsBloodVaccines/Allergenics/UCM391760.pdf. [https://perma.cc/J2JL-TFQ3].

system is reactive against it.[133] In this response, specific B-cells and T-cells are formed to fight against *M.leprae* bacteria.[134] In other words, to find out whether the patient is suffering from Lepromatous leprosy these methods attempt to find the pre-existing B-cells and the T-cells specific to the *M.leprae* bacteria. Once the presence of these B-cells and T-cells is confirmed, but no bacterial load is found in the body, a confirmed diagnosis of Lepromatous leprosy can be reached, and a proper course of treatment can be recommended.

Worldwide, efforts are being made by scientists to develop the tools required for early diagnosis of this disease.[135] Bio-informatics and comparative genomics studies are done in order to identify potential immunogenic proteins from *M.leprae* for restoration of cell-mediated immunity.[136] Protein ML0308 and ML2498, from class II protein, has shown remarkable immunogenicity by eliciting an immune response in body and providing a promising tool for early detection of both types of leprosy.[137] Delayed Type Hypersensitivity ("DTH") has a crucial role in Lepromatous leprosy; in order to tackle this problem, recombinant INF-γ and IL-2 can be administered to clear bacilli in leprosy patients.[138] Skin biopsy provides another diagnostic tool that can be considered the most reliable indicator for diagnosis of small fiber neuropathy.[139] This technique could also be helpful in accessing the rate of regeneration of nerve fiber damaged due to peripheral neuropathy and the response of neuro-protective treatment on patients.[140]

The NLEP introduced MDT in India in 1983.[141] In 2005, the program for the Elimination of Leprosy at National Level started with the help Indian government funds and free MDT support from Novartis through the WHO.[142] Since 1995, the WHO, in association with some non-governmental

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[133] LUCAS M. SAMPAIO ET AL., IMMUNOLOGY REACTIVE M. LEPRAE ANTIGENS WITH RELEVANCE TO DIAGNOSIS AND VACCVINE DEVELOPMENT, 11 BMC INFECTIOUS DISEASES 1471, 1472 (2011).

[134] Rodrigues & Lockwood, *supra* note 119, at 468.

[135] *Disease Watch Focus: Leprosy*, WORLD HEALTH ORG., http://www.who.int/tdr/publications/disease_watch/leprosy/en [https://perma.cc/77V7-J4TT].

[136] Aráoz et al., *supra* note 74, at 176.

[137] *Id.* at 175.

[138] Gilla Kaplan et al., *Effect of Multiple Interferon Gamma γ Injections on the Disposal of Mycobacterium leprae*, 86 PROC. NAT'L ACAD. SCI. 8073, 8073 (1989).

[139] Maurice J. Lefford et al., *The Value of IgM Antibodies to PGL-I in the Diagnosis of Leprosy*, 59 INT'L. J. LEPROSY 432, 437 (1991).

[140] Giuseppe Lauria & Grazia Devigili, *Skin Biopsy as A Diagnostic Tool in Peripheral Neuropathy*, 3 NATURE CLINICAL PRAC. NEUROLOGY 546, 553 (2007).

[141] R. V. Mohite & P. M. Durgawale, *Evaluation of National Leprosy Eradication Programme in Satara District, Maharashtra*, 83 INDIAN J. LEPROSY 139, 139 (2011).

[142] *See* NLEP, *About Us*, *supra* note 117.

organizations, has been supplying free MDT regimes to all endemic countries, including India.[143] "The drugs used in WHO-MDT are a combination of rifampicin, Clofazimine and Dapsone for MB leprosy patients and Rifampicin and Dapsone for PB leprosy patients. Among these, rifampicin is the most important antileprosy drug and therefore is included in the treatment of both types of leprosy."[144] As per the WHO regimen guidelines, in case of an adult with MB leprosy, the regimen prescribed is a twelve-month course with three medicines: Rifampicin (600 mg per month), Clofazimine (300 mg once a month, and 50mg daily), and Dapsone (100 mg daily). For an adult suffering from PB leprosy, the regimen is Rifampicin (600 mg once a month) and Dapsone (100 mg daily) for six months. The regimen for children (ages ten to fourteen) suffering from MB leprosy is Rifampicin (450 mg once a month), Clofazimine (150 mg once a month, and 50 mg every other day), and Dapsone (50 mg daily) for twelve months. For children suffering from PB leprosy, the regimen is Rifampicin (450 mg once a month) and Dapsone (50mg daily) for six months.[145]

In 1998, the first vaccine against leprosy was developed by the National Institute of Immunology and launched by Cadilla Pharmaceuticals—Leprovac®, currently known as Immuvac.[146] "Leprovac® contains a heat killed, fast growing, non-pathogenic mycobacterium called *Mycobacterium w.* (*M.w.*). Of the [sixteen] mycobacteria tested on cells and sera of leprosy patients, *M.w.* shows the closest antigenic similarity to *M. leprae*, the pathogen that causes leprosy."[147] This vaccines shows immunomodulation properties, meaning it not only stimulates the immune system to kill and clear bacterial load inside the body, but also makes MDT more effective.[148] *Mycobacterium indicus pranii* ("MIP") is a hyper-virulent yet potentially immunogenic stain of *Mycobacterium tuberculosis*.[149] MIP is another immunomodulatory to illicit an immune response in the form of enhancing

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[143] *See* WHO, *Leprosy Elimination Project: Status Report 2002*, at 5, WHO Doc. WHO/CDS/CPE/CEE.

[144] WHO, *Leprosy Elimination—WHO Multidrug Therapy (MDT)*, http://www.who.int/lep/mdt/en/ [https://perma.cc/RJL4-HR93].

[145] WHO, *WHO Recommended MDT Regimens*, http://www.who.int/lep/mdt/en/ [https://perma.cc/RJL4-HR93]. *See also* WHO, *Global Strategy for Further Reducing the Leprosy Burden and Sustaining Leprosy Control Activities 2006-2010*, SEA/GLP/2006.2; Rodrigues & Lockwood, *supra* note 119, at 468; Pardillo et al., *supra* note 90, at 1096.

[146] Indira Nath, *A Vaccine for Leprosy*, 4 NATURE MED. 548, 548 (1998).

[147] *Id.* (citation omitted).

[148] *Cadila Launches New Anti-Leprosy Vaccine*, DOMAIN-B (July 7, 1999), http://www.domain-b.com/companies/companies_c/cadila_healthcare/19990707cadila.html [https://perma.cc/K335-CM3B].

[149] Vikram Saini et al., *Polyphasic Taxonomic Analysis Establishes Mycobacterium Indicus Pranii as a Distinct Species*, 4 PLOS ONE 1, 2 (2009).

antibodies titres against *multibacillary lepromatous* leprosy.[150] This vaccine has undergone large scale successful field trials on patients and their infected, as well as healthy, family members.[151]

Along with MDT, there are a few combinations of drugs available that are effective enough to cure leprosy when administered with therapy.

> A relatively new development is the introduction of a single dose of [R]ifampicin 600 mg plus [O]floxacin 400 mg and [M]inocycline 100 mg (ROM) as an acceptable and cost-effective alternative regimen for the treatment of single-lesion PB leprosy. A multicentre double blind trial concluded that ROM is almost as effective as standard 6-month WHO PB-MDT in the treatment of single lesion leprosy.[152]

In case of T2R leprosy, longer courses of Prednisone have been considered to be of great importance for recovery from nerve damage, and by determining the duration and quantity of the doses, this drug can restore nerve function.[153] More research has been done for management of T2R and *Erythema Nodosum Leperosum* by using a combination of Prednisolone with Thalidomide or Clofazimine; Thalidomide has shown better cure rates when administered in combination with Prednisolone.[154] However, due to non-availability, high cost, and risk to women in child-bearing age, Thalidomide has been replaced by Clofazimine.[155]

Regarding disabilities associated with leprosy, it would be an understatement if we considered only disfigurements caused by it. Disability is now understood not just as the presence of an illness or impairment, but rather as the relationship between the illness or impairment and the extent to which it limits an individual's ability to meaningfully participate in his or her day-to-day life.[156] Reconstructive surgeries are available in order to

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[150] G. P. Talwar, *An Immunotherapeutic Vaccine for Multibacillary Leprosy*, 18 INT'L. REV. IMMUNOLOGY 229, 246 (1999).

[151] Shilpi Purswani et al., *Mycobacterium Indicus Pranii is a Potent Immunomodulator for a Recombinant Vaccine Against Human Chorionic Gonadotropin*, 91 J. REPRODUCTIVE IMMUNOLOGY 24, 24-25 (2011).

[152] Jan Visschedijk et al., *Mycobacterium Leprae-Millennium Resistant! Leprosy Control on the Threshold of a New Era*, 5 TROPICAL MED. & INT'L HEALTH 388, 392 (2000).

[153] B. Naafs et al., *Reversal Reaction: The Prevention of Permanent Nerve Damage Comparison of Short and Long-term Steroid Treatment*, 47 INT'L J. LEPROSY & OTHER MYCOBACTERIAL DISEASES 7, 7 (1979).

[154] *See generally* Laura E. B. Nabarro et al., *The Use of Steroids and Thalidomide in the Management of Erythema Nodosum Leprosum; 17 years at the Hospital for Tropical Diseases, London*, 87 LEPROSY REV. 221, 229 (2016).

[155] H. K. Kar & L. Gupta, *Comparative Efficacy of Four Treatment Regimens in Type 2 Leprosy Reactions (Prednisolone Alone, Thalidomide Alone, Prednisolone Plus Thalidomide and Prednisolone Plus Clofazimine)*, 88 INDIAN J. LEPROSY 29, 37 (2016).

[156] G. N. Malviya, *Disabilities in Leprosy – The New Concepts*, 86 INDIAN J. LEPROSY

minimize disfiguration and stigma.[157] Relapse, on the other hand, is a different story, and raises questions about the effectiveness of MDT. The core reasons for relapse are inefficient diagnoses and miscategorization of MB cases as PB cases, which leads to inadequate treatment.[158]

IV. LEGAL CONSEQUENCES OF THE REFUTATION—A SELECTED CASE STUDY OF INDIAN LAWS

The perception of incurability, and other social stigma as well as cultural influences attached with leprosy, "[have] lead to [the] enactment of many unfair laws which take lot [sic] of time for change as has happened in India."[159] In Part II, this Article argued that there is a perception of incurability attached to leprosy. This perception is fueled by mythmaking, and an incorrect or perhaps a misunderstanding of the medical facts pertinent to this disease. In Part III, this Article demonstrated that there is no medical evidence to support the idea that leprosy is readily spread by touch, or that leprosy is an incurable disease. In fact, leprosy is completely curable, whether reported early or late. In cases of late reporting, there are chances of prolonged physical discomfort and deformities, but these physical deformities can be corrected by surgery, and people can return to their normal occupations. Those who are able to work have been employed "in a variety of jobs ranging from librarians, to rubbish-truck laborers, kitchen workers and buildings and groundskeepers. Employed patients often work alongside state civil servants performing similar or identical work."[160] The perception of incurability, however, continues to inform the legal regime and the Supreme Court's jurisprudence, as well as several laws that are based on this underlying perception.[161] In this Part, the Article deals with certain situations

121, 122 (2014).

[157] *See, e.g.*, Menger et al., *supra* note 93, at 152-53.

[158] Pardillo et al., *supra* note 90, at 1099 ("[T]he risk of relapse has been observed to be highest in patients with MB leprosy who are wrongly classified as having PB leprosy and are, therefore, undertreated. Thus, it is recommended that, particularly in areas with a high frequency of patients with MB leprosy, skin-smear sample testing and biopsy sample analysis be reinstituted and used to classify patients for treatment purposes.").

[159] Lenka & Mahaparta, *supra* note 19, at 11.

[160] Floum, *supra* note 33, at 509.

[161] *See, e.g.*, Dhirendra Pandua v. State of Orissa, (2008) 17 SCC 311, 320 (India). Speaking in the context of §§16(1)(iv), 17(1)(b), Orissa Municipality Act, No. 23, Odisha Acts and Ordinances, 1950 (India) whereby a candidate for municipality elections who is a leprosy patient can be disqualified to contest elections as a Councilor and a Councilor who becomes a leprosy patient is disqualified to hold office, Justice D. K. Jain (speaking for the Division Bench of the Court) observed: "The obvious object and the purpose sought to be achieved by the said restriction appears to be [that because leprosy is] a contagious disease, it can be transmitted via droplets from the nose and mouth during close and frequent contacts with

and analyzes the legal consequences that follow once this hidden premise of the perception of incurability is discovered. This Article does not propose to deal with every possible situation where this might be the case.[162] The treatment of the subject therefore is illustrative, but it is enough to establish the point that the perception of incurability is a hidden premise behind several laws that deal with leprosy. Since this Article has already demonstrated the incorrectness of the perception of incurability by reference to medical evidence, the authors argue that these laws need to be revisited. In certain cases, the authors also argue that the constitutionality of some of these laws is suspect, and thus they may be open for challenge before the courts.

A. *The (Recently Repealed) Lepers Act, 1898*

Perhaps the most objectionable of all these laws was the Leper's Act of 1898 providing *inter alia* for mandatory isolation.[163] Since it was enacted in 1898, it is clear that it was based on misconceptions about the disease. The law defined "any person suffering from any variety of leprosy" to be a "leper,"[164] and gave the State the power to declare any geographical area as

untreated infected persons." *Id.* The law was not declared invalid in this case.

[162] There are several provisions in different Indian parliamentary and state legislations that provide for discriminatory treatment to be meted out to people suffering from leprosy. *See, e.g.*, The Children Act, 1960, sec. 47, No. 60, Acts of Parliament, 1960 (India); Advocate's Welfare Funds Act, 2001, sec. 19, No. 45, Acts of Parliament, 2001 (India) (provides for ex gratia grant of funds to a member of the Bar suffering, inter alia, from leprosy); The Delhi Municipal Corporation Act, 1957, sec. 414, No. 66, Acts of Parliament, 1957 (India) (providing a person in charge of a market to prevent the entry into the market of any person suffering from leprosy). For instance, the text of The Children Act, 1960, sec. 47, No. 60, Acts of Parliament, 1960 (India), is reproduced here:

> (1) Where it appears to the Administrator that any child kept in a special school or children's home in pursuance of this Act is suffering from leprosy or is of unsound mind, the Administrator may order his removal to a leper asylum or mental hospital or other place of safe custody for being kept there for the remainder of the term for which he has to be kept in custody under the orders of the competent authority or for such further period as may be certified by a medical officer to be necessary for the proper treatment of the child.
>
> (2) Where it appears to the Administrator that the child is cured of leprosy or of unsoundness of mind, he may, if the child is still liable to be kept in custody, order the person having charge of the child to send him to the special school or children's home from which he was removed or, if the child is no longer liable to be kept in custody, order him to be discharged.

[163] Similar restrictions have also been put on LAPs in western countries. *See, e.g.*, David Claborn & Bernard McCarthy, *Incarceration and Isolation of the Innocent for Reasons of Public Health*, 11 J. INST. JUST. INT'L STUD. 75, 76, 79 (2011).

[164] The Governor General of India in Council, The Lepers Act, 1898, *in* A COLLECTION OF THE ACTS NO. 3, § 2(1) (Government of India Central Printing Office, 1898).

a "local area" from where lepers may be sent to "leper asylums."[165] It also gave police officers the power to arrest without warrant any "pauper leper" from the notified "leper area."[166] After having been arrested without warrant, the arrested "pauper leper" must be presented to an Inspector of Lepers who upon inspection will then make a legal declaration as to whether the "pauper leper" is actually a leper or not.[167] If not, the person must be released from arrest,[168] and if yes, then the person must be presented before a Magistrate for a determination as to whether or not this person should be sent to a leper asylum.[169] Lepers were prohibited from "personally preparing for sale any article of food or drink, any drugs or clothing intended for human use."[170] They were prohibited from bathing, washing clothes, or taking water from any public well or tank "debarred by any municipal or local bye-law from use by lepers,"[171] as well as from driving or riding in any public carriage plying for hire except a railway carriage.[172] They were also prohibited from "exercising any trade or calling" that the State could notify and prohibit the lepers from exercising.[173] Violating these observations was a punishable offense for both the lepers and those employing them.[174]

A review of all these provisions, in light of what has been discussed in Parts II and III, shows an unmistakable hidden premise—the perception of incurability and a flawed understanding of the disease itself that plagues the entire Lepers Act. Furthermore, in a country with a Constitution that recognizes the fundamental right "to practice any profession, or to carry on any occupation, trade or business,"[175] the constitutional validity of any provision that authorizes the State to suspend this fundamental right of a class of citizens is itself suspect. In such a situation it is also doubtful whether or not the 'reasonable restrictions' clause[176] would have saved such a drastic power. Luckily, the discussion is now moot because the entirety of the Lepers

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[165] *Id*. § 3.

[166] *Id*. § 6(1). A 'pauper leper' is defined as a leper, "who publicly solicits alms or exposes or exhibits any sores, wounds, bodily ailments or deformity with the object of exciting charity or of obtaining alms, or who is at large without any ostensible means of subsistence." *See id*. §§ 2(2)(a), 2(2)(b).

[167] *Id*. § 7.

[168] *Id.*

[169] *Id*. § 8.

[170] *Id*. § 9(1)(a).

[171] *Id*. § 9(1)(b).

[172] *Id*. § 9(1)(c).

[173] *Id*. § 9(1)(d).

[174] *Id*. §§ 9(3), 10, 11.

[175] INDIA CONST. art. 19, § 1, cl. (g).

[176] *Id.* art. 19, § 6.

Act has been repealed.[177] However, repeal of the Lepers Act only makes an examination of the Lepers Act redundant. It does not make the issue itself redundant because there are several other laws that continue to subject LAPs to discriminatory treatment. While all of these laws are plagued by the perception of incurability, several of them can be remedied by judicial interpretation. Some of them, however, are of suspect constitutional validity. As stated above, it is not possible here to offer an exhaustive review of every such law. But the following sub-parts illustratively discuss two categories of law—Matrimonial Laws and Transportation Laws.

B. *Matrimonial Laws*

1. The Perception of Leprosy and Matrimonial Laws

"[V]irulent and incurable form of leprosy" is a ground for divorce available to both the husband and the wife under section 13(1)(iv) of the Hindu Marriage Act of 1955.[178] The law uses the phrase "incurable form of leprosy." As argued above, leprosy is not an incurable disease. The medical evidence, in fact, points in the opposite direction and shows that leprosy is completely curable, and the time and medical procedure(s) required to cure it will differ depending on when the disease is diagnosed.[179] Based on what has been discussed in this Article so far, it can be argued that the use of the phrase "incurable form of leprosy" is subject to revision either by amendment or judicial interpretation. The availability of new medical research has been used by the Supreme Court in other cases to revise its understanding of long-standing legal principles, and the same logic should apply here. However, later in this section, the Article will argue that the use of the phrase "incurable form of leprosy" renders section 13(1)(iv) of the Hindu Marriage Act liable to a constitutional challenge. Even the United Nations in its 65th General Assembly stressed the need to eliminate discrimination against LAPs and

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[177] The Repealing and Amending Act (An Act to Repeal Certain Enactments and to Amend Certain Other Enactments), 2016, Gazette of India, pt. II sec 2 (May 6, 2016) (repealing The Lepers Act, 1898); LAW COMMISSION OF INDIA, REPORT NO. 256 - ELIMINATING DISCRIMINATION AGAINST PERSONS AFFECTED BY LEPROSY 20 (2015) [hereinafter LAW COMMISSION OF INDIA, REPORT NO. 256]; *Lepers Act, Termed Discriminatory, Set to be Repealed*, TIMES OF INDIA (July 27, 2015), http://timesofindia.indiatimes.com/india/Lepers-Act-termed-discriminatory-set-to-be-repealed/articleshow/48238756.cms [https://perma.cc/8KRH-REHX].

[178] The Hindu Marriage Act, 1955, No. 25, sec. 13(1)(iv), Acts of Parliament, 1955 (India) ("Any marriage solemnized, whether before or after the commencement of the Act, may, on a petition presented by either the husband or the wife, be dissolved by a decree of divorce on the ground that the other party . . . has been suffering from a virulent and incurable form of leprosy.").

[179] Rao et al., *supra* note 5, at 168

their family members,[180] and the Law Commission of India has also taken note of the fact that the medical evidence does not support the perception of incurability.[181] However, the Law Commission does not deal with the medical evidence and literature in the detail with which it deserves to be dealt with, a gap this Article intends to fill. Furthermore, the Supreme Court's treatment of the word "virulent" in this phrase is also based on an incomplete and incorrect understanding of the term.[182] It appears that the Supreme Court construes the word "virulent" to mean highly infectious, something that spreads by touch, spreads quickly, and has no cure.[183] Medical evidence can provide the change necessary to correct this unjust misunderstanding of the disease, as well as the flawed interpretation of the law based on this misunderstanding.

Distinct from the phrase "incurable form of leprosy," "leprosy" is also a ground for divorce, and is also available to the wife under section 2(vi) of the Dissolution of Muslim Marriage Act of 1939.[184] Again, based on the discussion thus far in this Article, it is fair to say that section 2(vi) is open to interpretation, and the phrase "incurable form of leprosy" in a sister provision in the Hindu Marriage Act cannot be used as an adequate guide to interpret the Dissolution of Muslim Marriage Act.[185] Similarly, section 27(1)(g) of the Special Marriage Act of 1954 also provides "leprosy" as a ground for divorce.[186] Section 27(1)(g), however, is based on the hidden premise that leprosy is a communicable form of disease, and affords a ground for divorce to either the husband or wife only if the disease in the party seeking divorce is not contracted from the other party.[187] In other words, if the disease has been contracted from the other party, the decree of divorce cannot be granted. But how can we know for sure that the disease has in fact been contracted from the other party? Section 27(1)(g) therefore is also based on the hidden

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[180] G.A. Res. 65/215, Elimination of Discrimination Against Persons Affected by Leprosy and their Family Members (Dec. 21, 2010).

[181] LAW COMMISSION OF INDIA, REP. NO. 256, *supra* note 155, at 35.

[182] *See, e.g.*, Swarajya Lakshmi v. G. G. Padma Rao, (1974) 1 SCC 58, 59 (India).

[183] *Id*. at 62-64.

[184] The Dissolution of Muslim Marriage Act, 1939, sec. 2(vi), No. 8, Acts of Parliament, 1939 (India) ("A woman married under Muslim law shall be entitled to obtain a decree for the dissolution of her marriage on any one or more of the following grounds, namely . . . that the husband has been . . . suffering from leprosy or a virulent venereal disease.").

[185] *Id.*

[186] The Special Marriage Act, 1954, sec. 27(1)(g), No. 43, Acts of Parliament, 1954 (India) ("Subject to the provisions of this Act and to the rules made thereunder, a petition for divorce may be presented to the District Court either by the husband or the wife on the ground that the respondent . . . has been suffering from leprosy, the disease not having been contacted from the petitioner.").

[187] *Id*.

premise of a perception of incurability and an incorrect understanding of how leprosy spreads. These problems, however, can easily be corrected by judicial interpretation and do not necessarily render these provisions subject to a constitutional challenge in a manner similar to section 13(1)(iv) of the Hindu Marriage Act.

2. Constitutional Issue—Equality Clause Analysis

The Law Commission of India has taken an 'affirmative action' approach to deal with the issue.[188] It has also taken the Parliament-centric view by invoking Article 253 of the Indian Constitution.[189] The Indian Constitution divides the legislative power between the Union Parliament and the State Legislatures.[190] Article 253 enables the Union Parliament to override the constitutional incompetence that arises because of exclusive State jurisdiction to legislate in certain areas.[191] Since India is a signatory to the United Nations Convention of Rights of Persons with Disabilities, the Law Commission recommended that the Union Parliament exercise its jurisdiction under Article 253 of the Constitution in order to create one unified legislation applicable throughout the territory of India.[192] In addition to this, the Law Commission recommends that the Indian government "implement affirmative measures for the social inclusion of such persons into mainstream society" and "guarantee to all such persons, the right to access healthcare, adequate housing, education, employment and other such basic amenities."[193] The Law Commission, however, does not provide the modalities as to how these affirmative actions should be implemented. It stands to reason that the Union Parliament is being invited to legislate on these issues by exercising its jurisdiction under Article 253 throughout

[188] LAW COMMISSION OF INDIA, REP. NO. 256, *supra* note 178, at 39.

[189] *Id*.

[190] *See* INDIA CONST. arts. 245, 246, 254, sched. 7, lists I-III. Read together, the scheme that comes out is as follows. The Union Parliament and the State Legislatures have the exclusive power to legislate on all topics mentioned in lists I and II of the schedule 7 respectively. The power to legislate in list III is concurrent between the Union Parliament and the State Legislatures, with overriding powers to Union Parliament and a savings clause preserving a pre-existing State Legislation in list III, whereby the Union Parliament may exempt a pre-existing State Legislation in list III in the event it decides to bring an all India legislation on a topic in list III. For a detailed discussion on the division of legislative powers' distribution *see* Khagesh Gautam, *Sales Tax and Cloud Computing in India*, 68 TAX LAW. 671, 676-78 (2015).

[191] INDIA CONST. art. 253 ("Notwithstanding anything in the foregoing provisions of this Chapter, Parliament has power to make any law for the whole or any part of the territory of India for implementing any treaty, agreement or convention with any other country or countries or any decision made at any international conference, association or body.").

[192] LAW COMMISSION OF INDIA, REP. NO. 256, *supra* note 178, at 39-40.

[193] *Id.* at 40.

India.[194] However, this Article takes a different approach.

This Article argues that if the discriminatory provisions of the several legislations to which LAPs and their family members are subjected are declared unconstitutional by the Supreme Court, or upon repeal by the Parliament, a large portion of the problem would be addressed and there would be no need for the Union Parliament to resort to Article 253. In other words, whereas the Law Commission would have the Parliament take positive action, the authors recommend negative action either before the Supreme Court, or by the Parliament itself. It is worth noting that the Law Commission has indeed recommended the repeal of the several provisions from matrimonial laws discussed above.[195]

Equality before the law and equal protection of the laws are both guaranteed as fundamental rights to all persons under the Indian Constitution.[196] The judicial test formulated by the Supreme Court of India under equality jurisprudence is known as the doctrine of reasonable classification.[197] Under this doctrine, the Court has developed a three-step inquiry whereby the following three questions are asked: (1) does the law provide for a classification;[198] (2) is the classification based on an intelligible differentia; and (3) whether the objective of the classification bears any rational nexus with the intelligible differentia that is the basis of the classification.[199] India's most respected constitutional law scholar, H. M.

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[194] *See id.* at 51-63 (the Law Commission's annexed model bill, Eliminating Discrimination Against Persons Affected by Leprosy (EDPAL) Bill, 2015).

[195] *Id.* at 47.

[196] INDIA CONST. art. 14.

[197] *See generally* Ram Krishna Dalmia v. S. R. Tendolkar, AIR 1958 SC 538, 548-49 (India).

[198] Venkateshwara Theatre v. State of Andhra Pradesh, (1993) 3 SCC 677, 693 (India) ("Just as a difference in the treatment of persons similarly situate [sic] leads to discrimination, so also discrimination can arise if persons who are unequals, i.e. differently placed, are treated similarly. In such a case failure on the part of the legislature to classify the persons who are dissimilar in separate categories and applying the same law, irrespective of the differences, brings about the same consequence as in a case where the law makes a distinction between persons who are similarly placed. A law providing for equal treatment of unequal objects, transactions or persons would be condemned as discriminatory if there is absence of rational relation to the object intended to be achieved by the law.").

[199] Budhan Choudhry v. State of Bihar, AIR 1955 SC 191, 193 (India) (Das, J., for the unanimous seven-judge bench of the Court) ("It is now well established that while Article 14 forbids class legislation, it does not forbid reasonable classification for the purposes of legislation. In order, however, to pass the test of permissible classification two conditions must be fulfilled, namely, (i) that the classification must be founded on an intelligible differentia which distinguishes persons or things that are grouped together from others left out of the group and (ii) that that differentia must have a rational relation to the object sought to be achieved by the statute in question. . . . What is necessary is that there must be a nexus between the basis of classification and the object of the Act under consideration."). *See also* Nagpur

Seervai, has crisply restated the equality clause as follows:

> The State shall not deny to any person equality before the law or equal protection of the laws provided that nothing herein contained shall prevent the State from making a law based on involving a classification founded on an intelligible differentia having a rational relation to the object sought to be achieved.[200]

If a law creates separate classes to deal with a matter where classification cannot be had or made, the law would be declared unconstitutional.[201] However, if creation of separate classes is found to be an acceptable method of dealing with a matter, for the petitioner to succeed the classification must be shown not to be based on any intelligible differentia.[202] If the petitioner succeeds, and the State is unable to demonstrate the intelligible differentia that provides the basis of the classification, the law would be declared unconstitutional.[203] However, if the State succeeds, the last prong of the test is activated whereby the petitioner must show that the intelligible differentia has no rational nexus with the reason why the classification was created.[204]

Improvement Trust v. Vithal Rao, (1973) 1 SCC 500, 506 (India) (Sikri, C.J., for the unanimous 7-judge bench of the Court, using very similar language).

[200] H. M. SEERVAI, 1 CONSTITUTIONAL LAW OF INDIA 442 (4th ed. 1997).

[201] *See, e.g.*, Subramanian Swamy v. Raju, (2014) 8 SCC 390, 390 (India). In this case the validity of the Juvenile Justice (Care and Protection of Children) Act, 2000 was challenged on the ground of non-classification. It was argued that the Act would "result in underclassification [if] all juveniles . . . irrespective of the level of mental maturity . . . are grouped in one class." SEERVAI, *supra* note 200, at 468-69. The argument was rejected and the validity of the Act was upheld as the Court found that inclusion of all persons under 18 years of age did not violate the rule of non-classification, under-classification or over-classification. *See id.*

[202] *See, e.g.*, Ram Krishna Dalmia v. S. R. Tendolkar, AIR 1958 SC 538, 548-49 (India). (Das, C.J., for the unanimous five-judge bench of the Court) ("In determining the validity or otherwise of such [a statute] the Court has to be [sic] examine whether such classification is or can be reasonably regarded as based upon some differentia which distinguishes such persons or things grouped together from those left out of the group and whether such differentia has a reasonable relation to the object sought to be achieved by the statute . . . .").

[203] *See, e.g.*, M. P. JAIN, INDIAN CONSTITUTIONAL LAW 1221 (2010) ("What is however necessary is that there must be a substantial basis for making the classification and that there should be a *nexus* between the basis of classification and the object of the statute under consideration.").

[204] D. S. Nakra v. Union of India, (1983) 1 SCC 305, 317-18 (India) (Desai, J., for the unanimous five-judge bench of the Court) ("Thus the fundamental principle is that Article 14 forbids class legislation but permits reasonable classification for the purpose of legislation which classification must satisfy the twin tests of classification being founded on an intelligible differential which distinguishes persons or things that are grouped together from those that are left out of the group and that differentia must have a rational nexus to the object sought to be achieved by the statute in question.").

In other words, the desired objective of the law has no connection to the basis on which the classification was created. If the petitioner succeeds, the law would be declared invalid.

Section 13(1)(iv) of the Hindu Marriage Act provides that a decree of divorce be granted to either spouse on the ground that the other spouse is suffering from a "virulent and incurable form of leprosy."[205] Undeniably, the objective of this law, and others like this, is to make sure that the healthy spouse does not get affected by leprosy.[206] The hidden premise of this law is that leprosy is a disease that is spread quickly and by touch or close contact. It has already been argued in detail in Part III of this Article that leprosy does not spread quickly and does not spread by touch or close contract. In fact, *M.leprae* is a notoriously lazy micro-organism and most people in the world have a natural resistance against this micro-organism.[207] Section 13(1)(iv) creates a class of people—those who suffer from a "virulent and incurable form" of leprosy.[208] Divorce is an option for all those who are married to anyone falling in this class.[209] For section 13(1)(iv) to pass the muster of the doctrine of reasonable classification, the classification of LAPs must be based on some intelligible differentia.[210] This intelligible differentia was derived, when the law was enacted, from a contemporary understanding of the disease.[211] This Article has demonstrated that this understanding is incorrect. When the intelligible differentia itself ceases to exist, the law becomes unconstitutional.[212] In other words, when it is shown that leprosy is actually a completely curable disease and does not spread by touch, we realize that the class consisting of those suffering from a "virulent and incurable form" of leprosy under section 13(1)(iv) does not exist.[213] In

[205] The Hindu Marriage Act, 1955, No. 25, sec. 13(1)(iv), Acts of Parliament, 1955 (India).

[206] *See, e.g.*, Dhirendra Pandua v. State of Orissa, (2008) 17 SCC 311, 320 (India).

[207] Amy D. Ronner, *Scouting for Intolerance: The Dale Court's Resurrection of the Medieval Leper*, 11 L. & SEXUALITY REV. 53, 56 (2002) ("Leprosy is an infectious disease. While the true culprit is Mycobacterium leprae, a bacterium akin to the one that causes tuberculosis, the two diseases are radically different. While leprosy, like tuberculosis, can be transmitted from person to person, it is actually not as threatening because the leprosy bacteria is less virulent and many people have a natural resistance to the disease.") (citations omitted).

[208] The Hindu Marriage Act, 1955, No. 25, sec. 13(1)(iv), Acts of Parliament, 1955 (India).

[209] *Id.*

[210] Ram Krishna Dalmia v. S. R. Tendolkar, AIR 1958 SC 538, 548-49 (India).

[211] *Id.*

[212] *Id.*

[213] In the context of Chinese matrimonial law, it has been suggested that prohibitions on marriage of LAPs should be repealed because "leprosy has been basically eliminated in recent years, and there are only 6000 persons who are suffering from leprosy living in Yunan, Guizhou, Sichuan Province now. The development of modern science and technology makes

Subramanium Swamy v. Raju the Court held that,

> classification or categorisation need not be the outcome of a mathematical or arithmetical precision in the similarities of the persons included in a class and there may be differences amongst the members included within a particular class. So long as the broad features of the categorisation are identifiable and distinguishable and the categorisation made is reasonably connected with the object targeted, Article 14 of the Constitution will not forbid such a course of action.[214]

The identifiable and distinguishable feature of the classification, as per section 13(1)(iv), is the incurability of the disease and the manner in which it spreads. Upon a review of the medical evidence, it turns out that leprosy is neither virulent nor incurable.[215] There is therefore no connection between the classification and the objective for which the classification was created. As such, section 13(1)(iv) must be declared unconstitutional. There is therefore no need to ask the third question that requires a showing of rational nexus. No rational nexus can be shown because to satisfactorily show a rational nexus, some intelligible differentia must exist. In this case, none exists, thus making section 13(1)(iv) unconstitutional.

C. *Transportation Laws*

1. The Perception of Leprosy and Transportation Laws

The Railways Act of 1989 prohibits any person "suffering from such infectious or contagious diseases, as may be prescribed" from entering, remaining, or travelling in any railway carriage without the permission of a railway servant authorized to give such permission.[216] Leprosy has always been understood to be covered by the phrase "infectious or contagious disease."[217] The railway servant so authorized has the power to impose travel conditions on such persons;[218] this presumably will include restrictions on the movement of the person in and/or through railway carriage(s) in a train (provided of course, the permission itself is granted). Failure to observe the law prohibiting travel, and the restrictions that may thereafter be imposed, exposes the LAP as well as the companion traveler to the forfeiture of their travel tickets, and removal from the train.[219]

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it easy to cure leprosy." *See* Xiaoqing Feng, *A Review of the Development of Marriage Law in the People's Republic of China*, 79 U. DET. MERCY L. REV. 331, 336 (2002).

[214] Subramanian Swamy v. Raju, (2014) 8 SCC 390, 392 (India).

[215] Rao et al., *supra* note 5, at 168; *see supra* discussion in Part III.

[216] The Indian Railways Act, 1989, sec. 56(1), No. 24, Acts of Parliament, 1989 (India).

[217] LAW COMMISSION OF INDIA, REP. NO. 256, *supra* note 178, at 19.

[218] The Indian Railways Act, 1989, sec. 56(2), No. 24, Acts of Parliament, 1989 (India).

[219] *Id.* § 56(3).

Similarly, the Motor Vehicles Act of 1988 also authorizes the State to make rules which prohibit or regulate "the conveyance in stage or contract carriages of corpses or persons suffering from any infectious or contagious disease."[220] The phrase "infectious or contagious disease" in the Motor Vehicles Act is given the same meaning as it is given in the Railways Act; the same objections apply. But what is even more unfortunate in the Motor Vehicles Act is the comparison of LAPs with corpses, giving a strong and extremely negative symbolic message to all reading and interpreting the laws. In a country where "mov[ing] freely throughout the territory of India" is a fundamental right,[221] such laws are of suspect constitutionality. The extent to which these restrictions will be saved by the "reasonable restrictions" clause[222] is an open question.

2. Constitutional Issue—Freedom of Movement

The Indian Constitution guarantees, to all its citizens, the right to "move freely throughout the territory of India"[223] and the right to "reside and settle in any part of the territory of India."[224] These two rights are interconnected. If a citizen wishes to settle in the State of Punjab, but is currently residing in the State of Kerala, the citizen will have to move through the territory of India, i.e., from Kerala to Punjab. Thus, the right to reside and settle in any part of the territory of India will be rather meaningless if there was no corresponding right to move freely throughout the territory of India.[225] Both of these rights are subject to "reasonable restrictions" that may be imposed in the "interests of the general public" or "for the protection of the interests of any Scheduled Tribe."[226] This Article is not concerned with the second ground—the protection of the interests of members of Scheduled Tribes. Thus the question squarely boils down to "interests of the general public." Even though "interests of the general public" or "public interest," terms that are apparently used interchangeably in this context, are not capable of a precise definition, it is accepted under Indian constitutional jurisprudence

[220] The Motor Vehicles Act, 1988, sec. 96(2)(xix), No. 59, Acts of Parliament, 1988 (India).

[221] INDIA CONST. art. 19, § 1, cl. (d).

[222] INDIA CONST. art. 19, § 5.

[223] INDIA CONST. art. 19, § 1, cl. (d).

[224] INDIA CONST. art. 19, § 1, cl. (e).

[225] *See, e.g.*, DURGA DAS BASU, 4 COMMENTARY ON THE CONSTITUTION OF INDIA 4261 (2015) (citing JAIN, *supra* note 203, at 1060).

[226] INDIA CONST. art. 19, § 5 ("Nothing in sub-clauses (d) and (e) of [Article 19] shall affect the operation of any existing law in so far as it imposes, or prevent the State from making any law imposing, reasonable restrictions on the exercise of any of the rights conferred by the said sub-clauses either in the interests of the general public or for the protection of the interests of any Scheduled Tribe.").

that their content is not static, meaning what is in public interest is subject to change and revision.[227]

Unfortunately, the Freedom of Movement doctrine under Indian Constitutional law is not well developed. *Khare v. State of Delhi* is one of the first cases where this right was invoked to challenge an externment order passed under the East Punjab Public Safety Act of 1949.[228] The Supreme Court refused the invitation to devise a clear standard of review to determine the validity of legislation or an executive action that is challenged as a violation of the fundamental right to freedom of movement.[229] However, a slight hint of a standard of review was provided in the minority opinion, relying on which it may be said that any restriction that is excessive cannot be reasonable.[230] Thus, if an executive body is allowed to continue the externment order indefinitely, such a restriction cannot be called reasonable.[231] Under this standard of review, if a provision of law provides for excessive restrictions, i.e., more restrictions than are necessary to achieve the ends that the law is set to achieve, then such restrictions, to the extent

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[227] DAS BASU, *supra* note 225, at 4271 ("The expression 'public interest' is not capable of a precise definition and has not a rigid meaning and is elastic and takes its colour from the statute in which it occurs, the concept varying with time and State for society and its needs. Then what is 'public interest' today may not be so considered a decade later."). Under U.S. constitutional jurisprudence, the position appears to be similar. *See, e.g.*, Day-Brite Lighting Inc. v. Missouri, 342 U.S. 421, 423-25 (1952).

[228] N. B. Khare v. State of Delhi, AIR 1950 SC 211, 211 (India).

[229] *Id.* at 217. This case was decided in favor of the state and the validity of the externment order was upheld by a 3-2 majority of the five-judge bench. Both the majority as well as the minority in this case did not articulate a clear standard of review. For example, Mukherjea, J. (dissenting, joined by Mahajan, J.) observed:

> It is not possible to formulate an effective test which would enable us to pronounce any particular restriction to be reasonable or unreasonable per se. All the attendant circumstances must be taken into consideration and one cannot dissociate the actual contents of the restrictions from the manner of their imposition or the mode of putting them into practice.

Id.

[230] *Id.*

[231] *Id.* ("But though certain authorities can be invested with powers to make the initial orders on their own satisfaction in cases of this description, the position would certainly be different if the order thus made is allowed to continue for any indefinite period of time without giving the aggrieved person an opportunity to say what he has got to say against the order. . . . It will be seen from [the impugned provision] that there [is] absolutely no limit as to the period of time during which an externment order would remain in force if the order is made by the Provincial Government. The Provincial Government has been given unlimited authority in this respect and they can keep the order in force as long as they chose to do so. . . . I have no hesitation in holding [that impugned provision] *is manifestly unreasonable and cannot be supported on any just ground*.") (emphasis added).

they are excessive, will be unconstitutional.[232] This, of course, is assuming that the objectives the law is set to achieve are themselves constitutionally permissible. Contrary to the narrow-tailoring requirement under the strict scrutiny standard in U.S. law,[233] the test of excessiveness is a bit broad, allowing more room for the government to defend its actions.[234] However, if the government is not able to establish any rational connection between the restriction imposed on a fundamental right and the reason why that restriction has been imposed, the restriction would not pass the muster of being a "reasonable restriction" and would be declared unconstitutional on the ground of being excessive.[235]

Applying this standard of review, it is submitted that the rationale underlying these transportation laws is to shield the general public from LAPs. This desire to shield is further based on the flawed medical understanding of leprosy. Equally important is the mutual discomfort that members of the general public and LAPs might feel while traveling with each other. The difficulty, however, is that instead of making arrangements which could make both members of the general public and LAPs more comfortable, the law puts the interests of the general public over and ahead of the LAPs by authorizing government officials to disembark LAPs and keep them from traveling. Such a restriction is excessive, and thus by application of the minority's standard of review in *Khare*, unconstitutional.

V. CONCLUSION

Those who suffer from leprosy have been given the short end of the proverbial stick for a very long time. Divorce can be granted to their spouse on this ground, and considerable restrictions are imposed on their fundamental right to travel freely and reside anywhere they want. Consequent restrictions automatically attach to their fundamental right to engage in a trade or occupation of their choosing. They have to suffer indignities and discrimination at the hands of their fellow human beings, and the State apparatus does not offer the requisite assistance. Whereas whether to spend more money on treatment of LAPs is essentially a policy question, and is not addressed in this Article, there is no reason to continue to subject LAPs to

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[232] *See, e.g.*, DAS BASU, *supra* note 225, at 4281 ("[A] restriction will be unreasonable, if it is in excess of the requirement having regard to the object which justifies the legislation.") (citation omitted); JAIN, *supra* note 203, at 1409. ("The limitation imposed on a freedom should not be arbitrary or excessive . . . A restriction should strike a proper balance between the freedom guaranteed by any of the clauses and the social control, so that freedom is limited only to the extent necessary to protect society.").

[233] *See, e.g.*, Qutb v. Strauss, 11 F.3d 488, 492 (1993).

[234] DAS BASU, *supra* note 225, at 4821.

[235] *Id.*

the indignity of unconstitutional laws.

Laws that were written centuries and decades ago, when leprosy was inadequately understood, have no place in a modern society where scientific advances and research have now dispelled many of the myths associated with this disease. There was a time when leprosy was understood to be a divine curse. We now know with certainty that this is not the case. There was also a time when leprosy was understood to be untreatable. We now know that to be wrong. Leprosy is completely treatable and a specific regime of WHO-endorsed drugs exists. There was a time when there existed no scientific method to successfully diagnose leprosy, and the physical deformities associated with the disease were the only indicators of the disease. These physical deformities contributed to, and in fact continue to contribute to, the perception of incurability of leprosy. We now know of at least two methods that can not only successfully diagnose leprosy, but can and indeed have been used to successfully diagnose leprosy at a very early stage, i.e., before the physical deformities manifest themselves. The WHO-approved drug regime has been administered on these early detected cases of leprosy and patients have been successfully treated. Leprosy has also been shown not to spread by air or touch. The *M.leprae* bacteria that is responsible for this disease is also a notoriously lazy bacterium against which 99% of the world's population is naturally immune.

Under these circumstances, old laws that are based on a flawed, incomplete, and incorrect understanding of this disease need to be re-examined. In this Article, we first saw that there is a perception of incurability that is attached to leprosy, which has and continues to inform the legal structure with which LAPs must deal with. We then analyzed and discussed the medical and scientific literature to get a better understanding of this disease. Ultimately, this Article demonstrated that the entire edifice of the legal structure that deals with leprosy is based on an incomplete and incorrect understanding of leprosy. Lastly, this Article examined the current legal structure from a constitutional angle, and having examined them from that angle, this Article argued that they have become unconstitutional, as they violate the equality clause and the freedom of movement clause in the Indian Constitution. We believe similar arguments can be made in the context of other constitutional systems.