



MENTAL HEALTH IN HISTORICAL PERSPECTIVE

# Pellagra and Pellagrous Insanity During the Long Nineteenth Century

David Gentilcore · Egidio Priani

OPEN ACCESS

palgrave  
macmillan

# Mental Health in Historical Perspective

## Series Editors

Catharine Coleborne, School of Humanities and Social Science,  
University of Newcastle, Callaghan, NSW, Australia  
Matthew Smith, Centre for the Social History of Health and Healthcare,  
University of Strathclyde, Glasgow, UK

Covering all historical periods and geographical contexts, the series explores how mental illness has been understood, experienced, diagnosed, treated and contested. It will publish works that engage actively with contemporary debates related to mental health and, as such, will be of interest not only to historians, but also mental health professionals, patients and policy makers. With its focus on mental health, rather than just psychiatry, the series will endeavour to provide more patient-centred histories. Although this has long been an aim of health historians, it has not been realised, and this series aims to change that.

The scope of the series is kept as broad as possible to attract good quality proposals about all aspects of the history of mental health from all periods. The series emphasises interdisciplinary approaches to the field of study, and encourages short titles, longer works, collections, and titles which stretch the boundaries of academic publishing in new ways.

David Gentilcore · Egidio Priani

Pellagra  
and Pellagrous  
Insanity During  
the Long Nineteenth  
Century

palgrave  
macmillan

David Gentilcore  
Department of Humanities  
Ca' Foscari University of Venice  
Venice, Italy

Egidio Priani  
Venice, Italy



ISSN 2634-6036 ISSN 2634-6044 (electronic)  
Mental Health in Historical Perspective  
ISBN 978-3-031-22495-9 ISBN 978-3-031-22496-6 (eBook)  
<https://doi.org/10.1007/978-3-031-22496-6>

© The Author(s) 2023. This book is an open access publication.

**Open Access** This book is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this book are included in the book's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the book's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Cover credit: Gaits of pellagrins. From: Cesare Lombroso, *Trattato profilattico e clinico della pellagra*, 1892.

This Palgrave Macmillan imprint is published by the registered company Springer Nature Switzerland AG

The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

# CONTENTS

<b>1</b>	<b>Rough Skin: An Introduction</b>	<b>1</b>
	<i>Maize and Its Effects</i>	6
	<i>Pellagra and the Medical Response</i>	11
	<i>About This Book</i>	16
	<i>References</i>	19
 <b>Part I Pellagra</b>		
<b>2</b>	<b>Medical Reactions to a New Disease (The Eighteenth Century)</b>	<b>27</b>
	<i>Early Clinical Descriptions of Pellagra</i>	29
	<i>The Nosological Question</i>	30
	<i>Pellagra's First Priority Dispute</i>	34
	<i>Back to the Surface: Pellagra's Exterior Signs</i>	36
	<i>References</i>	38
<b>3</b>	<b>The Aetiological Turn (The Nineteenth Century)</b>	<b>41</b>
	<i>The Aetiological Turn and the Pellagra Epidemic</i>	42
	<i>Aetiological Arguments</i>	43
	<i>The Nature of Scientific Controversy and Cesare Lombroso's Success</i>	46
	<i>The Dispute's Impact on Pellagra and Pellagrology</i>	50
	<i>References</i>	52

<b>4</b>	<b>The Bacteriological Divide: Pellagra in Italy and the United States (The Twentieth Century)</b>	55
	<i>The Toxicozeist Hegemony</i>	59
	<i>Louis Sambon and His Theory</i>	61
	<i>The Italian Reaction</i>	65
	<i>Pellagra and the Reaction to Sambon in the United States</i>	66
	<i>Pellagra as Deficiency Disease</i>	69
	<i>Conclusion</i>	71
	<i>References</i>	72
<b>5</b>	<b>Interlude: Patient Voices</b>	77
<b>Part II Pellagrous Insanity</b>		
<b>6</b>	<b>Institutionalising Pellagrous Insanity: An Introduction</b>	87
	<i>Manifestations, Symptomatology and Impact</i>	89
	<i>References</i>	96
<b>7</b>	<b>Understanding Insanity: Pellagrous Insanity in Italy and General Paralysis of the Insane in the United Kingdom</b>	99
	<i>Pellagrous Insanity and General Paralysis in the Late Nineteenth Century</i>	102
	<i>Problematic Classifications: The Nosology and Aetiology of Mental Illness</i>	106
	<i>The Physicality of Mental Illness?</i>	111
	<i>Enduring Diagnostic Challenges</i>	113
	<i>References</i>	115
<b>8</b>	<b>Experiencing the Asylum</b>	119
	<i>Introduction</i>	120
	<i>Patient Photography as Clinical Tool</i>	121
	<i>The Patients: Origins, Curability and Treatment</i>	128
	<i>Treating Pellagrous Insanity</i>	133
	<i>References</i>	136
<b>9</b>	<b>Conclusion: Leaving the Asylum</b>	141
	<i>Epilogue</i>	147
	<i>References</i>	149
	<b>Index</b>	167

## LIST OF FIGURES

Fig. 1.1	The crucifixion of Mattio Lovat. From ‘Narrative of the crucifixion of Matthew Lovat, executed by his own hands, at Venice, in the month of July 1805 ... now first translated into English’, <i>The Pamphleteer</i> , 1814	3
Fig. 1.2	Number of pellagrins per 1,000 farm workers, men and women over 15 years of age, 1881. From: Giuseppe Antonini, <i>Pellagra: storia, eziologia, patogenesi, profilassi</i> , 1902	13
Fig. 1.3	Masthead of <i>Il Pellagroso: giornale popolare-amministrativo-politico</i> , a short-lived radical newssheet, published at Castel d’Aria (Mantua) in the mid-1880s	14
Fig. 2.1	Pellagrous desquamation. From: Vincenzo Chiarugi, <i>Saggio di ricerche sulla pellagra</i> , 1814	38
Fig. 3.1	The micro-organisms of spoilt maize. From: Cesare Lombroso, <i>Trattato profilattico e clinico della pellagra</i> , 1892	49
Fig. 4.1	Louis Sambon and pellagrous child. From: Edward Jenner Wood, <i>A Treatise on Pellagra for the General Practitioner</i> , 1912	64
Fig. 4.2	Table of reported pellagra deaths in Italy, 1887–1930 ( <i>Source for data</i> Finzi 1982, p. 412)	71
Fig. 5.1	Portraits of Rosa Davì and Pietro Azzolini from their patient files. San Servolo Servizi Metropolitanì di Venezia	81



Fig. 6.1	An episode of pellagrous insanity ('Le sventure d'Italia: Un dramma della pellagra'). From: <i>La Tribuna Illustrata</i> , 3 July 1904	90
Fig. 6.2	View of San Servolo asylum, c. 1880. San Servolo Servizi Metropolitan di Venezia	91
Fig. 6.3	View of San Clemente asylum. From: Cesare Vigna, <i>Il manicomio centrale femminile di San Clemente: memoria</i> , 1887	92
Fig. 8.1	Pietro Bregolato's patient file. San Servolo Servizi Metropolitan di Venezia	122
Fig. 8.2	Oreste Bertani, album of 'Photographic portraits of the female insane', San Clemente, 1882. San Servolo Servizi Metropolitan di Venezia	126
Fig. 8.3	The 'Comparative album', San Servolo, 1875–87. San Servolo Servizi Metropolitan di Venezia	127
Fig. 8.4	Photograph of Bortolo Basaglia from his patient file. San Servolo Servizi Metropolitan di Venezia	131
Fig. 8.5	Photograph of Rocco Basaglia from his patient file. San Servolo Servizi Metropolitan di Venezia	132
Fig. 8.6	The laundry room at San Clemente, c. 1880. San Servolo Servizi Metropolitan di Venezia	135
Fig. 9.1	Successive photographs from four of Francesca Canale's patient files, 1881–1889. San Servolo Servizi Metropolitan di Venezia	145



## Rough Skin: An Introduction

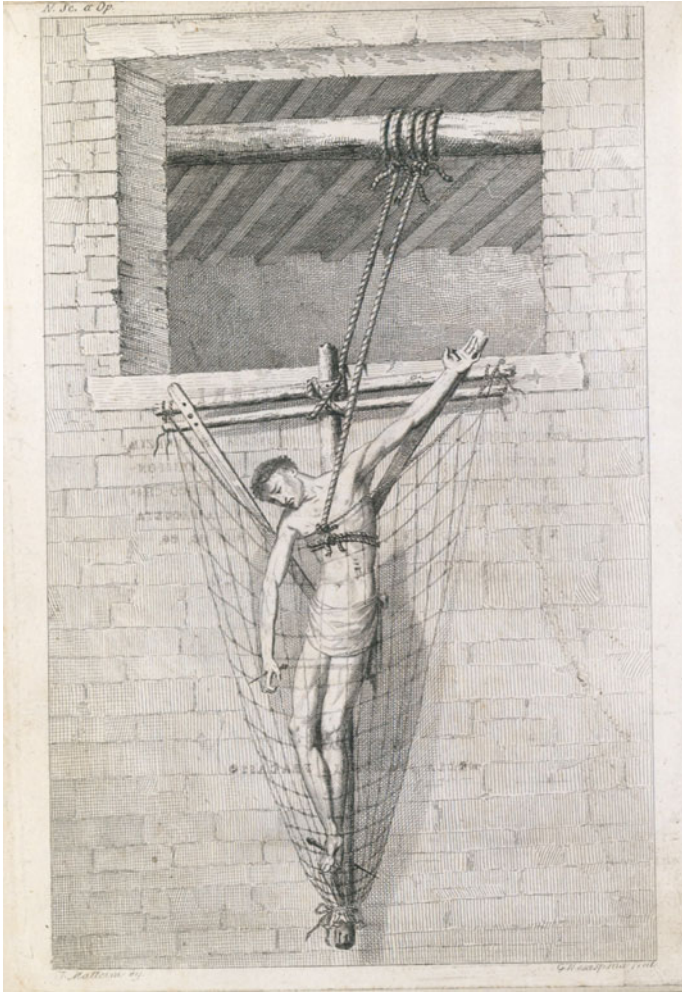
**Abstract** We begin this chapter, and the book, with the tragic story of Mattio Lovat (1806), to introduce the then fairly new and little-understood disease, known in Italy as pellagra—literally, ‘rough skin’, after its primary manifestation. But dermatitis was only the first of the infamous ‘four Ds’, to which we can add diarrhoea, dementia and death. Italy and the United States would be the countries most affected by the disease, but pellagra was either epidemic, endemic or occasional in many other areas where maize cultivation and consumption was widespread. We suggest that what must have seemed like a positive agricultural development—the introduction of the Central American plant maize, with its prodigious yields and its ability to feed so many—had some unintended consequences in Italy over the course of the long nineteenth century. If it became a celebrated part of local culture and diet, because of its very success, maize cultivation altered longstanding landholding patterns and adversely affected peasant conditions and livelihoods. A combination of poverty and meagre diet resulted in endemic pellagra, with an estimated 100,000 sufferers in Italy by the late 1870s. We conclude this chapter by outlining the aims and structure of the book.

**Keywords** Pellagra, history · Rough skin · Impact of maize · Disease of four Ds · Pellagra in Italy

In March 1814, a London-based quarterly periodical called *The Pamphleteer* published the ‘Narrative of the Crucifixion of Matthew Lovat, Executed by his Own Hands at Venice’ (Ruggieri 1814a). The anthology’s publisher, the classical scholar A. J. Valpy, had an eye for the learned and the unusual, but this particular pamphlet was truly startling. It took the form of a medical case history of religious mania, as written by a Venetian surgeon named Cesare Ruggieri. Its protagonist, Matthew Lovat, was a pious young shoemaker in small village of Pieve di Zoldo in the Dolomite Mountains around Belluno (now more famous for its ski resorts). Lovat’s wishes to become a priest had been thwarted because of the family’s wretched condition. He became ill, ‘subject in the spring to giddiness in his head, and eruptions of a leprous appearance showed themselves on his face and hands’. The first sign of insanity came in July 1802, when Lovat, perhaps feeling the ‘stirrings of the flesh against the spirit’, ‘performed upon himself the most complete general amputation’—a castration—throwing ‘the parts of which he had deprived himself from his window into the street’.

Lovat managed to survive the self-inflicted operation, but could not bear the village gossip that resulted, and so migrated to Venice, like many of his countrymen, including his own brother, in search of a better living. Here Lovat was able to practise his trade, but became obsessed with the idea of crucifying himself. He realised his grisly objective in July 1805. The article describes at length the materials and mechanisms Lovat used, which included nailing one of his hands and both his feet to the cross, with which he then managed to launch himself out of a window, and hang suspended there in agony, until he was let down by several passers-by (Fig. 1.1).

One of these was the surgeon Ruggieri, who treated Lovat’s wounds and had him taken ‘to the hospital of St Luke and St John’ (actually Santi Giovanni e Paolo). When Ruggieri asked him why he had done it, Lovat replied: ‘The pride of man must be mortified, it must expire on the cross’. To account for his motivations and to ensure that no one else was incriminated for his actions, Lovat ‘committed his ideas to a slip of paper’. He felt no pain as he recovered, his state of religious insanity blocking the ‘fluid’ in his nerves, Ruggieri explained. In August 1805, Lovat was transferred to ‘the lunatic asylum of San Servolo’, where he ‘became taciturn, and refused every species of meat [food] and drink’. Six months later ‘there appeared some symptoms of consumption’, including faint pulse, weakness and cough. Lovat would ‘remain immoveable’ for long periods and



**Fig. 1.1** The crucifixion of Mattio Lovat. From ‘Narrative of the crucifixion of Matthew Lovat, executed by his own hands, at Venice, in the month of July 1805 ... now first translated into English’, *The Pamphleteer*, 1814

in February 1806 the skin of his face and lower extremities peeled off. On 8 April, his breathing having become laboured, Lovat died.

The tragic story of Mattio Lovat, to give him his Italian name, has been the subject of a bestselling historical novel by Sebastiano Vassalli, alas never translated into English (Vassalli 1992). And Ruggieri's narrative is known to historians of psychiatry as one of the first detailed case histories of mental illness, here presented as an example of 'religious mania' (Galzigna 1992; Böhmer 2018). It appeared in Italian in 1806 and was republished in 1814 (Ruggieri 1814b), prompting translations in French, German and the English version from which we have quoted. What is less well-known is that Ruggieri was also using his pamphlet to identify a singular underlying feature of Lovat's insanity: a relatively new and still little-understood disease, known in Italy as *pellagra*—from the words *pelle agra*, literally 'rough skin', after its primary manifestation. This point is completely lost in the English translation, which refers to Lovat's peeling of the skin as 'leprosy'. Valpy was not to blame for the confusion. In fact the term 'pellagra', as well as knowledge about its devastating effects, would not become known in England until three years later, when the well-travelled London doctor Henry Holland published 'On the pellagra, a disease prevailing in Lombardy' (Holland 1817).

For medicine today, pellagra is a severe wasting illness caused by a deficiency of vitamin B3 (nicotinic acid, or niacin) in the diet, or its amino acid precursor, tryptophan. This is usually due to a reliance on maize flour (corn meal) as the staple foodstuff, which although it contains niacin, it is in a form that cannot be assimilated by the body. Its signs and symptoms form the 'four Ds': dermatitis, diarrhoea, dementia and death. Its incidence today is quite rare because of increased awareness and strategies such as vitamin fortification. If you have ever wondered why there is niacin in your flour, processed bread or morning cereal, now you know!

In the period covered by this book, Italy and the United States were the countries most affected by the disease, but pellagra was either epidemic, endemic or occasional in many other areas where maize cultivation and consumption was widespread, and were in some sense involved in the debates (and tragic effects) explored in this book. This included parts of France (Traimond 1992), Portugal (Monteiro et al. 1946), Spain (García Guerra and Álvarez Antuña 1993), Romania (Scrob 2020), Egypt (Ellinger et al. 1937) and South Africa (Viljoen et al. 2021). Today, sporadic cases may occur in people with socio-economic difficulties,

inadequate diets, alcoholism and other diseases that block the absorption of niacin. That said, pellagra has occasionally re-appeared in more widespread form during emergency situations, such as famines brought on by war—for instance during the Spanish civil war of the 1930s (del Cura and R. Huertas 2007) or, in times closer to our own, in war-torn Angola in 1999 (WHO 2000).

The exact causes of pellagra would not be known until the 1930s. For the state of knowledge at the start of the nineteenth century, we need to return to Henry Holland. And this is necessary if we are to understand why the people in this book acted and suffered as they did. Holland's article was the result of several trips to Lombardy and, he says, extensive reading of the Italian literature on the subject. He noted how pellagra was 'confined almost exclusively to the lower classes of people, and chiefly to the peasants'; how the symptoms appear first during spring, only to disappear come late summer; how the disease would recur every spring, the symptoms getting worse each year; and how 'the constitutional malady shews itself under a variety of forms'. Other doctors would be intrigued, indeed bewildered, by the range of symptoms sufferers exhibited, which appeared to vary from place to place and from person to person, even to point of appearing contradictory.

The insanity that pellagra caused was its most disturbing feature. 'In the hospitals appropriated to the reception of such cases', Holland remarked, 'the *Pellagrosi* afford a melancholy spectacle of physical and moral suffering, such as I have rarely had occasion to witness elsewhere'. When he visited the lunatic asylum in Milan, of the 500 patients of both sexes confined there more than one-third were pellagra victims. Worse still was the fact that the public hospitals were incapable of dealing with 'the vast numbers' of sufferers, so that most 'perish in their own habitations, or linger there a wretched spectacle of fatuity and decay' (Holland 1817).

Clear to everyone was how 'the evil is augmenting at this moment in a very alarming degree', such that 'there are districts in the Milanese territory, where the proportion of *pellagrosi* is one out of five or six in the whole population'. But how was it spread? Holland singled out the hereditary factor, how 'the disease continues in families, with an evident predisposition derived from parents who have suffered under it'. The wretchedness of peasant living conditions and the meagre diet, despite being 'in one of the more fertile portions of Europe', is believed to be 'the principal cause' of the disease 'by all those with whom I have conversed on the subject, and almost all the writers on the pellagra'. In the previous

fifty years, the condition of the peasantry had worsened significantly. This was the result of wars, ‘changes of political state’ and the variable systems of government and taxation that resulted, ‘a decaying state of commerce, and a faulty system of arrangement between the landlords and the cultivators of the soil’. In particular, this ‘squalid wretchedness and emaciation of the peasantry’, ‘appears to have increased in a tenfold ratio during the last two years’, the result of several successive bad harvests, wars and political changes. Holland notes how several Italian investigators have singled out ‘the increasing use of maize as an article of food’ as a possible factor ‘in the extension of pellagra in this part of Italy’. He is sceptical, however, noting the areas where maize is a staple but where pellagra has not been identified—yet.

Finally, on the issue of medical treatment, Holland expressed what the core issue was—and which would remain so throughout the years covered by this book. ‘The truth is’, he wrote, ‘that in a malady, thus extensively prevalent among the lower classes, and depending chiefly, as it would seem, on their diet and mode of life, no ordinary methods of cure can be adopted with a reasonable prospect of success; the evil requiring those more general preventive means, which it is out of the power of medicine to afford’. Their poverty precluded any changes in diet or medical treatment in the home. In any case, medical treatments were limited to responding to the symptoms, like the skin peeling and the diarrhoea. Provision had been made for supporting a certain number of sufferers in insane asylums but this ‘has done little in mitigating the evil’. Holland realised that it was ‘not a light task to remove causes which affect a whole community of people’ (Holland 1817).

## MAIZE AND ITS EFFECTS

If we have summarised Holland’s perceptive article at length, it is because it provides a useful introduction to some of the key issues we explore in this book. We aim to provide an exploration, firstly, of the medical responses to a new disease epidemic and attempts to understand and treat it; and, secondly, of the patient experience of that disease, as it ravaged through society during the course of what has been termed the ‘long nineteenth century’. Eric Hobsbawm famously used this label in a trilogy of works to characterise a unitary period of Western history going from the English industrial and French revolutions (1789) through to the start of World War I (1914): modernity, with all its contradictions, its notions

of progress and its darker side (Schlimm 2019). The label encapsulates the approximate start and end dates for pellagra as it became endemic in Italy.

What must have seemed like a positive agricultural development—the introduction of the Central American plant maize, with its prodigious yields and its ability to feed so many—had some unintended implications in Italy over the course of the long nineteenth century. On the one hand, the ‘glory of maize’ (Messedaglia 2008) became a celebrated part of local culture and maize polenta a welcome addition to the local diet. On the other hand, because of its very success, maize became ‘the despot of our countryside’ (Balardini 1882, p. 4). Its cultivation and consumption altered longstanding landholding patterns and adversely affected peasant conditions and livelihoods.

Italy, like the rest of Europe, owes a lot to what the environmental historian Alfred Crosby first called the ‘Columbian exchange’ (Crosby 1972). Columbus inadvertently set in train the biological unification of the planet, bringing together two agricultural systems that had evolved separately hitherto. The result was an exchange of the fruits of the earth that continues to this day; an exchange not just of agricultural products, but of foodways too; the exchange began between Europe and the Americas, but quickly extended to Africa and Asia. As a result of this process, Europe acquired maize, tomatoes, potatoes and most types of beans. For their part, the Americas would acquire wheat, rice, bananas, citrus fruits, coffee and cane sugar. Asia got bananas, papayas, potatoes and chillies, whilst Africa acquired maize, manioc and potatoes. In Italy, as elsewhere, each of these foodstuffs—tomatoes, potatoes, peppers, maize—has its own historical trajectory (Sentieri and Zazzu 1992).

Because maize is such a prodigious food source, it has been called a ‘coloniser’, in particular in Europe and Africa. It has been blamed for nourishing the slave trade (Warman 2003) and causing a transformation in Africa’s ecology (McCann 2005). The arrival and spread of maize into many parts of the northern Italy was no less dramatic: a ‘revolutionary irruption’, in the words of the economic historian Giovanni Levi (Levi 2014). Unlike the reception of other New World plants in Italy, such as the tomato and potato, which was slow and problematic (Gentilcore 2010, 2012), that of maize was quite relatively quick. Maize was the first new world plant to be represented in Italian art, within a few years of the Europeans’ initial encounter with it (Janick and Caneva 2005). It was the first to be cultivated as a curiosity in botanic and pleasure gardens, as an



‘exotic’. And it was the first to be widely cultivated, especially in northern Italy (Cazzola 1991; Finzi 2009).

It was not going to rival wheat in favour and esteem, but it would rival and eventually replace many of the so-called ‘inferior’ cereals, like millet and buckwheat. A map from 1549 shows part of an estate near Vigonza, in the flat countryside around Padua (Gasparini 2002). The field is planted with maize, perhaps the earliest Italian representation of a maize field. That said, this was not yet an established cultivation, but an occasional one. It was something suited for marginal lands and in emergency situations, such as famine, not a part of the normal cycle of production and crop rotation. But that would come: by the end of the nineteenth century two million hectares were given over to maize cultivation, producing two million tonnes, feeding a per capita consumption of 35 kilos per year.

Its agricultural success was due to several reasons. The first was yield. Although maize yields were never as astounding as some European proponents made out, estate accounts do suggest that in the Italian maize heartland, the Veneto, during the eighteenth century, the ratio of maize to wheat yield was in the range of 6:1. The second reason was its growing cycle: both wheat and maize could be grown in the same year, one after another, so that if the wheat harvest failed, there might still be time to get a maize crop in. For landowners, it was fast becoming an important cash crop, rivalling wheat. For farm labourers and smallholders, maize had other, secondary uses. The pruned tops of the plant could be used as livestock forage; the stalks, once macerated, could supply bedding for the animals; stalks and cores made good kindling, once dried; the leaves were used as bedding material, the stuffing inside mattresses; and, of course, the kernels provided abundant and filling animal feed.

Its usefulness as famine food was soon apparent. With every harvest failure—and they came frequently—maize cultivation expanded further; maize was more productive than other inferior cereals and more tolerant to the extremes of the Mediterranean climate. From famine food, it became everyday food. The assimilation of maize was so unproblematic that local terms for it tended to associate maize with plants already known. In this way, the new word for maize replaced the previous plant, in people’s vocabulary just as it was doing in their fields and on their plates. In the Veneto they called maize *formentón*, the word previously used to indicate buckwheat. Polenta went from being grey (buckwheat) to yellow

(maize), as the plant became naturalised in the region, an established part of local cultivation and consumption.

By the eighteenth century, maize was being grown on a large scale in estates of Italy's Po valley, where it had become part of the crop rotation and a staple element of the local peasant diet. Its quick assimilation was due to the way it could be easily accommodated into established food habits. Like other wheat substitutes, attempts were made to use maize in bread-making, but the results were not especially encouraging. In parts of central and southern Italy, it was made into a flatbread, along the lines of modern *focaccia*. But the greatest success of all was obtained by using the maize flour in another, traditional manner—polenta.

The well-off developed their own more sophisticated preparation methods, with rich seasonings and accompaniments. As a 1775 agricultural treatise said of polenta: 'this rustic foodstuff is eaten by the upper classes, rendered more refined by the use of the usual seasonings' (Pilati 1775). The poor had to be content with the simple addition of water to their maize flour, with little or nothing to go with it. Maize polenta was cheap and filling and so quickly became a staple of the peasant diet in areas where it was grown. Its consumption—in its unadorned monotony—became associated with the peasant condition (Bernardi 1991, pp. 335–336). In Parma, a traditional folk rhyme sang of a newlywed peasant woman who had dreams above her station: 'she wants only to sleep in freshly laundered bedlinen/she won't eat polenta if there's no cheese served with it/she doesn't want to do the housework...' (Petrolini 1975, p. 286). She will be in for a rude awakening, the rhyme seems to imply.

The production and consumption of this new-found staple had two unforeseen costs, on the economy and on health. By the 1870s, maize was the number one crop in six provinces of the newly united Italy, in terms of land area (MAIC 1879). In the northern regions of Piedmont, Lombardy, Veneto, Emilia and Romagna, the product of maize fields represented 41% of total production, against 33% for wheat and 25% for rice. The increased cultivation of maize brought with it a structural shift in the Italian countryside, every bit as significant as the agricultural revolution in eighteenth-century England. It was good for landowners and millers and certainly good in terms of production and yield; but not so good for the farm labourers themselves. Peasant working conditions declined, as peasants were transformed from the tenant farmers of the traditional tenant-farmer (or *mezzadria*) system to renters (in cash); or

else they became field hands, working for a wage rather than for a part of the production (Monti 1998). All of this at a time when increasing numbers of people were chasing too few agricultural jobs and too little land (Zamagni 1993).

By the early nineteenth century, maize became part of the cash economy in parts of northern Italy. Landowners speculated on what to grow, what to sell. They expanded the land area devoted to maize cultivation, at the expense of fallow and meadow land. Peasants ended up working for a wage, rather than for a part of the production; worse still, they increasingly had to pay in cash to rent their land. The relationship between landlord and tenant changed as a result. What the peasant was able to produce for himself was often owed to the landlord to pay off loans given or to help pay the rent. In a downward spiral, the tenant got further into debt and became further dependent on maize production. The best he could hope for was a ‘good year’, a bountiful maize crop, which allowed him to pay off some of his debts.

Peasants became ‘trapped’ in an economic system from which the only means of escape was emigration (Sori 1979; Bevilacqua 2001). This was *mass* emigration, beginning one of the largest voluntary movements of people in world history (Cohen and Federico 2001). By the end of the nineteenth century, one-third of Italy’s emigrants come from the Veneto; almost two million people left the Veneto in the last twenty-five years of the century.

This was the economic cost; there was also a health cost. Maize played a part in that nineteenth-century paradox well-known to demographers: a deterioration in the ‘biological’ standard of living hidden by economic growth and population increase (Livi Bacci 1990). Maize polenta became more than a filling staple; it became virtually the only food consumed during winter and spring by large sectors of the agricultural population. Its effects were not confined to maize-producing areas. Thus in Romagna, pellagra was first encountered amongst the labourers in the rice paddies, who fed themselves largely with polenta rather than with the fruit of their own labours because it was much cheaper (Cerasoli 2020).

The native populations of central and north America, where maize comes from, prepared it by soaking the kernels in ash, laboriously turning it into what in Nahuatl is known as *nixtamal*—a pottage which could either be consumed as it was or transformed into tortillas (Pilcher 2017). Hence the modern-day label of ‘nixtamalisation’ for this process, by means of which the chemical compounds niacin and tryptophan are

made bio-available. Alas, this preparation method did not follow maize across the Atlantic. Instead Europeans—with their constant worries about famine and the cultural centrality of bread and flour—sought to treat maize like a cereal. They dried the cobs, separated the kernels and milled them into flour. As lovely as the polenta made from this flour undeniably was (and is), its key nutrients could not be assimilated by the body.

Pellagra was the result.

## PELLAGRA AND THE MEDICAL RESPONSE

If pellagra was unknown in early nineteenth-century England, it had been a fact of life in north-eastern Italy since at least the mid-eighteenth century. Peasant names for the disease suggest it was already widely known amongst the peasantry before Italian physicians ‘discovered’ it in the late 1760s—evidently unaware that a Spanish physician had already described the new disease in the 1730s (García Guerra and Álvarez Antuña 1993). Medical investigators soon adopted the popular label for the disease, *pellagra*. This conditioned explanations of, and investigations into the disease for some time to come. At the same time, contemporaries were struck by how the appearance and spread of the pellagra epidemic coincided with the start and spread of maize cultivation and consumption there. That said, the precise link between maize and pellagra, its nature as a deficiency disease, and an effective treatment for the terrible scourge, all eluded medicine until the 1930s. And whilst debate continued over the exact causation, the number of sufferers grew, reaching epidemic proportions in the late nineteenth century and early twentieth centuries (De Bernardi 1984a, 1984b; Giannaio 2010, 2011; Cerasoli 2020).

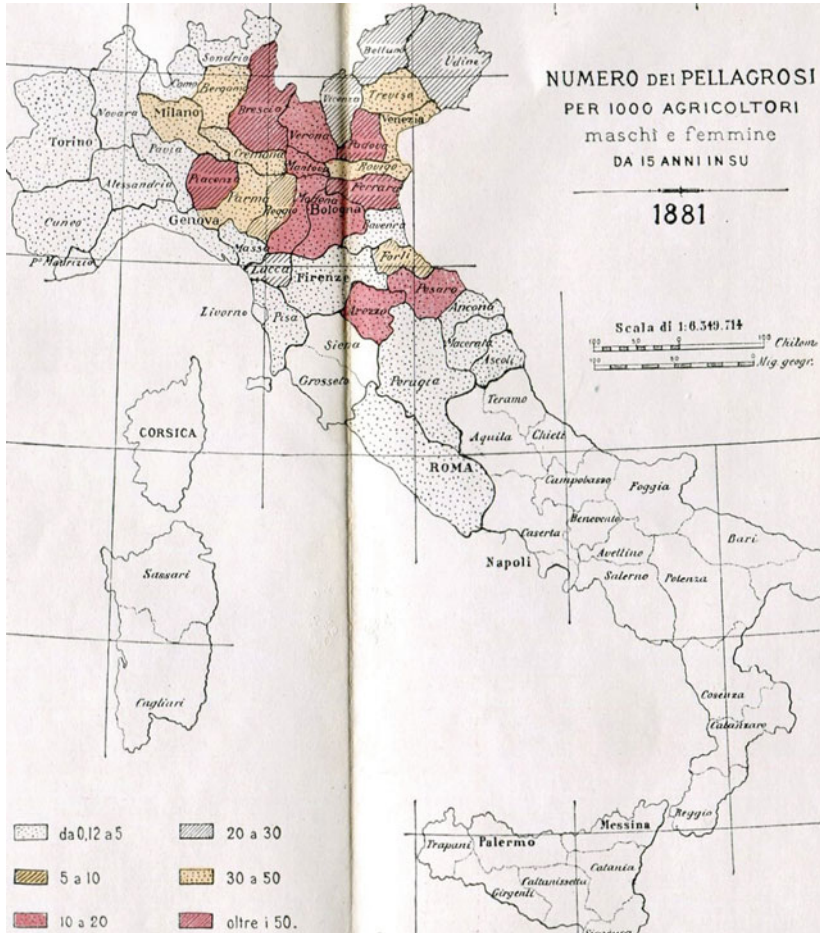
In Lombardy in 1830, an estimated 14 per 1,000 inhabitants in maize-growing areas were pellagra sufferers. By 1879, there were 97,855 documented pellagrins (pellagra sufferers). More than a third (29,836) of these were in the Veneto region, which is the main focus of our book. In affected areas of the country—to put it another way—16 out of every 1,000 people over the age of 15 engaged in agriculture was a sufferer. The figure in the Veneto was twice that (MAIC 1879, pp. 324–5). And these were only the officially documented cases; actual morbidity was estimated at twice the official numbers (Morpurgo 1882, p. 173). Moreover, the epidemic seemed to be spreading, appearing further south, into Tuscany and the Marche, even down to the gates of Rome, only recently made the capital of a newly united Italy (Fig. 1.2). The disease became entrenched

in society, endemic. In addition to causing debility and insanity, pellagra killed. Pellagra-related morbidity and mortality peaked in the 1880s and 1890s. In the Veneto region, pellagra was responsible for 1,238 registered deaths in 1890. In Italy, at the end of the century, almost half of all deaths due to pellagra occurred in the Veneto (Gregorj 1893, p. 20; Porisini 1979, p. 13).

Pellagra was not just a disease of peasants; it was a disease of *poor* peasants, with day labourers and landless peasants the worst off, as contemporaries observed. But it attacked even tenant farmers, or *mezzadri* (Porisini 1979). As a chronic and debilitating disease, pellagra became a fact of life, destroying families. It exacerbated the negative effects of maize cultivation, by rendering peasants unfit for work. There was also a gendering of the disease; women suffered from it more than men and were more often institutionalised in asylums, as we shall see in Part II. The disease overwhelmed hospitals and insane asylums. At a time when increasing socio-economic marginalisation was a leading factor behind insanity and institutionalisation, the proportion of inmates diagnosed with ‘pellagrous mania’ rose to 15% nationally (Giudice 2009); but of course the figure was significantly higher in maize-consuming areas.

People—peasants in particular—lived in fear of contracting the disease, with the dire effects it would have on them and their families, in particular since there was no cure. A pellagrin admitted to the Forlì insane asylum, Raffaele Calandrini, according to his patient record, ‘shows himself very worried about the epidemic desquamation on his hand, and of its terrible significance, well known even amongst the general public’ (Cerasoli 2020, p. 105). We can certainly appreciate this; we have all learned to recognise and dread the varied symptoms of COVID-19.

The Italian government was effective in gathering evidence about the pellagra problem, if perilously slow to act on it (MAIC 1879; Jacini 1881–1886). Social solutions, which might have enabled the poor to eat other more nourishing foods, were deemed at the very least disruptive and at the most revolutionary. It was time of agrarian crisis, price instability and widespread social unrest (De Bernardi 1984b, pp. 25–32; Crainz 1994, pp. 75–78). A short-lived radical newssheet of the day even called itself *Il Pellagroso* (The Pellagrin) (Fig. 1.3). Its masthead depicted an angry peasant, holding a slice of polenta and a bowl of water, surrounded by the tools of his trade like so many weapons. The newspaper’s editor (Tito Melesi) threatened: ‘The title of this periodical may get up some people’s noses. ... But is it honest to hide this shameful sore? It is time to end



**Fig. 1.2** Number of pellagrins per 1,000 farm workers, men and women over 15 years of age, 1881. From: Giuseppe Antonini, *Pellagra: storia, eziologia, patogenesi, profilassi*, 1902

the lies. We aim to sow discord between labour and capital, to eliminate forever from our society the inhumane market of the worker's toil'.

The elites, medical and otherwise, did not want to fan the flames. Whilst working towards the social good, medical solutions tended to be



Fig. 1.3 Masthead of *Il Pellagroso: giornale popolare-amministrativo-politico*, a short-lived radical newsheet, published at Castel d'Aria (Mantua) in the mid-1880s

palliative—if not downright harmful, given the medical theories of the time. Take, for example, a cheap pamphlet published in Milan in 1869, entitled *Curing pellagra (La pellagra si cura)* (Lombroso 1869). It was one of two dialogues its author wrote for a broad readership.

The dialogue is between a physician and a poor peasant woman, Tonia. It starts brusquely, with the doctor informing Tonia that her husband's case is incurable, diagnosed with 'what we call pellagic typhus'. He tells Tonia that had Pietro's condition been diagnosed earlier 'he would still be hoeing in the fields, one of the village's strongest workers'; but delivering the sad message also allows the doctor to stress the importance of treating the disease early, since both Tonia and her infant son are also pellagra sufferers. Tonia makes light of her troubles: what is a bit of indigestion, itching along her back and burns on her hands and feet? To which the doctor replies that that was exactly Pietro's reaction to his own glassy vision, dizzy spells, diarrhoea and peeling skin; and now his condition is too far advanced to be treated. Tonia complains that she can't even consider treatment for her and her son: 'do you think that salamis are raining down from our granary and that Barbera and Chianti wines are flowing in our ditch? ... Would you have me beg for charity from the few better-off people in the village, who only give it out once a year, while we suffer from the disease all year round?'

The doctor replies that he is aware of her condition and informs her that, as the result of trials carried out 'in Turin, Perugia, Florence and Brescia', his colleagues have found another way to cure pellagra. The method 'is much cheaper and better suited to your poverty', since it does

not involve food it will not hurt her purse. Tonia's curiosity aroused, the doctor tells her that, for her infant son, all she need to do is towel-rub his back, chest, stomach and underarms two or three times a day with a salt-water solution. For herself, as an adult, the treatment is different; it involves a small amount of arsenious acid, a powder which she is to dissolve in some boiled water and wine spirit, and swallow three spoonfuls of the solution a day. Tonia asks the doctor if it would work on her husband, but he replies that it is too late for that; for Pietro, we would need a miracle and miracles 'do not happen and have never happened in medicine', he instructs her. So Tonia asks whether the powder would help her poor, elderly neighbour Paola, 'who shakes all over and suffers sharp pains in her legs, arms and back'. The doctor replies that in Paola's case age is a factor and she would need to take another, inexpensive remedy: lead (acetate) dissolved in water, but its effects are not as sure or as fast.

Finally, Tonia remembers to ask about the treatment for her diarrhoea, and the doctor recommends that she 'put the polenta to one side and buy four ounces of beef, pound it and cut it fine, sweeten it with sugar, and eat twice a day'. But then he notes that Tonia doesn't have enough money for this treatment and suggests that she goes to the pharmacy and buys a grain of calomel [mercurous chloride], has the pharmacist divide it into five, and takes this every two hours until the flow stops. And there the doctor's visit ends.

Aside from the patronising tone of the dialogue, it may have been just as well that most pellagra sufferers and their families would have been too poor to afford the (harmful) remedies the doctor prescribed! And, of course, pellagra treatment was nowhere near so straightforward as Lombroso made out. Even contemporaries were aware of that. As one nineteenth-century reader wrote in a copy of the dialogue now in the Marciana Library, Venice: 'It would seem so easy to get better from pellagra! But the facts speak with an inexorable language of their own, very different'.

Then, without contemporaries quite understanding why, deaths due to pellagra began to decline. In the period 1908–1910, average yearly deaths were half what they had been ten years earlier (Cohen and Federico 2001; Helstosky 2004).



## ABOUT THIS BOOK

The historical study of pellagra in English has tended to focus on the US experience of the disease, which has explored pellagra as an American problem, in search of an American solution (Etheridge 1972; Roe 1973; Bollet 1992). In addition to determining the geographical focus, this has meant a limited chronological one: that is, the first three decades of the twentieth century, when pellagra was epidemic in the parts of the southern United States, culminating in the experimental work of Joseph Goldberger to identify its causation and treatment during the 1920s, which lay the basis for eventual success in defeating the disease. Similarly, Italian historiography (almost exclusively in Italian) has focused on the Italian experience of pellagra, mainly during the nineteenth century. It has tended to do so from a social history and demographic perspective, within the context of explorations of agricultural change and the marginalisation and impoverishment of the Italian peasantry (De Bernardi 1984a; Finzi 2009; Giannaio 2010, 2011). If the medical history of pellagra in the United States has been well served (Leslie 2002; Marks 2003), this has been much less the case for Italy (De Bernardi 1984b; Cerasoli 2020). The asylum experience of pellagrous insanity has been the subject of a handful of important case studies (Finzi 1982; Ferrari 1984, 1985; Salviato 2002), but we lack detailed comparative analysis of the two Venetian asylums, San Servolo and San Clemente. The medical history of pellagrous insanity—contemporary attempts to understand its causes and manifestations, in the context of mental diseases more broadly—has hardly been explored. These are the gaps this books aim to fill.

We have divided our exploration into two parts. Part I focuses on how the Italian medical community responded to pellagra. Given that the disease came to be considered a ‘social question’, a ‘disease of poverty’, was Italian medical science committed to it? How does it compare to the campaign to rid Italy of malaria (Snowden 2006), conducted at much the same time, but with much more fanfare and greater success? What inroads did medicine make in understanding and treating the disease?

We approach the shifting medical and scientific discourse on pellagra by focusing on three separate scholarly disputes, which together cover the entire history of the illness in Italy over the long nineteenth century: significant episodes in the ongoing and often heated and personalised debate on the subject, but which had little effect on the number and suffering of pellagrins. The three disputes will be used as microhistories,

to illustrate the engagement of developing medical science to the illness, and will be compared to the more practical role of the asylum physicians and local district doctors, who had most face-to-face contact with sufferers.

If left untreated, pellagra leads to forms of insanity, often violent. In Italy, as we shall see in Part II of this book, local psychiatric hospitals were the only concrete form of treatment offered to pellagrins by the authorities. But before they would even treat it, asylum doctors were faced with a quandary: how to classify, explain and diagnose pellagrous insanity, at a time when pellagra itself was not fully understood? We examine this question in chapter six, by means of a comparison with responses to general paralysis of the insane in the United Kingdom, at roughly the same time. Although the asylums' function was primarily custodial, the somewhat better diet they provided to inmates was sometimes enough to affect an improvement—at least whilst sufferers remained institutionalised. In chapters seven and eight, we offer a systematic overview of how these institutions treated pellagrous insanity. The running of these asylums was left up to local authorities; and it was they, too, who undertook what little official response was offered to the pellagra epidemic: the setting up of provincial pellagrological commissions, the provision of public maize desiccating plants, health stations and soup kitchens for sufferers, education and other limited forms of relief.

For the research underpinning this book, we have consulted a wide range of printed and archival sources: (1) the writings of Italian medical investigators into the causes, classification, diagnosis and treatment of both pellagra and pellagrous insanity; this includes medical treatises, asylum reports, articles and correspondence; (2) the proceedings of the Italian Pellagrological Congress, which met between 1899–1922, and the main scientific journal in the field, the *Rivista pellagologica italiana*, published 1900–1921; (3) newspapers, like *L'Eco di Bergamo*, which frequently reported pellagra-related stories; (4) the archival records, and in particular the thousands of patient files, of the two main psychiatric hospitals of Italy's Veneto region, San Clemente (for women) and San Servolo (for men). Located on two small islands in the Venetian lagoon, the institutions served as the regional insane asylums for men and women, respectively, from their founding in the nineteenth century until their closure in 1978. This resulted in the creation of a data set, deposited at the UK Data Service: *VMAD: The Venetian Mental Asylums Database* (Priani and Gentilcore 2016). It covers the period 1842–1912 for San

Servolo and 1873–1912 for San Clemente, sampling one year in five, and is based on a total of 5,709 patient files—of which 1,587 relating to the pellagrous insane, 830 men and 757 women.

That said, our approach is a mixture of the quantitative and the qualitative. This book brings together the different methods and approaches of a range of disciplines—economic and social history, agrarian history, environmental history, history of medicine and science, the history of psychiatry and mental illness—in order to reconstruct the impact of a single food plant (maize) and a single disease (pellagra) over the long nineteenth century. Our aims in this book are various: to set pellagra and pellagrous insanity in a wider context of man-made or societal diseases, related to poverty and diet; to contribute to recent efforts to transnationalise Italian history; to explore how medical and scientific research was carried out during the long nineteenth century and the uncertainties this engendered, in terms of classification, explanation, diagnosis and treatment; to explore the experience of pellagrous insanity from the sufferer’s point of view and its social and economic ramifications for peasant families; to add to our knowledge of the history of mental illness and its treatment in Italy.

After careful consideration, we have decided to report patient names in full, in an attempt to restore some sense of dignity to them, even if only posthumously. We appreciate that records of mental illness are potentially sensitive and need to be approached carefully. Our findings are based exclusively on records in the public domain, housed in publicly accessible archives, with a closure period that has well since passed.

All translations are our own, unless stated otherwise.

**Acknowledgements** This book emerges out of a research project (2013-16) funded by the Economic and Social Research Council (UK), *Rough Skin: Maize, Pellagra and Society in Italy, 1750-1930* (ES/K010212/1), and held in the School of History, Politics and International Relations at the University of Leicester. The previous publications on which we have based this book are listed in the Bibliography.

We wish to thank Fiora Gaspari, archivist, and Luigi Armiato, director, of the Archivio dell’Ospedale psichiatrico provinciale di San Servolo di Venezia (Fondazione San Servolo Servizi Metropolitan di Venezia); Professor Matt Smith for encouraging us to develop and re-work our disparate publications into book form; and the two anonymous readers for their insightful comments and suggestions.

## REFERENCES

- Balardini, L. 1882. *Relazione sulle cause della pellagra e sui mezzi per prevenirla e possibilmente curarla*. Brescia: Apollonio.
- Bernardi, U. 1991. *Abecedario dei villani. Un universo contadino veneto*. Treviso: Centro Biblioteche Villorba.
- Bevilacqua, P. 2001. Società rurale e emigrazione. In *Storia dell'emigrazione italiana*, ed. P. Bevilacqua, A. De Clementi, and E. Franzina, vol. 1, 95–112. Rome: Donzelli.
- Böhmer, M. 2018. *The Man Who Crucified Himself: Readings of a Medical Case in Nineteenth-Century Europe*. Leiden: Brill.
- Bollet, A.J. 1992. Politics and Pellagra: The Epidemic of Pellagra in the U.S. in the Early Twentieth Century. *Yale Journal of Biology and Medicine* 65: 211–221.
- Cazzola, F. 1991. L'introduzione del mais in Italia e la sua utilizzazione alimentare (sec. XVI–XVIII). *PACT*, 26, *La préparation alimentaire des céréales*, ed. D. Fournier, 109–127.
- Cerasoli, G. 2020. *Mais e miseria. Storia della pellagra in Romagna*. Cesena: il Ponte Vecchio.
- Cohen, J., and G. Federico. 2001. *The Growth of the Italian Economy, 1820–1960*. Cambridge: Cambridge University Press.
- Crainz, G. 1994. *Padania: Il mondo dei braccianti dall'Ottocento alla fuga dalle campagne*. Rome: Donzelli Editore.
- Crosby, A. 1972. *The Columbian Exchange: Biological and Cultural Consequences of 1492*. Westport, CN: Greenwood.
- De Bernardi, A. 1984a. Pellagra, Stato e scienza medica: la curabilità impossibile. In *Storia d'Italia. Annali 7. Malattia e medicina*, ed. F. Della Peruta, 681–704. Turin: Einaudi.
- De Bernardi, A. 1984b. *Il mal della rosa. Denutrizione e pellagra nelle campagne italiane tra '800 e '900*. Milan: Franco Angeli. [https://www.academia.edu/11682061/Alberto\\_De\\_Bernardi\\_Il\\_mal\\_della\\_rosa\\_Denutrizione\\_e\\_pellagra\\_nelle\\_campagne\\_italiane\\_tra\\_800\\_e\\_900\\_Milano\\_Franco\\_Angeli\\_1984b](https://www.academia.edu/11682061/Alberto_De_Bernardi_Il_mal_della_rosa_Denutrizione_e_pellagra_nelle_campagne_italiane_tra_800_e_900_Milano_Franco_Angeli_1984b).
- del Cura, M.I., and R. Huertas. 2007. *Alimentación y enfermedad en tiempos de hambre: España, 1937–1947*. Madrid: CSIC.
- Ellinger, P., A. Hassan, and M. Taha. 1937. Pellagra in Egypt. *The Lancet* 230: 755–758.
- Etheridge, E. 1972. *The Butterfly Caste: A Social History of Pellagra in the South*. Westport, CT: Greenwood.
- Ferrari, M. 1984. I folli pellagrosi in provincia di Milano tra Ottocento e Novecento. *Studi Bresciani* 5: 70–117.
- Ferrari, M. 1985. Pellagra e pazzia nelle campagne reggiane. *Sanità, Scienza e Storia* 1 (1): 169–212.

- Finzi, R. 1982a. La psicosi pellagrosa fra la fine del '800 e gli inizi del '900. In *Follia, psichiatria e società. Istituzioni manicomiali, scienza psichiatrica e classi sociali nell'Italia moderna e contemporanea*, ed. A. De Bernardi, 284–297. Milan: Franco Angeli.
- Finzi, R. 2009. 'Sazia assai ma dà poco fiato'. *Il mais nell'economia e nella vita rurale italiane (secoli XVI–XX)*. Bologna: CLUEB.
- Galzigna, M. 1992. *La malattia morale. Alle origini della psichiatria moderna*. Venice: Marsilio. <http://www.psychiatryonline.it/node/3373>.
- García Guerra, D., and V. Álvarez Antuña. 1993. *Lepra Asturiensis: La contribución asturiana en la historia de la pelagra (siglos XVIII y XIX)*. Madrid: CSIC.
- Gasparini, D. 2002. *Polenta e formenton. Il mais nelle campagne venete tra XVI e XX secolo*. Sommacampagna: Cierre.
- Gentilcore, D. 2010. *Pomodoro! A History of the Tomato in Italy*. New York, NY: Columbia University Press.
- Gentilcore, D. 2012. *Italy and the Potato: A History, 1550–2000*. London: Continuum.
- Giannaio, M. 2010. *L'impact démographique des crises sanitaires et nutritionnelles des sociétés anciennes: le cas de la pellagre en Italie*. PhD thesis, University of Nice. Villeneuve d'Ascq: ANRT.
- Ginnaio, M. 2011. Pellagra in Late Nineteenth Century Italy: Effects of a Deficiency Disease. *Population* 66 (3): 583–609. <https://www.cairn-int.info/journal-population-2011-3-page-583.htm?WT.tsrc=pdf>.
- Giudice, G. 2009. *Un manicomio di confine. Storia del San Martino di Como*. Rome-Bari: Laterza.
- Gregorj, G. 1893. *La pazzia e la pellagra nella provincia di Treviso: studio statistico*. Treviso: Zoppelli.
- Helstosky, C. 2004. *Garlic and Oil: Politics and Food in Italy*. Oxford: Berg.
- Holland, H. 1817. On the Pellagra, a Disease Prevailing in Lombardy. *Medico-Chirurgical Transactions* 8: 315–346. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2129002/>.
- Jacini, S. 1881–1886. *Atti della Giunta per la inchiesta agraria e sulle condizioni della classe agricola*, 15 vols. Rome: Forzani.
- Janick, J., and G. Caneva. 2005. The First Images of Maize in Europe. *Maydica* 50: 71–80. <https://hort.purdue.edu/newcrop/firstimages.pdf>.
- Leslie, C. 2002. "Fighting an Unseen Enemy": The Infectious Paradigm in the Conquest of Pellagra. *Journal of Medical Humanities* 23: 187–202.
- Levi, G. 2014. The Diffusion of Maize in Italy: From Resistance to the Peasants' Defeat. In *Global Goods and the Spanish Empire, 1492–1824*, ed. B. Aram and B. Yun-Casalilla, 100–116. Palgrave Macmillan.
- Livi-Bacci, M. 1990. *Population and Nutrition: An Essay in European Demographic History*. Cambridge: Cambridge University Press.

- Lombroso, C. 1869. *La pellagra si cura*. Milan: Richiedei.
- MAIC (Ministero di Agricoltura, Industria e Commercio). 1879. *La pellagra in Italia: Annali di agricoltura no. 18*. Rome: MAIC.
- Marks, H. 2003. Epidemiologists Explain Pellagra: Gender, Race, and Political Economy in the Work of Edgar Sydenstricker. *Journal of the History of Medicine and Allied Sciences* 58: 34–55.
- McCann, J. 2005. *Maize and Grace: Africa's Encounter with a New World Crop, 1500–2000*. Cambridge, MS: Harvard University Press.
- Messedaglia, L. 2008. *La gloria del mais e altri scritti sull'alimentazione Veneta*, ed. C. Barberis and U. Bernardi. Castabissara, Vicenza: Angelo Colla.
- Monteiro, A., H. Coutinho, G. Janz, and J. De Loureiro. 1946. Endemic Pellagra in Northern Portugal. *Epidemiology and Infection* 44 (6): 518–525. <https://doi.org/10.1017/S0022172400019331>.
- Monti, A. 1998. *I braccianti*. Bologna: il Mulino.
- Morpurgo, E. 1882. *Atti della Giunta per la inchiesta agraria sulle condizioni della classe agricola*, vol. IV (Veneto). Rome: Forzani [Part of Jacini 1881–1886]. <https://locusglobus.it/documenti/emigrazione/Atti-Giunta-Inchiesta-agraria-e-sulle-condizioni-della-classe-agricola-vol-4-Relazione-Morpurgo.pdf>.
- Petrolini, G. 1975. *Pellagra allegra. Le rime popolari parmensi*. Parma: Pilotta.
- Pilati, C. 1775. Aggiunta sopra il formentone. In *Le venti giornate dell'agricoltura e de' piaceri della villa*, ed. A. Gallo, 533–558. Brescia: Giambattista Bossini.
- Pilcher, J. 2017. *Planet Taco: A Global History of Mexican Food*. Oxford: Oxford University Press.
- Porisini, G. 1979. *Agricoltura, alimentazione e condizioni sanitarie. Prime ricerche sulla pellagra in Italia, 1880–1940*. Geneva: Droz, Cahiers internationaux d'histoire économique et sociale, no. 26.
- Priani, E., and D. Gentilcore. 2016. *Venetian Mental Asylums Database (VMAD), 1842–1912* [Data Collection]. UK Data Service. SN: 8058. <https://doi.org/10.5255/UKDA-SN-8058-1>.
- Roe, D. 1973. *A Plague of Corn. The Social History of Pellagra*. Ithaca, NY: Cornell University Press.
- Ruggieri, C. 1814a. Narrative of the Crucifixion of Matthew Lovat, Executed by His Own Hands, at Venice, in the Month of July 1805 ... Now First Translated into English. *The Pamphleteer* 3 (6): 362–375. <https://archive.org/details/pamphleteer08valpgoog>.
- Ruggieri, C. 1814b. *Storia della crocifissione di Mattio Lovat da se stesso eseguita*. Venezia: Fracasso. <https://archive.org/details/b29306954>.
- Salviato, A. 2002. Pellagra e pazzia: i manicomi di S. Servolo e di S. Clemente. In *Storia di Venezia. L'Ottocento e il Novecento*, ed. M. Isnenghi and S. Wolf, vol. 2, 905–930. Rome: Istituto della Enciclopedia

- Italiana. [https://www.treccani.it/enciclopedia/pellagra-e-pazzia-i-manicomi-di-s-servolo-e-di-s-clemente\\_%28altro%29/](https://www.treccani.it/enciclopedia/pellagra-e-pazzia-i-manicomi-di-s-servolo-e-di-s-clemente_%28altro%29/).
- Schlimm, A. 2019. The Guerrilla Historian: Eric J. Hobsbawm and the Long Nineteenth Century. *German Historical Institute London Bulletin* 41 (2): 95–110. [https://www.ghil.ac.uk/fileadmin/redaktion/dokumente/bulletin/GHIL%20Bulletin%2041\\_2/GHIL%20Bulletin%2041%20%282019%29\\_2%20-%20095%20-%20The%20Guerrilla%20Historian.pdf](https://www.ghil.ac.uk/fileadmin/redaktion/dokumente/bulletin/GHIL%20Bulletin%2041_2/GHIL%20Bulletin%2041%20%282019%29_2%20-%20095%20-%20The%20Guerrilla%20Historian.pdf).
- Scrob, L. 2020. The Transition from Mămăligă to Bread in the Romanian Countryside under Socialism. *Food & History* 18: 75–96.
- Sentieri, Maurizio, and Guido Zazzu. 1992. *I semi dell'Eldorado: l'alimentazione in Europa dopo la scoperta dell'America*. Bari: Dedalo.
- Snowden, F. 2006. *The Conquest of Malaria: Italy, 1900–1962*. New Haven and London: Yale University Press.
- Sori, E. 1979. *L'emigrazione italiana dall'Unità alla seconda guerra mondiale*. Bologna: il Mulino.
- Traimond, B. 1992. L'irruption d'une maladie: La pellagre dans les Landes de Gascogne au XIXe siècle. *Ethnologie Française* 22 (1): 43–55. <http://www.jstor.org/stable/40989305>.
- Vassalli, S. 1992. *Marco e Mattio*. Turin: Einaudi.
- Viljoen, M., P. Bipath, and C. Tosh. 2021. Pellagra in South Africa from 1897 to 2019: A Scoping Review. *Public Health Nutrition* 24 (8): 2062–2076.
- Warman, A. 2003. *Corn and Capitalism: How a Botanical Bastard Grew to Global Dominance*. Chapel Hill, NC: University of North Carolina Press.
- WHO. 2000. *Pellagra and Its Prevention and Control in Major Emergencies*. Geneva: World Health Organization. <https://apo.who.int/publications/i/item/WHO-NHD-00.10>.
- Zamagni, V. 1993. *The Economic History of Italy, 1860–1990: Recovery After Decline*. Oxford: Clarendon Press.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.





PART I

---

# Pellagra



## CHAPTER 2

---

# Medical Reactions to a New Disease (The Eighteenth Century)

**Abstract** In this chapter, we explore reactions to pellagra as a new disease and the character of the medical debates that ensued. If pellagra in Italy can be characterised as a disease of the long nineteenth century, this history can be subdivided into three different phases. This chapter will examine the earliest of these, from 1770 to 1815. This phase is characterised by investigations aimed at constructing the new disease’s clinical history, through to the considering the disease as nosological ‘problem’—the question of its nature and how to classify it—and culminating in polemics over its causation. Two things are worth noting here. First of all, during this first phase of investigation, the focus was on the skin—manifestations on the body’s surface—as a key to understanding the new disease. And, secondly, this is far from a history of linear progression, there being as much diversity of opinion in 1815 as there had been a generation earlier.

**Keywords** Medical reactions to pellagra · Nosology of pellagra · Diseases of the skin · Clinical approach to disease · Pellagra, Eighteenth century · Pellagra in Italy

In 1789, a twenty-five-year-old student doctor at Padua’s San Francesco Grande hospital reported on his first encounter with a new disease.

I came across it quite by chance in the hospital, having resumed my customary practice of going there, as the real and only source of medical observations. It so happened that one day I was present when a young sick woman was admitted. The attending physician was asking her different questions as usual, to which she replied haltingly, evidently in a daze. I happened to gaze at her hands, and saw that they were of a blackish colour, as was also part of her arms. I proceeded to examine her more carefully, and I noticed that the cuticle there was dried and rough, and that here and there it was starting to peel off, whilst the skin underneath remained white and shiny. In addition, the [woman's] mother related how an extreme weakness, particularly in her legs, had reduced the poor young woman to a state where she was incapable of performing her farm labours, and how these complaints had afflicted her the past two years, at the start of the spring season. Pausing to think about the three observed phenomena, that is her dizziness, extreme weakness and especially the morbid alteration of the cuticle, I was immediately reminded of *pellagra*, a disease pervasive in the territory of Milan, and I believed there was a very great similarity to it. The attending physician, seeing me particularly attentive in the examination of this sick woman, told me that for the last few years, but especially this year, similar patients had been coming to the hospital, about whom only general ideas had been reached hitherto. (Fanzago 1815, pp. 48-9)

At the time he was writing, Francesco Fanzago—the name of our young doctor—had just returned from two years' training at the hospital in Pavia, at what was Lombardy's university. Here, he had studied under Johann Peter Frank, the noted German scholar of hygiene and legal medicine and proponent of public health reforms. Fanzago (1764–1836) returned to his native Veneto, to Padua where he had taken his degree, full of curiosity and crusading zeal. His committed and methodical examination of hospital cases, and his undogmatic presentation of his findings, was also consistent with the approach outlined by the Scottish Enlightenment physician John Gregory, whose work on medical ethics Fanzago had just translated into Italian. From the start, Fanzago's interests in pellagra were as much social as nosological, and he would spend the next twenty-five years of his life studying and writing about the disease. More than anyone else in the Veneto, he was the physician who put his name to pellagra; not that there were no other claimants to the title, as we shall see.

Most of Fanzago's 1789 *Memoria* on the subject consists of a description of sixteen pellagra case histories observed in Padua's San Francesco

Grande hospital. The hospital setting allowed Fanzago to follow the course of the disease and observe the effects of treatments more systematically and in greater detail than previously, in addition to carrying out autopsies on patients who died there. His observations meant that he was the first to be able to identify *pellarina* ('peeling-off') in the Veneto and *pellagra* ('rough skin') in Lombardy as one and the same disease. As Fanzago put it, both names were 'derived from the affliction observed in the epidermis' that constitutes one of pellagra's 'most evident signs' (Fanzago 1815, p. 75).

In this chapter, we focus on the exploration of pellagra as a new disease and the character of the medical debates that ensued. If pellagra in Italy can be characterised as a disease of the long nineteenth century, this chapter will examine its first phase, roughly from 1770 to 1815. This phase is characterised by investigations aimed at constructing the new disease's clinical history, through to considering the disease as nosological 'problem'—the question of its nature and how to classify it—and culminating in polemics over its causation. Two things are worth noting here. First of all, during this first phase of investigation, the focus was on the skin—manifestations on the body's surface—as a key to understanding the new disease. And, secondly, this is far from a history of linear progression, there being as much diversity of opinion in 1815 as there had been a generation earlier.

### EARLY CLINICAL DESCRIPTIONS OF PELLAGRA

When it came to understanding the 'new' in medicine, Fanzago's 1789 investigations into pellagra typify the clinical history focus, with its emphasis on direct experience over doctrine, the observation of hospital patients and detailed description of case histories. Fanzago republished his 1789 investigations into pellagra in 1815, together with all the work he had published on the subject in the intervening years (Fanzago 1815). But the collection began with the first known work on the disease published in the Veneto, by Jacopo Odoardi (1776). Fanzago was staking a claim for the study of pellagra in the Veneto, beginning with an implicit presentation of himself as the direct heir to Odoardi, offered as a pioneer of the clinical history phase.

The earliest notions of the new disease, even the names given to it, are related to its nature as an affliction of the skin. This is what particularly struck those who first came across it, the peasants of the Veneto, who

called it *pellarina*. According to Odoardi, ‘first physician’ in the town of Belluno, the disease appeared first as a roundish mark (*macchia*) on the back of the hands in March or April, accompanied by mild itching. Sufferers said they had been sunburnt. The next year it was worse, itchier, and the skin did not return to its previous colour, but peeled off. In addition, in women, their already scarce menses would stop altogether. During the third and fourth years, the feet and shins suffered like the hands, the skin there peeling off; in consecutive years, the scabs on the hands and feet became so large as to resemble the scabs of lepers. For Odoardi, the new disease was thus a ‘particular kind of scurvy’, although it differed in some important details (in Fanzago 1815, pp. 8–9).

Odoardi’s accurate and detailed clinical description of the disease, evidently based on direct observation in and around his native Belluno, became the standard and his work was always referred to by successive investigators. His concerns about the origins, nature (nosology) and cure of the disease would become standard approaches. Debates centred on how to classify pellagra, as reflected in decisions over what to call it. Much depended on determining whether it was a form of scurvy or leprosy (the earliest candidates). Odoardi noted that the name first assigned to the disease in the Veneto, ‘Alpine scurvy’ (*scorbuto alpino*), was something of a misnomer. He did not object to the adjective ‘Alpine’, because he was convinced that the disease was indeed a regional one, affecting ‘this our wide valley [Belluno] and our Alps’. Rather, Odoardi was not convinced by the label ‘scurvy’, since scurvy did not affect the brain, whilst pellagra did.

For Odoardi, what happened on the surface of the body was a reflection of what was happening inside it. Late eighteenth-century medicine had not completely jettisoned its Galenic underpinnings. If scurvy was then seen (at least by Odoardi) as a kind of food poisoning that affected the blood, caused by a subsistence on floury foods, a peasant diet based largely on unsalted maize polenta, combined with the forced inactivity of the winter months and close living conditions, led to the formation of a ‘scorbutic sluggishness’ in the blood.

### *The Nosological Question*

In addition to republishing his 1789 *Memoria* and Odoardi’s pioneering 1776 study, Fanzago also included a more extensive essay of his, the

*Paralleli tra la pellagra ed alcune malattie che più le rassomigliano* (Parallels between pellagra and several diseases most resembling it), first printed in 1792. Here he took the comparative approach ushered in by Odoardi to its logical conclusion, comparing pellagra to other known diseases (Fanzago 1815). With this publication, Fanzago took the social construction of pellagra in the Veneto into a new phase, the nosological, where the concerns of classification shaped investigation and debate. Curiously, the same ‘nosological problem’ was being posed in Spain, but with little point of contact (García Guerra and Álvarez Antuña 1993).

Fanzago took the opportunity to elaborate on his assertion that pellagra was a new disease, since the few previous Italian authors on the subject had not gone so far. Its novelty was evident in the fact that only ‘in the last few years’ had it made itself felt and caused significant harm. How does the investigator approach and explore novelty? For Fanzago, it was essentially a nosological question. He defers to the ancient Roman physician Celsus that when an unknown disease is first encountered, it should be reduced to a disease already known and described. To which pre-existing illness should pellagra be compared? The candidates were scurvy, leprosy, hypochondriasis or, perhaps, even a ‘distinct disease’.

The question was a serious one, Fanzago argued, for the answer would determine the kind of treatment most appropriate. If pellagra was a form of scurvy, then ‘it will be necessary to choose those antiscorbutic medicines which can be best adapted to the specific degeneration of the humours’. If pellagra was leprosy, then one had to treat it as a disease of the skin, ‘as the most obstinate and essential symptom’. If hypochondria, then one had to treat ‘the system of the nerves’. Finally, if we were to consider it as ‘a disease of a distinct type, then the measures we take must be likewise distinctive’ (Fanzago 1815, p. 113). The problem was that every investigator saw something different when looking at the description of a disease, particularly in the case of pellagra, because of the diversity of its symptomatology. Fanzago’s solution was to explore each of the parallels in turn, comparing how closely each analogy fit. The fact that Fanzago stressed the discontinuities between the three different parallels over the similarities leaves us to little doubt as to where his sympathies lay—that is, with the distinctiveness of pellagra.

The first and longest discussion is the ‘parallel’ between pellagra and scurvy. As Fanzago noted, for some investigators the two seemed one and the same, to the extent that they considered it mistaken to see a difference. The attraction of scurvy as a possibility lay in its open-endedness:

despite the many recent English studies into the disease, there were many different ‘kinds’ of scurvy and a resulting confusion and contradictions about its causes. Pellagra seemed to have many symptoms in common with scurvy, beginning with its effects on the skin. Although these might look similar, those of pellagra are actually quite different in appearance and distinct in the seasonal nature of their appearance, Fanzago noted. Moreover, in pellagra, the sun’s rays appeared to exacerbate the problem, whereas they had no effect in scurvy. When it came to the teeth and gums, affected in both, these turned out to be primary symptoms in scurvy, inseparable from it, but only ‘secondary or non-essential symptoms’ in pellagra. And, then, pellagra went on to affect the nervous system and the brain, which was not the case in scurvy. At most, scurvy led to languor, sadness and despondency, as in any long-lasting illness. But the madness associated with pellagra was quite different, as Fanzago had observed first hand:

The sight of those miserable wretches when they are overcome by madness truly moves one to pity. They mostly flee from their domestic abodes; they seek out solitary places; they eat earth, grass, and every kind of refuse; they scream, sing and when they are taken by fury they threateningly shout abuse at passers-by; and they often try to throw themselves into water when they can and drown themselves in it. (Fanzago 1815, p. 144)

Fanzago thus offered an early description of the complexities posed by the insanity associated with pellagra, which would exercise doctors throughout the century, as we shall see further in chapter six. In any case, other, intermediate symptoms were shared by both scurvy and pellagra: diarrhoea, dysentery, consumption, dropsy, paralysis and contractions. But, then, these were common to many diseases. Whereas scurvy was amenable to treatment, provided the correct remedies are administered, these same medicines appeared to have little or no effect in treating pellagra. Fanzago gives the example of lemons. Unlike scurvy, pellagra ‘observes a periodic order, following the cycle of the seasons; affects women much more than men; is based more prevalently amongst country inhabitants, although on some rare occasions striking city dwellers’ (Fanzago 1815, p. 151).

Fanzago dedicated another substantial discussion to the second parallel, that is, between pellagra and leprosy (or elephantiasis). Leprosy was classed amongst the ‘cutaneous diseases’ and, more broadly, amongst

the ‘affections’ that ‘concern the exterior surface of the body’, to the extent that it actually resided in the skin. In pellagra, however, the skin was only affected periodically: ‘the skin affliction appears, goes away, comes back and then disappears altogether’. Moreover, in its later stages, the effects of leprosy were absolutely horrendous, whereas, at the latter stages of pellagra, the skin was often unblemished. Fortunately, at least pellagra would not appear to be ‘spread by contagion’, Fanzago noted, unlike leprosy which had been seen to be so from the time of ancients (Fanzago 1815, p. 164).

Thus, when it came to ‘their characteristic signs’, the differences between pellagra and leprosy outweighed the similarities. What about causation? Poor diet would seem to be a factor behind both diseases. Increased poverty, with its deleterious effects on ‘healthy and strict nutrition’, had to be acknowledged as the main ‘remote’ or indirect cause of pellagra. In this, pellagra was similar to leprosy, which was likewise a disease of poverty, although the same could be said of many other diseases too, as is evident every time there is a famine, Fanzago suggested.

A limitation in identifying pellagra with leprosy was that the latter was a disease of the past, at least in Italy. But the most striking and convincing argument for diversity of leprosy and pellagra lay in their treatments, Fanzago notes. When it came to leprosy, ancient physicians recommended frequent and abundant bloodletting, drastic purges, scarification, unguents and medicated baths—if one can call a bath in a mixture of sulphur, nitro and alum ‘medicated’. When it came to pellagra, however, bloodletting and purges were positively harmful, and because the skin affection goes away by itself, no scarification or corrosive plasters were necessary.

Fanzago’s third ‘parallel’, that between pellagra and hypochondriasis, meant a departure from considering pellagra as ‘a simple skin affliction’ and seeing it instead as ‘an affliction mainly of the nervous system’. Fanzago did not realise how close he was in identifying the nerves as a component of pellagra. However, for the medicine of Fanzago’s day, the ‘highly-strung feeling’ and ‘frailty and sensitivity’ of hypochondriacs bore little resemblance to the insanity of pellagra sufferers; not to mention the fact that most hypochondriacs were ‘well-off and well-nourished men’, whereas it was precisely ‘abundant and nutritious food’ that turns out to be an ‘excellent remedy’ for pellagra (Fanzago 1815, pp. 184, 180, 190).

Fanzago was fairly certain in having identified the causes and symptoms of pellagra, as well as its treatment. At the same time, he was quite aware that implementing this cure was far from easy. Peasants, especially the hired farm hands, had no choice but to work hard, were conservative in



their habits and had little regard for their health, ‘taking a thousand times more care over the health of their animals than their own’ (Fanzago 1815, p. 197).

Indeed, diet was a central concern in Fanzago’s next major foray into pellagra, *Sulle cause della pellagra* (On the causes of pellagra), a lengthy paper delivered before Padua’s Academy of Sciences, Letters and Arts in 1807 and published two years later (in Fanzago 1815). By this time, Fanzago had been professor of practical medicine at the University of Padua and, following university reforms, was now professor of both pathology and legal medicine there. Fanzago’s paper focused on pellagra’s causes and would attract the fire of another illustrious physician active in the Veneto, Giambattista Marzari (1755–1827). It also takes us into the next element of early explorations of pellagra, the aetiological, where questions about causation predominated. Pellagra’s aetiology would prove an even harder nut to crack than its nosology.

### *Pellagra’s First Priority Dispute*

The two men had much in common. Marzari, nine years older than Fanzago, had, like him, taken his degree at Padua, and had gone on to become professor of physic and eventually regent of Treviso’s Real Liceo, later the Ateneo, founded by Napoleon in 1810. Marzari’s reforming zeal found expression in Treviso’s first newspaper, *Il Monitor di Treviso*, which he founded in 1807, and in his own medical practice, assisting the sick poor free of charge, including pellagra sufferers—apparently cured as a result of Marzari’s contribution to understanding the disease’s causes (Chiades 1982). Marzari published his ‘medico-political essay’ on pellagra in 1810 (Marzari 1810), as well as two other works on the subject several years later.

Despite their geographical proximity, their shared reforming outlook, their shared approaches to medical investigation, and, as we shall see, their shared conclusions, the close contemporaries Marzari and Fanzago are conspicuous by their absence from one another’s works. In fact, what we have is a classic a priority dispute—common in the history of science—just the first of a series in what would become the field of pellagology.

Marzari claimed to have written his *Saggio* a year before Fanzago presented his 1807 paper, which ‘unforeseeable circumstances’ had prevented him from publishing until 1810. What these circumstances were, Marzari did not reveal. (In fact, Marzari had been arrested by

the Napoleonic government for comments made in the December 1807 issues of *Il Monitor*.) ‘I think that for these reasons I can maintain *a priority right* on this aspect of the pathological doctrine [of pellagra]’, Marzari wrote regarding his own theory of pellagra’s causes (Marzari 1810, p. 106; the emphasis is his). Fanzago did not let this go unanswered. In his 1815 re-edition of all of his own pellagra studies, Fanzago affirmed that his earlier publication date (1807) gave him evident priority over Marzari, not to mention the fact that he had been lecturing on the subject since 1803 from his chair in practical medicine, a fact to which his many students from Treviso, Marzari’s home town, could testify.

Priority aside, what was the source of dispute between the two medics? Let us begin with what they disagreed on. These areas turn out to be minor points. Fanzago was quite satisfied with the now well-established term ‘pellagra’, whilst Marzari would have preferred to go on using Pujati’s label of ‘Italic scurvy’ (*scorbuto italico*), given that pellagra was not only a disease of the skin and worse symptoms followed, as in scurvy. They also disagreed on the number of pellagra’s stages and, whilst agreeing that the symptoms and manifestations of the disease could vary widely from sufferer to sufferer, Marzari believed that this variety was a reflection of individual temperament, sex and age, as well as climate. Climate, especially sunshine, was important for Fanzago too, but none of the other factors were.

However, Fanzago and Marzari agreed that pellagra was a disease of the countryside, limited to the poor peasantry; that the disease in Italy was less than fifty years old; that it started as seasonal; that it progressed by degree; that it was not hereditary, contagious or transmissible by touch; that there were more women pellagrins than men; and that, given its cause, further investigations would turn up cases in other parts of Italy and Europe. More than anything else, they both believed they had pinpointed the disease’s cause, which lay in the diet of the affected peasants. Marzari was adamant that their maize diet ‘constitutes the true and certain cause of pellagra’ (1810, p. 38), whereas Fanzago was slightly more circumspect. But it was a difference of degree and approach.

Fanzago and Marzari both noted how the diet of peasants in the Veneto had changed during the previous century, a result of the worsening of economic conditions and the introduction of maize. They identified poverty as the predisposing or indirect cause, the direct cause being a maize-based diet, consumed in the form of polenta. And, if a maize-based diet was the cause, in particular during winter months when

little else is available, then prevention was straightforward: better food. They also shared the idea that a publicity campaign would be necessary in order to spread the message. Marzari proposed a ‘work of popular education, written by order of the government by an author who is both well known and well versed in this subject, and who, with clarity and vigour, knows how to make himself understood everywhere, right down to the most rustic of huts’ (Marzari 1810, p. 59). Who could Marzari possibly have had in mind? After all, only he had the journalistic panache required. It must have piqued him that this honour would eventually go to Fanzago, who published his *Istruzione catechistica sulla pellagra* in 1816 at the government’s behest—and with the same printer Marzari used (Fanzago 1816). In this manual in question-and-answer form, Fanzago characterised as a ‘hornets’ nest’ the ‘many debates [that] have arisen amongst those authors who have written on pellagra’. The irony is that today, in general historical surveys of pellagra, Marzari is credited with being the first to espouse the deficiency theory (Carpenter 1981).

### *Back to the Surface: Pellagra’s Exterior Signs*

Despite their mutual animosity, Fanzago and Marzari were both on the right track, although it would be another hundred years before the solution to pellagra’s aetiological puzzle began at last to emerge. In the meantime, physicians continued to investigate and write about the subject as if they were amongst the very first to do so. The medical representatives of every Italian State where pellagra appeared—in this period before Italian Unification—had to re-invent the wheel. Thus the first Tuscan to write about pellagra, the Florentine physician Vincenzo Chiarugi in 1814, went through all the same phases—clinical histories, nosology, aetiology—as the three investigators surveyed above, Odoardi, Fanzago and Marzari. Chiarugi reformulated the same arguments and evidence as previous authors in his attempt to account for, classify, identify causation and propose cure and prevention. He devoted a long section to positing a maize-based diet as the most likely cause, evidently unaware that both Fanzago and Marzari had just done so, and more convincingly, only a few years earlier (Chiarugi 1814).

Chiarugi (1759–1820) was a contemporary of Fanzago and Marzari, although all his academic formation and medical experience were within the Tuscan grand-duchy. Two features are new and specific in Chiarugi’s

pellagra essay. The first is the focus on Tuscany, as pellagra spread southwards with the spread of maize cultivation and consumption. Second, Chiarugi devoted more space to the cutaneous symptoms of pellagra than any other author before him. This would seem strange, since, by Chiarugi's time, the skin rash and desquamation associated with pellagra was seen by all observers as but the primary stage of the disease. Chiarugi's interest in the surface aspect of pellagra is easily explained, for he was the author of an early treatise on skin diseases, based on cases he had observed whilst director of Florence's Bonifazio hospital, a purpose-built asylum for the insane. Here, Chiarugi had done away with chains as a means of restraint and had instituted the regular keeping of patient files, procedures that would later be identified with the kind of moral therapy we shall re-visit in chapter seven.

When it came to classifying pellagra, the skin symptoms were the most characteristic and fundamental elements of the disease, according to Chiarugi. His representation of pellagra as essentially cutaneous may appear to take us back to the earliest reactions to it, as reflected in its very name, but it did so by taking observations to an entirely new level of detail. Chiarugi devoted a tenth of his pellagra study to a detailed and vivid discussion of the skin rashes: their appearance, nature and location, the periodic desquamation and reappearance, and how they could vary over the often very long course of the disease. The rash could even disappear entirely for several years: 'So pellagra, right from the very start of its invasion, undermines [the body] with a hidden and deceptive progression, leading towards its destruction' (Chiarugi 1814, p. 22). Chiarugi's descriptions are accompanied by frequent references to the plates at the back of the book, which illustrate different phases of desquamation on the hands, feet and chest (Fig. 2.1).

When it comes to classification, Chiarugi put the emphasis on the exterior signs of the disease because they were enough to diagnose pellagra, whereas the gastric and nervous ones could easily be confused with other forms of illness. Most other investigators into pellagra, including Fanzago and Marzari, had reversed the emphasis, devoting more attention and placing more (or at least equal) importance on the gastric and nervous symptoms, which after all ran the gamut from diarrhoea and dizziness to dementia. Chiarugi's solution to the pellagra problem, his 'big idea' that concludes the book, was that the authorities encourage landowners and peasants to plant white maize instead of yellow (Chiarugi 1814, pp. 121–123).



**Fig. 2.1** Pellagrous desquamation. From: Vincenzo Chiarugi, *Saggio di ricerche sulla pellagra*, 1814

His proposal was not taken up (it would not have made any difference anyway); nor was his theory that the key to understanding pellagra lay in the skin. Nevertheless, studies and proposals like Chiarugi's serve as a sign that the disease was being taken seriously, in all its social and economic implications, even whilst its classification and causation remained matters for dispute. By the early nineteenth-century Italian investigators largely agreed on the clinical picture of pellagra, even whilst they continued to debate its nosology, which was much more problematic. As for its aetiology, this would prove the most difficult, continuing to exercise what would become the field of pellagrology well into the twentieth century.

## REFERENCES

- Carpenter, K. 1981. *Pellagra*. Stroudsburg, PA: Hutchinson Ross.
- Chiades, A. 1982. *Un giornale, una storia: Il Monitor di Treviso, 1807–1813*. Treviso: Bepi Crich.
- Chiarugi, V. 1814. *Saggio di ricerche sulla pellagra*. Florence: Pietro Allegrini.
- Fanzago, F. 1815. *Sulla pellagra. Memorie*. Padua: Tipografia del Seminario. <https://wellcomecollection.org/works/njxaqz8p/items>.
- Fanzago, F. 1816. *Istruzione catechistica sulla pellagra, divisa in tre dialoghi*. Venice: Francesco Andreola.
- García Guerra, D., and V. Álvarez Antuña. 1993. *Leptra Asturiensis: La contribución asturiana en la historia de la pelagra (siglos XVIII y XIX)*. Madrid: CSIC.

- Marzari, G.B. 1810. *Saggio medico-politico sulla pellagra o scorbuto italico*. Venice: Giovanni Parolari. <https://wellcomecollection.org/works/b3zeyksz/items>.
- Odoardi, J. 1776. *D'una specie particolare di scorbuto, dissertazione*, 11–31. Venice: Simone Occhi. Reprinted in Fanzago 1815.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.





## The Aetiological Turn (The Nineteenth Century)

**Abstract** Beginning in the 1830s, medical investigators began to think of organic disorders as having single causes that were both universal and necessary. For this to be possible required a radical shift in the way doctors defined diseases: from symptoms to causes. The so-called aetiological approach to disease meant that every case of the disease had the same cause. This, in turn, meant that any prophylactic or therapeutic measures directed at that cause, which were effective in one case, would be effective in every case. The crux of the matter now shifted to identifying a disease's causation, beyond dispute. And when it came to pellagra, this was precisely the problem. By the middle of the nineteenth century, all the medical actors involved agreed on the close link between pellagra and maize consumption. What they disagreed on was the exact causal nature of that link, propounding two divergent, indeed mutually exclusive, explanatory models. How the cultural dominance of one explanatory model, at the expense of another, came about; what it tells us about the nature of Italian medical science in the second half of the nineteenth century; and what its dominance meant for sufferers, is the subject of this chapter.

**Keywords** Pellagra, nineteenth century · Causation of pellagra · Aetiological approach to disease · Maize-pellagra link · Toxicozeism · Deficiency diseases · Pellagra in Italy

## THE AETIOLOGICAL TURN AND THE PELLAGRA EPIDEMIC

By the middle of the nineteenth century, all the medical actors involved agreed on the close link between maize and pellagra. What they disagreed on was the exact causal nature of that link, propounding two divergent, indeed mutually exclusive, explanatory models. The fact that one of these, more culturally influential, turned out to be the ‘wrong’ one, and the other, less culturally successful, turned out to be the ‘right’ one, allows us to study a history of ‘stasis, of delay, of digression’, to quote David Wootton, when ‘bad ideas ... triumph over good’. Did this result in what Wootton has called ‘bad medicine’: medicine that did far more harm than good? (Wootton 2007, pp. 14, 26). How the cultural dominance of one explanatory model, at the expense of another, came about; what it tells us about the nature of Italian medical science in the last few decades of the nineteenth century; and what its dominance meant for sufferers, is the subject of this chapter.

Italian medical investigators had been debating the nature, causes and treatment of pellagra, which they recognised as a new disease, since the 1760s—as we saw in the previous chapter. At the turn of the century, two of them, Francesco Fanzago and Giambattista Marzari, had become embroiled in a priority dispute over the idea that the disease was at least in part a result of increasing maize consumption by the poor peasants of northern Italy. They were certainly on to something; but this was not their main concern. What they wanted to understand was what sort of illness pellagra was—its nature—and how it could be classified. And understanding its nosology could only be achieved by determining its most prominent signs and symptoms.

In general terms, during the late eighteenth and early nineteenth centuries, understanding disease causation took a secondary place to understanding the nature of a disease. For the medicine of the time, every disease had a lengthy list of causes associated with it. And pellagra was no exception: climate (the burning sun), hard labour, dire poverty, habit (alcoholism), heredity and—with Fanzago and Marzari—diet. To impose a sense of order on the existence of multiple causes for every disease, doctors broke them down into different sorts, such as ‘proximate’ and ‘remote’. The latter, in turn, were distinguished into ‘predisposing’ and ‘occasioning’. Doctors would bring to bear this variety of possible causes—combined with a patient’s temperament, sex and age—as variables in understanding, and so treating, individual cases. In the particular



case of pellagra, this variety of causes also explained to contemporaries how its effects could vary so widely from patient to patient.

However, beginning in the 1830s, a few European researchers began to think of several different organic disorders as having *single* causes that were both universal and necessary. For this to be possible required a radical shift in the way doctors defined diseases: from symptoms to causes. The so-called aetiological approach to disease, championed by Ignaz Semmelweis in his explorations of puerperal fever, meant that every case of the disease had the same cause (Codell Carter 1985, pp. 44–60). This, in turn, meant that any prophylactic or therapeutic measures directed at that cause, which were effective in one case, would be effective in every case. The aetiological approach offered a coherent means of explaining a bewildering range of facts and observations about a disease, whilst making the search for prevention and cure more focused. The crux of the matter now shifted to identifying a disease's causation, beyond dispute. And this was precisely the problem.

### AETIOLOGICAL ARGUMENTS

When it came to the study of pellagra, the first to shift the focus to aetiology was the community physician, hospital director and later university lecturer, Filippo Lussana (1820–97). In 1856, Lussana developed his ideas into a book-length study, co-authored with the pathologist Carlo Frua. It begins with a chapter on the aetiology of pellagra, which occupies a full third of the book (Lussana and Frua 1856). If the content here is partly traditional, surveying each of the by-now standard range of causes in turn, it offers a radical departure by singling out a cause which Lussana considered 'essential'. That is: 'a dietary regime of insufficient plastic nutritive regeneration' (Lussana and Frua 1856, p. 124). For Lussana, the deficiency of a maize-based diet was thus the primary cause of pellagra, with all other factors being secondary. It was the key to understanding the disease's pathogenesis and possible therapeutics, which is discussed in the rest of the book. We thus have a *necessary* cause, if not yet a single one.

The dispute did not begin until thirteen years later, with the work of Cesare Lombroso—the originator of what I referred to above as the 'wrong' theory. If the Veronese doctor Lombroso (1835–1909) is best known today as the originator of criminal anthropology, which brought him international fame—the infamy came later—some of his first

published works were on pellagra and he would continue to investigate and write on the subject for the rest of his life—amounting to some 200 publications in all (Baima Bollone 1992; Frigessi 2003). Lombroso first noted a link between the consumption of maize and the spread of pellagra in the Italian region of Lombardy in 1863, whilst he was a lecturer in mental illness at Pavia University and director of the insane ward at the city’s hospital. This first period of research culminated six years later in Lombroso’s monograph on the ‘clinical and experimental study of the nature, cause and therapy of pellagra’ (Lombroso 1869).

Here, Lombroso explicitly espoused the aetiological agenda, in a book intended to identify the factor which, as he puts it, ‘is the exclusive cause of pellagra’. And he found it in ‘spoilt maize covered with penicillium glaucum’. This idea, which is the focus of the book, is not presented as hypothesis but as fact; there is no room for doubt. ‘And so is destroyed, a priori, that doctrine which had pellagra deriving from an insufficient plastic diet’—clearly referring to Lussana’s work (Lombroso 1869, p. 349). Lombroso spent most of the following decades fleshing out what became known as the toxicozeist (or spoilt maize) theory of pellagra causation, with laboratory investigations, to counter Lussana’s use of chemical studies in support of what would later become known as the deficiency theory.

With toxicozeism, Lombroso turned a factor or principle discussed by Lussana as a possible, secondary cause of pellagra—spoilt maize—into the necessary, single cause of the disease. Moreover, it was one for which he (Lombroso) now, triumphantly, took sole credit. If Lombroso tended to see pellagra-like effects of spoilt maize everywhere, and if his experiments with potential toxins worked better in the lab than in real life, this did not stop him from being surprised and dismayed when people did not replicate his findings and agree with his conclusions. This was at a time when open and direct confrontation was an accepted part of scientific dispute (de Bont 2013). Views had to be defended and opponents swiftly and decisively dealt with.

Opposition to Lombroso came in part from Lussana, who in 1872 responded with another study of pellagra. That Lussana too had embraced the issue of causation was evident from the book’s title, ‘On the causes of pellagra’; but Lussana could not share Lombroso’s conviction that the ‘common mold’ *penicillium glaucum* underwent a harmful toxic alteration in contact with maize (Lussana 1872). Lussana used this second book to refine his ideas, stressing that maize was not a cereal-based

disease, along the lines of ergotism, but the result of a diet deficient in ‘azotates’ (as an idea, a precursor to proteins). He did offer a compromise with Lombroso, in singling out ‘poor quality and spoilt maize’ as particularly low in azotates. But in essence, Lussana’s work was a refutation of Lombroso’s.

In response, Lombroso quickly dashed off a thirty-page ‘polemical letter’ to Lussana (Lombroso 1872). Lombroso argued that the toxin was most harmful when ingested over protracted periods, as Lussana should have known. Not only was Lussana wrong about pellagra’s aetiology; Lombroso more or less claimed the study of its aetiology for himself, since only he had the right idea and the right methodology. Lombroso apologises for his argumentative tone, but there was too much at stake, when on his doctrine ‘depends the wellbeing of thousands of people’. Indeed, as this debate over causation raged throughout the 1870s, reported pellagra cases in Italy climbed to 100,000 cases (MAIC 1879, pp. 324–325).

Lombroso and Lussana differed over the key question of whether maize was a sufficiently nutritional food when consumed by hard-labouring peasants as a staple. In 1878 the director of the insane asylum in Ferrara, Clodomiro Bonfigli (1838–1919), drew on Lussana’s theory and his own experience to argue for the ‘dietary insufficiency’ of maize (Bonfigli 1878). When Bonfigli’s article was republished in *La Rivista*, Lombroso immediately answered back in the same periodical, which he amplified into book form two years later (Lombroso 1880). Bonfigli replied in turn with a lengthy article in *Il Raccoglitore Medico*, an important medical periodical which often hosted controversies of this kind. Bonfigli substantiated his findings and directed his fire at Lombroso (Bonfigli 1879).

In particular, Bonfigli was critical of the strichnoid toxin which Lombroso claimed to have isolated two years earlier and promptly baptised ‘pellagrozeine’. Bonfigli accused Lombroso of wanting to establish pellagrozeine as the single cause of pellagra at all costs, even though, as Bonfigli affirmed, peasants refused to eat moldy maize (Bonfigli 1879). The gap between the socially orientated Bonfigli and the laboratory-focused Lombroso could not have been wider. Bonfigli and Lombroso locked horns over everything from the quantities of maize eaten by field hands and the digestibility of maize and its relationship to malnutrition, to the existence of cases of pellagra without maize. As a result, they also differed on preventive and therapeutic measures. For Bonfigli,

these came down to resolving ‘the most serious and urgent social question of the pauperism of the rural classes’. Lombroso countered that this would mean ‘a social revolution’; the money Bonfigli proposed spending to improve the diet of the rural poor would be better spent on providing maize-drying ovens so people would not have to eat spoilt maize.

Lussana did not let that get away and returned to the fray with a short article entitled ‘Professor Lombroso’s hallucination’, which cites a range of studies against Lombroso’s toxicozeist theory (Lussana 1883). Lussana refers to Lombroso’s virulent comments against both him and Bonfigli as evidence of Lombroso’s unbalanced mental state, diagnosing him—only partially tongue-in-cheek—as a *mattoide*. The irony is that *mattoide* was a term Lombroso himself had coined to label the mad genius: that is, mad on the surface but normal underneath, and so distinguished from what Lombroso labelled the criminally insane. Lussana refers to Lombroso as a ‘poor delusional’ who in his ‘frenzied delirium’ sees the spoilt maize toxin everywhere.

### THE NATURE OF SCIENTIFIC CONTROVERSY AND CESARE LOMBROSO’S SUCCESS

With the benefit of hindsight, it is all too tempting to side with Lussana and Bonfigli in the debate: not only because their deficiency theory would eventually prove to be the ‘right’ one, but because Lombroso appears as the bully of the piece. However, on closer reading of the treatises, articles and short notices, it is not immediately apparent why one theory—Lombroso’s toxicozeist hypothesis—would become the influential one, affecting government policy, whilst the other—the dietary insufficiency hypothesis—was marginalised.

The participants disputed both facts and the interpretation of those facts, according to their differing theoretical positions. A history of science approach can help us here, encouraging us to understand the past on its own terms, by reconstructing the ‘reasonableness’ of the arguments, whilst also allowing us to appreciate the range of factors involved, such as social interests and political struggles (Daston 2009). Even in the most internalist of scientific controversies, broader ‘social’ aspects come to the fore, including issues like academic status and power relations (Brante and Elzinga 1990). In the case of Lombroso and pellagra, we might reduce these aspects to three: media fame, scientific fashion and politico-economic expediency.

Let us begin with fame. By the 1880s, at an international level, Lombroso was Italy's most read author, hailed as the founder of a new science: criminal anthropology. Lombroso's was an increasingly loud and powerful voice. He was becoming a very public figure: at once doctor, philosopher, anthropologist, sociologist and political commentator (Forno 2010). (The role of the doctor as public intellectual and media star has resurfaced during the COVID-19 pandemic, in Italy as elsewhere.) Lombroso worked tirelessly to shape public opinion, mobilise intellectuals and organise a 'school' of followers able to penetrate the apparatus of the State. As a positivist scientist, he saw himself as the bearer of a mission to educate, inform and influence, especially in the field of public health. And when it came to pellagra's aetiology, Lombroso unceasingly and bullishly drove his message home, publishing a seemingly endless flow of long and short articles in both scholarly journals and the popular press, book and article reviews, and book prefaces. He combined a populist approach, (over-)simplifying complex scientific ideas, with a narrative and provocative writing style.

In developing his toxicozeist theory of transmission, Lombroso rode the scientific fashion for bacteriology, the success of which was allowing medicine as a profession to regain the prestige it had lost earlier in the century. The bacterial hypothesis forcefully suggested that each disease was caused by a bacterium; determining causation was thus reduced to a matter of identifying the single bacterium concerned. In the five years between 1879 and 1884, the causative organisms for leprosy, typhoid, malaria, diphtheria, cholera and tetanus were identified (Shortt 1983). There may have been many germ theories of disease—focusing, variously, on chemical poisons, ferments, degraded cells, fungi, bacteria or parasites—but proponents tended to subsume these into a single theory in order to strengthen their position (Warboys 2000).

We shall explore the link between bacteriology and pellagology further in the following chapter. Meanwhile, Lombroso was able to document how the consumption of poorly dried and stored maize—itself a widespread reality at the time—was linked to the development of a pellagra-causing toxin. From Lombroso's new base at the University of Turin (from 1878), he was able to develop a well articulated scientific research programme based on laboratory analysis, the results of which his followers elsewhere in Italy endeavoured to duplicate and build upon. And the science was important, for it allowed Lombroso to be more 'convincing' than either Lussana or Bonfigli.

Knowledge of metabolism and foods did not allow the latter two doctors to articulate clearly the precise relationship between maize subsistence and pellagra. Their use of generic expressions like the ‘meagre nutritive physiological value’ of maize did not quite cut it when compared to Lombroso’s well articulated—if ultimately flawed—laboratory methodology (Vanni and Missiroli 1987). At a time when chemical methods and experimental physiology dominated medical research, influenced by figures like (first) Justus von Liebig and (later) Robert Koch, setting up a laboratory for his clinic became a point of honour to the clinician (Büttner 1992). This is evident in Lombroso’s magnum opus on the clinical and pathological science of pellagra, published in 1892. Its 400 pages detail the numerous experiments on live animals, drug trials on living humans and autopsies on dead ones—113 in total—all made possible by the extensive resources Lombroso had at his disposal, in terms of personnel and funding (Lombroso 1892). Lombroso bombarded his readers with detailed tables and illustrations of all sorts, the latter alone covering a range of topics, from the micro-organisms of spoilt maize to the gaits of pellagra victims (Fig. 3.1).

Expediency also had a part to play in the success of Lombroso’s aetiological model. It suited government, which sought a clearly identifiable enemy and practicable solutions; and it suited the ruling bourgeois and agrarian classes, in identifying pellagra’s origins as ‘hygienic’ (public health) rather than the ordering of society (peasant poverty). From the 1880s, a series of proposed laws fighting pellagra had failed to receive parliamentary assent, because they interfered with the maize-related interests of landowners, millers and traders (De Bernardi 1984, pp. 690–692). Watering down the legislation, combined with a new liberal-left government in office, more receptive to social issues, finally allowed legislation to pass. Lombroso’s proposed measures brought no social disruption and the cost to the public purse was minimal.

Finally, on 21 July 1902, the Italian parliament passed the country’s first law dedicated to countering the harmful effects of pellagra (Perisutti 1902). It prohibited the sale of unripened or spoilt maize, whether in the form of grain or flour, and trade in all products made from unripened or spoilt maize. Following Lombroso’s suggestions, the law mandated the installation of public maize-drying ovens in affected areas, authorised the free distribution of salt to pellagrins and obliged municipalities to report new cases of pellagra in a timely fashion and keep up-to-date statistics. A

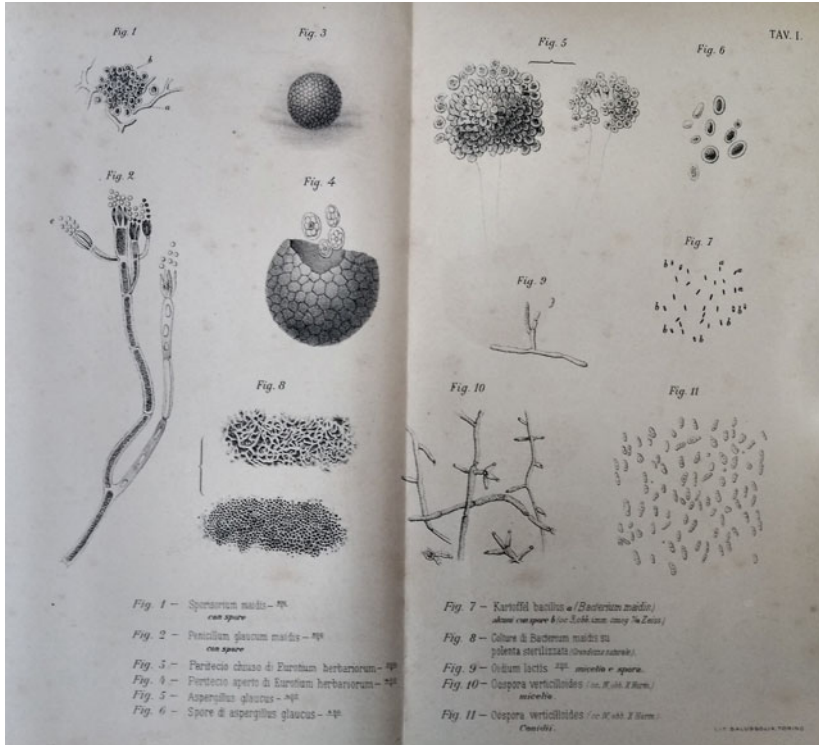


Fig. 3.1 The micro-organisms of spoilt maize. From: Cesare Lombroso, *Trattato profilattico e clinico della pellagra*, 1892

fund of 100,000 *lire* a year was to be set up to allow local authorities to implement these measures.

Paradoxically, and rather perversely, the anti-pellagra law was not only long overdue, combatting a disease that had ravaged maize-growing areas of the country since the middle of the eighteenth century; it also came too late. By 1902, pellagra rates had been declining for a decade, as diets had slowly improved, partly due to emigrants' remittances, as we shall see in chapter four. Moreover, the law put the weight of the Italian state to only one of the theories accounting for pellagra's aetiology: which turned out to be the 'wrong' one.

## THE DISPUTE'S IMPACT ON PELLAGRA AND PELLAGROLOGY

Lombroso complained that ongoing opposition to his aetiological ideas had harmed his career and reputation, whilst also causing 'large sums of money' to be wasted on 'false causes' (Lombroso 1892, pp. vii, viii, xviii). Yet it was Lombroso's own theory which can be accused of having had the more deleterious effects—certainly on the lives of pellagra sufferers, if not necessarily on medical investigation into the nature of the disease.

Take the following exchange. In 1883 Lombroso contacted the founder of the town of Mogliano Veneto's Hospice for Pellagrins, Costante Gris, to propose a trial. Gris was to treat forty pellagra sufferers with drugs alone, without modifying their diet, following Lombroso's instructions. However, after five months, with the patients as ill as ever, Gris decided on his own initiative to reverse the experiment. 'By means of the restorative diet alone', Gris later informed Lombroso, 'and without the use of the aforementioned medicines, I obtained much better results than with the first method' (Vanzetto 1992, pp. 122–127, 136). Their collaboration and their correspondence ceased after that.

This was 'bad medicine' indeed. By dismissing the idea that a change of diet could cure pellagra, and by relying on chemical substances like lead acetate and arsenious acid instead, Lombroso was treating pellagrins with what amounted to dangerous poisons. Moreover, in eschewing a diet-based treatment, he effectively eliminated the one effective remedy available—and which was perceived as such at the time, at least by some. Lombroso stubbornly continued in this conviction until his death in 1909.

What impact did the dispute have on Italian medical practitioners more broadly? If Lombroso was able to dominate the pellagra debates at the higher echelons of medical science and government, the situation down on the ground played out quite differently. A look at the aetiological models adopted by asylum and town doctors, who treated pellagrins on a day-to-day basis, suggests that practitioner responses were not clear-cut. If we have polarised the pellagra dispute hitherto, construing it as a two-sided debate, much as Lombroso himself saw it, in fact it was multi-sided, almost fluid—as are indeed most controversies in science (Engelhardt and Caplan 1987).

For the Venetian asylum director Cesare Vigna (1819–92), the aetiology of pellagra saw medical investigators divided into, not two, but four



camps: ‘unicists’, who favoured either one of the two dominant explanatory models based around maize; ‘dualists’, who opted for a mixture of the two main theories; and ‘pluralists’, who continued to acknowledge a wide range of causal factors in the generation of pellagra (Vigna 1879, p. 448). These divisions are borne out by work that we have carried out on the thousands of diagnoses of the pellagrous insane referred to the Venetian asylums of San Clemente (for women) and San Servolo (for men). Throughout the latter two decades of the nineteenth century, the patient records continue to refer to multiple causal factors: heredity, sunstroke, poverty and hard labour being the key ones. This may be a throwback to the pre-aetiological age; but it may just as likely refer to the difficulties faced by nascent clinical psychology in coming to grips with causation in a disease like pellagra that mixed physical and mental aspects, a topic we shall return to in Part II.

Gauging the opinions of community-funded town or district doctors (*medici condotti*) is more difficult. The case notes they submitted to the two Venetian insane asylums when referring a patient for admission are inconclusive. More helpful is a 1912 survey of 242 *condotti* with experience treating pellagrins (Camurri 1912). The survey found that they were divided, much like asylum doctors: 87 town doctors (or 35%) were found to favour dietary insufficiency, 79 (32%) opted for spoilt maize intoxication, 66 (27%) preferred a mixture of both of these theories, and the remaining 15 (6%) favoured a range of other causes, including alcoholism and infection.

There is no evidence that Lombroso’s predominance here harmed the careers of either Lussana or Bonfigli. Lussana continued his research in the neurophysiology of the brain and was professor of physiology, first at Parma (1860–67) and then at Padua (1867–89), the years of his long-running dispute with Lombroso. Bonfigli likewise continued to publish widely and translated several works of German psychiatry. After a successful tenure at the Ferrarese insane asylum (Beltrami and Guerra 2015), in 1893 he took up directorship of the Santa Maria della Pietà asylum in Rome and the chair of psychiatry at Rome’s ‘La Sapienza’ University. He was elected to the 20th legislature of the Italian Parliament, 1897–1900, where he spoke on issues regarding public health and asylum legislation.

Finally, the effect of this predominance on the broader research agenda were less than might be expected. If the 1902 pellagra law suggests some kind of ‘closure’—a defining element of scientific controversies—in fact

the Italian dispute over pellagra's aetiology remained open and unresolved, even whilst the disease continued to decline in Italy. Lombroso's may have been an intimidating presence in the field of pellagrology throughout the last three decades of the nineteenth century and into the twentieth, but this did not actually stifle investigation and debate. The field's main journal, the *Rivista pellagologica italiana*, may have been a Lombrosian stronghold, founded (in 1900) and directed by one of his former pupils, Giuseppe Antonini; but its pages provide ample evidence of the continuing vivacity, urgency and variety of the investigations into the disease. Indeed, as we shall see in the next chapter, the first decade of the twentieth century saw more Italian publications on pellagra than any other. And with them came a final brilliant, internationally divisive, but short-lived idea.

## REFERENCES

- Baima Bollone, P.L. 1992. *Cesare Lombroso ovvero il principio dell'irresponsabilità*. Turin: Società Editrice Internazionale.
- Beltrami, M., and M. Guerra. 2015. *Legati mani e piedi con rozze funi*. *Le carte raccontano la pellagra a Ferrara, 1859–1933*. Ferrara: Tresogni.
- De Bernardi, A. 1984. Pellagra, Stato e scienza medica: la curabilità impossibile. In *Storia d'Italia. Annali 7. Malattia e medicina*, ed. F. Della Peruta, 681–704. Turin: Einaudi.
- Bonfigli, C. 1878. La pellagra nella provincia di Ferrara. *Bollettino del manicomio provinciale di Ferrara* 10 (5): whole issue.
- Bonfigli, C. 1879. Sulla pellagra: lettere polemiche ... al dott. C. Lombroso. *Raccoglitore Medico*, series 4, vol. 11, pp. 51, 154, 252–253.
- Brante, T., and A. Elzinga. 1990. Towards a Theory of Scientific Controversies. *Social Studies* 2: 33–46.
- Büttner, J. 1992. The Origin of Clinical Laboratories. *European Journal of Clinical Chemistry and Clinical Biochemistry* 30: 585–593.
- Camurri, V. 1912. L'etiologia della pellagra nel giudizio dei medici condotti in Italia. In *Atti del quinto congresso pellagologico italiano*, ed. G.B. Cantarutti, 220–235. Udine: Tosolini.
- Carter, K.C. 1985. Ignaz Semmelweis, Carl Mayrhofer, and the Rise of Germ Theory. *Medical History* 29: 33–53. <https://www.cambridge.org/core/journals/medical-history/article/ignaz-semmelweis-carl-mayrhofer-and-the-rise-of-germ-theory/F0D2C4916532B1BF6CAE81C766F7563B>.
- Daston, L. 2009. Science Studies and the History of Science. *Critical Inquiry* 35: 798–813.

- de Bont, R. 2013. "Writing in Letters of Blood": Manners in Scientific Dispute in Nineteenth-Century Britain and the German Lands. *History of Science* 51: 309–335.
- Engelhardt, T., and A. Caplan, eds. 1987. *Scientific Controversies: Case Studies in the Resolution and Closure of Disputes in Science and Technology*, Editors' Introduction. Cambridge: Cambridge University Press.
- Forno, M. 2010. Scienziati e mass media: Lombroso e gli studiosi positivisti nella stampa tra Otto e Novecento. In *Cesare Lombroso. Gli scienziati e la nuova Italia*, ed. S. Montaldo, 207–232. Bologna: il Mulino.
- Frigessi, D. 2003. *Cesare Lombroso*. Turin: Giulio Einaudi.
- Lombroso, C. 1869. *Studi clinici ed esperimentali sulla natura, causa e terapia della pellagra*. Bologna: Fava and Garagnani. <https://wellcomecollection.org/works/yhsq6wcn/items>.
- Lombroso, C. 1872. Sulle cause della pellagra: lettera polemica al Prof. Lussana. *Giornale di dermatologia* [no volume number]: 1–32.
- Lombroso, C. 1880. *La pellagra in Italia in rapporto alla pretesa insufficienza alimentare: lettera polemica ... al dott. Bonfigli*. Turin: Celanza, 1880.
- Lombroso, C. 1892. *Trattato profilattico e clinico della pellagra*. Turin: Bocca.
- Lussana, F., and C. Frua. 1856. *Su la pellagra: memoria*. Milan: Giuseppe Bernardoni.
- Lussana, F. 1872. *Sulle cause della pellagra*. Padua: Prosperini.
- Lussana, F. 1883. Una allucinazione del professor Lombroso. *Gazzetta Medica Italiana: Lombardia*, Offprint. Milan: Rechiedei.
- MAIC (Ministero di Agricoltura, Industria e Commercio). 1879. *La pellagra in Italia: Annali di agricoltura no. 18*. Rome: MAIC.
- Perisutti, L. 1902. La legge contro la pellagra. In *Atti del secondo congresso pellagrologico italiano*, 303–319. Udine: Fratelli Tosolini e G. Jacob.
- Shortt, S.E.D. 1983. Physicians, Science, and Status: Issues in the Professionalization of Anglo-American Medicine in the Nineteenth Century. *Medical History* 27 (1): 51–68. <https://www.cambridge.org/core/journals/medical-history/issue/F0B85C0CFC216FB3BAFB3A58E152B0C4>.
- Vanni, A., and L. Missiroli. 1987. Bonfigli contro Lombroso: della polemica sulla etiopatogenesi della pellagra. *Rivista sperimentale di freniatria* 111 (6): 1383–1396.
- Vanzetto, L. 1992. *I ricchi e i pellagrosi: un secolo di storia dell'Istituto 'Costante Gris' di Mogliano Veneto*. Abano Terme: Francischi.
- Vigna, C. 1879. Sulla pellagra nella provincia di Venezia. In *La pellagra in Italia*, In *Annali di Agricoltura* 18: 447–462.
- Warboys, M. 2000. *Spreading Germs: Disease Theories and Medical Practice in Britain, 1865–1900*. Cambridge: Cambridge University Press.
- Wootton, D. 2007. *Bad Medicine: Doctors Doing Harm Since Hippocrates*. Oxford: Oxford University Press.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.





## The Bacteriological Divide: Pellagra in Italy and the United States (The Twentieth Century)

**Abstract** At the beginning of the twentieth century, there was still no cure for pellagra. This chapter concludes our look at medical reactions to pellagra over the course of the long nineteenth century, with a study of two vastly different reactions to a new explanatory model of the disease in the period leading up to the First World War. In 1910, a doctor at London's School of Tropical Medicine concluded that pellagra had a bacterial cause and nothing whatsoever to do with maize consumption. In Italy, this challenged the existing orthodoxy that pellagra was caused by a maize toxin. Meanwhile, in the United States, where the disease was fast becoming epidemic, the bacterial approach seemed to provide a ready solution. This chapter asks whether the bacterial theory effectively side-tracked research on pellagra and diet, in the interests of medical investigators, public officials and maize producers. And it explores what these theoretical shifts and the resulting controversies reveal about the very different medical and public health contexts in Italy and the United States. Paradoxically, and quite tragically, pellagra is an example of a disease for which there were more or less effective preventive measures available (and proposed, but not necessarily practised) long before there was a complete understanding of the disease and its cause.

**Keywords** Pellagra, twentieth century · Bacterial approach to disease · Pellagra in Italy · Pellagra in the United States · Preventive measures for pellagra

On 19 December 1910, Bergamo's main newspaper, *L'Eco di Bergamo*, reported on a brilliant new idea claiming to explain the causes of pellagra (Anon. 1910). The Bergamo province was one of the areas worst affected. The news thus merited one-and-a-half columns of the four-page newspaper. Signed by 'un medico condotto' (a district physician), the article was entitled 'The Rehabilitation of Polenta', for the theory asserted that maize and maize consumption had nothing whatsoever to do with pellagra. It meant that local people could eat polenta to their heart's content and that farmers and producers could cultivate and trade maize unencumbered by the restrictive policies that Italy's recent anti-pellagra laws had put in place. The new theory identified a small gnat as the culprit, complete with the Latin tag of *Simulium*, which spread a harmful protozoan from person to person. The originator of the theory, the article reported, was an English doctor named Louis Sambon, lecturer at London's School of Tropical Medicine; most of the rest of the article was devoted to a *Progress Report* Sambon had written on the subject, translating its conclusions (Sambon 1910).

Although the newspaper article was signed by a 'district physician', there was actually no attempt to evaluate the new theory from a medical point of view. Protecting Bergamo's pre-eminence as a milling centre, supplying five-eighths of Italy's maize flour, was the author's main concern. The medical reaction, when it came a few weeks later, was contemptuous. In a leading article in the *Rivista pellagologica italiana*, one of that journal's co-editors, Giuseppe Antonini, praised *L'Eco di Bergamo* for bringing Sambon's theory to the attention of Italians (Antonini 1911). Antonini quoted extensively from the article's translation of the *Progress Report*, even as he proceeded to rubbish its conclusions, point by point. Antonini objected most of all to Sambon's confident assertion that Cesare Lombroso's spoilt maize theory was wrong, that all the recent measures taken as a result were useless, and that even if every grain of spoiled maize were to disappear from Italy, pellagra would continue to exist as before. 'I confess, I thought I was dreaming', was Antonini's reaction. He went on to point out how the numbers of pellagra sufferers in Italy had declined steadily since 1902, so that in the period 1906–1908 the number of pellagrins was half of what it had been in 1900–1902.

Across the Atlantic Ocean, in the United States, the medical reaction to Sambon could not have been more different. As a professor of medicine in Atlanta, Georgia put it: 'With the publication of Sambon's "Progress

Report” in 1910, the investigation of pellagra really began. Before that time, men studied a cereal [i.e., maize], and thought they were studying a disease’ (Roberts 1914, p. 291). In a full-page article in the *New York Times* Sunday magazine section, which announced a privately endowed study of pellagra in the U.S. South, Sambon was credited with having ‘proved almost indubitably that pellagra is an insect-borne disease, and that probably corn or maize does not enter into the problem at all’ (Anon. 1911). The article hailed Sambon’s *Progress Report* as ‘probably the most important contribution to the literature of pellagra’, and it ended, like the earlier one in *L’Eco di Bergamo*, by quoting its conclusions verbatim, granting Sambon the final word on the matter.

For all this, and as the historian of nutrition Kenneth Carpenter noted several decades ago in an edited collection of readings dedicated to pellagra, ‘time has not been kind to Sambon’. His ideas, so ‘eloquently expressed’, ‘have proved quite baseless’ (Carpenter 1981, p. 5). There are, however, several reasons why I think studying how yet another ‘wrong’ theory of pellagra (Sambon’s) clashed with another equally wrong theory (Lombroso’s), before what proved to be the ‘right’ theory emerged, can be both revealing and historically important. The first of these concerns the history of work on deficiency diseases. Pellagra would eventually be classified as a deficiency disease, but only after medical investigators were finally forced out of the bacteriological rut into which they had dug themselves. As a theory of disease, the germ concept was ‘vastly more successful than any previous medical concept’; however, its very dominance in medical thought ‘proved a major barrier to the recognition and study of deficiency diseases’ (Ihde and Becker 1971, p. 16). Did bacterial theory effectively side-track research on pellagra and diet for many years, in the interests of medical investigators, public officials and maize producers? The same claim has been made for the investigation of beriberi, that the deficiency concept would have been more readily accepted had there been no bacterial theory (Carpenter 2000; Bay 2012).

The philosopher of science K. Codell Carter has dismissed this contra-factual claim, by stressing ‘the variety of causes contemporary researchers were willing to entertain’ (Codell Carter 2003, pp. 179–180, 193–194). Indeed, the deficiency concept and the bacterial theory belonged to the same scientific research programme, with its general focus on aetiology and the search for causes. This unity is certainly evident when we survey the range of work then being done at an international level, across the different diseases, as Carter does. But when we shift our gaze to the

controversies and power structures as they played out at a strictly national level, the picture seems far more divided and confrontational. Sambon's intervention into the world of Italian pellagrology brought the question of pellagra's aetiology back on to the table, in a way it had not been for twenty-five years. It is no accident that this decade (1900–1910) saw more pellagra studies published in Italy than any other (Bertolotti 2009). Established interests were challenged—not just in the production of medical knowledge, but in the more materially lucrative production of maize itself—in ways that paralleled the understanding of the role of husked rice in the aetiology of beriberi in Japan.

The second important feature of the reaction to Sambon is the way it can be used to shed light on an emerging international divide. If, as we shall see, the Italian reaction to Sambon's provocations says much about the continuing dominance of the Lombrosian theory there, its enthusiastic reception in the United States is suggestive of the very different medical context there. It is worth remembering that at the beginning of the twentieth century, there was still no cure for pellagra, and there was still much about it that eluded understanding, regardless of the theory: its seasonal appearance and spontaneous remission, the terrible bouts of insanity it could cause and its varied manifestations, and why it seemed predominantly to affect the poor.

Paradoxically, and quite tragically, pellagra is an example of a disease for which there were more or less effective preventive measures available—and proposed, though not necessarily enacted—long before there was a complete understanding of the disease and a cause pinpointed (from 1924 to 1937, in the United States). From the time of the earliest Italian explorations of pellagra in the mid-eighteenth century, when disease categories were still symptomatic (i.e. based on evident symptoms), through to the rise of aetiology as an explanatory concept in the late nineteenth century and attempts to identify specific causal agents, most theories about pellagra's causation were at best partial and at worst wrong. What is at issue in this chapter is what these shifts and the resulting controversies reveal about the medical context. The actor-centred approach we adopt here, with reaction to Sambon's intervention as a kind of test-case, is the key to understanding these controversies and why they mattered.



## THE TOXICOZEIST HEGEMONY

As one of Italy's leading pellagrologists, Antonini did not take kindly to Sambon's claim that the spoilt maize theory was 'the official one, accepted by statisticians who have never seen a pellagra case, laboratory investigators who have studied only damaged maize, and doctors in insane asylums and pathologists who have never visited the places where pellagra is rampant'. And, indeed, Sambon would be one of the few contributors to the pellagra debates who had no asylum experience—an experience we explore in Part II. In any case, Antonini rebutted Sambon's criticism with reference to Lombroso's own lifelong efforts to study and eradicate pellagra, before turning to the efforts of local doctors. Antonini argued that no one was better placed to diagnose pellagra than the doctor 'who has lived in the place where pellagra has been endemic for centuries, who has, because of his profession, to follow the sufferer in all his phases and who knows his family background'. Antonini asked rhetorically what measures had been taken against the *Simulium* in recent years to account for pellagra's decline. Sambon may have been justly famous for his work on malaria and sleeping sickness, Antonini admitted; but his view of pellagra had been shaped too much by his work in tropical climes (Antonini 1911).

As we observed in chapter three, by the end of the nineteenth century the 'Lombrosian hypothesis' had come to dominate Italian medicine, exercising control over the provincial and national pellagrological conferences and the discipline's journal, the *Rivista pellagologica italiana*. The theory proved to be flexible enough to adapt itself to the latest science, attracting followers from different specialisms, and so survive till the early 1920s in Italy. The spoilt maize or toxicozeist theory came to dominate medical discussions. It was firmly within the still evolving microbiological paradigm, more interested in examining the properties of invading agents under the microscope than actual patients. This was even truer of Lombroso's followers and successors, who focused on the search for the micro-organism responsible.

The steady decline in the numbers of Italian pellagrins in the years following the enacting of the 1902 law appeared to vindicate the Lombrosian theory. And, with hindsight, there is no doubt that some aspects of the law—especially in the treatment of sufferers and those at risk—had a positive impact. This apparent success bolstered the hegemonic position occupied by toxicozeists in Italy. From 1902 issue after issue of the *Rivista pellagologica italiana* charted the successful effects

of the law based on the doctrine. There was a regular column devoted to its application, reporting province by province on different initiatives in the implementation of the law, as well as regular articles devoted to studies of the chemical composition of spoilt maize. The journal contained occasional expressions of doubt: that not enough was being done to improve peasants' living conditions, to track down house-bound pellagrins unknown to the district physicians, to check on the activity of millers or to ensure the sale of spoilt maize was actually prosecuted. However, these were the exceptions to the rule. No voices were raised against the law—not least from the journal's co-founder and co-editor, Antonini. Antonini (1864–1938) had been a pupil of Lombroso's and resolutely towed the line of the man he called 'the great master', 'the true father of modern pellagology' (Antonini 1902, 1912) throughout this period—and continued to do so well into the 1920s, long after most other Italian pellagologists had abandoned it.

That said, this is not a story of scientific 'baddies' versus 'goodies'. There is no doubting the commitment of someone like Antonini, who worked at the coal-face (as it were) and campaigned tirelessly against pellagra. Director of Pavia's provincial insane asylum at Voghera, and from 1911 director of the insane asylum at Mombello, outside Milan, where he would have encountered patients driven insane by the disease, Antonini was active in the provincial and national pellagological conferences and the author of numerous books and pamphlets offering advice on how to understand and combat it.

Antonini must have wondered at the fuss over aetiology that Sambon's investigations had kicked up, given recent Italian 'successes' in pellagra prevention. He must have considered pellagra to be 'understood' as a disease—in the way scurvy was 'understood' long before the reason why lemons successfully cured it was explained. As Antonini told the delegates at the fifth Pellagological Congress, meeting in Bergamo in 1912, new 'doctrines' like Sambon's 'advance threateningly to show the work of the toxicozeists to be, as it were, absurd, and the struggles, sustained victoriously through so many years, to be superfluous'. The risk was that these theories would 'undermine the foundations of the ancient edifice without presenting reliable elements for the construction of new ones' (Antonini and Gosio 1912, pp. 180–187). Antonini countered each of the new theories in turn, which if taken together cancelled one another out. From the organisation of his defence down to the very language used, Antonini's stance was the standard one in scientific controversies.

He stressed the uncertainties inherent in the opposing theories, exaggerating their weaknesses and inconsistencies, in order to counter his rivals and ensure the continued predominance of the toxicozeist project.

But was Antonini consciously engaged in producing scientific uncertainty? There are striking parallels with Japanese debates over the aetiology of beriberi and rice consumption, taking place at the same time. In Japan, the dominant bacteriological theory was being challenged by the deficiency theory, and meeting with the same sort of establishment opposition as in Italy (Bay 2012, pp. 106–110). But I think it would be inaccurate to speak of ‘the construction of ignorance’ in Antonini’s response to opponents of the Lombrosian theory in Italy, as Alexander Bay does for the response of Tokyo doctors to the deficiency theory. The reference here is to the tobacco industry’s deliberate and longstanding policy of scientific misinformation regarding the links of cigarette smoking to cancer (Proctor 2008). Antonini was not an ally of maize-producing interests in Italy; indeed the 1902 anti-pellagra law had put curbs on the production and sale of maize. But he did strive to protect his own professional interests and status, marginalising those who questioned the established orthodoxy.

### LOUIS SAMBON AND HIS THEORY

If the leading Italian toxicozeists were a self-confident lot in 1910, so too was Louis Westenra Sambon. Sambon (1867–1931) had grown up in Italy, mostly in Milan, the son of a Franco-Italian antiquarian father and an English mother. In 1884, he matriculated at the University of Naples, the same year a cholera epidemic struck the city, and the young medical student was called upon to provide assistance. The experience may have sparked Sambon’s interest in epidemiology. In any case, he contributed to the ‘white men in the Tropics’ debate, writing two articles for the *British Medical Journal* on the acclimatisation of Europeans (Sambon 1897, 1898). His approach mixed geographical analysis and epidemiology and the nascent fields of microbiology and parasitology: an approach that we shall see again in his study of pellagra.

This work brought him to the attention of Patrick Manson, one of the key players in an expanding field grounded in microbiology and parasitology, that of tropical medicine, and who had just founded the School of Tropical Medicine in that same year (1899), in London. By early 1900, Sambon was hired as an occasional lecturer in the London School,

lecturing on epidemiology and parasitology. In autumn of 1900, Manson sent Sambon, together with George Low, lecturer at the School, to the Roman Campagna. In the ongoing search for the means of transmission of malaria, Low had just outlined the life cycle of a vector-borne nematode infection. Malaria and its transmission was then medical science's most engrossing problem. Ronald Ross, working in India, had written about the mosquito transmission of avian malaria, although clear proof of transmission in humans had not yet been found. The 'Rome school' of Giovanni Battista Grassi and Angelo Celli were working on similar lines.

Sambon straddled two worlds. For British researchers, malaria was 'over there': a colonial problem, a tropical disease. For Italian investigators, it was a disease long endemic to their own country, a tragic reality encountered only seven kilometres from the gates of Rome (Snowden 2006). Sambon evidently cast his lot in with the British, writing exclusively in English and taking part in a British-sponsored expedition. In 1902, two years after intermediating amicably between British and Italian colleagues, Sambon sided with Ross in the priority dispute against the Italian zoologist Grassi and the 'Rome school' over the discovery of the role of mosquitoes in the transmission of malaria. Amidst claim and counter-claim, personal ambition and national pride, the Grassi-Ross dispute intensified when Ross was awarded the Nobel prize that same year, 1902 (Capanna 2006). In any case, the discovery of a vector, combined with a national campaign in Italy against mosquito infestation and the free distribution of quinine—a truly effective medicine—helped to reduce malaria deaths in Italy. By 1915, the number of deaths had declined from 600 per million inhabitants to less than 50. It was one of the great success stories of pre-World War I Italian medicine (Snowden 2006). The movement to eradicate both malaria and pellagra would follow similar trajectories, with major learned associations, journals, public health campaigns and national laws launched within a few years of one another at the turn of the century. Pellagra, as we have seen, also declined; but here the role of medicine and public health would be quite different.

As an epidemiologist, Sambon managed to position himself as being just ahead of the other sciences, paving the way for them, as it were. Sambon's first foray into pellagra came in 1905, hot on the heels of his studies of sleeping sickness and malaria. At the 73rd meeting of the British Medical Association, held in Leicester that year, Sambon voiced his hypothesis on the aetiology and spread of pellagra, using a detailed survey of pellagra's spread to identify a possible vector or agent. Sambon's

‘Remarks’ on pellagra came in the section devoted to Tropical medicine and were intended to stamp his name on this theory before anyone else got to it, using his now standard methodology (Sambon 1905). The style is that of an essay: laying out the problem historically and geographically, discussing the dominant ‘zeist’ (maize-related) aetiological theories, then demolishing them in turn, before concluding with what appears to be the only logical solution to the problem—a solution which although glaringly obvious had not occurred to anyone else before. Maize might come into it, but only indirectly, Sambon remarked: ‘Probably, therefore, it is in the maize field that the peasant comes in touch with the specific agent of pellagra, and possibly through the agency of some biting fly’ (Sambon 1905, p. 1275). Sambon seems to toss this suggestion out casually, but this is in fact what he has been leading up to. His conclusion is circum-spect and understated, whilst at the same time self-serving. There is no doubt that for Sambon, the ‘Remarks’ marked the start of a project.

Sambon had already gained himself a reputation as an ‘ideas man’. The London School set up a Pellagra Investigation Committee with the aim of raising funds to pay for Sambon’s travel to Italy to study pellagra’s topographical distribution and epidemiology. Sambon could also count on the support of the successful medical entrepreneur and collector Henry Wellcome, who ended up footing most of the bill. Sambon’s proposed visit to Italy was intended to determine whether a small blood-feeding sand-fly (*Simulium reptans*) was the carrier of pellagra and whether pellagra could be defined as belonging to the group of protozoal diseases.

Sambon’s twelve-week fact-finding trip in the spring and summer of 1910 took him throughout the areas of Italy worst affected, from Bergamo in the north to Perugia in the centre. The resulting *Progress Report* resembles Sambon’s 1905 ‘Remarks’, albeit on a much grander, and more detailed, scale (Fig. 4.1). Sambon was able to present the work of Lombroso as the ‘old science’ against which he would have to wage his battle. If the label of ‘Lombrosian theory’ was suitable, Sambon argued, it was ‘not that Lombroso suggested the theory, but because he and his school imposed it with a dogmatism and intolerance inconsistent with the spirit of modern science’ (Sambon 1910, p. 290). Pride of place is given to a further issue: the precise geographical spread of pellagra. In Sambon’s mind, this made pellagra similar to malaria, sleeping sickness ‘and other diseases known to be transmitted by mosquito-, fly- or tick-carriers, presenting well-defined habitats’. According to Sambon, it explained: (i) the unchanging boundaries of pellagra’s ‘endemic centres’;

(ii) the predominance of farm labourers—and their infants and children—as sufferers, most exposed to the infective agent; (iii) the exemption of towns, since sand-flies had a very limited range; (iv) the increase of cases following flooding; (v) the seasonal eruption of the disease—spring and autumn, when sand-flies were active; and (vi) the areas of the skin particularly affected. In Sambon's confident words, 'there is not a single fact which the *Simulium* theory does not satisfactorily cover'. If the protozoan responsible for the disease had not yet been identified, the role of the *Simulium* in the transmission of pellagra was 'almost a certainty' (Sambon 1910, pp. 271, 321).



**Fig. 4.1** Louis Sambon and pellagrous child. From: Edward Jenner Wood, *A Treatise on Pellagra for the General Practitioner*, 1912

## THE ITALIAN REACTION

Proud of his findings, Sambon approached the Italian press, including newspapers like *L'Eco di Bergamo*. The result, according to M. V. Carletti, lecturer in medical pathology at the University of Padua, was that it 'stirred up lively comments and impassioned discussions in the newspapers and amongst Italian doctors' (Carletti 1911, p. 5). However, objected local doctors like Cesare Ceresoli from Brescia, Sambon's press barrage gave the wrong idea to 'local farmers, administrators, industrialists, and merchants', who were all hoping for the abolition of the 1902 laws regulating 'the cultivation, consumption and trade in maize' (Ceresoli 1911). We have already heard from Antonini, enforcer of the 'official' dogma, and many Italian doctors must have shared his reaction, if Carletti's dismay is anything to go by. At the same time, the fact that so much about pellagra was still up in the air may not necessarily have bothered contemporaries. After all, the German doctor and microbiologist Robert Koch had discovered the tuberculosis bacillus back in 1882 and it was widely accepted as the cause, even if there was still no cure for the terrible scourge—and would not be until the discovery of streptomycin in 1944. We know that other Italian pellagrologists, without necessarily agreeing with Sambon, welcomed his ideas as a breath of fresh air (Pisenti 1912).

That said, Sambon's theory was a provocation the Italian State could not ignore. In November 1910 the Italian parliament set up the Ministerial commission for the study of pellagra, charged with examining the different aetiological theories then being proposed and how they affected the 1902 law. Commission members, which included Antonini, were asked to undertake a detailed examination of Sambon's theory and report back. From areas as diverse as Friuli in the far northeast and Umbria in central Italy, the reports came back finding no link between insect bites and pellagra. The Commission concluded that '[i]t was clear that in the present state of knowledge the strict enforcement of the current pellagra laws must continue' (Commissione 1912, p. 162).

This declaration set the tone for the fifth Italian Pellagrological Congress, held in Bergamo in September 1912. Announcing the conference programme, the editors of the *Rivista pellagologica italiana* were certain that the discussion of the new aetiological theories would be of 'very notable importance'. Yet they remained in no doubt that the meeting would have 'the merit of removing any doubts raised against the Lombrosian theories, which, even for those not expert in pellagrology,

have had hitherto the support and justification of practice' (Anon. 1912). And that is exactly what happened. None of the papers which mentioned Sambon's theory found any support for it. Even a survey of Italian *medici condotti* (district physicians)—the very people Sambon had so warmly praised for their openness to his ideas and condemnation of the zeist position—found none who favoured the sand-fly as a cause (Camurri 1912). The 1912 meeting was a monument to Lombroso—almost literally so, since this was the first meeting held after Lombroso's death (on 19 October 1909) and which announced the imminent completion of a stone monument to him in his native Verona.

### PELLAGRA AND THE REACTION TO SAMBON IN THE UNITED STATES

If pellagra numbers were dwindling fast in Italy by this time, pellagra seemed to appear from nothing in the United States in the early 1900s. So fast indeed that it was assumed it had to be an infectious disease, for what else could explain its sudden appearance and quick spread (Etheridge 1972; Bollet 1992; Leslie 2002; Marks 2003)? Because pellagra was new to the United States, there was little of the maize-based cultural baggage which weighed so heavily in Italy. Pellagra struck there at a time when a whole range of diseases—anthrax, tuberculosis, diphtheria, typhoid, tetanus, bubonic plague, syphilis—had recently been found to be caused by micro-organisms, so that it seemed self-evident that all epidemic disease would be found to have a microbial cause. If long experience with pellagra had taught the local, family doctor in Italy that maize and poor diets had to be linked in some way, the average US practitioner thought of pellagra as a disease one 'caught'. The appearance of pellagra in the United States also coincided with the rise of tropical medicine as a discipline. Successes in the field were palpable. For instance, within the space of a few years, by targeting mosquito populations, informed by the latest theories developed by the likes of Koch, Grassi and Ross, the US authorities had managed to make the Panama Canal area relatively safe for human populations. The influence of the 'infectious paradigm' thus conditioned early US medical responses to pellagra (Leslie 2002).

The disease was not recognised at first. 'The authors of English and American textbooks ... have told us, if they told us anything at all about it, that pellagra is an Italian disease that does not occur in our country', the South Carolina doctor James Babcock, superintendent of the



State Hospital for the Insane, put it (Babcock 1910, pp. 10–11). As in Italy, American directors of insane asylums witnessed first-hand the worst effects of the disease (Bryan 2014). In 1908, a concerned Babcock travelled to Italy to study pellagra, visiting several pellagra hospitals, the better to diagnose and treat the increasing number of cases back home. Later in the year, the South Carolina State Board of Health held a public conference on the subject, which became something of a scare story in the local press.

In 1909, partly because of his acquired expertise, Babcock was elected president of the newly founded National Association for the Study of Pellagra. In 1910, Babcock and the epidemiologist Claude Lavinder translated a version of Lombroso's monumental *Trattato profilattico e clinico della pellagra* (1892), from the heavily abridged French translation by Armand Marie in 1908, to which the two men provided extensive additions and revisions 'to include the latest opinions regarding the possible parasitic origin of pellagra' (Marie 1910, pp. 3–4). But Babcock's warnings about pellagra's spread in South Carolina and elsewhere; his focus on the relationship between poverty, diet and pellagra; and the threat to the maize business posed by the threat of a maize toxin, made him extremely unpopular. As in northern Italy, vested interests were at stake. The *Chicago Post* worried that if millers (in the mid-West) or their customers (in the American South) ever 'get it into their heads that Illinois corn is the cause of pellagra, we shall feel the economic effect of it in this state, worldwide though our markets be'. And when Sambon fortuitously came along, *The American Agriculturalist* was relieved to relate the news that pellagra might be insect-borne (Etheridge 1972, pp. 21, 26).

With threats to the maize business acting as a push factor and Sambon's theory as a pull factor, the State of Illinois set up a commission to study pellagra in 1910. The Illinois Commission's report, issued the following year, adopted Sambon as a constant point of reference. The latest word in pellagology offered a scientific foundation for discussions of the transmission of pellagra by US doctors, even if evidence in its support was wanting. Maize was let off the hook. It identified Sambon's own theory as 'attractive and plausible in many respects' and it was at one with Sambon in his battle against 'the maize hypothesis', arguments in favour of which were deemed 'extremely slender' (Singer 1912, pp. 8, 247).

Not everyone was in agreement. Lavinder, now chief investigator for the newly founded US Public Health Service, although impressed by

Sambon's hypothesis, nevertheless followed the investigations originated by Italian toxicologists. Lavender took over from Babcock as president of the National Association for the Study of Pellagra in 1912—a year in which South Carolina reported 30,000 cases of the disease and a mortality rate of 40%. Despite this, Sambon's name crops up in almost every paper presented at the second meeting of the National Association for the Study of Pellagra, which was held in Columbia, South Carolina, in October of 1912. Entomologists, like Kansas's S. J. Hunter, were in hot pursuit of the sand-fly in their own States (Hunter 1914). Sambon effectively divided opinion, even amongst the undecided (Sandwith 1914). The variety of viewpoints expressed at the Columbia conference is in contrast to the more limited range of opinions voiced at the Italian Pellagrological Congress held in Bergamo the same year.

Meanwhile, the Thompson-McFadden Commission continued its investigations into the source of what it believed to be the pellagra 'infection' during the summer of 1913, visiting the home of every mill worker in Spartanburg County, South Carolina. Pellagra had already been pinpointed as a disease of small milling communities. (This was in stark contrast to Italy, where pellagra was most prevalent amongst landless farm labourers.) The highlight of the Commission's work that summer was Sambon's visit, the excuse for a special conference in his honour. This was reported in an article in the *New York Times* bearing the simple headline 'Prof. Louis Sambon here'. It described Sambon (mistakenly) as the head of the Tropical School of Medicine in London and a recognised authority on pellagra, and related his efforts at 'exploding' the maize-based theory (Anon. 1913). The newspaper also reported on Sambon's triumphal return to New York following the conference, where 'it was agreed that pellagra was an infectious disease, the germ carried by an insect'. A general interest newsmagazine, *The Literary Digest*, looked to Sambon and his insect theory to solve a disease now plaguing the United States. It blamed pellagra on the 'hordes of Italian immigrants who have arrived in the last 30 or 40 years', bringing their infection with them (Leslie 2002, p. 194)—evidently unaware of Sambon's own origins.

Notwithstanding Sambon's inspirational visit and the adulatory media accounts, the Commission actually ruled out the *Simulium*—locally, the buffalo gnat—as a carrier of pellagra. It agreed with Sambon that maize was probably not a factor but concluded that the real culprit seemed to be poor sanitary conditions and waste disposal, resulting in intestinal

infection (Siler et al. 1914). Although Sambon was not aware of it, his gnat-based notoriety had already peaked.

### PELLAGRA AS DEFICIENCY DISEASE

We saw in the previous chapter how as early as 1856, the physiologist Lussana had theorised that a diet poor in ‘albuminoid foods’, or protein, was the cause of endemic pellagra (Lussana and Frua 1856). Although the deficiency theory had substantial support amongst Italian district physicians, the Lombrosian hegemony meant that it was marginalised by pellagrologists for the best part of fifty years—that is, until investigators began to explore what specific nutritional deficiency resulted from a maize diet.

In 1911, a student of Lussana’s, Aristide Stefani, wrote of certain ‘imponderables’ necessary to health but which the body could not manufacture by itself and needed to take on whole. Stefani argued that whilst maize was probably adequate in ‘proteic’ terms, this did not mean it could be considered a complete foodstuff, containing all the dietary ‘principles’ necessary to man, in the way of mother’s milk or wheat (Stefani 1911). That said, his ideas do not appear to have circulated widely. The following year, in June 1912, the Polish biochemist Kasimierz (Casimir) Funk, working in the United States, published his findings on the disease beriberi, linked to a diet of husked rice. This was a process that, Funk suggested, removed a vital substance from the rice which he called a ‘vitamine’ (from ‘vital amine’). He went on to relate beriberi to scurvy and pellagra, calling them all ‘deficiency diseases’ (Funk 1912). If the exact nature of the maize deficiency remained unclear and Funk’s real contribution to an understanding of the aetiology of beriberi, pellagra and scurvy were relatively limited, his coining of the term ‘vitamine’ drew attention to the new and important field of nutritional research.

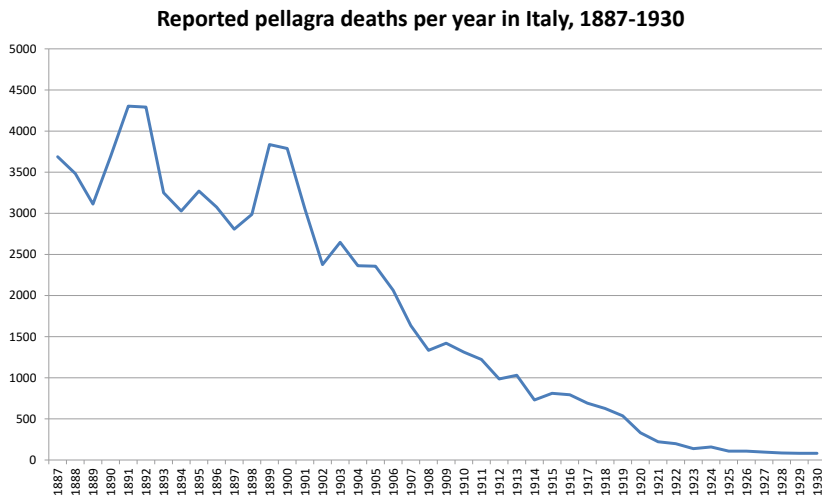
In the United States, this attention was immediate. The 1912 Columbia conference saw first reference to this new hypothesis in terms of pellagra. Rupert Blue, Surgeon General to the Health Service, identified Funk’s theory as one promising ‘important developments in the future’ (Blue 1914). And F. M. Sandwith—paradoxically, Sambon’s colleague at the London School—asked the question: ‘Is pellagra, too, a deficiency disease, waiting for a “vitamine” to be discovered?’ And he pointed to the benefits of adding tryptophan to a maize-based diet in laboratory mice,

a precursor to some ‘substance essential to the processes of the body’ (Sandwith 1914, p. 99).

Sandwith did not know how right he was. Two years later Funk’s hypothesis began to receive serious attention in the United States with the investigations of Joseph Goldberger (1874–1929), a Hungarian-born doctor and epidemiologist in the US Public Health Service. Goldberger’s were the investigations that now seemed to have ‘science’ on their side. In an early paper, Goldberger made an obligatory reference to Sambon, but his sympathies already tended towards diet as a chief factor (Goldberger 1914). There was an urgency and practicality about Goldberger’s work in the United States, with over 100,000 pellagra cases a year during the agricultural depression of the 1920s. Goldberger’s tireless work would eventually pave the way to our modern understanding of pellagra (Etheridge 1972; Kraut 2003). Seventy years after Lussana’s original hypothesis, all of the pieces of the puzzle finally fell into place. The rapid application of the vitamin deficiency model to pellagra, and its general acceptance, ‘suggest that what had been missing until then was the conceptual framework for interpreting otherwise well-established observations’ (Scrob 2018, p. 68).

The medical reaction in Italy could not have differed more. Funk was not even referred to at the 1912 Bergamo congress. The *Rivista pellagologica italiana* finally allowed space for the Funk hypothesis in 1914, albeit reluctantly, a breach that with hindsight marked the beginning of the end of the Lombrosian hegemony in Italy (Volpino 1914). By this time, pellagra was clearly on the wane in Italy, making the aetiological question less pressing for Italian medical investigators—or at least less relevant as a scientific issue (Fig. 4.2). As the pellagologist and historian Luigi Messedaglia summed it up in 1927: ‘The peasant eats better; and pellagra declines’ (Messedaglia 2008, p. 252). World War I, far from increasing pellagra rates, had assisted in its decline, as the Italian government imported massive amounts of wheat and sold it at subsidised prices. By the 1920s, pellagra had all but disappeared.

Despite this, the Lombrosians hung on to their hegemony till the end. As late as 1921, the disciple Luigi Devoto admitted that the theory might need to be ‘amended’, as he put it (Devoto 1921). But what, then, remained of Lombroso’s original theory to amend? The following year, at the sixth—and, as it turned out, last—Italian Pellagological Congress, the toxicozeist theory came in for serious criticism, to the dismay of its proponents. In 1924, the *Rivista pellagologica italiana*, a Lombrosian



**Fig. 4.2** Table of reported pellagra deaths in Italy, 1887–1930 (*Source for data* Finzi 1982, p. 412)

stronghold since its inception in 1901, ceased publication, surplus to requirements.

## CONCLUSION

It will be evident by now that medical investigations into the causes of pellagra was an ongoing process at the start of the twentieth century, with as much competition as cooperation, where new knowledge claims did battle with established interests. Did the ‘infectious paradigm’ delay the defeat of pellagra, as has been argued, by getting in the way of the deficiency concept of disease (Leslie 2002)? Or is it more useful to regard all of the investigations as part of the same research programme, united as they were in a quest for causes (Carter 2003, pp. 191–195)?

It is, clearly, a bit of both. On the one hand, there is no doubt that, in Italy, the protection of legitimacy and reputation led to the production of scientific doubt as well as scientific knowledge, similar to what has been suggested for beriberi in Japan (Bay 2012). Neither Sambon nor Antonini had any time for the notion that pellagra might be due to a

dietary deficiency. Sambon's brief foray into Italian pellagrology demonstrated just how entrenched the Lombrosian hegemony was. Sambon may have forced Italian pellagrologists to question their most firmly held and cherished beliefs, but the toxicozeists were strong enough to marginalise not only Sambon but all other alternative aetiologies at the highest levels of medicine and government virtually to the end. On the other hand, in the United States, when it came to investigations into pellagra's aetiology, there was no prevailing legitimacy to protect. The influence of the infectious paradigm contributed to Sambon's short-lived notoriety there.

That said, a look at the conferences on pellagra shows just how much open-ended debate and argument was going on throughout this period. This is much more redolent of Carter's 'single coherent research programme'—one that would pave the way for Goldberger's successful investigations into pellagra. Evidence for this view can be found in Italy, too, where research in other areas did go on, sometimes behind the scenes, sometimes quite openly. We have seen how district physicians were less swayed by the Lombrosian hegemony, remaining divided, or undecided, or even combining opposing theories into an original, practical synthesis. Moreover, and despite their mutual antipathy, Sambon and toxicozeists like Antonini had in common a belief that the cause of pellagra was bacterial. What they differed on was the means of transmission, whether the micro-organism was conveyed via an insect or through spoiled maize consumption.

Sambon and Antonini shared something else, too: their concern with a bacterial explanation effectively left society off the hook. There was no need to reform the underlying social conditions that had led to a reliance on maize if the cause was bacterial. In Italy, the gradual disappearance of pellagra took the sting out of the dispute, and may also explain why Italian investigators were not in the forefront of research after World War I, whereas in the United States the worsening of the epidemic made the hunt for a cause all the more pressing throughout the 1920s.

## REFERENCES

- Anon. [Un medico condotto]. 1910. La riabilitazione della polenta. La legge sulla pellagra ed i mugnai. *L'Eco di Bergamo*, 19–20 December, no. 287, 3.
- Anon. 1911. Commission to Be Sent South to Fight Pellagra. *New York Times*, Sunday magazine section, 24 September, 11.

- Anon. 1912. V° Congresso Pellagrologico Italiano. *Rivista pellagologica italiana* 12 (3): 141–144.
- Anon. 1913. Prof. Louis Sambon Here: Comes from London to Address Southern Pellagra Conference. *The New York Times*, 1 September, 2.
- Antonini, G. 1902. *Pellagra: storia, eziologia, patogenesi, profilassi*. Milan: Hoepli.
- Antonini, G. 1911. La riabilitazione della polenta. *Rivista pellagologica italiana* 11 (1): 2–6.
- Antonini, G. 1912. Il quinto congresso pellagrologico italiano. *Rivista pellagologica italiana* 12 (3): 141.
- Antonini, G., and B. Gosio. 1912. Considerazioni sull'etiologia della pellagra. In *Atti del quinto congresso pellagologico italiano*, ed. G.B. Cantarutti, 180–187. Udine: Tosolini.
- Babcock, J.W. 1910. The Prevalence of Pellagra in the United States. *Journal of the South Carolina Medical Association*, September, 445–449; reprinted in Babcock and W.B. Cutting. 1910. *Pellagra*, 10–11. Washington, DC: Government Printing Office.
- Bay, A. 2012. *Beriberi in Modern Japan: The Making of a National Disease*. Rochester, NY: University of Rochester Press.
- Bertolotti, C. 2009. *La pellagra: bibliografia degli studi, dal 1776 al 2005*. Mantua: Istituto mantovano di storia contemporanea. [http://www.istitutomantovanodistoriacontemporanea.it/wp-content/uploads/2013/08/pellagra\\_bibl..pdf](http://www.istitutomantovanodistoriacontemporanea.it/wp-content/uploads/2013/08/pellagra_bibl..pdf).
- Blue, R. 1914. The Problem of Pellagra in the United States. *Transactions of the National Association for the Study of Pellagra ... 1912*, 1–7. Columbia, SC: R. L. Bryan. [www.archive.org/transactions](http://www.archive.org/transactions).
- Bollet, A.J. 1992. Politics and Pellagra: The Epidemic of Pellagra in the U.S. in the Early Twentieth Century. *Yale Journal of Biology and Medicine* 65: 211–221.
- Bryan, C. 2014. *Asylum Doctor: James Woods Babcock and the Red Plague of Pellagra*. Columbia, SC: University of South Carolina Press.
- Camurri, V. 1912. L'etiologia della pellagra nel giudizio dei medici condotti in Italia. In *Atti del quinto congresso pellagologico italiano*, ed. G.B. Cantarutti, 220–235. Udine: Tosolini.
- Capanna, E. 2006. Grassi versus Ross: Who Solved the Riddle of Malaria? *Perspectives: International Microbiology* 9: 69–74. [https://scielo.isciii.es/scielo.php?script=sci\\_arttext&pid=S1139-67092006000100010](https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1139-67092006000100010).
- Carletti, M.V. 1911. Etiologia della pellagra. Le critiche di L. W. Sambon alle teorie maidiche. *Gazzetta degli ospedali e delle cliniche*, no. 64, p. 5.
- Carpenter, K. 1981. *Pellagra*. Stroudsburg, PA: Hutchinson Ross.
- Carpenter, K.C. 2000. *Beriberi, White Rice, and Vitamin B: A Disease, a Cause, and a Cure*. Berkeley, CA: University of California Press.

- Carter, K.C. 2003. *The Rise of Causal Concepts of Disease: Case Histories*. Aldershot: Ashgate.
- Ceresoli, C. 1911. I nuovi orizzonti della genesi della pellagra. *Rivista pellagologica italiana* 11 (2): 19–23.
- Commissione. 1912. Commissione ministeriale per lo studio della pellagra. *Rivista pellagologica italiana* 12 (4): 162.
- Devoto, L. 1921. La pellagra in Lombardia e nella Venezia Tridentina dal 1900 in poi. *Rendiconti del R. Istituto lombardo di scienze e lettere* 54: 239–242.
- Etheridge, E. 1972. *The Butterfly Caste: A Social History of Pellagra in the South*. Westport, CT: Greenwood.
- Finzi, R. 1982. Quando e perché fu sconfitta la pellagra in Italia. In *Salute e classi lavoratrici dall'Unità al Fascismo*, ed. M.L. Betri and A. Gigli Marchetti, 391–429. Milan: Franco Angeli.
- Funk, C. 1912. The Etiology of Deficiency Diseases. *Journal of State Medicine* 20: 341–368.
- Goldberger, J. 1914. The Etiology of Pellagra: The Significance of Certain Epidemiological Observations with Respect Thereto. *Public Health Reports* 29 (26): 1685–1687.
- Hunter, S.J. 1914. Pellagra and the Sand-Fly. *Transactions of the National Association for the Study of Pellagra ... 1912*, 63. Columbia, SC: R. L. Bryan. [www.archive.org/transactions](http://www.archive.org/transactions).
- Ihde, A., and S. Becker. 1971. Conflict of Concepts in Early Vitamin Studies. *Journal of the History of Biology* 4 (1): 1–33.
- Kraut, A. 2003. *Goldberger's War: The Life and Work of a Public Health Crusader*. New York NY: Hill and Wang.
- Leslie, C. 2002. “Fighting an Unseen Enemy”: The Infectious Paradigm in the Conquest of Pellagra. *Journal of Medical Humanities* 23: 187–202.
- Lussana, F., and C. Frua. 1856. *Su la pellagra: memoria*. Milan: Giuseppe Bernardoni.
- Marie, A. 1910. *Pellagra*, trans. C.H. Lavinder and J.W. Babcock. Columbia, SC: The State Co. <https://wellcomecollection.org/works/c7znj3ye/items>.
- Marks, H. 2003. Epidemiologists Explain Pellagra: Gender, Race, and Political Economy in the Work of Edgar Sydenstricker. *Journal of the History of Medicine and Allied Sciences* 58: 34–55.
- Messedaglia, L. 2008. *La gloria del mais e altri scritti sull'alimentazione Veneta*, ed. C. Barberis and U. Bernardi. Castabissara, Vicenza: Angelo Colla.
- Pisenti, G. 1912. *L'ortodossia pellagrosa e il semplicismo delle scuole maidiche*. Perugia: Tip. Perugina.
- Proctor, R. 2008. Agnotology: A Missing Term to Describe the Cultural Production of Ignorance (and Its Study). In *Agnotology: The Making and Unmaking of Ignorance*, ed. R. Proctor and L. Schiebinger, 1–33. Stanford, CA: Stanford University Press.



- Roberts, S. 1914. The Analogies of Pellagra and the Mosquito. In *Transactions of the National Association for the Study of Pellagra ... 1912*. Columbia, SC: R. L. Bryan. [www.archive.org/transactions](http://www.archive.org/transactions).
- Sambon, L.W. 1897, January 9. Remarks on the Possibility of the Acclimatisation of Europeans in Tropical Regions. *British Medical Journal* 1 (1880): 61–66.
- Sambon, L.W. 1898, March 19. Remarks on the Etiology of Sunstroke (Siriasis). *British Medical Journal* 1 (1942): 744–748.
- Sambon, L.W. 1905, November 11. Remarks on the Geographical Distribution and Etiology of Pellagra. *British Medical Journal* 2 (2341): 1272–1275. <https://www.jstor.org/stable/20287314>.
- Sambon, L.W. 1910. Progress Report on the Investigation of Pellagra. *Journal of Tropical Medicine and Hygiene* 13: 271–282, 287–300, 305–315, 319–321. Reprinted in book form in the same year, London: Bale and Danielsson. <https://wellcomecollection.org/works/uk7sqkmc/items>.
- Sandwith, F.M. 1914. Can Pellagra Be a Disease Due to Deficiency in Nutrition? *Transactions of the National Association for the Study of Pellagra ... 1912*, 97–99. Columbia, SC: R. L. Bryan. [www.archive.org/transactions](http://www.archive.org/transactions).
- Scrob, L. 2018. Conceptualizing the Vitamin and Pellagra as an Avitaminosis: A Case-Study Analysis of the Sedimentation Process of Medical Knowledge. In *Proteins, Pathologies and Politics. Dietary Innovation and Disease in the 19th and 20th Centuries*, ed. D. Gentilcore and M. Smith, 67–81. London: Bloomsbury.
- Siler, J. et al. 1914. Second Progress Report of the Thompson-McFadden Pellagra Commission. *Archives of Internal Medicine*, 14, 289–293.
- Singer, D. 1912. Current Views upon Pellagra. In *Report of the Pellagra Commission of the State of Illinois (President Frank Billings), November 1911*. Springfield, IL: Illinois State Journal Co. <https://archive.org/details/b2398322x>.
- Snowden, F. 2006. *The Conquest of Malaria: Italy, 1900–1962*. New Haven and London: Yale University Press.
- Stefani, A. 1911. *Relazione sull'opera della Commissione pellagologica provinciale di Padova nell'anno 1910*. Padua: Penada.
- Volpino, G. 1914. Il monofagismo ed i suoi rapporti con le malattie popolari della pellagra, dello scorbutto e del beri-beri. *Rivista pellagologica italiana* 14 (2): 17–18.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.





## Interlude: Patient Voices

**Abstract** In this ‘Interlude’ between Parts I and II of the book, we reproduce a few verbatim excerpts from the thousands of clinical files of patients diagnosed with forms of pellagrous insanity at the Venetian insane asylums of San Servolo (men) and San Clemente (women) during the latter half of the nineteenth century. They are as close as we can come to the patients’ own harrowing experience of the illness, though of course as mediated by asylum doctors.

**Keywords** Patient experience · Patient clinical files · San Servolo (Venice) · San Clemente (Venice) · Pellagrous insanity

*The following excerpts are taken from the thousands of clinical files of patients diagnosed with forms of pellagrous insanity at the Venetian insane asylums of San Servolo (men) and San Clemente (women) during the latter half of the nineteenth century. They are as close as we can come to the patients’ own harrowing experience of the illness, though of course as mediated by asylum doctors. (Archivio della Fondazione di San Servolo, Venice, Sezione sanitaria: tabelle nosologiche-cartelle cliniche).*

He says that he has been in hospital for only fifteen days but that he was also admitted last year for six months because of a convulsive illness and pellagra, and at present he says that he is subject to heart palpitations,

dizziness, he occasionally loses his sight suddenly seeing only darkness, he hears a constant buzzing in his ears, he is hungry but doesn't enjoy eating, he sleeps little and always troubled, and he feels as if he is in a fire, and he pleads with us to cure him. As the cause of all these afflictions he blames the excessive labours which he had to do, which went beyond his strength, in order to support his family. He feels a weight in his stomach, he says, which oppresses his heart. He says he needs to walk a lot because if he stays in bed all his afflictions get worse. He asks us to give him plenty to eat because he understands it's all down to weakness. ... He willingly undergoes his treatment out of the desire, he says, to recover soon and return to the bosom of his family.

*Luigi Pinello, 50-year-old married peasant, admitted to San Servolo in 1867.*

Asked how, at home, she could have tried to attack those dear to her and try to harm her daughter, she answers, weeping, that a voice she found almost irresistible called to her from inside the well and that another internal voice, which seemed to come from her chest, coaxing her to kill her daughter. Because of that she tried in every way to get away from it so as not to commit that horrible crime, and she never went to the well to avoid being forced to throw herself in. She adds that she finds it impossible to believe that such ideas could occur to her since she loves her life and her dear daughter so much.

*Luigia Ballotta, 41-year-old mother of six, admitted to San Clemente for the second time, 1877.*

He claims that he was beside himself because of the poverty in which he lived, and that he would go here and there begging, perhaps sometimes too forcefully, so that he became troublesome, but which he had to do because of the hunger he suffered. He claims to have suffered from pellagra several times, the signs of which are presently evident. He has a burning, an internal dryness, for which he would drink all day long. He says he is happy to be in this hospital. He speaks calmly and reasonably, but always finishing his utterances with the poverty in which he finds himself, with not being able to help his family, and he becomes melancholy and tearful.

*Domenico Bonosiol, 40-year-old married peasant, admitted to San Servolo in 1857.*

He says he is so melancholic and does not know the reason why, but that he feels in himself something extra-natural which keeps him in that state. ... The pellagra on his hands is quite evident.

*Santo Francescetto, 35-year-old unmarried peasant, admitted to San Servolo in 1857.*

An individual of melancholic temperament, robust, who without having displayed previous symptoms of mania set fire to his farmhouse. ... He begins by declaring that the fire was ordained to him by God, that He sent St Paul to him expressly with the command. ... After a month's hospital stay [at San Servolo], the apyretic cutaneous desquamation appeared on the skin of his chest, head and hands which did not take long to recognise as pellagra. ... His mental faculties became increasingly disordered, showing ideas of excessive religion, hallucinating visions of angels and saints who came to him at night and with whom he would converse out loud, always answering our questions with disconnected and totally incoherent words, leaving no doubt as to the nature of his mania.

*Giovann Domenico Della Bianca, 61-year-old married peasant, admitted to San Servolo in 1857.*

He is a young man of sound constitution but very disordered in his ideas, complaining of having always been tormented as a youth and of being mistreated by everyone. Whilst speaking he gets excited and converses with audaciousness, with arrogance, he is bad-mannered, insolent and impious, he starts to blaspheme and threaten, all his conversation refers to abuses and he doesn't say what led up to them, he realises he was raving and beside himself but because of witches, and that his own mother is a witch and that he can't look at her without horror. He recounts how he took fright when he saw the soldiers pass through his town, believing that this too was sent to torment him. ... [Several months later] He participates willingly in the interrogations, confessing that he recognises he was a rascal, but because of his illness. He says, I understand that I was ill and that I couldn't help it, and when people scolded me I felt my blood boil and had to do something to spite them.

*Giordano Aldrigo, 20-year-old unmarried peasant, admitted to San Servolo in 1867.*

The patient is continuously prey to a delirium of damnation accompanied by illusions and hallucinations. She believes she is damned because of her very grave sins, is no longer worthy to call on God's help, she believes she will never be able to die and to be forever damned in life. She claims to be possessed by the Devil, she feels him in her womb and she has to eat more than usual in order to feed him; when she goes without eating for any longer than usual the Devil torments her, and she is forced to take in food in order to keep him quiet. She continuously thinks that she is destined to die in the asylum and then all of a sudden she believes she won't ever die. However, she has made no further attempts at suicide, is normally calm and she works.

*Regina Davin, 41-year-old married housewife and mother of five, admitted to San Clemente in 1881.*

She believes she has committed enormous sins and that every action of hers is a sin. ... She would rather not eat for fear of committing some sin.

*Luigia Romagnol, 25-year-old artisan's wife, admitted to San Clemente in 1881.*

He says that for ten years, he has suffered from pellagrous erythema and confesses to having had an upset of the mind in the form of agitation due to the poverty in which he found himself whilst still with his family. He doesn't remember having suicidal tendencies but impulses to strike his wife because she actually sought his help which he could not give.

*Pietro Azzolini admitted to San Servolo in 1887, at the same time as his wife Rosa Davi (below) was admitted to San Clemente (Fig. 5.1).*

She gives a full account of her family's condition and the history of her illness. She says that she has continuously suffered from weakness as well as hunger. She felt like there was a fire in her head and she was forced to wander throughout the house without finding ease. ... [Several months later] With the change to her dietary regime her physical improvement began, alongside that of her intellectual faculties. The



**Fig. 5.1** Portraits of Rosa Davi and Pietro Azzolini from their patient files. San Servolo Servizi Metropolitan di Venezia

news that her husband has been released from San Servolo, where he was institutionalised, contributed to her improvement.

*Rosa Davi, 35-year-old married peasant and mother of one, admitted to San Clemente in 1887. Her husband, Pietro Azzolini (above), was admitted to San Servolo at the same time.*

She confessed to us that she weeps from the desire to see her dear ones again, but that at the same time, from her own experience at home, that she is constantly tormented by a fixation on suicide, insistent at every moment. Asked whether this idea originates inside her because of domestic displeasures, she replies negatively. She tells us that she is overcome by an unease, which she cannot explain, which she cannot say where it comes from, and that this sense unknown to her torments her and gives rise to an irresistible delirium to throw herself into water in order to free herself of it. This impulse is stronger in her than her love as mother and

wife, she feels it and trembles continuously from the fear of being pushed against her will to abandon forever the children and husband so dear to her.

*Luigia Boccato, married mother of four, admitted to San Clemente in 1877.*

At the moment of the examination, she was very calm, coherent and reasoned like a healthy person. She explained all that she feels when she is overcome by frenzy. She says that she hears voices that insult her and don't leave her in peace, and for this reason she gets upset, curses and screams.

*Marianna Puppo, 34-year-old married peasant, admitted to San Clemente in 1887 after she tried to burn down her house and no longer recognised her children.*

Dear son,

Despite your bad news, I dare to send you this letter ... Listen, I'm very well in both body and mind ... So don't worry that I'll cause trouble to your family or that I'll be a burden, rather I hope to be a help because I feel quite strong. And regarding the trip, this month the prices are so low that it won't cost you much. Indeed if you are willing to take me in, the people from the town will certainly come to collect me at their expense, as they have done to some of my fellow inmates who have been released. So I ask you to do me this favour.

Your most affectionate mother.

*Maria Scandolaro, 47-year-old widowed peasant, admitted to San Clemente in 1881 and writing to her stepson in 1887. The letter and envelope are still in her file, so perhaps were never sent.*

She does not wish to return home, because of the bleak prospect of dire poverty.

*Marianna Termini, 49-year-old widow and mother of one, admitted to San Clemente in 1886.*



**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



PART II

---

## Pellagrous Insanity



## Institutionalising Pellagrous Insanity: An Introduction

**Abstract** Whilst the exact aetiology of pellagra remained unclear, the effects of the disease could not have been clearer: asylums in the maize-growing areas of northern Italy were filled with cases of the disease. Part II of this book focuses on the experience of insanity caused by pellagra. We explore how pellagrous insanity was understood, diagnosed and treated by medical investigators and asylum doctors alike, as well as the patient experience of this terrible phase of the disease. We begin, in this chapter, by introducing pellagrous insanity—how it manifested itself, its place in pellagra’s symptomatology, as well as its impact on society. The qualitative—here referring to individual patient histories and asylum directors’ reports—will be integrated with the quantitative—based on data culled from the five thousand patient files which make up our Venetian Mental Asylums Database.

**Keywords** Insane asylums, Italy · Venetian Mental Asylums Database · Manifestations of pellagrous insanity · Qualitative and quantitative approaches · Societal impact of pellagra

The Interlude has quoted a few patient voices as a way of introducing Part II, which focuses on the experience of insanity caused by pellagra. Few of the medical investigators who were the subject of Part I were left unmoved by this, the disease’s most shocking effect; indeed, most of them

worked in the asylum environment. Here, we shall focus more specifically at how pellagrous insanity was understood, diagnosed and treated by medical investigators and asylum doctors alike, as well as the patient experience of this phase of the disease.

We begin, in this chapter, by introducing pellagrous insanity—how it manifested itself, its place in pellagra’s symptomatology, as well as its impact on society. In chapter 7 we examine the contemporary medical understanding of pellagrous insanity, and the conceptual and diagnostic challenges this posed. We do this by comparing debates surrounding pellagra in Italy with those waged around the same time in the United Kingdom *vis-à-vis* general paralysis of the insane. The latter disease was eventually linked to syphilis, even if the exact relationship between syphilis and insanity remained ambiguous—much like the body-mind link in pellagra and pellagrous insanity. We compare the two illnesses by examining how doctors classified them, sought to identify their causation and pathogenesis, and how this influenced diagnosis and treatment during the second half of the nineteenth century.

We then shift our gaze more specifically on the asylum experience of pellagra in chapters 8 and 9, where we explore the Venetian insane asylums of San Servolo (for men) and San Clemente (for women). The two chapters are organised around the ‘life cycle’ of male and female sufferers at the two Venetian asylums: from local referral and admission, through to treatment, and ending either with release back into the community or death—inspired by Erving Goffman’s approach (2007). We have focused on the Veneto because this region, now amongst Italy’s richest, was the most struck by pellagra and, by extension, pellagrous insanity.

The advantage offered by patient records in reconstructing the patient experience of insanity is beyond dispute (Risse and Warner 1992). However, to avoid the risk of being overly ‘charmed’ by the qualitative sources and thus producing just a collection of individual stories (Condrau 2007), these will be contextualised quantitatively. Our methodology is thus of the ‘mixed’ variety (Johnson and Onwuegbuzie 2004). The qualitative—here referring to individual patient histories and directors’ reports from the two institutions—will be integrated with the quantitative—based on data culled from the five thousand patient files which make up our Venetian Mental Asylums Database (Priani and Gentilcore 2016). This ensures that the selected examples are able to corroborate and poignantly express significant broader trends—which, if taken alone, risk

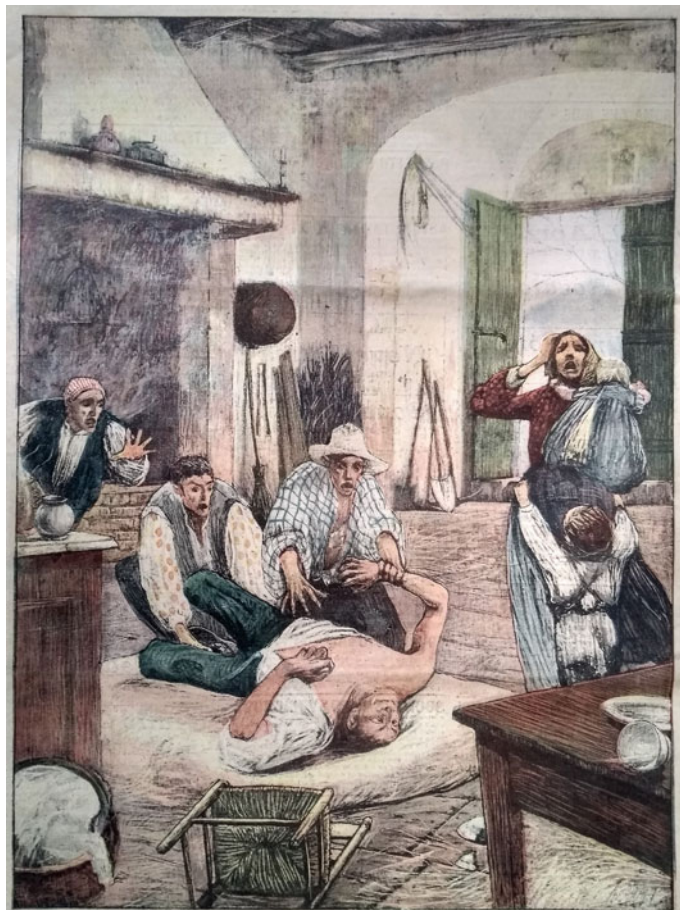
being dry numbers. In the process, we aim to give a voice to the actors involved—medical practitioners, patients and local authorities—along the lines suggested by Benoît Majerus (2013).

## MANIFESTATIONS, SYMPTOMATOLOGY AND IMPACT

But to begin at the beginning: what was pellagrous insanity? (Fig. 6.1).

The following case history provides an answer. On 14 September 1862, Dr Filippini, of the insane asylum of Feltre (province of Belluno), wrote to the asylum of San Servolo to refer a patient suffering from pellagrous insanity. The sufferer, Domenico Gorza, was a forty-year-old married peasant. In the spring of 1861, ‘he had peeling on the backs of his hands, ankles of his feet and top of his chest’. Then, the following autumn ‘he fell into delirium’, as the disease progressed. On 23 March 1862, ‘because he tried to flee from his family and tended towards acts dangerous to his own existence, he was brought and admitted into this asylum’. Domenico was observed to have ‘desperate unceasing clamorous delirium’, wrote Filippini: ‘he thinks he is irredeemably damned, he beats himself angrily with his fists and would like to take his own life’. The cause, according to Filippini, was ‘the disease of poverty, endemic pellagra’. Indeed, as Filippini wrote by way of diagnosis: ‘The characteristic form of the illness leaves no doubt at all in establishing it: pellagra with frenzied delirium and tendency towards suicide by demonomania [possession by demons]’. In the Feltre asylum, Domenico was treated for ‘light gastric complications’ (i.e. diarrhoea) that accompanied pellagra and fed a ‘restorative diet’ to combat the patient’s underlying cachexia (wasting syndrome). However, given that it was impossible to provide the necessary and appropriate ‘secure detention’ for the patient, Filippini was requesting Domenico’s transferral to the San Servolo asylum in Venice.

As we saw in Part I, pellagra was then understood to be a disease associated with a subsistence diet of maize polenta, possibly spoilt, extreme poverty and hard labour, which in its later, more chronic stages caused insanity, often violent. Whilst the exact aetiology of pellagra remained unclear, the effects of the disease could not have been clearer: asylums in the maize-growing areas of northern Italy were filled with cases of the disease. It was precisely in order to contain patients affected by pellagra and the mentally disturbed that the Italian government intensified the construction of new asylums in the latter decades of the nineteenth century (Canosa 1979). Smaller, town hospitals were unable to cope



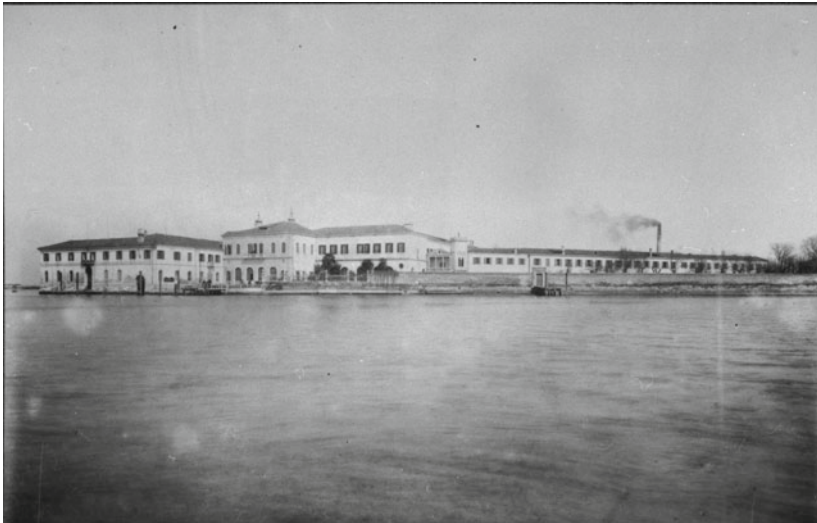
**Fig. 6.1** An episode of pellagrous insanity ('Le sventure d'Italia: Un dramma della pellagra'). From: *La Tribuna Illustrata*, 3 July 1904

with cases of pellagrous insanity and so they were referred to the larger, better equipped regional asylums. The main asylums for the Veneto—which included the eight provinces of Belluno, Padua, Rovigo, Treviso, Venice, Verona, Vicenza and Udine—were on the island of San Servolo, for men, with a sister asylum for women on the neighbouring island

of San Clemente (Willms 1993; Salviato 2002; Priani and Botti 2009) (Fig. 6.2 and 6.3).

Male and female patients were thus confined in separate institutions—an untypical practice not only in the rest of Italy, but in Europe, where segregation into male and female wards at the same institution was more the norm. In the case of Venice, this division by gender was mainly due to the logistical difficulties of housing both male and female inmates on the same small island institution of San Servolo. Venice's female asylum remained within the former hospice of San Lazzaro, part of the city's main hospital, before it was eventually relocated to the lagoon island of San Clemente in 1873. It was to the asylum of San Servolo that Filip-pini referred Domenico, and he was duly admitted two days later, on 16 September 1862.

Domenico's patient record at San Servolo records his condition month by month: his willingness to take the medicines offered—iron and valerian—but his refusal to eat, so that he had to be spoon-fed; how his initial aggression and bouts of blaspheming, necessitating occasional use of a straightjacket, turned to total apathy, with Domenico 'curled up in



**Fig. 6.2** View of San Servolo asylum, c. 1880. San Servolo Servizi Metropolitan di Venezia



**Fig. 6.3** View of San Clemente asylum. From: Cesare Vigna, *Il manicomio centrale femminile di San Clemente: memoria*, 1887

a corner'. By February 1863, Domenico's condition seemed improved, with him doing domestic chores, sleeping soundly and eating well, although he was still taciturn. By March, San Servolo's doctors were trying to have Domenico work on the asylum's vegetable plots, as part of his therapy, but he was still too weak and unwilling to move much. In May, Domenico was struck down by cold and fever 'so intense he seemed sick with cholera'. The attacks of cold recurred over the following months and Domenico became taciturn, lethargic and melancholic. By now, his relations were concerned about his condition and pressed for his release. But Domenico's confinement ended on this sad note: 'Died of gastro-hepatitis on 9 February 1865, at one o'clock in the afternoon, after two years, four months, 24 days' stay in hospital'.

In addition to introducing us to pellagrous insanity, Domenico's sad case suggests many of the themes we shall explore in Part II: the conflicted medical aspect of diagnosis and treatment (including work therapy); the three phases of referral, stay and discharge (or death); the close relationship between the life cycle of male and female pellagra patients and their own biological life cycles; the economic conditions and geographical origins of sufferers; and the place and function of the asylums within the wider community.



As we observed in Part I, pellagra had devastating effects in Italy over the long nineteenth century. It was a recurrent disease, where a reliance on maize polenta followed the ups and downs in diet which came with the seasons, as well as shifts in wheat prices. It was also a progressive disease, leading to a downward spiral if dietary conditions did not improve—there being no treatment as such. The case of Lucia Pontel is typical. According to her patient file, we learn that Lucia was the daughter of pellagrous parents, subsisted entirely on a diet of polenta, and was referred to the San Clemente asylum from the municipal hospital of Udine in 1874. According to her patient file: ‘Every spring since she was a girl she has been subject to pellagrous erythema. At the age of 40 she was admitted to the Udine hospital with melancholy. Over the years that followed she was admitted a further six times, each time being discharged cured after some four months’.

If the number of reported pellagrins was close to 100,000 in 1879, the number of pellagrins suffering from pellagrous insanity is more difficult to determine. Contemporary estimates put the percentage of the pellagrous insane out of overall pellagrins at 1.7% in 1880–1, 3.2% in 1899 and 4.6% in 1908–10—the number of chronic cases climbing even as pellagra rates declined (Porisini 1975). Of course, the number of pellagrous insane who were actually committed to Italian asylums was probably only a minority of those who suffered pellagrous insanity, perhaps only a third according to a contemporary estimate (Guarnieri 1988).

During the last quarter of the nineteenth century, when the pellagra epidemic was at its worst in Italy, pellagra-sufferers overwhelmed hospitals in the Veneto (not unlike the situation caused by the peaks of COVID-19 as we write this). The number of pellagrins (of all stages) admitted to general hospitals in the Veneto region each year more than doubled during the 1870s, reaching 3,995 in 1879 (Morpurgo 1882, p. 176). If we look at insane asylums in the Veneto in particular, the proportion of the pellagrous insane to the general insane was something like five to eight. For instance, in 1885, of the 1,415 male insane being treated at general hospitals throughout the Veneto region, 954 of these were pellagrous (or 67%). Of the 1,182 women, 707 were pellagrous (or 60%). By the 1890s, rising numbers meant that the costs of caring for the pellagrous insane was the top item of expenditure in the annual budget of the province of Treviso (Gregorj 1893, pp. 11, 13). This was in a context where the annual costs to Italian provinces for hospitalising the insane

poor went up by an estimated 199% between 1871 and 1897 (Canosa 1979).

The final 25 years of the nineteenth century witnessed a vast increase in both the number of asylums in Italy and the numbers committed to those asylums. A Foucauldian approach would put this down to the nascent psychiatric profession flexing its custodial muscles, linking internment to cure (Gillio 2009). But worsening social conditions in the new country had a significant part to play: steady increases in the numbers of insane poor were the result of the impoverishment of the Italian rural and urban poor. The elimination of trade barriers following Unification in 1861–70 and the liberalisation of the Italian economy, combined with a widespread move away from shared tenancies (*mezzadria*) by landowners, forced large numbers of peasants to become day labourers—when there was work—in a wage-based economy. Poor sanitation, habitation and diet did the rest. Behind abstract medical labels like ‘cretinism’, ‘alcoholism’, ‘imbecility’ and ‘pellagrous insanity’ applied to asylum inmates lay the spectre of dire poverty and social deprivation. This was particularly so with pellagrous insanity, where there existed a ‘tight link between the structural transformations of Italian society and the devastating spread of mental illness’ (De Bernardi 1982, p. 17).

The result was that San Servolo and San Clemente, like other asylums in regions of Italy where pellagra was endemic, were shaped by the disease. Between its founding, in 1873, and 1887, of the 4,755 admittances into San Clemente, 2,070 were pellagrins (44%) (Vigna 1887, pp. 95–6). In 1877, almost half of the admissions into both institutions were pellagrins (48%). In total, considering the period 1842–1912 for San Servolo and 1873–1912 for San Clemente, and based on a census of one year in five, our VMAD database records 5,709 admissions. Of these, 1,587 were pellagrous insane (28%). This divides into 31% at San Clemente (757 out of 2,466 admissions) and 26% at San Servolo (830 out of 3,241 admissions) (Priani and Gentilcore 2016). This is even higher than other asylums located elsewhere in Italy where pellagra was endemic, such as the San Lazzaro asylum in Reggio Emilia, where the pellagrous insane amounted to 27% (women) and 20% (men) of admissions between 1871 and 1899 (Ferrari 1985, p. 209).

The general hospitals of the Veneto (provincial and municipal) were the source of most of the pellagrous insane patients admitted to San Servolo and San Clemente. This was a sign of the patients’ poverty, since those committed to asylums direct from home tended to be relatively

better-off, a process in which pellagrins were under-represented. That said, we still know precious little about the domestic care of the insane (Guarnieri 2007). Men were more likely to be committed to the asylum direct from home than were women, who were more likely to be referred from another institution, such as a local hospital. The difference may be down to the cultural notion of ‘scandal’, which meant that the female pellagrous insane were more quickly and more routinely institutionalised when their behaviour was affected (Finzi 1982a; Salviato 2003). Such was the case of Lucia Marchesan, admitted to San Clemente in 1876: an elderly widow ‘who wanders around the streets all day committing acts offensive to public morality ... she swears at (*impreca*) all the people she meets’.

The institutions to which these sufferers were headed were intended to provide a new moral order for the insane: less a prison and more a hospice. The first director of San Clemente, Cesare Vigna, had high hopes: ‘the mental hospital [*frenocomio*] is no longer a prison, no longer a sepulchre for the living, it is no longer even a place of segregation, but an asylum, a [source of] relief, a clinic; it is itself a most effective means of treatment’ (Vigna 1887, p. 54). According to this new ‘moral therapy’, the institution itself, and the sufferer’s presence in it, became part of the cure, in space and in time (De Peri 1979; Tagliavini 1988).

However, in the 1880s there still existed those in Italy, like the socialist Enrico Ferri, who believed the asylum’s primary role was as a ‘place of custody’, performing a function of defence for the rest of society (Guarnieri 1988, p. 105). San Servolo and San Clemente were in practice a bit of both. The statutes of San Clemente make the asylum’s role quite clear: ‘Only insane women *needful of detention, dangerous to themselves and to others, and a threat to public morality and order* will be admitted into the asylum’ (Statuti 1873, p. 6; emphasis in the original). It was no accident that Italian asylums came under the authority of the Ministry of the Interior (Lonni 1982).

The whole thoroughly documented process of referral, confinement and discharge was governed by notions of social order and public safety. Municipal officials, the police and asylum authorities liaised closely with one another. Even the asylum patient files, with their personal details and mug shot—which we shall discuss further in chapter 8—bear a close resemblance to the criminal records which, from an Italian law of 1888, the police were bound to keep (Fiorino 2002). How asylum doctors kept records of the pellagrous insane in their care was in part determined by

how they understood ‘pellagrous mania’ in particular, and mental illness more generally, to which we now turn.

## REFERENCES

- Canosa, R. 1979a. *Storia del manicomio in Italia dall'Unità a oggi*. Milan: Feltrinelli.
- Condrau, F. 2007. The Patient's View Meets the Clinical Gaze. *Social History of Medicine* 20 (3): 525–540.
- De Peri, F. 1979. Le origini dell'istituzione manicomiale e della scienza psichiatrica. *Società e storia* 2 (6): 683–723.
- De Bernardi, A. 1982. Malattia mentale e trasformazioni sociali. La storia dei folli. In *Follia, psichiatria e società. Istituzioni manicomiali, scienza psichiatrica e classi sociali nell'Italia moderna e contemporanea*, ed. A. De Bernardi, 11–32. Milan: Franco Angeli.
- Ferrari, M. 1985. Pellagra e pazzia nelle campagne reggiane. *Sanità, scienza e storia* 1 (1): 169–212.
- Finzi, R. 1982a. La psicosi pellagrosa fra la fine del '800 e gli inizi del '900. In *Follia, psichiatria e società. Istituzioni manicomiali, scienza psichiatrica e classi sociali nell'Italia moderna e contemporanea*, ed. A. De Bernardi, 284–297. Milan: Franco Angeli.
- Fiorino, V. 2002. *Matti, indemoniate e vagabondi. Dinamiche di internamento manicomiale tra Otto e Novecento*. Venice: Marsilio.
- Gillio, M. 2009. La popolazione manicomiale in Italia dall'Unità alla Grande Guerra. In *Cesare Lombroso cento anni dopo*, ed. S. Montaldo and P. Tappero, 99–114. Turin: UTET.
- Goffman, E. 2007 (1961). The Moral Career of the Mental Patient. In *Idem, Asylums: Essays on the Social Situation of Mental Patients and Other Inmates*, 125–169. New Brunswick, NJ: Transaction.
- Gregorj, G. 1893. *La pazzia e la pellagra nella provincia di Treviso: studio statistico*. Treviso: Zoppelli.
- Guarnieri, P. 1988. Between Soma and Psyche: Morselli and Psychiatry in Late-Nineteenth-Century Italy. In *The Anatomy of Madness: Essays in the History of Psychiatry*, ed. W.F. Bynum, R. Porter, and M. Shepherd, vol. 3, 102–124. London: Routledge.
- Guarnieri, P. 2007. Matti in famiglia. Custodia domestica e manicomio nella provincia di Firenze (1866–1938). *Studi Storici* 48 (2): 477–521.
- Johnson, R.B., and A.J. Onwuegbuzie. 2004. Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher* 33 (7): 14–26.
- Lonni, A. 1982. Pubblica sicurezza, sicurezza pubblica e malato di mente. La legge del 1904. In *Follia. Psichiatria e società. Istituzioni manicomiali, scienza*

- psichiatrica e classi sociali nell'Italia moderna e contemporanea*, ed. A. De Bernardi, 264–283. Milan: Franco Angeli.
- Majerus, B. 2013. *Parmi les fous. Une histoire sociale de la psychiatrie au XXe siècle*. Rennes: Presses Universitaires de Rennes.
- Morpurgo, E. 1882. *Atti della Giunta per la inchiesta agraria sulle condizioni della classe agricola*, vol. IV (Veneto). Rome: Forzani [Part of Jacini 1881–1886]. <https://locusglobus.it/documenti/emigrazione/Atti-Giunta-Inchiesta-agraria-e-sulle-condizioni-della-classe-agricola-vol-4-Relazione-Morpurgo.pdf>.
- Priani, E., and D. Gentilcore. 2016. *Venetian Mental Asylums Database (VMAD), 1842–1912* [Data Collection]. UK Data Service. SN: 8058. <https://doi.org/10.5255/UKDA-SN-8058-1>.
- Priani, E., and S. Botti. 2009. Il trattamento della follia nel morocomio veneziano di S. Servolo (1840–1860): cura fisica e cura morale. In *Lo sguardo psichiatrico: studi e materiali dalle cartelle cliniche tra Otto e Novecento*, ed. R. Panattoni, 258–268. Milan: Bruno Mondadori.
- Porisini, G. 1975. *Agricoltura, alimentazione e condizioni sanitarie. Prime ricerche sulla pellagra in Italia dal 1880 al 1940. Appendice statistica*. Bologna: Cooperativa libreria universitaria editrice.
- Risse, G., and J.H. Warner. 1992. Reconstructing Clinical Activities: Patient Records in Medical History. *Social History of Medicine* 5 (2): 183–205.
- Salviato, A. 2002. Pellagra e pazzia: i manicomi di S. Servolo e di S. Clemente. In *Storia di Venezia. L'Ottocento e il Novecento*, ed. M. Isnenghi and S. Wolf, vol. 2, 905–930. Rome: Istituto della Enciclopedia Italiana. [https://www.treccani.it/enciclopedia/pellagra-e-pazzia-i-manicomi-di-s-servolo-e-di-s-clemente\\_%28altro%29/](https://www.treccani.it/enciclopedia/pellagra-e-pazzia-i-manicomi-di-s-servolo-e-di-s-clemente_%28altro%29/).
- Salviato, A. 2003. Melanconiche d'altri tempi. Le pazienti del manicomio di San Clemente a Venezia (1873–1904). *Genesis* 2: 63–90.
- Statuti 1873. *Statuti organici dei manicomi delle province venete di S. Clemente e di S. Servolo in Venezia approvati definitivamente dal Comitato di stralcio del fondo territoriale*. Venice: Giuseppe Antonelli.
- Tagliavini, A. 1988. Aspects of the History of Psychiatry in Italy in the Second Half of the Nineteenth Century. In *The Anatomy of Madness: Essays in the History of Psychiatry*, ed. W.F. Bynum, R. Porter, and M. Shepherd, vol. 3, 175–196. London: Routledge.
- Vigna, C. 1877. *Rendiconto statistico del frenocomio centrale femminile di S. Clemente (1874–1875–1876)*. Venice: Antonelli.
- Willms, W. 1993. *San Clemente. Storia di un'isola veneziana*. Venice: Centro Tedesco di Studi Veneziani.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.





## Understanding Insanity: Pellagrous Insanity in Italy and General Paralysis of the Insane in the United Kingdom

**Abstract** In this chapter we examine the contemporary medical understanding of pellagrous insanity, and the conceptual and diagnostic challenges this posed. We do this by comparing debates surrounding pellagrous insanity in Italy with those waged around the same time in the United Kingdom vis-à-vis general paralysis of the insane (GPI). The latter disease was eventually linked to syphilis, even if the exact relationship between syphilis and insanity remained ambiguous—much like the body-mind link in pellagra and pellagrous insanity. We compare the two illnesses by examining how doctors classified them, sought to identify their causation and pathogenesis, and how this influenced diagnosis and treatment during the second half of the nineteenth century. Although pellagra and general paralysis were acknowledged as specific and distinct clinical entities, they nevertheless both lacked a recognised and precise aetiology and pathogenesis. As a result, the diagnostic process gave room to doubts, uncertainties and questions. Together, they provide us with historical and conceptual evidence of the need to subject ‘diagnostic reason’ to constant criticism.

**Keywords** Medical understanding of pellagrous insanity · General paralysis of the insane (GPI) · Insane asylums · United Kingdom · Insanity and body-mind link · Mental illness · Diagnosis and treatment · Diagnostic process

All of Italy's specialist investigators into pellagra, or pellagrologists, shared a common experience as asylum doctors or directors in areas worst affected by the epidemic. Insane asylums offered a privileged site for observance of the disease, especially in its most serious and debilitating manifestations, on both dead and living patients. This shared asylum-based experience did not mean that Italian doctors were agreed as to the aetiology of pellagrous insanity, however. Poverty was clearly a predisposing factor but, as Cesare Vigna, director of the San Clemente asylum, noted, poverty was widespread across the world whereas pellagra was not. Vigna added: 'Once all of the possible generating causes of pellagra have been gone through, the only unmissable one is this: *the exclusive and insufficient peasant diet*' (Vigna 1879, p. 451; emphasis in the original).

At the time, explaining pellagra meant two main theoretical options, either dietary deficiency or toxin, as we saw in Chapter 4. On the one hand, Filippo Lussana, and later Clodomiro Bonfigli, director of the Ferrara asylum, theorised that a diet restricted to maize was lacking in nutrients essential for the body. On the other hand, Cesare Lombroso, one-time director of the insane ward at Pavia's hospital, insisted that it was a toxin present in spoilt maize that caused pellagra. Along the lines suggested by Lombroso, Carlo Ceni—director of the scientific laboratory at the San Lazzaro asylum in Reggio Emilia from 1894—looked for the infectious toxin in the blood of the pellagrous patients (Ferrari 1985, p. 201). In addition to these two main theoretical camps—which could also co-exist in what Vigna called the 'dualist' position—there were a range of other explanatory factors which contemporaries considered variously important, from excessive alcohol consumption to heredity, from back-breaking labour to excessive exposure to the sun, as we saw in Part I.

To shed light on how the medical understanding of pellagrous insanity evolved during the second half of the nineteenth century, and to introduce the asylum experience of the disease explored in Chapters 8 and 9, we propose a comparison between pellagrous insanity and general paralysis of the insane—abbreviated as GPI and also known as paralytic dementia or general paresis, at the time, and today as tertiary or neurosyphilis. These two very different diseases actually had much in common. They shared an organic basis and severe mental symptoms in their final stage. They had a massive and virulent impact on their respective populations, contributing markedly to the increase in asylum populations in Italy and the UK. Just as importantly, they can be seen



as paradigmatic expressions of the link between the physical and the mental, the somatic and the psychic, as it was conceptualised in the late nineteenth century. This view, especially where general paralysis was concerned, resulted in the idea that there might be a physical cause of *all* mental illness.

Not that this was perceived as straightforward. Vigna maintained that ‘aetiology is the most poetic branch of medicine ... of all illnesses, mental illness offers the greatest aetiological complication’ (Vigna 1874, p. 34). And Vigna was not the first to make this metaphorical reference to poetry. John Bucknill and Daniel Tuke, in the first edition of their *Manual of Psychological Medicine*, likewise remarked that any attempt to define a mental illness was akin to defining poetry; any definition would be too narrow (Bucknill and Tuke 1858, p. 86). It might account for the apparent arbitrariness and discretionality that characterised the formulation of diagnoses in asylums (Shepherd 2014), in Britain as in Italy, as we shall see.

In 1871 E.T. Wilkins framed the question another way. Wilkins—‘commissioner in lunacy for the State of California’—opened his report on insanity and asylums with the question:

What is insanity? This question has been always asked but perhaps has never been satisfactorily answered, for the simple reasons that insanity assumes so many forms and differs so widely in different persons, that no definition can possibly embrace all of its phases. Many persons have given definition of this subtle malady but not one has met with that universal concurrence necessary to render it the true and only or even the generally received definition. ... [David Skae] defined it ‘a disease of the brain affecting the mind’. We accept this definition as the best of all, because it is the most simple. It makes but little difference how the brain becomes diseased, whether primarily or by reflex action from the disease of some other organ of the body, so the fact as stated be true, that the brain must be diseased ere (before) the mind is affected. (Wilkins 1871, p. 8)

The passage highlights some fundamental and controversial epistemological matters pertaining to aetiology and the principle of causality in mental illnesses. It also raises the issue of the exact correlation between mind and body, *psyche* and *soma*, as crucial then as it is now. These topics were addressed by both the Italian debate on pellagrous insanity and the British debate on general paralysis. We shall explore how the two diseases were conceptualised in the wider context of contemporary

psychiatric nosology and how the medical debate around them in Italy and Britain centred around analogous themes and topics, highlighting important epistemological questions of continuing relevance today.

### PELLAGROUS INSANITY AND GENERAL PARALYSIS IN THE LATE NINETEENTH CENTURY

It took Wilkins almost a year and a half to visit 149 asylums in sixteen European countries. His aim was ‘to collect and compile all accessible and reliable information as to their management, the different modes of treatment, and the statistics of insanity... a statement of the different modes of treatment in use and such statistics as he may deem reliable’ (Wilkins 1871, p. 1). In Italy, Wilkins visited fifteen asylums in all, including the Venetian asylum of San Servolo. And he was not the only foreign observer to take an interest in Italian asylums. Before and after him two Australian doctors also visited, Frederick Manning (1868) and George Tucker (1887).

We are thus dealing with three important publications of international reach, whose authors were considered amongst the most influential asylum doctors in their respective countries and abroad. These works reveal the intention of their authors to strengthen the medico-scientific status of asylum medicine, an intention they shared with many of their psychiatrist contemporaries. Scientific research trips were quite a common practice in the medical field at that time (Cagossi 1989; Cabras et al. 2006). The discussions and exchanges generated at an international level would broach issues such as commonly adopted treatments, the most recent advancements in the field of pharmaceutical remedies and procedures in asylums—fundamental questions for the development of the medical profession and the cognitive advancement of these early ‘alienists’.

Wilkins’ and Tucker’s studies are of great importance for understanding the Italian situation (Manning has little to say). Their standpoint seems to be less influenced by local Italian dynamics, the two authors being fundamentally extraneous to the reality that unfolded before their eyes. This allows for an implicit comparison between the many realities under observation. Indeed, they approached the European scene—specifically, the Italian and British ones—from an external and broad perspective.

According to Wilkins’ statistical tables, ‘pillagra’ (as he spells it) figures as the first cause of insanity in Italy, followed by ‘hereditary factors’ and

‘alcoholism’. These findings contrast with those gathered by Wilkins in other European countries, whereby ‘hereditary’ factors were considered by far the most prominent ones. Thus in England, Scotland and Ireland, heredity and alcoholism represented the main causal factors of mental illness. To these, according to Wilkins, one should add forms of domestic and existential distress, postpartum disorders and some other physical and mental diseases, including general paralysis—the latter representing the leading cause of death in England and Wales. If pellagra is judged the main cause of insanity in Italy, Wilkins offers no suggestion as to how a ‘cutaneous disease’ like pellagra might be linked to insanity (Wilkins 1871, p. 211).

For his part, Tucker visited eighteen Italian asylums, including the Venetian asylums of San Clemente and San Servolo, with which he ends the section of his report dedicated to the country. Based on interviews he carried out with the respective directors, Tucker informs us that the main cause of institutionalisation in Venice was pellagra for men (San Servolo) and pellagra coupled with hysteria for women (San Clemente) (Tucker 1887, pp. 1305–1310). In the United Kingdom, by contrast, the main triggers of mental disease were, in order of frequency: heredity, alcoholism, physical impairments, syphilis and deprivation. ‘Mania’, according to Tucker, was ‘as curable a disease as others’. By contrast—and endorsing the position of his colleague Dr. Savage from Bethlehem Hospital—‘general paralysis of the insane must still be looked upon as the one incurable and fatal form of insanity’ (Tucker 1887, p. 12). We shall return to this important point below.

Although the signs and symptoms of pellagra were, by this period, clearly recognisable, doctors faced continuing difficulties in explaining the aetiology and pathogenesis of the disease. The precise aetiology and pathogenesis of pellagra, and the role of nicotinic acid (niacin), was finally pinpointed in 1937 (see Chapter 3). But that left pellagrous insanity. Indeed, even now, ‘the exact relationship between niacin deficiency and the pathogenesis of psychotic symptoms’ remains unclear (Lopez et al. 2014). And yet experience taught contemporaries that patients suffering from pellagrous insanity could be saved if timely and adequately fed. General paralysis of the insane, by contrast, was not then regarded as curable.

General paralysis was first identified as a specific neuropsychiatric morbid condition in 1822 by the French physician Antoine-Laurent-Jessé Bayle (Bayle 1822, 1825). His formulations, made together with his

thesis supervisor A.-A. Royer-Collard, were of major importance. Starting from the anatomopathological study on the meninges enveloping the brain and the spinal cord, the two physicians suggested the symptoms of ‘chronic frenzy’ manifest in general paralysis had to be differentiated from ‘idiopathic insanity’. The former was an epiphenomenon, a secondary symptom of an organic disease. As such, it was contrary to ‘idiopathic insanity’ and thus did not fall fully within the expertise of psychiatry (Postel and Quélet 2012, p. 204). General paralysis was a specific and peculiar disease for which thought disorders, speech impairment and psychomotor agitation were but manifestations. In 1894, Jean-Alfred Fournier established the syphilitic origin of general paralysis and introduced new methods of preventive care and public hygiene, to fight what he considered a spreading plague: syphilis (Fournier 1894). Over the next twenty years, Fritz Schaudinn and Erich Hoffmann and, later, Hideyo Ngouchi, would locate the morbid agent of progressive paralysis in *Treponema pallidum* of syphilis.

More broadly, both pellagra and general paralysis were societal diseases. They were directly linked to the major socio-economic transformations taking place in the nineteenth century. In Italy, the large-scale introduction of maize production and consumption in the northern Italian countryside, and the resulting transformation of land-holding patterns and dietary habits. In the UK—and in northern Europe more broadly—the processes of industrialisation, urbanisation and proletarianisation associated with the Victorian period, and the rampant phenomena of alcoholism and prostitution that these entailed. All of these factors played a significant role into turning general paralysis into what the pioneering Parisian psychiatrist Étienne Esquirol called ‘a disease of civilisation’ (1838, p. 400).

If pellagra and general paralysis had much in common, there were also significant differences. Whilst both diseases attacked people in their prime of life—35–50 years old—pellagra affected women more than men and was largely a feature of rural areas, whereas general paralysis struck men primarily and was characteristic of urban areas. That said, both diseases had severe repercussions for the life of the families affected by it in terms of the ability to work, as well as social stigma and moral condemnation. The latter were even more pronounced in the case of general paralysis. Whilst individual pellagrous insane might be regarded as either dangerous or a social nuisance, depending on how the illness manifested, pellagrous insanity as a whole was not generally regarded as a threat to the moral

order of society. General paralysis, by contrast, was (Thompson 1988; Wallis 2015, 2017). When pellagra, and especially pellagrous insanity, impacted on the day-to-day functioning of family members, especially of the women, the social cohesion and ‘unity’ of the family were strongly undermined. Moreover, social stigma, which in most cases was generated by the very same family members, struck indiscriminately whoever had had a first-hand experience of the asylum. Thus, it was less pellagra as a disease than the experience of the asylum that created this social condemnation, as we shall see in the next two chapters.

At the time, and as we surveyed in Part I, medicine offered an array of representations of pellagra that are fluid, inconsistent and imprecise. Indeed, the medical and psychiatric debate around pellagra during the early nineteenth century was not centred solely on the aetiology and pathogenesis of the illness, but revolved around the essential nature of the condition. It called into question genetic, hereditary, domestic, climactic and geographic aspects, as well as cultural and moral ones. There were hypotheses of a correlation between pellagra and other diseases, such as leprosy and scurvy. That said, the ongoing investigation into pellagra’s symptoms failed to provide an answer regarding their status. Were they were symptoms or the actual disease itself?

During the second half of the nineteenth century, patients diagnosed as pellagrous insane at the two Venetian asylums amounted to just under a third of all inmates. They conditioned the functioning of asylums in maize-growing areas (a point we shall return to in Chapter 8). Similarly, in the UK, ‘the fate of GPI would in some ways mirror the fate of the asylums’, according to Juliet Hurn. General paralysis represented ‘an ever increasing proportion of asylum inpatients, and would reflect in its degrading course the expansion and progressive demoralisation of the asylum system’ (Hurn 1998, p. 17). That said, there was an important difference in the two forms of insanity, which must have impacted on how the asylums coped. Pellagrous insanity was curable, and was considered such at the time, if treated in its early stages before the illness became chronic. By contrast, the chronic degeneration wrought by general paralysis was regarded as inexorable (Shorter 1997, pp. 50–58). During their stays, general paralysis patients required constant supervision (Wallis 2015).

In terms of sheer numbers, at the Central London Sick Asylum, three-quarters of the interned suffered from ‘congenital’ or ‘acquired’ syphilis. Amongst the low- and middle-class male patients at Edinburgh’s Royal

Asylum (Morningside), 40% were affected by alcoholism, syphilis or both. Amongst women, the figure was only 17%. Syphilis struck 22% of upper-class men, whereas none of the female patients of the same social origins at Morningside were affected by it. In Scotland as a whole, general paralysis was responsible for 14% of deaths in asylums, striking four times as many men as women (Thompson 1988, p. 318). In England and Wales, 18,438 patients affected by general paralysis were admitted into asylums during the period 1878–92—four to six as many men as women (Wallis 2015, p. 100). Andrew Scull estimates that, at the end of nineteenth century, almost one-fifth of men institutionalised in European and North-American asylums suffered from general paralysis (Scull 2015).

And numbers were the one thing contemporaries did have. At a time when the two diseases were still only partially understood, statistical methods were regarded as an important tool. In Venice, as elsewhere, the regular publication of statistical reports allowed for the spread of psychiatric knowledge and experience (Pelt 1847; Saccardo 1847; Salerio 1862). The attempt to raise the status of psychiatry as a discipline, through the gathering, analysis and classification of quantitative data, would lead, it was hoped, to a deeper understanding of mental diseases (Weiner 2008). If these statistical tools did not, in the end, contribute to a greater awareness of pellagra's aetiology, they would play a fundamental role in the case of general paralysis.

### PROBLEMATIC CLASSIFICATIONS: THE NOSOLOGY AND AETIOLOGY OF MENTAL ILLNESS

Lodovico Pelt devoted the second part of his 1847 asylum report entirely to pellagra. The picture Pelt offers is telling: one-third of the population of the women's asylum—still located in Venice—consisted of the pellagrous insane. All of the clinical cases discussed by Pelt in his report refer to such patients. Moreover, he recognised that the pellagrous insane referred to the asylum represented but 'a small number of existing pellagrous patients' (Pelt 1847).

Pelt described the development of pellagra in these terms:

Once developed, the disease threatens the body with physical devastation and, although it does not always lead to delirium, more often than not it does; which is when individuals are referred to central asylums. Acute malnutrition, weakness during labour, dry skin, pronounced dull

grey endemic alteration of hands and feet with major or minor peeling of the cutis, frequent and intense sweating, fixed eyes, melancholic physiognomy, absent-mindedness: such is the sad clinical picture generally affecting a third of our patients. The prominent form of alienation is mania, followed by idiocy and severe dementia ... after these, come melancholy and mostly religious mania. (Pelt 1847, pp. 91–92)

Pelt's reference to 'the prominent form of alienation' is of particular relevance here, meaning the dominant clinical trait from a phenomenical point of view, necessary to begin the diagnostic process. This determines the fundamental classifications of mental disorders—mania, monomania, melancholia and so on—relating to the nature of the pellagrous patient. Through a simple process of juxtaposition and subsumption, it leads to the creation of hybrid forms of diagnosis (Berrios 2013). Apparently banal, this process does have its own internal logic and, as such, merits our attention.

Pelt devotes a whole chapter to the nature of mental diseases. His criteria are based on a double set of triggering factors: 'predisposing' (of hereditary nature), and 'occasional', necessary so that the former could become manifest in the form of a disease (Pelt 1847). The distinction between 'predisposing' and 'occasional' reflected a common practice in the medical field of the time (Davis 2008). 'Occasional' factors allowed the potential illness to develop and were determined by 'physical' and 'moral' factors, both acting 'on the same individual at once' (Pelt 1847, p. 54). Amongst occasional factors of a physical nature, alongside organic diseases—like scurvy, epilepsy, cerebrospinal disease, syphilis and muteness-deafness—Pelt also names pellagra. Amongst 'moral' factors, he lists ambition, love, avarice, heredity, marriage, misery, worries, fear and religion.

The distinction between 'predisposing' and 'occasional' factors, as well as that between 'physical' and 'moral' ones, would remain a point of reference in the aetiology of mental diseases in Venetian psychiatry for the rest of the nineteenth century. They were already widely used. Bayle had adopted them in distinguishing the causes of general paralysis into physical and moral, in turn divided into predisposing and occasional. For Bayle, predisposing moral factors were as incisive as physical ones (Bayle 1826, pp. 402–4; Postel and Quénel 2012).

Pellagra features in Pelt's classificatory system as one of the possible 'factors of physical origin'. The adjectival label 'pellagrous' was associated with a sign, symptom or syndrome—whether mania, monomania, melancholia, dementia or idiocy. It followed, then, that Pelt stressed the correlation between these and a specific 'physical factor of occasional nature', i.e. pellagra (Pelt 1847). Indeed, the diagnoses frequently attributed to pellagrous patients were 'pellagrous frenzy', 'pellagrous melancholia' or 'melancholia due to pellagra', 'mania due to pellagra' and 'pellagrous monomania' (see also Chapter 8). These diagnoses suggest the dual status pellagra had at the time: on the one hand, hypothesised as a cause, or contributory cause, of mental disorder, and on the other, as a disease whose nature remained fundamentally unknown. Curiously, this meant that pellagra was confidently identified as the cause of manias even whilst the exact causes of pellagra itself remained unknown.

The severe psychiatric symptomatology and the often shocking behaviour exhibited by pellagrous patients were due to inexplicable psycho-neuroendocrine and metabolic processes, which led generations of doctors after Pelt to adopt a merely empirical, descriptive and symptomatic model. They simply transferred and expanded diagnostic classifications from patients affected by 'manias' on to pellagrous patients, adding the label 'pellagrous' to the diagnoses already in use. Despite insights offered by the field of anatomical pathology into the nature of pellagra (Labus 1847), the fundamental problem concerning the understanding of pellagra's psychiatric symptoms and their diagnostic translation would linger throughout the nineteenth century.

A similar issue was present in general paralysis (Davis 2008). At the Hanwell Asylum in Middlesex, for instance, it was reported as a distinct diagnosis from 1870. However, from 1880, following the introduction of a standardised clinical file format, 'the diagnosis was again practically always given as [*insanity type*] + *general paralysis*: a style which equivocally suggested a complication' (Hurn 1998, p. 46). Whereas Hurn tends to attribute such discrepancy between theory and clinical practice to the difficulties related to the everyday running of the asylum, Germán Berrios and Roy Porter suggest that theoretical boundaries between nosographic categories were not clear-cut (Berrios and Porter 1995). Let us try to shed some light on this contradiction.

In the first edition of their *Manual of Psychological Medicine*, published in 1858, John Bucknill and Daniel Tuke argued for the need to present a 'more comprehensive' classification of mental diseases than the traditional



nomenclature of Esquirol, without rejecting it entirely. Their classification consisted of five fundamental categories: idiocy, dementia, delirious and emotional insanity and mania. General paralysis, the triggering factors of which were imputable to alcohol abuse, misfortune, domestic problems and libertinism, could complicate these forms (Bucknill and Tuke 1858). The two alienists thus assigned a character of ‘complication’ to general paralysis: its consequent and peripheral nature in contrast to the dominant psychopathological picture. This was confirmed in the 1862 edition of their *Manual*. However, they also noted that ‘the reasons for regarding General Paralysis as a distinct form of insanity possess much greater weight’ (Bucknill and Tuke 1862, p. 89). Whereas the adjective ‘pellagrous’ referred to a specific order of alleged *causes*, in the diagnosis of general paralysis its status remained that of a *complication*.

The most frequent causes of general paralysis referred to emotional disorders of various sorts, such as anxiety and jealousy, but also included heredity, fever, head injuries or the manifestation of diseases to which general paralysis was the culmination. At the same time, the authors maintained, the disease ‘is very frequently caused by intemperate habits’ (Bucknill and Tuke 1862, p. 496). They suggested that general paralysis might also be a consequence of ‘a disease of nutrition affecting the whole nervous system’. This idea was based on the overall malfunctioning of the neuro-muscular system and on the numerous and suspect instances of fractures and even deaths due to patient falls (Wallis 2013). The idea of a possible dietary cause of general paralysis suggests a further affinity with pellagra—although one that did not actually exist. At any rate, the two doctors were forced to conclude that ‘the pathology of this disease is yet purely a matter of surmise’ (Bucknill and Tuke 1862, p. 495).

In 1871 the London doctor G. Fielding Blandford went further, seeing general paralysis as a distinct, ‘well defined, recognisable’ disease. It was fatal, with a rapid course, immune to any treatment, whose causes lay in sexual excesses. At the same time, Blandford was forced to admit that when it came to ‘the pathology and nature of the disease, there are still great doubt and controversy’ (Blandford 1871, p. 256). Its origins remained unknown and highly controversial.

Bucknill and Tuke’s 1879 edition of the *Manual* represents a significant change in the psychopathological picture as a whole. With the traditional paradigm of organ-based medicine in mind, they suggested the existence of ‘typical psychopathological forms’—‘distinct mental diseases originating in different bodily causes, pursuing a definite course, and

having a distinctive morbid anatomy' (Bucknill and Tuke 1879, p. 51). It was necessary to distinguish the morbid forms starting with their evident characteristics, rather than their supposed intrinsic nature. Similarities, affinities, characteristics, external properties and physical conditions: these would henceforth be the criteria on which the categorisation of mental diseases would be based. They advanced a classification based on three macro areas of disease: (i) 'protopathic insanity', or mental deficiency, which included illnesses due to primary factors and insufficient development, such as idiocy and general paralysis; (ii) 'deuteropathic insanity', due to the development of organs independent of the encephalic centres, which included puerperal insanity; and (iii) 'toxic insanity', deriving from various forms of intoxication or poisoning, which included alcoholism and 'pellagrous insanity'. When it came to this neat classification, general paralysis put the two doctors into a bit of a quandary, since it 'sometimes is and sometimes is not caused by excess of alcohol'. And they admitted that no classificatory system was 'free from objection and more or less obvious inconsistency' (Bucknill and Tuke 1879, p. 53).

Medical authors writing in their wake stressed the difficulties in diagnosis, despite the vast spread of the disease. It still risked being mistakenly diagnosed, especially during its early stages (Mickle 1886; Berkley 1901). The 'typical psychopathological forms' advocated by Bucknill and Tuke were not easily applied to clinical practice and translated into diagnostic expression. It was impossible to establish sufficiently clear links and theoretical connections with other forms of the same illness and with other psychopathological profiles. Furthermore, even when isolated at a descriptive level, general paralysis could appear in spurious, fluid and fluctuating modalities in clinical practice, whose translation into diagnosis was not straightforward.

This would explain the widespread use of rhetorical labels like 'pseudo' and 'diathesis' (predisposition), used with reference to both general paralysis and pellagra. In this sense, 'a classification system based on external symptoms that tended to vary in the extreme' (Grob 2008, p. 541), could lead to merely descriptive or formalistic diagnoses, empty of explanatory and cognitive content. The essential characteristics of general paralysis and pellagra may have been clearly understood and recognised at a conceptual level, but serious difficulties remained in translating this knowledge into diagnostic reality.

### THE PHYSICALITY OF MENTAL ILLNESS?

The use of statistical analysis seemed to suggest a way forward in the case of general paralysis. This transition from qualitative to quantitative was behind the significant conceptual reformulation originated by Jean-Alfred Fournier. The French venereologist radically modified his point of view on the link between syphilis and GPI precisely on account of statistical evidence. Fournier maintained that ‘general paralysis is not a disease of a syphilitic *nature*; we simply believe and simply call it of syphilitic *origin*: a syphilitic diathesis to which the term “parasyphilitic” can be attributed’ (Fournier 1894, p. 191; emphasis in the original). He observed that, on average, between 60 and 80% of patients affected by progressive paralysis had previously manifested episodes of syphilis. For Fournier, this could not be a mere coincidence. The impairments associated with general paralysis could be caused by syphilis, ‘since both aetiology and clinical studies teach us that very often general paralysis is of syphilitic origin’ (Fournier 1894, p. 194).

Numbers thus allowed investigators to shed light on new, distinct clinical findings. The research conducted by Fournier into the origins of general paralysis introduced a variance between the direct observation of the patient and quantitative representation as provided by numbers. We noted above how the statistical tools used in Venetian asylums, as applied to the pellagra, were in line with clinical observation; the two methods of observation perfectly complemented and legitimated one another. By contrast, when it came to research into general paralysis, these tools suggested a conflict, since the results provided by the two procedures were qualitatively different. Statistical tools seemed to offer a viewpoint that was at once distancing and objectifying, lacking the all-too-human and relational implications that characterised direct contact with the sufferer. The approach came to the fore in debates over pellagra’s aetiology, explored in Chapter 3. Here, the strictly positivistic and laboratory-based approach epitomised by Cesare Lombroso faced down the more traditional clinical methodology, characterised by a direct contact with the patient, evident in the work of Clodomiro Bonfigli.

With regard to developments into the origins of general paralysis, there was an increasing tendency in the UK to look for evidence of previous syphilis in the case history of patients suspected of general paralysis. Whenever the presence of syphilis in the patient’s history was confirmed,

the correlation with general paralysis was direct. Nonetheless, this association would prove unclear for many years to come. As with pellagra, general paralysis remained enigmatic in the way it appeared ‘to reveal something of the processes occurring deep within body and brain’ (Wallis 2015, p. 102). The recognition of a syphilis—general paralysis link did not immediately lead to any clarification in the actual nature of the disease and the correlation between the two afflictions. Especially after the discovery that general paralysis coincided with third-stage syphilis, general paralysis acquired a coherent profile in line with an essentially organic, chronic-degenerative understanding of mental pathologies. Indeed, for British alienists, general paralysis came to represent the most recognisable, structured and solid amongst disease entities, one that was able to provide psychiatry and psychiatric practitioners with a stable physicalist and organicist foundation (Hurn 1998). It offered an ideal and seductive model of rationality to British psychiatry, which hoped to discover in the obscure syphilis-general paralysis link the same mechanisms generating mental illness in general.

By contrast, an analogous reading of pellagra as a paradigm of the cerebral rootedness of mental diseases is more difficult. A series of elements made the pellagrous pathology less appealing (including at the symbolic and imaginary level). Take, for instance, the cutaneous symptoms in pellagra. Whereas the physical symptoms of general paralysis recalled a possible direct correlation of the disease with a deficit of the central nervous system, the simultaneous presence of cutaneous and mental symptoms typical of pellagra were less easily deciphered. Furthermore, pellagrous insanity was curable under certain circumstances. Many doctors held the idea, gradually supported by the facts, that pellagra constituted a pathological entity in its own right independent of its mental symptoms. Finally, the geographical localisation of the disease within a fairly precise geographical delimitation—essentially north-eastern Italy—did not permit arbitrary generalisations. These characteristics clearly distinguished pellagrous insanity from general paralysis, making the disease of Italian peasants less amenable to the explanatory and naturalistic model adopted by psychiatry in the UK.

## ENDURING DIAGNOSTIC CHALLENGES

In 1862 the director of San Servolo, Prosdocimo Salerio (1815–77), bemoaned the limitations of contemporary classification and nomenclature when it came to mental disease, wishing for one that was ‘more rational, more in line with the nature of these diseases’ (Salerio 1862, p. 8). Later, he maintained that we might see the facts but were unable to account for them. For instance, with regard to heredity as a pre-existing, cerebral cause of pellagrous insanity, Salerio noted how it ‘remains an uncharted area; we still are shrouded in a dark fog’ (Salerio 1871, p. 19).

Salerio expressed his doubts this way:

The classification of mental diseases based on pathological and anatomical alterations relies on tentative, *a posteriori* diagnoses. How many times the alleged diseases prove to be unfounded! It is said they should be like this, that the alterations cannot always be understood but which must exist. Moreover, how is it that the same alterations manifest themselves always in the same way? Is there a constant relation among them? Can we always give them the same interpretations? Are these [brain] lesions a constant in this specific form of mania? I think that, thus far, we can only ever claim this for pellagra and general paralysis. Sometimes only conjecture is made and, more often than not, doubts arise as to whether these lesions are the cause or the effect of the actual insanity. Do different causes always produce the same manifestations? Why, then, do different manifestations replace and follow one another in the same individual? (Salerio 1871, p. 3)

Salerio’s position recalls that adopted towards the end of the century by the German clinical psychiatrist Emil Kraepelin (1856–1926). Kraepelin ‘[admitted] his delusion in the face of the extremely inadequate therapeutic possibilities and diagnostic correlations that he [found] baffling’ (Hoff 1989, p. 46). In his memoirs, Kraepelin wrote of the ‘impotence of medical action that most of the time had to limit itself to pleasantries and summary physical cures’, as well as ‘the utter dismay faced with all these manifestations of insanity, beyond any scientific explanation’ (Kraepelin 1989, p. 28). He demanded that nosological formulations be constantly subjected to clinical practice, a practical scepticism that also characterises this phase of Venetian psychiatry.

In the writings of Venetian asylum directors and alienists like Salerio—as in Pelt before him and Vigna and Dalmazio Battanoli after him—it is not unusual to find references to the inadequacy and arbitrariness of the

disease categories and diagnostic labels of the time. Their thinking was characterised by a sort of epistemological humility. They expressed the inadequacy of their theoretical apparatus, just as Bucknill and Tuke did, and were aware that it could account for the complex and multifaceted manifestations of mental illness. This had the effect of complicating the doctor-patient encounter, making the diagnostic process problematic and uncertain.

Salerio's words could have been written at any time in the second half of the nineteenth century. Indeed, they have an uncanny currency today. They resonate with the considerations formulated, almost a century and a half later, by the US psychiatrist Allen Frances, director of the task force that compiled the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV):

Descriptive classification in psychiatry has so far been singularly unsuccessful in promoting a breakthrough discovery of the causes of mental disorder. [Although] the miraculous advances in our understanding of normal brain functioning, [the] impact on understanding psychopathology almost nil ... Any given type of pathological functioning can have many different causes ... Psychopathology is heterogeneous and overlapping not only in its presentation, but also in its pathogenesis... Indeed, the concept of mental disorder is so amorphous, protean, and heterogeneous, that it inherently defies definition. This is a hole at the center of psychiatric classification. (Frances 2010, p. 22)

The ways in which pellagra and general paralysis were conceptualised during the second half of the nineteenth century suggest an underlying tension. On the one hand, we can observe a need to isolate, create and fix a scientific object, beginning with its stable representation. On the other hand, that very same object remained elusive, fleeting and unformed—whose real manifestations eluded the taxonomical grasp. The two diseases, at different levels, proved to be difficult to classify, whether amongst organic diseases or amongst specifically mental disorders. Their status remained dubious and undefined, resembling a sort of two-faced Janus with one face looking towards *soma* and the other towards *psyche*.

Our analysis of the diagnostic rationale behind pellagra and general paralysis has allowed us to stress the limitations of diagnostic formulations in use amongst alienists in the second half of the nineteenth century. Although pellagra and general paralysis were acknowledged as specific and distinct clinical entities, they nevertheless lacked a recognised and

precise aetiology and pathogenesis. As a result, the diagnostic process gave room to doubts, uncertainties and questions. The obscurity of the disease-causing processes could result in diagnoses that were weak in heuristic terms and less than useful in terms of actual treatment. Analogous problems resurface in contemporary psychiatry, to be sure, although to a different degree. By tracing the histories of pellagra and general paralysis, we have sought to offer historical and conceptual evidence of the need to subject ‘diagnostic reason’ to constant criticism, something of which our asylum doctors were only too well aware. How this translated into the treatment of pellagrous patients in the asylum is the subject of the final two chapters.

## REFERENCES

- Bayle, A.L.J. 1822. *Recherche sur les maladies mentales*. Paris: Didot le Jeune.
- Bayle, A.L.J. 1825. *Nouvelle doctrine des maladies mentales*. Paris: Gabon et Compagnie. <https://gallica.bnf.fr/ark:/12148/bpt6k54627316.texteImage>.
- Bayle A.L.J. 1826. *Traité des maladies du cerveau et des ses membranes*. Paris: Gabon.
- Berkley, H.J. 1901. *A Treatise on Mental Disease*. London: Henry Kimpton.
- Berrios, G.E. 2013. *Per una nuova epistemologia della psichiatria*. Rome: Fioriti.
- Berrios, G.E., and R. Porter. 1995. *A History of Clinical Psychiatry: The Origin and History of Psychiatric Disorders*. London: The Athlone Press.
- Blandford, G.F. 1871. *Insanity and Its Treatment*. London: Simpkin, Marshall and Co.
- Bucknill, C., and D.H. Tuke. 1858. *A Manual of Psychological Medicine: Containing the History, Nosology, Description, Statistics, Diagnosis, Pathology, and Treatment of Insanity, with an Appendix of Cases*. Philadelphia: Blanchard and Lea.
- Bucknill, C., and D.H. Tuke. 1862. *A Manual of Psychological Medicine*, 2nd ed. London: John Churchill.
- Bucknill, C., and D.H. Tuke. 1879. *A Manual of Psychological Medicine*, 4th ed. London: J. & A. Churchill.
- Cabras, P.L., S. Chiti, and D. Lippi. 2006. *Joseph Guillaume Desmaisons Dupal-lance. La Francia alla ricerca del modello e l'Italia dei manicomi nel 1840*. Florence: University Press.
- Cagossi, M. 1989. Nascita dell'istituzionalismo secondo i resoconti di viaggio nell'ottocento. In *Passioni della mente e della Storia. Protagonisti, teorie e vicende della Psichiatria italiana tra '800 e '900*, ed. F.M. Ferro, 289–308. Milan: Vita e Pensiero.

- Davis, G. 2008. *'The Cruel Madness of Love': Sex, Syphilis and Psychiatry in Scotland, 1880–1930*. Amsterdam: Rodopi.
- Esquirol, É. 1838. *Des maladies mentales: considérées sous les rapports médical, hygiénique et médico-légal*. Paris: Baillière.
- Ferrari, M. 1985. Pellagra e pazzia nelle campagne reggiane. *Sanità, Scienza e Storia* 1 (1): 169–212.
- Fournier, J.-A. 1894. *Les affections parasyphilitiques*. Paris: Rueff.
- Frances, A. 2010. DSM in Philosophyland: Curiouser and Curiouser. *Bulletin of the Association for the Advancement of Philosophy and Psychiatry* 17 (1): 21–25.
- Grob, G.N. 2008. The Transformation of American Psychiatry. In *History of Psychiatry and Medical Psychology*, ed. E.R. Wallace and J. Gach, 533–554. New York: Springer.
- Hoff, P. 1989. Immanenza e ricorsi nella nosografia: il pensiero nosologico nella psichiatria tedesca da Emil Kraepelin ad oggi. In *Passioni della mente e della Storia. Protagonisti, teorie e vicende della psichiatria italiana tra '800 e '900*, ed. F.M. Ferro, 45–55. Milan: Vita e Pensiero.
- Hurn, J.D. 1998. *The History of the General Paralysis of the Insane in Britain, 1830 to 1950*. Unpublished PhD thesis, University of London. <https://discovery.ucl.ac.uk/id/eprint/1349281/>.
- Kraepelin, E. 1989. *Memorie*. Pisa: ETS. In English as: *Memoirs*, ed. H. Hippus, Peters, and D. Ploog. Berlin: Springer-Verlag, 1987.
- Labus, P. 1847. *La pellagra investigata sopra quasi duecento cadaveri di pellagrosi allo scopo di interpretarne la condizione patologica, l'indole e la natura*. Milan: Bonfanti.
- Lopez, M., J.M. Olivares, and G.E. Berrios. 2014. Pellagra Encephalopathy in the Context of Alcoholism: Review and Case Report. *Alcohol and Alcoholism* 49 (1): 38–41.
- Manning, F.N. 1868. *Report on Lunatic Asylums*. Sydney: Thomas Richards. <https://wellcomecollection.org/works/ykc9hjcc/items>.
- Mickle, J.W.M. 1886. *General Paralysis of the Insane*. London: H.K. Lewis.
- Pelt, L. 1847. *Cenni storico medici intorno al Morocomio Femminile di Venezia: giuntavi una memoria sulla pellagra localmente trattata e la statistica delle alienazioni per gli anni 1844/45/46*. Venice: Naratovich.
- Postel, G., and C. Quéтел, eds. 2012. *Nouvelle histoire de la psychiatrie*. Paris: Dunod.
- Saccardo, A. 1847. *Tavole statistiche sugli alienati che ebbero cura durante il triennio 1844-45-46 nel Morocomio centrale maschile di Venezia*. Venice: Tip. Armena.
- Salerio, P. 1862. *Tavole statistiche del Manicomio centrale maschile in San Servolo di Venezia del quinquennio 1857–61*. Venice: Tip. Armena.



- Salerio, P. 1871. *Tavole statistiche, triennali 1868–69–70, del manicomio centrale maschile in San Servolo di Venezia*. Venice: Tipografia della società di mutuo soccorso fra compositori-tipografi.
- Scull, A. 2015. *Madness in Civilization: A Cultural History of Insanity*. London: Thames and Hudson.
- Shepherd, A. 2014. *Institutionalizing the Insane in Nineteenth-Century England*. London: Pickering and Chatto.
- Shorter, E. 1997. *A History of Psychiatry: From the Era of the Asylum to the Age of Prozac*. New York: Wiley.
- Thompson, M.S. 1988. The Wages of Sin: The Problem of Alcoholism and General Paralysis in Nineteenth-Century Edinburgh. In *The Anatomy of Madness. Essays in the History of Psychiatry*, ed. R. Porter, W.F. Bynum, and M. Shepherd, vol. 3, 316–340. London: Routledge.
- Tucker, G.A. 1887. *Lunacy in Many Lands*. Sydney: Charles Potter. <https://wellcomecollection.org/works/mc4q7qdb/items>.
- Vigna, C. 1874. *Il nuovo manicomio femminile di San Clemente: primo resoconto statistico del cav. Cesare Dott. Vigna*. Venice: Antonelli.
- Vigna, C. 1879. Sulla pellagra nella provincia di Venezia. In *La pellagra in Italia*, In *Annali di Agricoltura* 18: 447–462.
- Wallis, J. 2013. The Bones of the Insane. *History of Psychiatry* 24 (2): 196–211. <https://journals.sagepub.com/doi/10.1177/0957154X13476200>.
- Wallis, J. 2015. “Atrophied, Engorged, Debauched”: Muscle Wastage, Degenerate Mass and Moral Worth in the General Paralytic Patient. In *Insanity and the Lunatic Asylum in the Nineteenth Century*, ed. T. Knowles and S. Trowbridge, 99–113. London: Pickering and Chatto.
- Wallis, J. 2017. *Investigating the Body in the Victorian Asylum: Doctors, Patients, and Practices*. London: Palgrave Macmillan. <https://link.springer.com/book/10.1007/978-3-319-56714-3>.
- Weiner, D.B. 2008. Philippe Pinel in the Twenty-First Century. In *History of Psychiatry and Medical Psychology*, ed. E.R. Wallace and J. Gach, 305–312. New York: Springer.
- Wilkins, E.T. 1871. *Insanity and Insane Asylums: Report of M. D. Commissioner in Lunacy for the State of California, Made to His Excellency H. H. Haight, Governor*. Sacramento, CA: T. A. Springer. <https://collections.nlm.nih.gov/bookviewer?PID=nlm:nlmuid-2545034R-bk>.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.





## CHAPTER 8

---

# Experiencing the Asylum

**Abstract** Here (and in Chapter 9), we shift our gaze to the asylum experience of pellagra, focusing on Venice’s two insane asylums: San Servolo (for men) and San Clemente (for women). The two chapters are organised around the ‘life cycle’ of male and female sufferers at the two asylums: from local referral and admission, through to treatment, and ending either with release back into the community or death. Being photographed upon admission became a standard part of the patient experience and we shall see how the patient photograph became a clinical tool. The photographic record can help us restore patient agency to the asylum experience. Who were the pellagrous insane represented in these sometimes harrowing photographs? What can a patient typology tell us about the nature of the disease and how it compares to ‘regular’ or non-pellagrous insanity? To answer these questions we look at the gendering of pellagrous insanity, as well as other factors such as age, social status and geographical origins, before turning to the treatments offered—diet, medicines and work-related activities—and the notion of ‘curability’.

**Keywords** Pellagra, asylum experience · San Servolo, Venice · San Clemente, Venice · Insane asylums, Italy · Photography as clinical tool · Patient typology of pellagrous insane · Notion of curability

## INTRODUCTION

In the previous chapter, we noted that the Australian George Tucker visited the Venetian mental hospital of San Clemente in 1884, whilst on his asylum tour of Europe. His comments were far from generic: ‘I never heard more noise in any asylum. In a day room at the end of the corridor a perfect pandemonium existed. Fifty women were fastened in various ways—straps, jackets, hobbles, etc.—their feet being blue with cold’ (Tucker 1887, p. 1307). Practices of no restraint, much supported by Tucker, evidently did not have much purchase in Italy. Such circumstances did not figure in the sanitised official reports published by director Cesare Vigna about San Clemente (1877, 1887). Nor did Vigna remark on the overcrowding there, which saw the number of resident patients virtually double over two decades—from 585 in 1873 to 1,010 in 1892. The number of patients each asylum doctor was responsible for went from 138 to 332 (Salviato 2002, pp. 920, 923). As we noted in Chapter 6—and also observed for other parts of Europe (Wright 1997; Smith 2012)—this expansion was driven less by the desire to ‘confine’ insanity than by increasing poverty, exacerbated here by epidemic pellagra.

The asylum experience of pellagrous insanity, for patient and ‘alienist’ alike, began with admission and institutionalisation. The first step was diagnosis, a less than straightforward process, as we observed in the previous chapter. When it came to the nature of pellagrous insanity, the then-director of San Servolo, Dalmazio Battanoli, simplified things for his report. Battanoli wrote that pellagrous insanity could ‘present itself in all forms [of insanity], beginning with cheerful mania to mania with frenzy, from simple depression to melancholy with stupor, to mania with persecution, to hypochondriacal, sensory and paralytical insanity’. And he added: ‘We have had the occasion to observe it in all these forms’ (Battanoli 1884, p. 185). To judge by the patient records, the most common form at the two Venetian asylums—according to the illness categories used in Italy at the time (Sarteschi et al. 1994)—were a group of afflictions that included mania, monomania and *frenosi* (a generic term). These accounted for most cases of pellagrous insanity: 67% of male cases and 75% of female ones. Diagnoses characterised by depressive states, labelled melancholy and *lipomania*, were similar for both sexes, at around 19% of cases. Finally, a third group of illnesses, which included dementia, imbecility and idiotism, affected men twice as much as women, accounting for of cases 14% in men and 6% in women.

In theory, patients were to be divided up according to their illness type, following an examination upon their arrival. In practice, however, separation at San Servolo seems to have been mainly functional, according to whether patients were deemed dangerous or not (*agitati* or *tranquilli*). At San Clemente, director Vigna would have preferred an institution made up of a network of separate pavilions for different categories of sufferers, which he referred to as an ‘essential rule for the difficult management of these sick people’ (Vigna 1887, p. 53). As he did not have this luxury, Vigna got around this limitation thanks to the large size of San Clemente, which permitted patients to be separated into different areas of the building. New arrivals were placed in an observation ward, where they remained for two weeks, ‘before being placed in the respective sections according to the dictates of psychiatry [*freniatria*]’ (Vigna 1877, pp. 62–63). By this, Vigna meant housing ‘tranquil’ cases towards the front of the building, which was also where the staff had their offices, and the more serious and chronic cases towards the back. There is no indication that pellagrous insanity was dealt with any differently from other forms. Evidently, pellagra was the disease’s causation, not its manifestation; and patients were housed according to their behaviour and conditions.

### PATIENT PHOTOGRAPHY AS CLINICAL TOOL

Pietro Bregolato has the sad honour of being the first San Servolo patient to be photographed upon admission, on 14 April 1874, and this portrait attached to his patient file (Fig. 8.1). Otherwise, there is little to set him apart from the many pellagrous insane who were admitted during the final decades of the nineteenth century. Pietro was a thirty-eight-year-old carpenter diagnosed with ‘intermittent hereditary mania’. According to his patient record, he was:

Admitted to the hospital in Vicenza several times with suicidal tendencies, threatening to kill his wife. He is the picture of sadness, always taciturn, tending to isolate himself from the other patients, hiding himself away in a corner. Interrogated, he struggles to reply and offers words of desperation. [Diagnosis:] Pellagra and a downturn of fortune, having gone from a rather comfortable condition to poverty.

The asylum doctors described Pietro as ‘melancholy, with a suspecting look, taciturn’. This impression is borne out by the attached photo,


### MOROCOMIO CENTRALE MASCHILE IN SAN SERVOLO DI VENEZIA.

**TABELLA** relativa al nominato **Bregolato Pietro**  
 entrato il *16 aprile 1894* proveniente da *Clin. Spedale di Vicenza*  
 accompagnato da *Nata in questa Direzione 15 corr. N. 360*

(Comune <i>Bolzano</i> ) (Distretto } (Provincia } <i>Sicilia</i>	(Comune } (Distretto } <i>Vicenza, Borgo S. Lucia</i> (Provincia } <i>Barb. Ora C. R.</i>
---	---

Figlio di *Giuseppe* e *Margherita Filippi*  
 d'anni *38* Professione *Telogrammi* e *giornali* = *coltivato*  
 Stato *liber. con. Lucia Pontesini*  
 Spettanza del carico *Provinciale Dec. 12 aprile 1894 N. 303*

Registrato al F.° *52*    progressivo N.° *59*    ed in Protocollo N.°



#### COMPENDIO STORICO DELLA MALATTIA

*Il malato ha il fratello che un fratello malato, da lui più volte, nella Clinica di Bolzano un tentativo di guarire che riuscì. Lasciò la moglie e si recò a Bolzano, prima e tentò una cura a Parigi, poi alla clinica di Morocomio, in qualche luogo, interrogato risponde a parole e risponde parole di Spagnuolo.*

*Il malato è figlio di persona, padre sposato da esso tale di altissima mente, una mente di uomo normale, un passato di devotissimo, riferibile alla madre, subacuto, e di genio.*

*Il malato malamente un uomo spietato, e tentano, prendendo del parte di tale malattia, alle Cliniche mentre egli è fuori e più lontano. Si agitano la sua famiglia, ritenendo che nel malato si sia una infanzia.*

*Il malato più di bene essere, ha guato di anche ragionando, impiegando qualche poco nei lavori domestici, e rittorno all'uso del ferro.*

*Dopo il voto del aprile, comincia in modo da Bolzano, ma non sono 20 mesi, bene, parte, rittorno al anche di bene essere, mangia con appetito, dorme certamente di e ragionando.*

*Malato - Cominciano le cose, comincia quando il primo e incominciò a diventare un po' inquieto, diceva che era il Spagnuolo, dopo tentare la cura, ma il primo dopo incominciò a cantare a rimpallare e comincia tutto la notte in sala al letto, che gli fu detto, si prima il effetto, alcuni non comparso più, alcuni e prima e allora tutto progressivo e una persona, questo inferno, lo fecero a tutti i fatti, con alcuni tra a letto, giacendo le parole.*

**CLASSIFICAZIONE. = Genere, Specie e Causa della malattia da cui è affetto.**

*Mente il giorno 11 gennaio 1895 ora 10 ore.*  
*Malato intermittenza catatonica*  
*Del Spedale centrale, Dep. 271 giorni di Spagnuolo*

Fig. 8.1 Pietro Bregolato’s patient file. San Servolo Servizi Metropolitan di Venezia

which is more portrait—indeed it is almost a portrait of melancholia—than police-style mugshot. Pietro repeatedly asked why he was admitted, given that in his mind ‘he is healthy and can work to help his family’. Pietro would remain in San Servolo for 271 days, before perishing there from gastroenteritis.

Being photographed upon admission was about to become a standard part of the patient experience. And yet, as sources for the history of mental illness and its treatment, patient photographs have been under-used. Katherine Rawling has described the fluidity, ambiguity and diversity of asylum photographic practices in the nineteenth century; the different ways in which ‘patient photographs were handled, displayed, cropped, and arranged on casebook pages’ (Rawling 2021, p. 259). Here, we explore this diversity and function in the context of the two Venetian asylums. At San Servolo and San Clemente, the patient photograph became a clinical tool, an integrated part of the patient’s case history as well as a means of identification. As such, the photographic record can help us restore patient agency to the asylum experience, by examining them as part of the patient-doctor encounter and the links with diagnosis and treatment.

The practice of photographing patients upon admission to San Servolo began with that institution’s perhaps most prestigious director, Father Prosdocimo Salerio. Director from 1857 till his death in 1877, Salerio was attentive to the scientific developments of his time and demonstrated a notable clinical and human sensitivity. This is evident not only in the patient files Salerio carefully redacted, in his miniscule hand, but in his early clinical use of photography. Salerio does not mention the practice in his reports, since the last of these dates from 1873, the year before the practice of photographing patients began. This fell to his successor, Dalmazio Battanoli, who wrote in his report for the years 1877–80:

The father pharmacist, in addition to carrying out his pharmaceutical obligations, continues with the photographic work initiated by the late Father Salerio, taking portraits of all the insane admitted to the asylum. This work is of great usefulness, for, in addition to reproducing the characteristic features of the different forms of insanity, it allows for helpful comparison between the appearance of the patient upon admission to the institution with that of when he leaves it, cured. (Battanoli 1881, p. 7)

In the first three years, the patient portraits are ‘stranded’ off to the side of the patient file. But from 1877, the pre-printed forms used for patient

files contain a dedicated space for it, giving it pride of place top-centre, just under the patient's name. Occasionally, a second photograph of the same patient might be attached, taken perhaps as he was about to be discharged—although this is not referred to in the case notes themselves.

San Servolo's sister asylum, for women, located on the adjacent island of San Clemente, which opened its doors in July of 1873, did not begin attaching photographs to patient files until 1882. Perhaps this delay was due to the situation of overcrowding that accompanied San Clemente right from the start. The 1880s was also when photographing patients upon admission started to become standard practice in asylums in the UK (Rawling 2021). But it is also worth noting here that the two Venetian institutions were organised separately: San Servolo was run by the religious order of the Brothers Hospitallers of St John of God, known in Italy as the Fatebenfratelli, whilst San Clemente was a secular institution.

The director of San Clemente, Cesare Vigna—pupil of Salerio's, musician and physician to the opera composer Giuseppe Verdi—made up for lost ground by hiring a professional photographer, Oreste Bertani, with a studio in Venice, to undertake the work. It is unusual to be able to give a name to an asylum photographer, but the superb records of San Clemente contain correspondence, contracts and invoices involving Bertani. In his report of 1882, Vigna recognised the 'very great importance of having a photographic studio in the institution, to bring together all of the portraits of the insane with their nosological histories, and preserve them as quite instructive scientific documents' (Vigna 1882, p. 67). Bertani's patient photographs are full-fledged portraits: at once eloquent, emotive and intimate. Bertani continued photographing the female inmates of San Clemente until the end of Vigna's term as director, in early 1891.

In addition to the individual portraits affixed to each patient file, the photographers at both institutions produced a series photographic albums: two for the male patients of San Servolo and five for the female patients of San Clemente. The albums are of two types: patient register, on the one hand, and comparative before-and-after shots, on the other. With regard to the former type, the 'illustrated register album' ('Album delle presenze figurate') for San Servolo contains 619 patient portraits, covering the period from 1874 to 1902. Under each portrait is the patient's name and surname, as well as the date of admission (at least up to page 20), but no other information, such as diagnosis. Each page of the album consists of 25 portraits. It would seem that this album



functioned strictly as a means of identifying patients. Included with it is an index of photos, listing the surnames of the patients in alphabetical order and date of admission, along with the outcome of their stay—either ‘discharged’ or ‘deceased’. The portraits are basic, taken against a neutral background, like identity card photos. At the same time, they are quite strong emotively, animated and enlivened by the intense and painful expressivity that emerges from the patients’ faces.

The first San Clemente album is labelled ‘Photographic portraits of the female insane’ (*Ritratti fotografici delle dementi*). It consists of 1,578 patient portraits, women admitted between the opening of the asylum in 1873 and Bertani’s arrival as photographer in 1882 (Fig. 8.2). Bertani must have been busy in his first few months! There are twenty portraits per page, following one another in quick succession, with Bertani’s studio logo at the bottom of each page. The portraits depict vivid faces, intensely expressive; the tones and contrasts clear and well-defined. The second album covers the period 1883–85, and is organised more systematically, with a patient number (referring to the patient file) and outcome of stay (discharge or death) under each. The third, covering the years 1886–87, contains patient name and surname written by hand under each portrait, as well as patient number. The fourth album takes us to 1888–90, with an evident improvement in photographic technique and with patient name and surname added in print letters. The fifth and final album takes us to 1902 and no longer the work of Bertani—probably someone already employed at San Clemente in another capacity, as indeed was already the case at San Servolo.

The portraits contained in these albums are the same as those attached to the patient files. However, the final three albums often contain more than one photograph per patient. Where this was done, they are either different images taken at the same time, from which the most ‘useful’ or ‘representative’ was perhaps chosen for the patient file; or else they represent different stages of the patient’s treatment or stay—admission and (perhaps) discharge—even if the criteria used for inclusion in the album are unclear.

This latter possibility leads us to the more explicitly ‘comparative album’ produced at San Servolo. More curious, and possibly unique, it covers the period 1875 to 1887 and consists of side-by-side portraits of patients, one taken upon admission and the second upon discharge (Fig. 8.3). Along with the dates of admission and discharge under each pair of photographs, the patient’s diagnosis also appears—although the



Fig. 8.2 Oreste Bertani, album of 'Photographic portraits of the female insane', San Clemente, 1882. San Servolo Servizi Metropolitani di Venezia

latter does not always correspond exactly to the diagnosis in the patient's file. The photographs may not be up to the technical and aesthetic standards of Bertani's at San Clemente, but they nonetheless possess an evocative power and a scientific and explicatory function that Bertani's lack. There is also a curious attempt to improve on the patients' appearance in the 'after' pictures. In addition to being well-groomed for the occasion, and occasionally smiling, they sport elegant jackets, head coverings, neckties and flowers. They are more evidently staged than the admission portraits. One wonders to what extent the patients were active participants in these latter photographs, in the knowledge that they were about to be discharged.

What purpose could the 'comparative album' possibly have served? The album is painstakingly put together and expensively bound. The propaganda function seems clear; perhaps something to display to visiting dignitaries or medical colleagues. It served to bolster both the institution (San Servolo) and the profession (psychiatry). By means of these patient photographs, illustrating their passage through the asylum, it was possible to document the therapeutic efficacy of the institution and the knowledge that guided its actions. Nascent psychiatry was able to demonstrate its successes, gaining credit in the medico-scientific community. It helped it overcome its marginal status with respect to the other medical disciplines, and perhaps go some way to remedying the profound diagnostic limitations we discussed in Chapter 7. Venetian asylum doctors placed themselves squarely within the late nineteenth-century knowledge ideal rooted in practices of 'visualisation', based on their faith in the 'objectivity' of the image. This was considered a faithful reproduction of its object, analogous to the pictorial naturalism of the period (Mazzolini 2010). Photography, in the words of Oliver Wendell Holmes (1859), was 'a



**Fig. 8.3** The 'Comparative album', San Servolo, 1875–87. San Servolo Servizi Metropolitan di Venezia

mirror with memory'. It was synonymous with objective knowledge and linked to a fascination with the physiognomy, comparison and taxonomy of subjects, especially if considered deviant (Sekula 1986; Hargreaves and Hamilton 2001).

The patient photographs clearly performed an important function in the two Venetian asylums, one that went far beyond practical questions of identification. The century's obsession with classification was accompanied by the use of statistical and mathematical tools, graphs and tables. The two asylums were part of this cultural climate. It follows that patient portraits may have helped clarify somatic identification, as in cases of pellagra or general paralysis. And yet, beyond the statements of principle made by Battanoli and Vigna as to the worth of patient photography, asylum doctors nowhere explicitly conceptualised a link between photographic evidence and broader questions of diagnostic categories, nosography or physiognomy. The patient portraits were clearly considered important, but it remains difficult to link them directly to the case histories and asylum experiences. Face and clinical history, portrait and existence, clearly resonate with one another, but the nature of this resonance remains unclear, at least for the asylum doctors.

### THE PATIENTS: ORIGINS, CURABILITY AND TREATMENT

Who were the pellagrous insane represented in these sometimes harrowing photographs? What can a patient typology tell us about the nature of the disease and how it compares to 'regular' or non-pellagrous insanity? In the rest of this chapter, we look at the patients admitted to our two Venetian asylums whose diagnosis was shaped by pellagra.

One of the most salient features of both pellagra and pellagrous insanity—noted by the earliest investigators—was the gendering of the affliction, in that they struck women more than men. The rigours of repeated child-bearing and nursing made women more vulnerable to the disease, exacerbated by the practice of feeding any available nourishing foods first to the labouring men of the family. When Santa Fabio, a 50-year-old peasant woman from Boara Polesine (Rovigo), was referred to San Clemente in 1887—for the third time in as many years—she had given birth to seventeen children, fourteen of whom had died in their first year of life.

Age was also a factor. Historians have found that the close links between mental ill-health and the domestic economy meant that people

were more vulnerable at in certain stages in the family life cycle. This made adults with a young and growing family particularly susceptible and liable to be committed (Smith 2012). And in fact, the 21–50 age group accounted for 70% of admissions to our two Venetian hospitals amongst the ‘regular’ or non-pellagrous insane. However, when we consider only pellagrous patients, those aged 21–50 made up a slightly smaller percentage—60%. This was largely due to the higher number of elderly pellagrous insane admitted to the asylum. Pellagra itself could become chronic and so affect the elderly in high numbers, which was combined with the inability of poor families to look after the elderly insane.

The difference between the pellagrous and ‘regular’ insane is particularly evident when the patients are broken down according to occupation and geographical origin. Close to half of the regular insane men at San Servolo were artisans, shopkeepers, labourers and domestic servants (49%). To this, we can add a range of other occupations—businessmen, policemen, soldiers, public officials and teachers (12%)—and even the occasional landowner, professional and cleric. Just under a quarter of the regular insane were employed in agriculture (24%). When it came to the regular female insane at San Clemente, a fifth (21%) came from the ranks of artisans, shopkeepers, labourers and domestics; over a third were identified as housewives (37%); and just over a quarter as agricultural labourers (28%). In terms of their geographical origins, the regular insane tended to come from the city of Venice itself—50% of the men and 42% of the women. The rest came from the other six provinces of the Veneto, as well as further afield.

Pellagrous insanity overturned these proportions. Over three-quarters (77%) of the pellagrous insane were agricultural labourers of some sort, men and women. They were predominantly drawn from the rural poor: peasants, tenant farmers, field hands and day labourers. Many of the rest of the pellagrous men were identified as artisans, shopkeepers and labourers (19%), and many of the rest of the women as housewives (11%). The proportion of men reduced to begging for a living amongst the pellagrous insane (2%) was twice that of the regular insane. The patients’ geographical origins confirm the rural nature of pellagrous insanity: over four-fifths (83%) of the pellagrous insane were admitted from the six provinces of the Venetian Terraferma. The rest came from Venice and its province, with only a handful coming from outside the Veneto region. The high number of provincial pellagrins was made possible by the fact

that the provincial authorities paid the costs of pauper patients and each province in the Veneto was allocated a different number of beds in the two asylums (Statuti 1873, pp. 17, 19). When these ‘provincial’ beds were unavailable, it was the patient’s municipality which had to bear the costs of hospitalisation, negotiated on a case-by-case basis.

For logistical reasons, and perhaps to save on costs, municipalities often sent their patients in consignments of two or more. For instance, on 3 June 1887 the Rovigo authorities sent husband-and-wife sufferers Rosa Davi and Pietro Azzolini together to Venice, she to San Clemente and he to San Servolo. Touchingly, Rosa’s morale was given a boost two months later, when she was told that her husband had been discharged fully cured (see ‘Interlude’).

The wretchedness of the low-lying town they both came from, Castel Bariano in the province of Rovigo, accounted for numerous asylum admissions. Not only did the province of Rovigo account for a percentage of admittances far in excess of its population, but patients from the province also had a slightly higher index of mortality in the two Venetian asylums (Gentilcore and Priani 2015). Happily, though, most emerged ‘cured’. All of this is illustrated by the following admission. A father and son from Castel Bariano were both sent to San Servolo in the same consignment in January 1882 (Figs. 8.4 and 8.5). Bortolo Basaglia, the father, was suffering from the usual ‘pellagrous mania’, and his case notes give a vivid idea of conditions in the town: ‘For around a year he has been suffering from pains to his head, chest and stomach. He staggers continuously so that he cannot be left alone’, and he had threatened both himself and others. Bortolo was described as ‘wretched’ (*miserabile*), weak and malnourished, with him and his family surviving entirely on maize polenta. Their dwelling was a damp hovel, located in a malarial area. Bortolo’s mother and father had both suffered from pellagra and his three sons (aged 23, 16 and 8) were all described as pellagrous: an indication of how pellagra could run in families. Indeed, one of the sons, 23-year-old Rocco, previously a victim of malaria, was being sent to San Servolo in the same consignment. Their dire poverty is clearly evident from their patient file photographs.

Remarkably, both father and son were discharged from San Servolo, ‘cured’, after just three months’ stay. And this is another feature which differentiates the pellagrous insane from the general ranks of the insane: their curability. It has been noted how nineteenth-century psychiatry was a science of the mind via the body, where the body served as a means



**Fig. 8.4** Photograph of Bortolo Basaglia from his patient file. San Servolo Servizi Metropolitani di Venezia

of gauging the alterations of the mind (Re 2014, p. 192). This physicality was particularly evident in the pellagrous insane, as we noted in the previous chapter. If patients' conditions improved, they did so relatively quickly. The restorative diet offered by the two asylums was often enough to restore the physical and mental health of the pellagrous insane. Thus, Achille Menegatti, suffering from religious mania induced by pellagra, whose condition was so serious that the prefect of Rovigo requested his referral by telegram in 1878, was nevertheless calm and on his feet within weeks of his arrival at San Servolo.

Of course, this also was true of the insane in general, not just pellagrins. European asylums were far from being 'a last-ditch repository for difficult, dangerous and unwanted members of society'; rather, poor families might use them as a form of short-term respite (Smith 2006, p. 111). For instance, most patients admitted to Santa Maria della Pietà in Rome spent less than a year there before being discharged, countering the commonplace 'that saw in the mental patient an eternal inmate' (Fiorino 2002, p. 94). Nonetheless, this pattern is even more pronounced in pellagrous



Fig. 8.5 Photograph of Rocco Basaglia from his patient file. San Servolo Servizi Metropolitan di Venezia

insanity. At the time, the working definition of a ‘cure’ was that patients became physically healthy enough to return to work and social life, and no longer posed a danger to themselves or to others. The more humane approach offered by moral therapy perceived the asylum itself, with its particular physical space and social environment, as a source of this cure, even the cure itself. This was even more so in the case of pellagrous insanity, where the special habitat of the asylum differed so markedly from the wretched living conditions and poor diets that had caused the illness.

The result was that almost two-thirds (63%) of male pellagrous insane spent fewer than nine months in San Servolo—compared to 53% for the non-pellagrous insane. At the other end of the time scale, only one in ten pellagrous males became a chronic patient, staying for four years or more, compared to closer to one-fifth of the non-pellagrous (18%). As for women, they tended to remain in the asylum longer than men; but even so, female pellagrous spent slightly less time in the asylum than their non-pellagrous counterparts. Two-fifths (41%) of pellagrous women spent



nine months or less in San Clemente, compared to over a third of non-pellagrous women (38%). Significantly more female than male pellagrous insane were chronic cases, a quarter of women spending four years or more in the asylum (25%). But it was even higher for non-pellagrous cases: almost a third (31%).

If the pellagrous insane were housed indiscriminately with the regular insane, as we saw at the start of this chapter, there was segregation of another sort, based on social status. This was a reflection of the world outside and was standard practice in European asylums. At San Clemente social distinction was structural, with the very poor (*miserabili*)—which would have meant most of the pellagrous insane—accommodated on the ground floor. The first floor was reserved for those who had fallen on hard times but whose social origins Vigna did not consider compatible with those of the peasants below. Finally, the second floor was reserved for the better off, complete with music room, wooden panelling and terrazzo floors (Willms 1993, p. 25). This was also reflected in the regular diet on offer. At San Servolo, there were three ‘classes’ of food served, according to the patient’s ability to pay (Salerio 1865, pp. 88–90). The pellagrous insane, as the poorest inmates, whose stay was paid for by the provincial authorities, had access only to the first or ‘general’ level of regimen—but this was often fortified as part of their therapeutic regimen.

Even so, it was probably a more substantial and varied diet than they had ever had in their lives. Despite this, the Australian Tucker judged the inmates of San Clemente ‘insufficiently nourished’, on the basis of their appearance (Tucker 1887, p. 1309).

## TREATING PELLAGROUS INSANITY

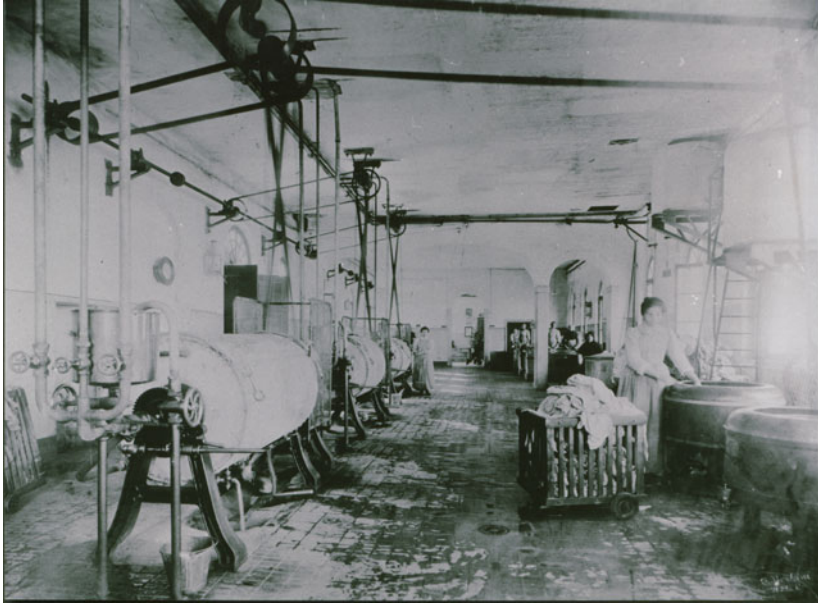
If the asylum habitat and the better diet on offer were (quite rightly) considered part of the cure, what other forms of treatment were used? In the previous chapter, we explored attempts to understand the nature and causation of pellagrous insanity; how did this affect the way they treated the pellagrous insane? Cesare Lombroso—founder of the influential toxicologist school of thought—dismissed the idea that diet alone could cure it. He relied instead on ‘a few medicinal substances, such as arsenious acid and above all like lead acetate, [which] can bring the most resistant pellagrous manias to a complete cure’ (Lombroso 1868, p. 137). And indeed asylums made abundant use of drugs in general practice, as we shall see

further in Chapter 9. San Servolo was even recognised as a ‘pharmaceutical asylum’ because it was equipped with its own pharmacy and made extensive use of drugs, including trials on patients (Salerio 1865, p. 61).

In addition to diet and medicines, work was also regarded as therapeutic, dignified with the label of ergotherapy. This had its roots in Chiarugi’s more humane approach to the treatment of asylum inmates (referred to in Chapter 2). Just a few years after Chiarugi, the German doctor Johann Gaspar Spurzheim—better known to posterity as a controversial populariser of phrenology—would propound the idea that work constituted the most effective ‘moral cure’ of the insane. This was especially so when work was introduced gradually, by choice and by the emulation of other patients, rather than forced upon inmates (Spurzheim 1817). By the middle of the nineteenth century, this had become standard in Venice and elsewhere. In the form of agricultural production and a range of crafts, it was important not only in the asylum economy, but also served to focus the mind away from delirious thoughts. The bourgeois work ethic functioned in being able to lay down a norm or rule capable of overcoming the chaos of madness. When it came to the pellagrous insane, their ability and willingness to work and perform tasks was seen as something of a milestone: a sign that they had regained the ability to ‘function’ and were well on their way to discharge and integration back into their communities of origin.

At San Servolo, this labour consisted primarily of market gardening, which provided the institution’s vegetables, as well as a limited range of other trades (Salerio 1865; Tucker 1887). At San Clemente, it was on a larger scale. Its textile mills and spinning looms, intended to occupy between 500–600 women, were virtual factories. Ironically, this included making the straitjackets used in both asylums. Patients were also involved in needlework and lace-making, as well as activities linked to the running of the asylum itself, such as cooking, baking, laundry, gardening and animal husbandry (Vigna 1887, p. 60) (Fig. 8.6). Coercion was never far away: leather-covered fetters apparently hung in the laundry, to which patients would be shackled if they refused to work (Tucker 1887, p. 1307).

Both the willingness and ability to work were linked to cure and eventual discharge from the asylum. Institutional aims for the patient—restoration of health by therapy and diet and the return to work—met those of the patient and his or her family, who depended on the sufferer’s ability to work. Indeed, the demands of families ‘for certain types of care shaped the structure of institutions that were still developing’, as has been noted for late nineteenth-century Paris (Prestwich 1994, p. 809).



**Fig. 8.6** The laundry room at San Clemente, c. 1880. San Servolo Servizi Metropolitan di Venezia

If asylums functioned as part of a system of social control, patients and their families also knew how to make use of what public and charitable resources were available as part of a survival strategy (Fiorino 2002). The poor may have been wary of asylums but they broadly supported them. Given the often relatively quick discharge rates for pellagrous insanity, confining a family breadwinner—for what was hoped would be a short period of time—was an investment in the family's future. That said, committal of a family member remained an extreme measure, a necessary expedient for families. This was especially so in the case of our two Venetian asylums, because of their greater distance from the patients' homes and their hierarchical function as institutions for the more dangerous cases.

If the families of the pellagrous insane participated in the institutionalisation and discharge of patients, as has been found elsewhere in Europe, in the case of our two Venetian asylums this participation was rarely

straightforward and was always mediated by various levels of officialdom. In the case of 26-year-old Maria Poloni, it was her father who desperately wanted her released from San Clemente. On 20 November 1882, the mayor of Maria's hometown of Pedavena (in the province of Belluno) wrote to the asylum to inform them that Maria's father Giobatta would be coming shortly to collect her, 'even if the poor young girl is not perfectly cured', because the family had made arrangements to emigrate to the United States, sailing on the 'Frankfurt' from Genoa on 5 December. But it was not so easy. From San Clemente, Dr Brunetta replied (21 November) that although Maria 'is much improved, completely calm and laborious', 'one must bring to the father's attention that exposing her, now that she is convalescing, to the discomforts of such a long voyage, is not wise'. The mayor was forced to plead (12 December), insisting that it was better to discharge Maria even though she was not fully cured, given the trouble and expense Giobatta was going to in order to come and collect her 'and much less leave, abandoning her here alone where she has no relations who can take charge of her disease and care'.

Maria's case reminds us that there was a close co-relation between pellagra and emigration, which both have their highest rates in the Veneto of the last quarter of the nineteenth century, as we saw in Chapter 1. Maria was finally discharged on 14 December. One can only wonder if she either made or survived the long and arduous ocean voyage, the conditions of travel in steerage being what they were (Molinari 2002). And even if she had managed to survive, would she have passed muster before the doctors at US immigration—even ten years before the opening of Ellis Island and the regular deportation of the diseased and the insane (Szejnert 2020, pp. 136–137; Birn 1997)?

## REFERENCES

- Battanolì, D. 1881. *Relazione statistica del Manicomio centrale maschile, quadriennio 1877–1880*. Venezia: Gaetano Longo.
- Battanolì, D. 1884. *Relazione statistica del Manicomio centrale maschile in S. Servolo di Venezia nel triennio 1881–1883*. Venice: Antonio Francesconi.
- Birn, A.E. 1997. Six Seconds Per Eyelid: The Medical Inspection of Immigrants at Ellis Island, 1892–1914. *Dynamis: Acta Hispanica ad Medicinae Scientiarumque Historiam Illustrandam* 17: 281–316. <https://www.raco.cat/index.php/Dynamis/article/download/106118/165458>.

- Fiorino, V. 2002. *Matti, indemoniate e vagabondi. Dinamiche di internamento manicomiale tra Otto e Novecento*. Venice: Marsilio.
- Gentilcore, D., and E. Priani. 2015. Mais, miseria e “mania pellagrosa”: i pazienti del Polesine e Veneti nei manicomi di San Servolo e San Clemente a Venezia (1840–1910). In *Il mais nella storia agricola italiana, iniziando dal Polesine*, ed. D. Gasparini, 119–133. Rovigo: Minelliana.
- Hargreaves, R., and P. Hamilton. 2001. *The Beautiful and the Damned: The Creation of Identity in 19th-Century Photography*. Aldershot: Lund Humphries and National Portrait Gallery.
- Lombroso, C. 1868. Sulla pellagra maniaca e sua cura. *Giornale italiano delle malattie veneree e della pelle* 3: 31–42, 83–97, 137–154.
- Mazzolini, R.G. 2010. Sulle pratiche di visualizzazione nelle scienze. In *Scorci di storia della scienza*, ed. M.L. Frank and C. Pogliano, 175–190. Pisa: Plus.
- Molinari, A. 2002. La salute. In *Storia dell'emigrazione italiana: arrivi*, ed. A. Bevilacqua, A. De Clementi, and E. Franzina, 377–395. Rome: Donzelli.
- Prestwich, P. 1994. Family Strategies and Medical Power: “Voluntary Commitment” in a Parisian Asylum, 1876–1914. *Journal of Social History* 27 (4): 799–818. <https://www.jstor.org/stable/3789084>.
- Rawling, K. 2021. “The Annexed Photos Were Taken Today”: Photographing Patients in the Late-Nineteenth-Century Asylum. *Social History of Medicine* 34 (1): 256–284. <https://doi.org/10.1093/shm/hkz060>.
- Re, S. 2014. *Tutti i segni di una manifesta pazzia. Dinamiche di internamento femminile nel manicomio di Colorno (1880–1915)*. Milan: Franco Angeli.
- Salerio, P. 1865. *Tavole statistiche triennali 1862-63-64 del manicomio centrale maschile in San Servolo di Venezia diretto dai Padri Fate-Bene-Fratelli*. Venice: Tipografia Armena di S. Lazzaro.
- Salviato, A. 2002. Pellagra e pazzia: i manicomi di S. Servolo e di S. Clemente. In *Storia di Venezia. L'Ottocento e il Novecento*, vol. 2, ed. M. Isnenghi and S. Wolf, 905–930. Rome: Istituto della Enciclopedia Italiana. [https://www.treccani.it/enciclopedia/pellagra-e-pazzia-i-manicomi-di-s-servolo-e-di-s-clemente\\_%28altro%29/](https://www.treccani.it/enciclopedia/pellagra-e-pazzia-i-manicomi-di-s-servolo-e-di-s-clemente_%28altro%29/).
- Sarteschi, P., M. Guazzelli, and A. Cittadini. 1994. I sistemi classificatori nell'ospedale di S. Maria della Pietà a Roma nella second metà dell'Ottocento. In *L'ospedale dei pazzi di Roma dai papi al '900*, vol. 2, ed. F. Fedeli Bernardini, 151–156. Lineamenti di assistenza e cura a poveri e dementi. Rome: Dedalo.
- Sekula, A. 1986. The Body and the Archive. *October* 39: 3–64. <https://www.jstor.org/stable/pdf/778312.pdf>.
- Smith, C. 2006. Family, Community and the Victorian Asylum: A Case Study of the Northampton General Lunatic Asylum and its Pauper Lunatics. *Family and Community History* 9 (2): 110–124.

- Smith, C. 2012. Living with Insanity: Narratives of Poverty, Pauperism and Sickness in Asylum Records, 1840–76. In *Poverty and Sickness in Modern Europe: Narratives of the Sick Poor, 1780–1938*, ed. A. Gestrich, E. Hurren, and S. King, 117–141. London: Continuum.
- Spurzheim, J.G. 1817. *Observations on the Deranged Manifestations of the Mind or Insanity*. London: Baldwin, Cradock and Joy. <https://wellcomecollection.org/works/z6g4qhqn/items>.
- Statuti. 1873. *Statuti organici dei manicomio delle province venete di S. Clemente e di S. Servolo in Venezia approvati definitivamente dal Comitato di stralcio del fondo territoriale*. Venice: Giuseppe Antonelli.
- Szejnert, M. 2020. *Ellis Island: A People's History*, trans S.G. Bye. London: Scribe.
- Tucker, G.A. 1887. *Lunacy in Many Lands*. Sydney: Charles Potter. <https://wellcomecollection.org/works/mc4q7qdb/items>.
- Vigna, C. 1877. *Rendiconto statistico del frenocomio centrale femminile di S. Clemente (1874–1875–1876)*. Venice: Antonelli.
- Vigna, C. 1887. Il manicomio centrale femminile di San Clemente: Memoria. *Memorie Del Reale Istituto Veneto Di Scienze, Lettere Ed Arti* 23: 47–114.
- Wendell Holmes, O. 1859. The Stereoscope and the Stereograph. *The Atlantic Monthly* 3 (20): 738–748.
- Willms, W. 1993. *San Clemente. Storia di un'isola veneziana*. Venice: Centro Tedesco di Studi Veneziani.
- Wright, D. 1997. Getting out of the Asylum: Understanding the Confinement of the Insane in the Nineteenth Century. *Social History of Medicine* 10 (1): 137–155.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.





## Conclusion: Leaving the Asylum

**Abstract** In this chapter, we examine the final stage in the life cycle of pellagrous patients—discharge or death. The nineteenth-century emphasis on the physicality of insanity lent itself to the treatment of pellagrous insanity, which responded well to the better diet and living conditions the asylums offered. Approximately two-thirds of pellagrous insane patients were discharged, either ‘cured’ or ‘improved’ (at least according to their patient files). We look at what happened to them when they were returned to their communities of origin, which includes repeat admittances. The remaining third of patients, alas, died in the asylum; most from the effects of the chronic diarrhoea that would have plagued them from the start. And we conclude this chapter, and the book, with comparison to other anthropogenic or societal diseases, such as obesity, and with recent claims regarding the close links between nutrition and mental health. Whilst these claims remain controversial, it is helpful to be reminded that a well-documented link between one particular diet and mental illness already exists, in the form of pellagra.

**Keywords** Pellagra, asylum experience · San Servolo, Venice · San Clemente, Venice · Insane asylums, Italy · Discharge of patients · Death of patients · Nutrition and mental health link · Anthropogenic disease



In practice, there were two possible outcomes for the patients of San Servolo and San Clemente: discharge or death. And this is how their patient records are filed in the archives: *usciti* or *morti*. Most of the pellagrous insane left the asylums either ‘cured’ or, like Maria Poloni, merely ‘improved’. But if their physical and mental condition worsened whilst in the asylum, then death was often the result. By way of conclusion, in this chapter we examine the final stage in the life cycle of pellagrous patients.

Women were more likely to die in the asylum than men: 43% of the female pellagrous insane at San Clemente died, compared to 32% of pellagrous men at San Servolo. This may be due in part to the overcrowding at San Clemente, especially in its early years, when it was virtually overwhelmed. That said, the same gender difference is evident in other maize-growing/consuming areas. At San Lazzaro in Reggio Emilia, mortality rates for the pellagrous insane during the period 1884–1899 were 47% for women and 33% for men. At the Mombello asylum in Milan, mortality rates were likewise worse for women than men (Ferrari 1985, p. 190; Ferrari 1984, p. 100). As we observed elsewhere in this book—and as was appreciated at the time—not only did pellagra and pellagrous insanity affect women more than men, women were also more likely to die in the asylum because of it.

The most common cause of death in the asylum was closely associated with pellagra itself: the chronic diarrhoea that accompanied pellagrins virtually from the onset of the disease (Lombroso 1868, pp. 32, 33). The medicinal treatment recommended by Lombroso in such cases, calomel or mercurous chloride, was widely used at the time for its potent purgative properties. Towards the end of the century, the then-director Ernesto Bonvecchiato attempted other therapies at San Clemente, such as applying ice bags to the abdomen or electrical currents. However, he had to admit that nothing was really effective against these ‘for the most part incessant diarrhoeas, resistant to every cure’ (Bonvecchiato 1899, pp. 37–38). And indeed in our two asylums combined gastrointestinal and related wasting diseases, including cachexy and consumption, accounted for almost half of all deaths (47%) amongst the pellagrous insane. Lung infections, to which bodies weakened by pellagra were prey, compounded by overcrowding and lack of adequate heating in the asylums, accounted for another fifth (21%). These were more pronounced amongst the women at San Clemente than men at San Servolo (28% compared to 13%). By contrast, infectious diseases such as smallpox, typhus and cholera were relatively rare (2%).

A final cause of death was suicide. Indeed, the very real danger the pellagrous insane posed to themselves was often cited as the many reason for their referral in the first place (Salerio 1871, pp. 20–22). According to Italian government statistics, 145 pellagrins committed suicide in 1874, a year in which 945 pellagrous insane were admitted to asylums (MAIC 1879, p. 36). Actual rates of suicide in asylums may never be known. The following case explains why.

When 49-year-old Angelica Pontoni was referred to San Clemente from Udine’s civic hospital in February 1877, she had been suffering from pellagra and recurrent diarrhoea for six to eight years and was already a known suicide risk. After trying to kill herself by throwing herself in a pool of water on 26 July, three days later Angelica finally succeeded, somehow undoing the straightjacket in which she was confined and using the laces to hang herself from the bars of her window. When Dr Brunetta was called to the scene, her body was still warm, but despite various attempts to reanimate Angelica, she was pronounced dead. However, the case did not end there. When it came to entering the cause of death, Brunetta opted for ‘brain congestions’ (i.e. stroke). Evidently, he sought to avoid accusations of neglect or worse. A few days later, magistrates in Venice investigated the case, when they became aware of the discrepancy between the two versions of events. They warned director Vigna to be more precise in future to avoid legal proceedings.

Fortunately, the majority of pellagrous patients ended their asylum confinement on a happier note, discharged and returned home. This was due to the relative curability of pellagrous insanity, referred to in the previous two chapters. Eight out of ten of the female pellagrous insane who returned home did so either ‘cured’ (*guarita*) or ‘improved’ (*migliorata*), according to indications made on their patient files. This compares to only six out of ten of the non-pellagrous insane. The condition of patients upon discharge generally went unrecorded at San Servolo, but the proportions of ‘cured’, ‘improved’ and ‘not improved’ pellagrous patients upon discharge were probably similar to other Italian asylums, such as Como’s San Martino asylum (Giudice 2009, p. 80).

The distinction between ‘cured’ and ‘improved’ may seem subtle, but it is an important one—and indication of the limitations in what the asylums could achieve when it came to the treatment of pellagrous insanity (and indeed insanity more generally). Moreover, the case of Maria Poloni, whose health was pronounced as ‘improved’ (*migliorata*) upon her release—as we explored in the previous chapter—suggests that

various financial and family pressures might conspire to necessitate an early release.

Finally, one out ten pellagrous insane women left San Clemente ‘not improved’ (*non migliorata*). These were generally chronic cases, presumed non-threatening and manageable in other contexts, whether domestic or institutional. For instance, some female insane were transferred from San Clemente to other hospitals: this is what happened to Francesca Canale, as we shall see below. This transferral of the pellagrous insane to other local institutions occurred much less often than that of the non-pellagrous insane (8% compared to 28%)—suggesting perhaps that the local authorities were reluctant to take the pellagrous cases on if they did not have to.

How were the approximately two-thirds of pellagrous patients who were discharged from San Servolo and San Clemente reintegrated into their communities of origin? This was often the weak link, another limitation in society’s response to pellagrous insanity—and indeed to pellagra in general. First of all, there was the social stigma that former patients might suffer by having spent time in the asylum. A fisherman from Chioggia, Antonio Chierighin, found himself continually taunted with ‘*matto di San Servolo!*’ (San Servolo lunatic!) as he walked through the streets following his return to his native island in the Venetian lagoon. Fed up, Antonio sought a meeting with the local magistrate. This was finally granted, but when the magistrate told Antonio to leave, the former patient started shouting that although the law was supposed to be the same for all, he was not treated like other people. Antonio was forcibly detained by the carabinieri who took him to the local hospital and thence again to San Servolo, where he died of pleurisy in October 1883.

Community reintegration was complicated by a second factor. Pellagrous insanity might be curable—at least before it became chronic—but once former patients went back to their previous lives and their subsistence diet of maize polenta, there was a risk that the insanity would return. And the asylum doctors knew it. Thus the final words on Emilio Beggiano’s patient file from 1880: ‘Unfortunately, since he is returning to poverty, sooner or later we shall see him again’.

A glance through the patient files suggests that repeat admissions were not uncommon. Giacinto Bego, referred to San Servolo from the municipal hospital of Adria for ‘mental hallucination due to pellagra’ at the end of March 1871, was pronounced cured three months later. Six years later Giacinto was back, ‘for attacks of mania and for attempting to drown



**Fig. 9.1** Successive photographs from four of Francesca Canale's patient files, 1881–1889. San Servolo Servizi Metropolitan di Venezia

himself and kill his children'. He told the asylum doctor that this was his third admission to San Servolo—in fact it was his second. Within weeks Giacinto's physical condition had improved and he was sent to work in the vegetable garden; by July his mental faculties had returned and by August he was ready to be discharged.

The reality is at its most strikingly apparent in the case of Francesca Canale. She was a 39-year-old peasant woman from Lugo Vicentino (province of Vicenza) when she was first admitted to San Clemente in April 1881 with 'pellagrous insanity'. Francesca was discharged, 'cured', fifteen months later, a longer stay than was usual. And indeed she would be re-admitted to San Clemente on no less than four occasions over the following ten years. Her patient photographs track these re-admissions, a maturity spent dealing with pellagra and its recurrent effects (Fig. 9.1). Her final patient file, relative to her admission in 1892, has no photograph attached; and yet she remained at San Clemente for four more years, before she was finally transferred to the civic hospital at Noventa Vicentina, closer to home.

Given that the historian's gaze is naturally drawn to the dramatic examples of repeat admittances like these, we should not overstate the phenomenon. At San Servolo, 15% of pellagrous men were admitted more than once; whilst at San Clemente, only 5% of pellagrous women were re-admitted. This is significantly lower than the re-admittance rate for non-pellagrous patients at San Clemente, which is 14%. It is also lower than the rate at other Italian asylums where pellagra was endemic. At San

Lazzaro, in Reggio Emilia, during the years 1881–1896, over a quarter (27%) of pellagrous patients were re-admitted; and the rate was higher still at Mombello in Milan, where two-fifths (40%) of patients were re-admitted (Ferrari 1984, p. 192; Ferrari 1985, p. 104). The difference is difficult to account for. Perhaps it was down to a combination of overcrowding at San Clemente and the funding mechanism by which specific bed numbers were assigned to each of the provinces of the Veneto, which may have resulted in a preference for first-time patients over repeat admissions.

To us today, the location of Venice's two former asylums of San Servolo and San Clemente, on adjacent islands in the lagoon, with beautiful views of Venice, is calming and picturesque. San Servolo serves as a conference centre, university teaching facility, wedding venue and archives (where the two of us spent many fulfilling hours). San Clemente is a 'five-star urban luxury resort' (according to its website). And yet they must have seemed forbidding and frightening to the pellagrous insane, most of whom had never been near the sea before, as they were rowed over to the islands on small boats (Salviato 2002, p. 910). This double degree of separation—both from the mainland and from the city of Venice itself—emphasised their 'otherness' as spaces and their custodial role as tools of 'social control' and segregation of the insane, regarded as threatening dangerous.

But the asylums were not prisons. They also aimed to treat and cure: through diet, medicines and work-related activities. This treatment focused more on dealing with the manifestations and symptoms of madness and less on its underlying causes. The result was that, despite the high numbers of pellagrous insane admitted to San Servolo and San Clemente, they were not separated from the general ranks of the insane or treated any differently from them. As it turned out, this emphasis on the physicality of insanity particularly lent itself to the treatment of pellagrous insanity, which responded well to the better diet and living conditions the asylums offered.

Because experience taught that pellagrous insanity was often curable, the two Venetian asylums were not places of no return. Instead, they functioned as revolving-door institutions: in both the positive sense of regularly and routinely discharging cured patients, as well as in the negative sense of re-admissions, when the pellagrous insanity struck again. The asylums may have been out of the way, but, with their daily ferry service, 'half-an-hour's pull by gondola from Venice, and in full view of that city'

(Tucker 1887, p. 1305), they were not cut off. The asylums lived in close symbiosis with their territory, which extended beyond the city and province of Venice to include the entire Veneto region (and sometimes beyond), forming part of a network of care. They functioned as both tools of segregation, removing the insane from the rest of the population, and integration, as they were restored to their communities, if and when they were pronounced cured.

## EPILOGUE

This discussion on leaving the asylum seems a fitting moment to bring this book to a close. With limited direct medical intervention to eradicate the disease, pellagra in Italy continued to decline, on its own, in the years leading up to World War I, until there were virtually no new cases. On 26 May 1927, celebrating the five years of the Fascist regime, Benito Mussolini triumphantly proclaimed that ‘the Italian nation has definitely won this battle [against pellagra]’. Mussolini had reason to feel smug: not only had he recently proclaimed himself *duce*, and as such was no longer answerable to parliament, but the official end of pellagra came at a time when cases of the disease were still skyrocketing in the United States. The disease seemed to appear from nothing in the southern U.S. in the early 1900s, so fast indeed that it was regarded as an infectious disease, as we saw in Chapter 4.

The US medical authorities soon took up the cause, even whilst medical interest in Italy waned. The tireless Joseph Goldberger, a medical officer for the newly founded US Public Health Service, became convinced of the link between income (low), individual diet—not polenta but corn meal, fatback, molasses—and pellagra. Goldberger was still seeking to identify what he called the ‘pellagra preventive factor’ when he died in 1929. By the time a deficiency of nicotinic acid (niacin) was identified as the cause, in 1937, pellagra had declined in the U.S. South. And, as in Italy, this was due more to socio-economic changes—in the American case the result of an invasion of boll weevils that destroyed the cotton fields and forced landowners and farmers to diversify their crops—than it was to medical and government action.

In 1909, the US journalist and educator Marion H. Carter asked à propos of pellagra: ‘why must a sentient human being suffer this?’ (Carter 1909, p. 94). It was as good a question then as it is now. In Italy,

over the course of the long nineteenth century, Mattio Lovat and thousands of other pellagrins and pellagrous insane suffered the torments of (and often died from) what was essentially a man-made or anthropogenic disease which societal conditions and structures allowed to spread. The relationship between maize subsistence and pellagra was evident from the 1760s, as was the poverty lying behind both. And yet the Italian social and mercantile elites, national governments and large parts of the medical profession—albeit with some notable exceptions—were wary of undertaking anything but cosmetic measures, worried by the threat to the existing social structure and vested interests that more radical solutions posed.

Pellagra is just one in a list of diseases which not only caused untold suffering, but which were preventable according to the medical standards and knowledge of the time—that is, the latter half of the nineteenth century. These included two other deficiency diseases: beriberi in Japan, caused by eating processed rice (Carpenter 2000; Bay 2012), and goitre in parts of Spain, due to an iodine deficiency (Fernandez 1990).

Man-made epidemics are not confined to the past, however. Think of the dramatic rise in obesity and associated chronic diseases like diabetes in our own society. Caused in part by an energy-rich but nutrient-poor diet of fast food and fizzy drinks, the tussle between health experts, governments, the food industry and the wider society has only just begun. Like the maize-based diet that led to the pellagra epidemic, a human diet today that is energy dense and nutrient poor has led to a pandemic of obesity, diabetes and associated chronic diseases. Then, as now, a shortage of food is not the problem. If we superimpose a map of obesity rates in the United States today on to a map of the pellagra epidemic there during the first three decades of the twentieth century, it is a shockingly close fit (Marks 2003, p. 39; Masnick 2011). Without wishing to oversimplify a complex situation, poverty is the main contributing factor in both. Today, people on low incomes are likely to buy food that is bad for them; only the better off can afford to make healthy and ethical choices, which the food industry encourages and to which governments acquiesce, under the banner of offering choice.

Just as ‘scientific nutritionism’ is being increasingly blamed today for blinkering us away from available healthy foods, to the benefit of the food industry (Scripps 2015), so in the past medical science seemed to collude with national governments in ensuring that campaigns against pellagra

did not attack maize-production interests. In Italy, in 1910, the maize-producing city of Bergamo welcomed Louis Sambon's theory of an insect aetiology for pellagra, because it let maize of the hook and protected their milling industry. And in the United States, once it was realised that niacin could prevent pellagra, it was more beneficial to all simply to adopt niacin as a food supplement rather than address the deeper issues of deprivation behind the disease. Current debates, such as that over biofortification of staple foods as against dietary diversification in the developing world, run much deeper than is generally assumed.

Finally, as we write, the media abounds with claims about the link between nutrition and mental health. Apparently, a Mediterranean diet can stave off depression. It would seem that a cure for even neuropsychiatric conditions like epilepsy, attention deficit hyperactivity disorder and autism is only a well-balanced diet away. There seems no denying that food intake and food quality should impact brain function, and yet the science and evidence base of these claims remains much debated (Adan et al. 2019). It is salutary to be reminded that a clearly documented link between one particular diet and mental illness already exists: pellagra. The 'randomised control trial' for it lasted over a hundred and fifty years, involved many hundreds of thousands of victims across the world, and resulted in terrible suffering and misery.

## REFERENCES

- Adan, R., et al. 2019. Nutritional Psychiatry: Towards Improving Mental Health by What You Eat. *European Neuropsychopharmacology* 29: 1321–1332.
- Bay, A. 2012. *Beriberi in Modern Japan: The Making of a National Disease*. Rochester, NY: University of Rochester Press.
- Bonvecchiato, E. 1899. *Manicomio femminile centrale veneto di San Clemente in Venezia: relazione sanitaria pel sessennio, 1892–97*. Venezia: Carlo Ferrari.
- Carpenter, K.C. 2000. *Beriberi, White Rice, and Vitamin B: A Disease, a Cause, and a Cure*. Berkeley, CA: University of California Press.
- Carter, M.H. 1909. Pellagra: The Medical Mystery of To-day. *McClure's Magazine*, 34: 1 (November), 94–104.
- Fernandez, R.L. 1990. *A Simple Matter of Salt: An Ethnography of Nutritional Deficiency in Spain*. Berkeley, CA: University of California Press.
- Ferrari, M. 1984. I folli pellagrosi in provincia di Milano tra Ottocento e Novecento. *Studi bresciani* 5: 70–117.
- Ferrari, M. 1985. Pellagra e pazzia nelle campagne reggiane. *Sanità, scienza e storia* 1 (1): 169–212.



- Giudice, G. 2009. *Un manicomio di confine. Storia del San Martino di Como*. Rome-Bari: Laterza.
- Lombroso, C. 1868. Sulla pellagra maniaca e sua cura. *Giornale italiano delle malattie veneree e della pelle* 3: 31–42, 83–97, 137–154.
- MAIC (Ministero di Agricoltura, Industria e Commercio). 1879. *La pellagra in Italia: Annali di agricoltura no. 18*. Rome: MAIC.
- Marks, H. 2003. Epidemiologists Explain Pellagra: Gender, Race, and Political Economy in the Work of Edgar Sydenstricker. *Journal of the History of Medicine and Allied Sciences* 58: 34–55.
- Masnack, M. 2011. Mapping U.S. Obesity Rates at the County Level. [https://www.maxmasnick.com/2011/11/15/obesity\\_by\\_county/](https://www.maxmasnick.com/2011/11/15/obesity_by_county/).
- Salerio, P. 1871. *Tavole statistiche, triennali 1868–69–70, del manicomio centrale maschile in San Servolo di Venezia*. Venice: Tipografia della società di mutuo soccorso fra compositori-tipografi.
- Salviato, A. 2002. Pellagra e pazzia: i manicomi di S. Servolo e di S. Clemente. In *Storia di Venezia. L'Ottocento e il Novecento*, ed. M. Isnenghi and S. Wolf, vol. 2, 905–930. Rome: Istituto della Enciclopedia Italiana. [https://www.treccani.it/enciclopedia/pellagra-e-pazzia-i-manicomi-di-s-servolo-e-di-s-clemente\\_%28altro%29/](https://www.treccani.it/enciclopedia/pellagra-e-pazzia-i-manicomi-di-s-servolo-e-di-s-clemente_%28altro%29/).
- Scrines, G. 2015. *Nutritionism: The Science and Politics of Dietary Advice*. New York: Columbia University Press.
- Tucker, G.A. 1887. *Lunacy in Many Lands*. Sydney: Charles Potter. <https://wellcomecollection.org/works/mc4q7qdb/items>.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



# SOURCES AND REFERENCES

## ARCHIVAL SOURCES

The patient clinical files referred to throughout this book, from the two insane asylums of San Servolo (men) and San Clemente (women), are all housed in the Archivio dell'Ospedale Psichiatrico Provinciale di San Servolo di Venezia (now: San Servolo Servizi Metropolitan di Venezia), *Sezione sanitaria: Tabelle nosologiche-cartelle cliniche*. The files are divided into four sub-series, according to patient gender and patient outcome: discharged or deceased (usciti/morti). The patient photographic albums are from the archive's *Sezione fotografica*. The clinical files form the basis of our *Venetian Mental Asylums Database* (VMAD). It covers the period 1842–1912 for San Servolo and 1873–1912 for San Clemente, sampling one year in five. David Gentilcore and Egidio Priani (2016). *Venetian Mental Asylums Database (VMAD), 1842–1912*, UK Data Service. SN: 8058, <http://doi.org/10.5255/UKDA-SN-8058-1>.

## REFERENCES

(We have tried to provide links to online open access versions of publications where possible; all links were accessible at the time of going to press.)

- Adan, R., et al. 2019. Nutritional Psychiatry: Towards Improving Mental Health by What You Eat. *European Neuropsychopharmacology* 29: 1321–1332.
- Anon. [Un medico condotto]. 1910. La riabilitazione della polenta. La legge sulla pellagra ed i mugnai. *L'Eco di Bergamo*, 19–20 December, no. 287, 3.
- Anon. 1911. Commission to Be Sent South to Fight Pellagra. *New York Times*, Sunday magazine section, 24 September, 11.

- Anon. 1912. V° Congresso Pellagrologico Italiano. *Rivista pellagologica italiana* 12 (3): 141–144.
- Anon. 1913. Prof. Louis Sambon Here: Comes from London to Address Southern Pellagra Conference. *The New York Times*, 1 September, 2.
- Antonini, G. 1902. *Pellagra: storia, eziologia, patogenesi, profilassi*. Milan: Hoepli.
- Antonini, G. 1911. La riabilitazione della polenta. *Rivista pellagologica italiana* 11 (1): 2–6.
- Antonini, G. 1912. Il quinto congresso pellagrologico italiano. *Rivista pellagologica italiana* 12 (3): 141.
- Antonini, G., and B. Gosio. 1912. Considerazioni sull'etiologia della pellagra. In *Atti del quinto congresso pellagologico italiano*, ed. G.B. Cantarutti, 180–187. Udine: Tosolini.
- Babcock, J.W. 1910. The Prevalence of Pellagra in the United States. *Journal of the Southern Carolina Medical Association*, September, 445–449; reprinted in Babcock and W.B. Cutting. 1910. *Pellagra*, 10–11. Washington, DC: Government Printing Office.
- Baima Bollone, P.L. 1992. *Cesare Lombroso ovvero il principio dell'irresponsabilità*. Turin: Società Editrice Internazionale.
- Balardini, L. 1882. *Relazione sulle cause della pellagra e sui mezzi per prevenirla e possibilmente curarla*. Brescia: Apollonio.
- Battanolli, D. 1881. *Relazione statistica del Manicomio centrale maschile, quadriennio 1877–1880*. Venezia: Gaetano Longo.
- Battanolli, D. 1884. *Relazione statistica del Manicomio centrale maschile in S. Servolo di Venezia nel triennio 1881–1883*. Venice: Antonio Francesconi.
- Bay, A. 2012. *Beriberi in Modern Japan: The Making of a National Disease*. Rochester, NY: University of Rochester Press.
- Bayle, A.L.J. 1822. *Recherche sur les maladies mentales*. Paris: Didot le Jeune.
- Bayle, A.L.J. 1825. *Nouvelle doctrine des maladies mentales*. Paris: Gabon et Compagnie. <https://gallica.bnf.fr/ark:/12148/bpt6k54627316.texteImage>.
- Beltrami, M., and M. Guerra. 2015. *'Legati mani e piedi con rozze funi'. Le carte raccontano la pellagra a Ferrara, 1859–1933*. Ferrara: Tresogni.
- Berkley, H.J. 1901. *A Treatise on Mental Disease*. London: Henry Kimpton.
- Bernardi, U. 1991. *Abecedario dei villani. Un universo contadino veneto*. Treviso: Centro Biblioteche Villorba.
- Berrios, G.E. 2013. *Per una nuova epistemologia della psichiatria*. Rome: Fioriti.
- Berrios, G.E., and R. Porter. 1995. *A History of Clinical Psychiatry: The Origin and History of Psychiatric Disorders*. London: The Athlone Press.
- Bertolotti, C. 2009. *La pellagra: bibliografia degli studi, dal 1776 al 2005*. Mantua: Istituto mantovano di storia contemporanea. [http://www.istitutomantovanodistoriacontemporanea.it/wp-content/uploads/2013/08/pellagra\\_bibl..pdf](http://www.istitutomantovanodistoriacontemporanea.it/wp-content/uploads/2013/08/pellagra_bibl..pdf).

- Bevilacqua, P. 2001. Società rurale e emigrazione. In *Storia dell'emigrazione italiana*, ed. P. Bevilacqua, A. De Clementi, and E. Franzina, vol. 1, 95–112. Rome: Donzelli.
- Birn, A.E. 1997. Six Seconds Per Eyelid: The Medical Inspection of Immigrants at Ellis Island, 1892–1914. *Dynamis: Acta Hispanica ad Medicinam Scientiarumque Historiam Illustrandam* 17: 281–316. <https://www.raco.cat/index.php/Dynamis/article/download/106118/165458>.
- Blandford, G.F. 1871. *Insanity and Its Treatment*. London: Simpkin, Marshall and Co.
- Blue, R. 1914. The Problem of Pellagra in the United States. *Transactions of the National Association for the Study of Pellagra ... 1912*, 1–7. Columbia, SC: R. L. Bryan. [www.archive.org/transactions](http://www.archive.org/transactions).
- Böhmer, M. 2018. *The Man Who Crucified Himself: Readings of a Medical Case in Nineteenth-Century Europe*. Leiden: Brill.
- Bollet, A.J. 1992. Politics and Pellagra: The Epidemic of Pellagra in the U.S. in the Early Twentieth Century. *Yale Journal of Biology and Medicine* 65: 211–221.
- Bonfigli, C. 1878. La pellagra nella provincia di Ferrara. *Bollettino del manicomio provinciale di Ferrara* 10 (5): whole issue.
- Bonfigli, C. 1879. Sulla pellagra: lettere polemiche ... al dott. C. Lombroso. *Raccoglitore Medico*, series 4, vol. 11, pp. 51, 154, 252–253.
- Bonvecchiato, E. 1899. *Manicomio femminile centrale veneto di San Clemente in Venezia: relazione sanitaria pel sessennio, 1892–97*. Venezia: Carlo Ferrari.
- Brante, T., and A. Elzinga. 1990. Towards a Theory of Scientific Controversies. *Social Studies* 2: 33–46.
- Bryan, C. 2014. *Asylum Doctor: James Woods Babcock and the Red Plague of Pellagra*. Columbia, SC: University of South Carolina Press.
- Bucknill, C., and D.H. Tuke. 1858. *A Manual of Psychological Medicine: Containing the History, Nosology, Description, Statistics, Diagnosis, Pathology, and Treatment of Insanity, with an Appendix of Cases*. Philadelphia: Blanchard and Lea.
- Bucknill, C., and D.H. Tuke. 1862. *A Manual of Psychological Medicine*, 2nd ed. London: John Churchill.
- Bucknill, C., and D.H. Tuke. 1879. *A Manual of Psychological Medicine*, 4th ed. London: J. & A. Churchill.
- Büttner, J. 1992. The Origin of Clinical Laboratories. *European Journal of Clinical Chemistry and Clinical Biochemistry* 30: 585–593.
- Cabras, P.L., S. Chiti, and D. Lippi. 2006. *Joseph Guillaume Desmayses Dupal-lance. La Francia alla ricerca del modello e l'Italia dei manicomi nel 1840*. Florence: University Press.
- Cagossi, M. 1989. Nascita dell'istituzionalismo secondo i resoconti di viaggio nell'ottocento. In *Passioni della mente e della Storia. Protagonisti, teorie e*

- vicende della Psichiatria italiana tra '800 e '900*, ed. F.M. Ferro, 289–308. Milan: Vita e Pensiero.
- Camurri, V. 1912. L'etiologia della pellagra nel giudizio dei medici condotti in Italia. In *Atti del quinto congresso pellagrologico italiano*, ed. G.B. Cantarutti, 220–235. Udine: Tosolini.
- Canosa, R. 1979a. *Storia del manicomio in Italia dall'Unità a oggi*. Milan: Feltrinelli.
- Canosa, R. 1979b. *Storia del manicomio in Italia*. Milan: Feltrinelli.
- Capanna, E. 2006. Grassi versus Ross: Who Solved the Riddle of Malaria? *Perspectives: International Microbiology* 9: 69–74. [https://scielo.isciii.es/scielo.php?script=sci\\_arttext&pid=S1139-67092006000100010](https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1139-67092006000100010).
- Carletti, M.V. 1911. Etiologia della pellagra. Le critiche di L. W. Sambon alle teorie maidiche. *Gazzetta degli ospedali e delle cliniche*, no. 64, p. 5.
- Carpenter, K. 1981. *Pellagra*. Stroudsburg, PA: Hutchinson Ross.
- Carpenter, K.C. 2000. *Beriberi, White Rice, and Vitamin B: A Disease, a Cause, and a Cure*. Berkeley, CA: University of California Press.
- Carter, K.C. 1985. Ignaz Semmelweis, Carl Mayrhofer, and the Rise of Germ Theory. *Medical History* 29: 33–53. <https://www.cambridge.org/core/journals/medical-history/article/ignaz-semmelweis-carl-mayrhofer-and-the-rise-of-germ-theory/F0D2C4916532B1BF6CAE81C766F7563B>.
- Carter, K.C. 2003. *The Rise of Causal Concepts of Disease: Case Histories*. Aldershot: Ashgate.
- Carter, M.H. 1909. Pellagra: The Medical Mystery of To-day. *McClure's Magazine*, 34: 1 (November), 94–104.
- Cazzola, F. 1991. L'introduzione del mais in Italia e la sua utilizzazione alimentare (sec. XVI–XVIII). *PACT*, 26, *La préparation alimentaire des céréales*, ed. D. Fournier, 109–127.
- Cerasoli, G. 2020. *Mais e miseria. Storia della pellagra in Romagna*. Cesena: il Ponte Vecchio.
- Ceresoli, C. 1911. I nuovi orizzonti della genesi della pellagra. *Rivista pellagologica italiana* 11 (2): 19–23.
- Chiades, A. 1982. *Un giornale, una storia: Il Monitor di Treviso, 1807–1813*. Treviso: Bepi Crich.
- Chiarugi, V. 1814. *Saggio di ricerche sulla pellagra*. Florence: Pietro Allegrini.
- Cohen, J., and G. Federico. 2001. *The Growth of the Italian Economy, 1820–1960*. Cambridge: Cambridge University Press.
- Commissione. 1912. Commissione ministeriale per lo studio della pellagra. *Rivista pellagologica italiana* 12 (4): 162.
- Condrau, F. 2007. The Patient's View Meets the Clinical Gaze. *Social History of Medicine* 20 (3): 525–540.
- Crabb, M.K. 1992. An Epidemic of Pride: Pellagra and the Culture of the American South. *Anthropologica* 34 (1): 89–103.

- Crainz, G. 1994. *Padania: il mondo dei braccianti dall'Ottocento alla fuga dalle campagne*. Rome: Donzelli Editore.
- Crosby, A. 1972. *The Columbian Exchange: Biological and Cultural Consequences of 1492*. Westport, CN: Greenwood.
- Daston, L. 2009. Science Studies and the History of Science. *Critical Inquiry* 35: 798–813.
- Davis, G. 2008. *'The Cruel Madness of Love': Sex, Syphilis and Psychiatry in Scotland, 1880–1930*. Amsterdam: Rodopi.
- De Bernardi, A. 1982. Malattia mentale e trasformazioni sociali. La storia dei folli. In *Follia, psichiatria e società. Istituzioni manicomiali, scienza psichiatrica e classi sociali nell'Italia moderna e contemporanea*, ed. A. De Bernardi, 11–32. Milan: Franco Angeli.
- De Bernardi, A. 1984a. Pellagra, Stato e scienza medica: la curabilità impossibile. In *Storia d'Italia. Annali 7. Malattia e medicina*, ed. F. Della Peruta, 681–704. Turin: Einaudi.
- De Bernardi, A. 1984b. *Il mal della rosa. Denutrizione e pellagra nelle campagne italiane tra '800 e '900*. Milan: Franco Angeli. [https://www.academia.edu/11682061/Alberto\\_De\\_Bernardi\\_Il\\_mal\\_della\\_rosa\\_Denutrizione\\_e\\_pellagra\\_nelle\\_campagne\\_italiane\\_tra\\_800\\_e\\_900\\_Milano\\_Franco\\_Angeli\\_1984](https://www.academia.edu/11682061/Alberto_De_Bernardi_Il_mal_della_rosa_Denutrizione_e_pellagra_nelle_campagne_italiane_tra_800_e_900_Milano_Franco_Angeli_1984).
- de Bont, R. 2013. "Writing in Letters of Blood": Manners in Scientific Dispute in Nineteenth-Century Britain and the German Lands. *History of Science* 51: 309–335.
- De Peri, F. 1979. Le origini dell'istituzione manicomiale e della scienza psichiatrica. *Società e storia* 2 (6): 683–723.
- del Cura, M.I., and R. Huertas. 2007. *Alimentación y enfermedad en tiempos de hambre: España, 1937–1947*. Madrid: CSIC.
- Devoto, L. 1921. La pellagra in Lombardia e nella Venezia Tridentina dal 1900 in poi. *Rendiconti del R. Istituto lombardo di scienze e lettere* 54: 239–242.
- Ellinger, P., A. Hassan, and M. Taha. 1937. Pellagra in Egypt. *The Lancet* 230: 755–758.
- Engelhardt, T., and A. Caplan, eds. 1987. *Scientific Controversies: Case Studies in the Resolution and Closure of Disputes in Science and Technology*, Editors' Introduction. Cambridge: Cambridge University Press.
- Esquirol, É. 1838. *Des maladies mentales: considérées sous les rapports médical, hygiénique et médico-légal*. Paris: Baillière.
- Etheridge, E. 1972. *The Butterfly Caste: A Social History of Pellagra in the South*. Westport, CT: Greenwood.
- Fanzago, F. 1815. *Sulla pellagra. Memorie*. Padua: Tipografia del Seminario. <https://wellcomecollection.org/works/njxaqz8p/items>.
- Fanzago, F. 1816. *Istruzione catechistica sulla pellagra, divisa in tre dialoghi*. Venice: Francesco Andreola.

- Fernandez, R.L. 1990. *A Simple Matter of Salt: An Ethnography of Nutritional Deficiency in Spain*. Berkeley, CA: University of California Press.
- Ferrari, M. 1984. I folli pellagrosi in provincia di Milano tra Ottocento e Novecento. *Studi bresciani* 5: 70–117.
- Ferrari, M. 1985. Pellagra e pazzia nelle campagne reggiane. *Sanità, scienza e storia* 1 (1): 169–212.
- Finzi, R. 1982a. La psicosi pellagrosa fra la fine del '800 e gli inizi del '900. In *Follia, psichiatria e società. Istituzioni manicomiali, scienza psichiatrica e classi sociali nell'Italia moderna e contemporanea*, ed. A. De Bernardi, 284–297. Milan: Franco Angeli.
- Finzi, R. 1982b. Quando e perché fu sconfitta la pellagra in Italia. In *Salute e classi lavoratrici dall'Unità al Fascismo*, ed. M.L. Betri and A. Gigli Marchetti, 391–429. Milan: Franco Angeli.
- Finzi, R. 2009. 'Sazia assai ma dà poco fiato'. *Il mais nell'economia e nella vita rurale italiane (secoli XVI–XX)*. Bologna: CLUEB.
- Fiorino, V. 2002. *Matti, indemoniate e vagabondi. Dinamiche di internamento manicomiale tra Otto e Novecento*. Venice: Marsilio.
- Forno, M. 2010. Scienziati e mass media: Lombroso e gli studiosi positivisti nella stampa tra Otto e Novecento. In *Cesare Lombroso. Gli scienziati e la nuova Italia*, ed. S. Montaldo, 207–232. Bologna: il Mulino.
- Fournier, J.-A. 1894. *Les affections parasymphilitiques*. Paris: Rueff.
- Frances, A. 2010. DSM in Philosophyland: Curiouser and Curiouser. *Bulletin of the Association for the Advancement of Philosophy and Psychiatry* 17 (1): 21–25.
- Frigessi, D. 2003. *Cesare Lombroso*. Turin: Giulio Einaudi.
- Funk, C. 1912. The Etiology of Deficiency Diseases. *Journal of State Medicine* 20: 341–368.
- Galzigna, M. 1992. *La malattia morale. Alle origini della psichiatria moderna*. Venice: Marsilio. <http://www.psychiatryonline.it/node/3373>.
- García Guerra, D., and V. Álvarez Antuña. 1993. *Lepra Asturiensis: la contribución asturiana en la historia de la pelagra (siglos XVIII y XIX)*. Madrid: CSIC.
- Gasparini, D. 2002. *Polenta e formenton. Il mais nelle campagne venete tra XVI e XX secolo*. Sommacampagna: Cierre.
- Gentilcore, D. 2010. *Pomodoro! A History of the Tomato in Italy*. New York, NY: Columbia University Press.
- Gentilcore, D. 2012. *Italy and the Potato: A History, 1550–2000*. London: Continuum.
- Gentilcore, D. 2013. "Italic Scurvy", "Pellarina", "Pellagra": Medical Reactions to a New Disease in Italy, 1770–1830. In *A Medical History of Skin: Scratching the Surface*, ed. J. Reinartz and K. Siena, 57–69, 233–236. London: Pickering and Chatto.

- Gentilcore, D. 2014. Peasants and Pellagra in Nineteenth-Century Italy. *History Today* 64 (9): 32–38.
- Gentilcore, D. 2016. Louis Sambon and the Clash of Pellagra Etiologies in Italy and the United States, 1904–15. *Journal of the History of Medicine and Allied Sciences* 71 (1): 19–42. <https://www.jstor.org/stable/44631339>.
- Gentilcore, D. 2018. Americans in Italy: The Impact of New World Plants, 1500–1800. In *The Discovery of the New World in Early Modern Italy: Encounters with the Americas*, ed. L. Markey and E. Horodowich, 190–205. Cambridge: Cambridge University Press.
- Gentilcore, D. 2019. Dietary Change and Epidemic Disease: Fame, Fashion and Expediency in the Italian Pellagra Debates, 1852–1902. In *Proteins, Pathologies and Politics: Dietary Innovation and Disease from the Nineteenth Century*, ed. D. Gentilcore and M. Smith, 53–65. London: Bloomsbury.
- Gentilcore, D., and E. Priani. 2015. Mais, miseria e “mania pellagrosa”: i pazienti del Polesine e Veneti nei manicomi di San Servolo e San Clemente a Venezia (1840–1910). In *Il mais nella storia agricola italiana, iniziando dal Polesine*, ed. D. Gasparini, 119–133. Rovigo: Minelliana.
- Gentilcore, D., and E. Priani. 2020. “San Servolo Lunatic!”: Segregation and Integration in the Life Cycle of Pellagra Patients at Venice’s Provincial Asylums (1842–1912). In *Tracing Hospital Boundaries: Integration and Segregation in Southeastern Europe and Beyond, 1050–1970*, ed. J.S. Crawshaw, I. Benyovsky Latin, and K. Vongsathorn, 88–111. Leiden: Brill.
- Gillio, M. 2009. La popolazione manicomiale in Italia dall’Unità alla Grande Guerra. In *Cesare Lombroso cento anni dopo*, ed. S. Montaldo and P. Tappero, 99–114. Turin: UTET.
- Giannaio, M. 2010. *L’impact démographique des crises sanitaires et nutritionnelles des sociétés anciennes: le cas de la pellagre en Italie*. PhD thesis, University of Nice. Villeneuve d’Ascq: ANRT.
- Ginnaio, M. 2011. Pellagra in Late Nineteenth Century Italy: Effects of a Deficiency Disease. *Population* 66 (3): 583–609. <https://www.cairn-int.info/journal-population-2011-3-page-583.htm?WT.tsrc=pdf>.
- Giudice, G. 2009. *Un manicomio di confine. Storia del San Martino di Como*. Rome-Bari: Laterza.
- Goffman, E. 2007 (1961). The Moral Career of the Mental Patient. In *Idem, Asylums: Essays on the Social Situation of Mental Patients and Other Inmates*, 125–169. New Brunswick, NJ: Transaction.
- Goldberger, J. 1914. The Etiology of Pellagra: The Significance of Certain Epidemiological Observations with Respect Thereto. *Public Health Reports* 29 (26): 1685–1687.
- Gregorj, G. 1893. *La pazzia e la pellagra nella provincia di Treviso: studio statistico*. Treviso: Zoppelli.



- Grob, G.N. 2008. The Transformation of American Psychiatry. In *History of Psychiatry and Medical Psychology*, ed. E.R. Wallace and J. Gach, 533–554. New York: Springer.
- Guarnieri, P. 1988. Between Soma and Psyche: Morselli and Psychiatry in Late-Nineteenth-Century Italy. In *The Anatomy of Madness: Essays in the History of Psychiatry*, ed. W.F. Bynum, R. Porter, and M. Shepherd, vol. 3, 102–124. London: Routledge.
- Guarnieri, P. 2007. Matti in famiglia. Custodia domestica e manicomio nella provincia di Firenze (1866–1938). *Studi Storici* 48 (2): 477–521.
- Hargreaves, R., and P. Hamilton. 2001. *The Beautiful and the Damned: The Creation of Identity in 19th-Century Photography*. Aldershot: Lund Humphries and National Portrait Gallery.
- Helstosky, C. 2004. *Garlic and Oil: Politics and Food in Italy*. Oxford: Berg.
- Hoff, P. 1989. Immanenza e ricorsi nella nosografia: il pensiero nosologico nella psichiatria tedesca da Emil Kraepelin ad oggi. In *Passioni della mente e della Storia. Protagonisti, teorie e vicende della psichiatria italiana tra '800 e '900*, ed. F.M. Ferro, 45–55. Milan: Vita e Pensiero.
- Holland, H. 1817. On the Pellagra, a Disease Prevailing in Lombardy. *Medico-Chirurgical Transactions* 8: 315–346. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2129002/>.
- Hunter, S.J. 1914. Pellagra and the Sand-Fly. *Transactions of the National Association for the Study of Pellagra ... 1912*, 63. Columbia, SC: R. L. Bryan. [www.archive.org/transactions](http://www.archive.org/transactions).
- Hurn, J.D. 1998. *The History of the General Paralysis of the Insane in Britain, 1830 to 1950*. Unpublished PhD thesis, University of London. <https://discovery.ucl.ac.uk/id/eprint/1349281/>.
- Ihde, A., and S. Becker. 1971. Conflict of Concepts in Early Vitamin Studies. *Journal of the History of Biology* 4 (1): 1–33.
- Jacini, S. 1881–1886. *Atti della Giunta per la inchiesta agraria e sulle condizioni della classe agricola*, 15 vols. Rome: Forzani.
- Janick, J., and G. Caneva. 2005. The First Images of Maize in Europe. *Maydica* 50: 71–80. <https://hort.purdue.edu/newcrop/firstimages.pdf>.
- Johnson, R.B., and A.J. Onwuegbuzie. 2004. Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher* 33 (7): 14–26.
- Kraut, A. 2003. *Goldberger's War: The Life and Work of a Public Health Crusader*. New York NY: Hill and Wang.
- Kraepelin, E. 1989. *Memorie*. Pisa: ETS. In English as: *Memoirs*, ed. H. Hippus, Peters, and D. Ploog. Berlin: Springer-Verlag, 1987.
- Labus, P. 1847. *La pellagra investigata sopra quasi duecento cadaveri di pellagrosi allo scopo di interpretarne la condizione patologica, l'indole e la natura*. Milan: Bonfanti.

- Leslie, C. 2002. "Fighting an Unseen Enemy": The Infectious Paradigm in the Conquest of Pellagra. *Journal of Medical Humanities* 23: 187–202.
- Levi, G. 2014. The Diffusion of Maize in Italy: From Resistance to the Peasants' Defeat. In *Global Goods and the Spanish Empire, 1492–1824*, ed. B. Aram and B. Yun-Casallilla, 100–116. Palgrave Macmillan.
- Livi-Bacci, M. 1990. *Population and Nutrition: An Essay in European Demographic History*. Cambridge: Cambridge University Press.
- Lombroso, C. 1868. Sulla pellagra maniaca e sua cura. *Giornale italiano delle malattie veneree e della pelle* 3: 31–42, 83–97, 137–154.
- Lombroso, C. 1869a. *La pellagra si cura*. Milan: Richiedei.
- Lombroso, C. 1869b. *Studi clinici ed sperimentali sulla natura, causa e terapia della pellagra*. Bologna: Fava and Garagnani. <https://wellcomecollection.org/works/yhsq6wcn/items>.
- Lombroso, C. 1872. Sulle cause della pellagra: lettera polemica al Prof. Lussana. *Giornale di dermatologia* [no volume number]: 1–32.
- Lombroso, C. 1880. *La pellagra in Italia in rapporto alla pretesa insufficienza alimentare: lettera polemica ... al dott. Bonfigli*. Turin: Celanza, 1880.
- Lombroso, C. 1892. *Trattato profilattico e clinico della pellagra*. Turin: Bocca.
- Lonni, A. 1982. Pubblica sicurezza, sicurezza pubblica e malato di mente. La legge del 1904. In *Follia. Psichiatria e società. Istituzioni manicomiali, scienza psichiatrica e classi sociali nell'Italia moderna e contemporanea*, ed. A. De Bernardi, 264–283. Milan: Franco Angeli.
- Lopez, M., J.M. Olivares, and G.E. Berrios. 2014. Pellagra Encephalopathy in the Context of Alcoholism: Review and Case Report. *Alcohol and Alcoholism* 49 (1): 38–41.
- Lussana, F. 1872. *Sulle cause della pellagra*. Padua: Prosperini.
- Lussana, F. 1883. Una allucinazione del professor Lombroso. *Gazzetta Medica Italiana: Lombardia*, Offprint. Milan: Richiedei.
- Lussana, F., and C. Frua. 1856. *Su la pellagra: memoria*. Milan: Giuseppe Bernardoni.
- MAIC (Ministero di Agricoltura, Industria e Commercio). 1879. *La pellagra in Italia: Annali di agricoltura no. 18*. Rome: MAIC.
- Majerus, B. 2013. *Parmi les fous. Une histoire sociale de la psychiatrie au XXe siècle*. Rennes: Presses Universitaires de Rennes.
- Manning, F.N. 1868. *Report on Lunatic Asylums*. Sydney: Thomas Richards. <https://wellcomecollection.org/works/ykc9hjcc/items>.
- Marie, A. 1910. *Pellagra*, trans. C.H. Lavinder and J.W. Babcock. Columbia, SC: The State Co. <https://wellcomecollection.org/works/c7znj3ye/items>.
- Marks, H. 2003. Epidemiologists Explain Pellagra: Gender, Race, and Political Economy in the Work of Edgar Sydenstricker. *Journal of the History of Medicine and Allied Sciences* 58: 34–55.

- Marzari, G.B. 1810. *Saggio medico-politico sulla pellagra o scorbuto italoico*. Venice: Giovanni Parolari. <https://wellcomecollection.org/works/b3zeyks/items>.
- Masnick, M. 2011. Mapping U.S. Obesity Rates at the County Level. [https://www.maxmasnick.com/2011/11/15/obesity\\_by\\_county/](https://www.maxmasnick.com/2011/11/15/obesity_by_county/).
- Mazzolini, R.G. 2010. Sulle pratiche di visualizzazione nelle scienze. In *Scorci di storia della scienza*, ed. M.L. Frank and C. Pogliano, 175–190. Pisa: Plus.
- McCann, J. 2005. *Maize and Grace: Africa's Encounter with a New World Crop, 1500–2000*. Cambridge, MS: Harvard University Press.
- Messedaglia, L. 2008. *La gloria del mais e altri scritti sull'alimentazione Veneta*, ed. C. Barberis and U. Bernardi. Castabissara, Vicenza: Angelo Colla.
- Mickle, J.W.M. 1886. *General Paralysis of the Insane*. London: H.K. Lewis.
- Molinari, A. 2002. La salute. In *Storia dell'emigrazione italiana: arrivi*, ed. A. Bevilacqua, A. De Clementi, and E. Franzina, 377–395. Rome: Donzelli.
- Monteiro, A., H. Coutinho, G. Janz, and J. De Loureiro. 1946. Endemic Pellagra in Northern Portugal. *Epidemiology and Infection* 44 (6): 518–525. <https://doi.org/10.1017/S0022172400019331>.
- Monti, A. 1998. *I braccianti*. Bologna: il Mulino.
- Morpurgo, E. 1882. *Atti della Giunta per la inchiesta agraria sulle condizioni della classe agricola*, vol. IV (Veneto). Rome: Forzani [Part of Jacini 1881–1886]. <https://locusglobus.it/documenti/emigrazione/Atti-Giunta-Inchiesta-agraria-e-sulle-condizioni-della-classe-agricola-vol-4-Relazione-Morpurgo.pdf>.
- Odoardi, J. 1776. *D'una specie particolare di scorbuto, dissertazione*, 11–31. Venice: Simone Occhi. Reprinted in Fanzago 1815.
- Pelt, L. 1847. *Cenni storico medici intorno al Morocomio Femminile di Venezia: giuntavi una memoria sulla pellagra localmente trattata e la statistica delle alienazioni per gli anni 1844/45/46*. Venice: Naratovich.
- Perisutti, L. 1902. La legge contro la pellagra. In *Atti del secondo congresso pellagrologico italiano*, 303–319. Udine: Fratelli Tosolini and G. Jacob.
- Petrolini, G. 1975. *Pellagra allegra. Le rime popolari parmensi*. Parma: Pilotta.
- Pilati, C. 1775. Aggiunta sopra il formentone. In *Le venti giornate dell'agricoltura e de' piaceri della villa*, ed. A. Gallo, 533–558. Brescia: Giambattista Bossini.
- Pilcher, J. 2017. *Planet Taco: A Global History of Mexican Food*. Oxford: Oxford University Press.
- Pisenti, G. 1912. *L'ortodossia pellagrosa e il semplicismo delle scuole maidiche*. Perugia: Tip. Perugina.
- Porisini, G. 1975. *Agricoltura, alimentazione e condizioni sanitarie. Prime ricerche sulla pellagra in Italia dal 1880 al 1940. Appendice statistica*. Bologna: Cooperativa libreria universitaria editrice.

- Porisini, G. 1979. *Agricoltura, alimentazione e condizioni sanitarie. Prime ricerche sulla pellagra in Italia, 1880–1940*. Geneva: Droz, Cahiers internationaux d'histoire économique et sociale, no. 26.
- Postel, G., and C. Quételet, eds. 2012. *Nouvelle histoire de la psychiatrie*. Paris: Dunod.
- Prestwich, P. 1994. Family Strategies and Medical Power: “Voluntary Commitment” in a Parisian Asylum, 1876–1914. *Journal of Social History* 27 (4): 799–818. <https://www.jstor.org/stable/3789084>.
- Priani, E., and S. Botti. 2009. Il trattamento della follia nel morocomio veneziano di S. Servolo (1840–1860): cura fisica e cura morale. In *Lo sguardo psichiatrico: studi e materiali dalle cartelle cliniche tra Otto e Novecento*, ed. R. Panattoni, 258–268. Milan: Bruno Mondadori.
- Priani, E., and D. Gentilcore. 2016. *Venetian Mental Asylums Database (VMAD), 1842–1912* [Data Collection]. UK Data Service. SN: 8058. <https://doi.org/10.5255/UKDA-SN-8058-1>.
- Priani, E. 2017. ‘Shrouded in a Dark Fog’: Comparison of the Diagnosis of Pellagra in Venice and General Paralysis of the Insane in the United Kingdom, 1840–1900. *History of Psychiatry* 28 (2): 166–181. <https://journals.sagepub.com/doi/pdf/10.1177/0957154X17693724>.
- Priani, E. 2018. La fotografia manicomiale a Venezia nel secondo Ottocento. Nascita di una pratica tra storie di vita, scienza e arte. In *Fotografia e scienze della mente tra storia, rappresentazione e terapia*, ed. D. Scala, 115–136. Aprilia: Aracne.
- Proctor, R. 2008. Agnotology: A Missing Term to Describe the Cultural Production of Ignorance (and Its Study). In *Agnotology: The Making and Unmaking of Ignorance*, ed. R. Proctor and L. Schiebinger, 1–33. Stanford, CA: Stanford University Press.
- Rawling, K. 2021. “The Annexed Photos Were Taken Today”: Photographing Patients in the Late-Nineteenth-century Asylum. *Social History of Medicine* 34 (1): 256–284. <https://doi.org/10.1093/shm/hkz060>.
- Re, S. 2014. *Tutti i segni di una manifesta pazzia. Dinamiche di internamento femminile nel manicomio di Colorno (1880–1915)*. Milan: Franco Angeli.
- Risse, G., and J.H. Warner. 1992. Reconstructing Clinical Activities: Patient Records in Medical History. *Social History of Medicine* 5 (2): 183–205.
- Roberts, S. 1914. The Analogies of Pellagra and the Mosquito. In *Transactions of the National Association for the Study of Pellagra ... 1912*. Columbia, SC: R. L. Bryan. [www.archive.org/transactions](http://www.archive.org/transactions).
- Ruggieri, C. 1814a. Narrative of the Crucifixion of Matthew Lovat, Executed by His Own Hands, at Venice, in the Month of July 1805 ... Now First Translated into English. *The Pamphleteer* 3 (6): 362–375. <https://archive.org/details/pamphleteer08valpgoog>.

- Ruggieri, C. 1814b. *Storia della crocifissione di Mattio Lovat da se stesso eseguita*. Venezia: Fracasso. <https://archive.org/details/b29306954>.
- Saccardo, A. 1847. *Tavole statistiche sugli alienati che ebbero cura durante il triennio 1844–45–46 nel Morocomio centrale maschile di Venezia*. Venice: Tip. Armena.
- Salerio, P. 1862. *Tavole statistiche del Manicomio centrale maschile in San Servolo di Venezia del quinquennio 1857–61*. Venice: Tip. Armena.
- Salerio, P. 1865. *Tavole statistiche triennali 1862–63–64 del manicomio centrale maschile in San Servolo di Venezia diretto dai Padri Fate-Bene-Fratelli*. Venice: Tipografia Armena di S. Lazzaro.
- Salerio, P. 1871. *Tavole statistiche, triennali 1868–69–70, del manicomio centrale maschile in San Servolo di Venezia*. Venice: Tipografia della società di mutuo soccorso fra compositori-tipografi.
- Salviato, A. 2002. Pellagra e pazzia: i manicomi di S. Servolo e di S. Clemente. In *Storia di Venezia. L'Ottocento e il Novecento*, ed. M. Isnenghi and S. Wolf, vol. 2, 905–930. Rome: Istituto della Enciclopedia Italiana. [https://www.treccani.it/enciclopedia/pellagra-e-pazzia-i-manicomi-di-s-servolo-e-di-s-clemente\\_%28altro%29/](https://www.treccani.it/enciclopedia/pellagra-e-pazzia-i-manicomi-di-s-servolo-e-di-s-clemente_%28altro%29/).
- Salviato, A. 2003. Melanconiche d'altri tempi. Le pazienti del manicomio di San Clemente a Venezia (1873–1904). *Genesis* 2: 63–90.
- Sambon, L.W. 1910. Progress Report on the Investigation of Pellagra. *Journal of Tropical Medicine and Hygiene* 13: 271–282, 287–300, 305–315, 319–321. Reprinted in book form in the same year, London: Bale and Danielsson. <https://wellcomecollection.org/works/uk7sqkmc/items>.
- Sambon, L.W. 1897, January 9. Remarks on the Possibility of the Acclimatisation of Europeans in Tropical Regions. *British Medical Journal* 1 (1880): 61–66.
- Sambon, L.W. 1898, March 19. Remarks on the Etiology of Sunstroke (Siriasis). *British Medical Journal* 1 (1942): 744–748.
- Sambon, L.W. 1905, November 11. Remarks on the Geographical Distribution and Etiology of Pellagra. *British Medical Journal* 2 (2341): 1272–1275. <https://www.jstor.org/stable/20287314>.
- Sandwith, F.M. 1914. Can Pellagra Be a Disease Due to Deficiency in Nutrition? *Transactions of the National Association for the Study of Pellagra ... 1912*, 97–99. Columbia, SC: R. L. Bryan. [www.archive.org/transactions](http://www.archive.org/transactions).
- Sarteschi, P., M. Guazzelli, and A. Cittadini. 1994. I sistemi classificatori nell'ospedale di S. Maria della Pietà a Roma nella second metà dell'Ottocento. In *L'ospedale dei pazzi di Roma dai papi al '900*, ed. F. Fedeli Bernardini, 151–156. Rome: Dedalo, vol. 2, *Lineamenti di assistenza e cura a poveri e dementi*.
- Sentieri, Maurizio, and Guido Zazzu. 1992. *I semi dell'Eldorado: l'alimentazione in Europa dopo la scoperta dell'America*. Bari: Dedalo.

- Schlimm, A. 2019. The Guerrilla Historian: Eric J. Hobsbawm and the Long Nineteenth Century. *German Historical Institute London Bulletin* 41 (2): 95–110. <https://www.ghil.ac.uk/fileadmin/redaktion/dokumente/bulletin/GHIL%20Bulletin%2041,2/GHIL%20Bulletin%2041%20%282019%29,2%20-%2009%20-%20The%20Guerrilla%20Historian.pdf>.
- Scrinis, G. 2015. *Nutritionism: The Science and Politics of Dietary Advice*. New York: Columbia University Press.
- Scrob, L. 2018. Conceptualizing the Vitamin and Pellagra as an Avitaminosis: A Case-Study Analysis of the Sedimentation Process of Medical Knowledge. In *Proteins, Pathologies and Politics. Dietary Innovation and Disease in the 19th and 20th Centuries*, ed. D. Gentilcore and M. Smith, 67–81. London: Bloomsbury.
- Scrob, L. 2020. The Transition from Mămăligă to Bread in the Romanian Countryside under Socialism. *Food & History* 18: 75–96.
- Scull, A. 2015. *Madness in Civilization: A Cultural History of Insanity*. London: Thames and Hudson.
- Sekula, A. 1986. The Body and the Archive. *October* 39: 3–64. <https://www.jstor.org/stable/pdf/778312.pdf>.
- Shepherd, A. 2014. *Institutionalizing the Insane in Nineteenth-Century England*. London: Pickering and Chatto.
- Shorter, E. 1997. *A History of Psychiatry, from the Era of the Asylum to the Age of Prozac*. New York: Wiley.
- Shortt, S.E.D. 1983. Physicians, Science, and Status: Issues in the Professionalization of Anglo-American Medicine in the Nineteenth Century. *Medical History* 27 (1): 51–68. <https://www.cambridge.org/core/journals/medical-history/issue/F0B85C0CFC216FB3BAFB3A58E152B0C4>.
- Siler, P., et al. 2014. Second Progress Report of the Thompson-McFadden Pellagra Commission. *Archives of Internal Medicine* 14: 289–293.
- Singer, D. 1912. Current Views upon Pellagra. In *Report of the Pellagra Commission of the State of Illinois (President Frank Billings), November 1911*. Springfield, IL: Illinois State Journal Co. <https://archive.org/details/b2398322x>.
- Smith, C. 2006. Family, Community and the Victorian Asylum: A Case Study of the Northampton General Lunatic Asylum and Its Pauper Lunatics. *Family and Community History* 9 (2): 110–124.
- Smith, C. 2012. Living with Insanity: Narratives of Poverty, Pauperism and Sickness in Asylum Records, 1840–76. In *Poverty and Sickness in Modern Europe: Narratives of the Sick Poor, 1780–1938*, ed. A. Gestrinch, E. Hurren, and S. King, 117–141. London: Continuum.
- Snowden, F. 2006. *The Conquest of Malaria: Italy, 1900–1962*. New Haven and London: Yale University Press.

- Sori, E. 1979. *L'emigrazione italiana dall'Unità alla seconda guerra mondiale*. Bologna: il Mulino.
- Spurzheim, J.G. 1817. *Observations on the Deranged Manifestations of the Mind or Insanity*. London: Baldwin, Cradock and Joy. <https://wellcomecollection.org/works/z6g4qhqn/items>.
- Statuti 1873. *Statuti organici dei manicomi delle province venete di S. Clemente e di S. Servolo in Venezia approvati definitivamente dal Comitato di stralcio del fondo territoriale*. Venice: Giuseppe Antonelli.
- Stefani, A. 1911. *Relazione sull'opera della Commissione pellagologica provinciale di Padova nell'anno 1910*. Padua: Penada.
- Szejnert, M. 2020. *Ellis Island: A People's History*, trans S.G. Bye. London: Scribe.
- Tagliavini, A. 1988. Aspects of the History of Psychiatry in Italy in the Second Half of the Nineteenth Century. In *The Anatomy of Madness: Essays in the History of Psychiatry*, ed. W.F. Bynum, R. Porter, and M. Shepherd, vol. 3, 175–196. London: Routledge.
- Thompson, M.S. 1988. The Wages of Sin: The Problem of Alcoholism and General Paralysis in Nineteenth-Century Edinburgh. In *The Anatomy of Madness. Essays in the History of Psychiatry*, ed. R. Porter, W.F. Bynum, and M. Shepherd, vol. 3, 316–340. London: Routledge.
- Traimond, B. 1992. L'irruption d'une maladie: La pellagre dans les Landes de Gascogne au XIXe siècle. *Ethnologie Française* 22 (1): 43–55. <http://www.jstor.org/stable/40989305>.
- Tucker, G.A. 1887. *Lunacy in Many Lands*. Sydney: Charles Potter. <https://wellcomecollection.org/works/mc4q7qdb/items>.
- Vanni, A., and L. Missiroli. 1987. Bonfigli contro Lombroso: della polemica sulla etiopatogenesi della pellagra. *Rivista sperimentale di freniatria* 111 (6): 1383–1396.
- Vanzetto, L. 1992. *I ricchi e i pellagrosi: un secolo di storia dell'Istituto 'Costante Gris' di Mogliano Veneto*. Abano Terme: Francisci.
- Vassalli, S. 1992. *Marco e Mattio*. Turin: Einaudi.
- Vigna, C. 1874. *Il nuovo manicomio femminile di San Clemente: primo resoconto statistico del cav. Cesare Dott. Vigna*. Venice: Antonelli.
- Vigna, C. 1877. *Rendiconto statistico del frenocomio centrale femminile di S. Clemente (1874–1875–1876)*. Venice: Antonelli.
- Vigna, C. 1879. Sulla pellagra nella provincia di Venezia. In *La pellagra in Italia*, In *Annali di Agricoltura* 18: 447–462.
- Vigna, C. 1887. Il manicomio centrale femminile di San Clemente: memoria. *Memorie del Reale Istituto Veneto di scienze, lettere ed arti* 23: 47–114.
- Viljoen, M., P. Bipath, and C. Tosh. 2021. Pellagra in South Africa from 1897 to 2019: A Scoping Review. *Public Health Nutrition* 24 (8): 2062–2076.

- Volpino, G. 1914. Il monofagismo ed i suoi rapporti con le malattie popolari della pellagra, dello scorbuto e del beri-beri. *Rivista pellagologica italiana* 14 (2): 17–18.
- Wallis, J. 2013. The Bones of the Insane. *History of Psychiatry* 24 (2): 196–211. <https://journals.sagepub.com/doi/10.1177/0957154X13476200>.
- Wallis, J. 2015. “Atrophied, Engorged, Debauched”: Muscle Wastage, Degenerate Mass and Moral Worth in the General Paralytic Patient. In *Insanity and the Lunatic Asylum in the Nineteenth Century*, ed. T. Knowles and S. Trowbridge, 99–113. London: Pickering and Chatto.
- Wallis, J. 2017. *Investigating the Body in the Victorian Asylum: Doctors, Patients, and Practices*. London: Palgrave Macmillan. <https://link.springer.com/book/10.1007/978-3-319-56714-3>.
- Warboys, M. 2000. *Spreading Germs: Disease Theories and Medical Practice in Britain, 1865–1900*. Cambridge: Cambridge University Press.
- Warman, A. 2003. *Corn and Capitalism: How a Botanical Bastard Grew to Global Dominance*. Chapel Hill, NC: University of North Carolina Press.
- Weiner, D.B. 2008. Philippe Pinel in the Twenty-First Century. In *History of Psychiatry and Medical Psychology*, ed. E.R. Wallace and J. Gach, 305–312. New York: Springer.
- Wendell Holmes, O. 1859. The Stereoscope and the Stereograph. *The Atlantic Monthly* 3 (20): 738–748.
- WHO. 2000. *Pellagra and Its Prevention and Control in Major Emergencies*. Geneva: World Health Organization. <https://apo.who.int/publications/i/item/WHO-NHD-00.10>.
- Wilkins, E.T. 1871. *Insanity and Insane Asylums: Report of M. D. Commissioner in Lunacy for the State of California, Made to His Excellency H. H. Haight, Governor*. Sacramento, CA: T. A. Springer. <https://collections.nlm.nih.gov/bookviewer?PID=nlm:nlmuid-2545034R-bk>.
- Willms, W. 1993. *San Clemente. Storia di un'isola veneziana*. Venice: Centro Tedesco di Studi Veneziani.
- Wood, E.J. 1912. *A Treatise on Pellagra for the General Practitioner*. New York: Appleton.
- Wootton, D. 2007. *Bad Medicine: Doctors Doing Harm Since Hippocrates*. Oxford: Oxford University Press.
- Wright, D. 1997. Getting Out of the Asylum: Understanding the Confinement of the Insane in the Nineteenth Century. *Social History of Medicine* 10 (1): 137–155.
- Zamagni, V. 1993. *The Economic History of Italy, 1860–1990: Recovery After Decline*. Oxford: Clarendon Press.



# INDEX

## A

Academy of Sciences, Letter and Arts (Padua), 34  
Actor-centred approach, 58  
Admittances, repeat, 145  
Adria, 144  
Aetiology, of pellagra, 43, 50, 89, 100  
Albums, asylum photographic, 123, 124  
Alcoholism, 5, 51, 94, 103, 104, 106, 110  
Aldrigo, Giordano, 80  
*American Agriculturalist* (periodical), 67  
Angola, 5  
Anthrax, 66  
Anthropogenic disease, 148  
Antonini, Giuseppe, 52, 56, 59–61, 65, 71, 72  
Arsenious acid, treatment for pellagra, 15, 50, 133  
Ateneo (Treviso), 34  
Atlanta, Georgia, 56  
Attention deficit hyperactivity disorder, 149

Autism, 149  
Azzolini, Pietro, 130

## B

Babcock, James W., 66–68  
Bacteriology, influence, 47, 57, 61  
Ballotta, Luigia, 78  
Basaglia, Bortolo, 130  
Basaglia, Rocco, 130, 132  
Battanolì, Dalmazio, 113, 120, 123, 128  
Bay, Alexander, 57, 61, 71, 148  
Bayle, Antoine-Laurent-Jessé, 103, 107  
Beggiato, Emilio, 144  
Bego, Giacinto, 144  
Belluno, 2, 30, 89, 90, 136  
Bergamo, 56, 60, 63, 65, 68, 70, 149  
Beriberi, 57, 58, 61, 69, 71, 148  
Berrios, Germán E., 103, 107, 108  
Bertani, Oreste, 124, 125, 127  
Bethlehem Hospital (London), 103  
Biofortification, 149  
Blandford, G. Fielding, 109  
Blue, Rupert, 69

Boara Polesine, 128  
 Boccato, Luigia, 82  
 Bonaparte, Napoleon, 34  
 Bonfigli, Clodomiro, 45–47, 51, 100, 111  
 Bonifazio hospital (Florence), 37  
 Bonosiol, Domenico, 79  
 Bonvecchiato, Ernesto, 142  
 Bregolato, Pietro, 121  
 Brescia, 14, 65  
 British Medical Association, 62  
*British Medical Journal* (periodical), 61  
 Brothers Hospitallers of St John of God (Fatebenfratelli), 124  
 Brunetta, Dr, 136, 143  
 Bubonic plague, 66  
 Bucknill, John, 101, 108  
 Buckwheat, 8

## C

Cachexia, 89. *See also* Malnutrition  
 Calandrini, Raffaele, 12  
 Calomel, as treatment for pellagra, 15, 142  
 Canale, Francesca, 144, 145  
 Carletti, M.V., 65  
 Carpenter, Kenneth, 36, 57  
 Carter, K. Codell, 43, 57, 71  
 Carter, M.H., 147  
 Castel Bariano, 130  
 Celli, Angelo, 62  
 Ceni, Carlo, 100  
 Central London Sick Asylum, 105  
 Ceresoli, Cesare, 65  
 Chiarugi, Vincenzo, 36–38, 134  
*Chicago Post* (newspaper), 67  
 Chiereghin, Antonio, 144  
 Chioggia, 144  
 Cholera, 47, 61, 92, 142  
 Civilisation, disease of, 104

Climate, and pellagra, 42, 128  
 Clinical files, use of photography in, 77  
 Columbia (South Carolina), 68, 69  
 COVID-19, 12, 47, 93  
 Crisis, agrarian, 12  
 Crosby, Alfred, 7  
 Cure, notion of, 134

## D

Davin, Regina, 80  
 Davì, Rosa, 80, 81, 130  
 Day labourers (*braccianti*), 12, 94, 129  
 Deficiency theory, pellagra, 36, 44, 46, 61, 69  
 Delirium, 46, 80, 81, 89, 106  
 Della Bianca, Giovanni Domenico, 79  
 Dementia, 4, 37, 107–109, 120  
 Demonomania, 89  
 Depression, 70, 149. *See also* Melancholy  
 Devoto, Luigi, 70  
 Diabetes, 148  
*Diagnostic and Statistical Manual of Mental Disorders (DSM)*, 114  
 Diarrhoea, and pellagra, 4, 32, 37, 89, 143  
 Diet, as cause of pellagra, 33, 35, 43  
 Diet, in insane asylums, 6, 146  
 Diet, Mediterranean, 149  
 Diet, restorative, 50, 89, 131  
 Diptheria, 47  
 Discharge, from insane asylums, 143  
 Disease, man-made, 18, 148  
 Disputes, medical, 16, 50  
 Drug trials, 48

## E

Electrical current, as treatment for diarrhoea, 142

Emigration, from Italy, 10, 136  
 Emilia Romagna, 9  
 Epilepsy, 107, 149  
 Ergotherapy, 134  
 Esquirol, Étienne, 104, 109  
 Exchange, Columbian, 7

## F

Fabio, Santa, 128  
 Families, and pellagrous insanity, 104, 131, 135  
 Famine, 5, 8, 11, 33  
 Fanzago, Francesco, 28–37, 42  
 Feltre, 89  
 Ferri, Enrico, 95  
 Filippini, Dr, 89, 91  
 Florence, 14  
*Formentón* (term for maize), 8  
 Fortification, vitamin, 4  
 Fournier, Jean-Alfred, 104, 111  
 France, 4  
 Frances, Allen, 114  
 Francescetto, Santo, 79  
 Frank, Johann Peter, 28  
 Friuli, 65  
 Frua, Carlo, 43, 69  
 Funk, Casimir (Kasimierz), 69, 70

## G

Gendering, of mental illness, 12, 128  
 General paralysis, gendering of, 106  
 General paralysis of the insane (GPI), 17, 88, 100, 103, 105, 111  
 General paralysis, possible dietary cause, 109  
 General paresis. *See* General paralysis of the insane (GIP)  
 Goffman, Erving, 88  
 Goitre, 148  
 Goldberger, Joseph, 16, 70, 72, 147  
 Gorza, Domenico, 89

Grassi, Giovanni Battista, 62, 66  
 Gregory, John, 28  
 Gris, Costante, 50

## H

Hanwell Asylum (Middlesex), 108  
 Hegemony, Lombrosian, 69, 70, 72  
 Heredity, and pellagra, 51, 107, 113  
 Hobsbawm, Eric J., 6  
 Hoffmann, Erich, 104  
 Holland, Henry, 4–6  
 Hospice for Pellagrins (Mogliano Veneto), 50  
 Hospital, Pavia, 28, 100  
 Hospitals, provincial, 94  
 Hunter, S.J., 68  
 Hurn, J.D., 105, 108, 112

## I

Ice, as treatment for diarrhoea, 142  
 Idiocy, 107–110  
 Ignorance, construction of, 61  
*Il Monitor di Treviso* (newspaper), 34  
*Il Pellagroso* (newsheet), 12  
*Il Raccoglitore Medico* (periodical), 45  
 Immigrants, blamed for spread of pellagra, 68  
 India, 62  
 Industrialisation, 104  
 Insane asylum beds, funding, 130  
 Insane asylum, Feltre, 89  
 Insane asylum, Ferrara, 45, 100  
 Insane asylum, Forlì, 12  
 Insane asylum, Milan, 5, 142  
 Insane asylum, Mombello, 60, 142, 146  
 Insane asylum, San Clemente (Venice), 17, 77, 88, 100  
 Insane asylum, San Lazzaro (Reggio Emilia), 94, 100, 142, 146

Insane asylum, San Servolo (Venice),  
2, 16, 17, 51, 77, 88–91, 94,  
102, 103, 123, 124, 127, 134,  
142, 145, 146

Insane asylum, Santa Maria della Pietà  
(Rome), 51, 131

Insane asylums, as site for medical  
investigations, 34, 71

Insane asylums, diet in, 6, 93, 94,  
131, 133, 144, 146

Insane asylums, segregation in, 146,  
147

Insane asylums, visiting of, 67, 127

Insane asylum, Voghera, 60

Insane, domestic care of, 95

Insanity, linked to pellagra, 88, 103

Ireland, 103

Italian Pellagrological Congress, 17,  
65, 68, 70

## J

Japan, 58, 61, 71, 148

## K

Koch, Robert, 48, 65, 66

Kraepelin, Emil, 113

## L

Laboratories, role of, 44, 47, 48, 59,  
69, 100, 111

Landowners, 8–10, 37, 48, 94, 129,  
147

Lavinder, C.H., 67, 68

Lead acetate, as treatment for  
pellagra, 50, 133

*L'Eco di Bergamo* (newspaper), 17,  
56, 57, 65

Legislation, pellagra, 48, 51

Leicester, 18, 62

Leprosy, pellagra mistaken for, 4,  
30–33, 47, 105

Levi, Giovanni, 7

Life cycle, of asylum patients, 88, 92,  
129

*Literary Digest* (periodical), 68

Lombardy, 4, 5, 9, 11, 28, 29, 44

Lombroso, Cesare, 14, 15, 43–48,  
50, 51, 56, 59, 60, 63, 66, 67,  
70, 100, 133, 142

London, 2, 4, 61, 63, 68, 69, 109

Long nineteenth century, concept of,  
6, 7, 16, 18, 29, 93, 148

Lovat, Mattio, 4, 148

Low, George, 62

Lugo Vicentino, 145

Lussana, Filippo, 43–46, 51, 69, 70,  
100

## M

Maize, consumption of, 8, 9, 11, 37,  
42, 44, 56, 65, 72, 104

Maize, cultivation of, 4, 8–12, 37

Maize, European reception of, 7

Maize, spoilt, 44–46, 48, 51, 56, 59,  
60, 89, 100

Majerus, Benoît, 89

Malaria, 16, 47, 59, 62, 63, 130

Malnutrition, 45, 106. *See also*  
Cachexia

Mania, pellagrous, 12, 96, 130, 133

Mania, religious, 2, 4, 107, 131

Manning, F.N., 102

Manson, Patrick, 61, 62

*Manual of Psychological Medicine*,  
101, 108

Marche, 11

Marchesan, Lucia, 95

Marie, Armand, 67

Marzari, G.B., 34–37, 42

*Mattoide*, mad genius label, 46

Melancholy, 5, 78, 93, 107, 120, 121  
 Melesi, Tito, 12  
 Menegatti, Achille, 131  
 Mental illness, causes, 101, 103  
 Mental illness, classification, 18, 106  
 Mental illness, diagnosis, 18  
 Mercurous chloride. *See* Calomel, as treatment for pellagra  
 Messedaglia, Luigi, 7, 70  
 Methodology, mixed, 88  
*Mezzadria* (tenant farming), 9, 94  
 Milan, 5, 14, 28, 60, 61, 142, 146  
 Millet, 8  
 Mogliano Veneto, 50  
 Monomania, 107, 108, 120  
 Mortality, of pellagrous insane, 142  
 Mussolini, Benito, 147

## N

Naples, university of, 61  
 National Association for the Study of Pellagra (USA), 67, 68  
 Nervous system, pellagra as disease of, 32, 33, 109, 112  
*New York Times* (newspaper), 57, 68  
 Ngouchi, Hideyo, 104  
 Niacin (nicotinic acid), 4, 5, 10, 103, 147, 149  
*Nixtamal* (maize pottage), 10  
 Nobel prize, 62  
 Nosology, 30, 34, 36, 38, 42, 102, 106  
 Noventa Vicentina, 145  
 Nutritionism, 148

## O

Obesity, 148  
 Occupations, of pellagrins, 129  
 Odoardi, Jacopo, 29–31, 36

## P

Padua, 8, 27, 28, 34, 51, 90  
 Padua, university of, 34, 65  
 Panama Canal, 66  
 Paralytic dementia. *See* General paralysis of the insane (GPI)  
 Parliament, Italian, 48, 51, 65  
 Parma, 9, 51  
 Patient files, use of photography, 121, 123–125, 130, 145  
 Patient records, as historical source, 12, 51, 88, 91, 120, 121, 142  
 Patients, geographical origins, 92, 129  
 Pavia, university of, 44  
 Peasants, conditions, 7, 9  
 Pedavena, 136  
 Pellagra, advice literature, 5, 57  
 Pellagra, aetiology, 34, 36, 38, 43, 45, 47, 49, 50, 52, 58, 62, 69, 72, 89, 100, 103, 105, 106, 111, 149  
 Pellagra, and insanity, 5, 12, 17, 18, 33, 87, 100, 128  
 Pellagra, as disease of four Ds, 4  
 Pellagra, as main cause of institutionalisation, 103  
 Pellagra, as man-made disease, 18, 148  
 Pellagra, causation, 11, 34, 38, 44, 45, 51, 58, 121  
 Pellagra, chronic, 12, 93, 129  
 Pellagra, classification, 17  
 Pellagra, clinical picture, 38  
 Pellagra, gendering of, 12, 128  
 Pellagra, government commissions, 17  
 Pellagra, legislation, 48, 51  
 Pellagra, nosology of, 30, 34, 38, 106  
 Pellagra, origins of term, 67  
 Pellagra, spread, 44, 62, 63  
 Pellagra, symptomatology, 31, 88, 108  
 Pellagra, treatment of, 15, 42  
 Pellagrological congresses, 60

Pellagrous insanity, curability, 143  
 Pellagrous insanity, physical nature, 107  
 Pellagrous insanity, social origins, 133  
 Pellagrous insanity, spread, 94  
 Pellagrous insanity, types, 134  
 Pellagrozeine, presumed maize toxin, 45  
*Pellarina* (term for pellagra), 29, 30  
 Pelt, Lodovico, 106–108, 113  
*Penicillium glaucum*, as maize toxin, 44  
 Perugia, 14, 63  
 Photographing, of asylum patients, 124  
 Physical and mental link, in mental illness, 103  
 Physicians, district, 56, 60, 66, 69, 72  
 Piedmont, 9  
 Pieve di Zoldo, 2  
 Pinello, Luigi, 78  
 Pleurisy, 144  
 Polenta, consumption, 7–9, 56  
 Poloni, Maria, 136, 142, 143  
 Pontel, Lucia, 93  
 Pontoni, Angelica, 143  
 Porter, Roy, 108  
 Portugal, 4  
 Po valley, 9  
 Poverty, pellagra as disease of, 16, 18, 33, 67, 89  
 Prostitution, 104  
 Provinces, funding of insane asylum beds, 130  
 Provincial pellagrological commissions, 17  
*Psyche* and *soma*, correlation, 101  
 Psychiatry, status, 18, 106  
 Public Health Service (USA), 67, 70, 147  
 Pujati, Giuseppe Antonio, 35  
 Puppo, Marianna, 82

## Q

Quinine, use against malaria, 62

## R

Rawling, Katherine, 123, 124  
 Real Liceo (Treviso), 34  
 Referral, to insane asylums, 88  
 Remittances, of emigrants, 49  
 Restraint, practice of, 37  
 Rice, and beriberi, 58, 61, 69  
*Rivista pellagologica italiana* (periodical), 17, 52, 56, 59, 65, 70  
 Romagnol, Luigia, 80  
 Romania, 4  
 Rome, 11, 51, 62, 131  
 Ross, Ronald, 62  
 Rovigo, 90, 128, 130, 131  
 Royal Asylum (Edinburgh), 106  
 Royer-Collard, A.-A., 104  
 Ruggieri, Cesare, 2, 4

## S

Salerio, Prosdocimo, 106, 113, 114, 123, 124, 133, 134, 143  
 Salt, as pellagra treatment, 48  
 Sambon, L.W., 56–72, 149  
 San Clemente, conditions, 72, 93, 94, 132, 142  
 San Clemente, discharge rates, 135  
 San Clemente, mortality, 130, 142  
 San Clemente, origins, 92, 128, 133  
 San Clemente, patient numbers, 125  
 San Clemente, textile mill, 134  
 Sand-fly (gnat), as cause of pellagra, 66, 68  
 Sandwith, F.M., 68, 70  
 San Francesco Grande hospital (Padua), 27, 29  
 San Martino Asylum (Como), 143

San Servolo, as pharmaceutical asylum, 134  
 San Servolo, discharge rates, 124, 125, 127, 130, 134, 142–144  
 San Servolo, mortality, 130  
 San Servolo, origins, 133  
 San Servolo, patient numbers, 125  
 Santi Giovanni e Paolo hospital (Venice), 2  
 Scandal, notion of, 95  
 Scandolaro, Maria, 82  
 Schaudinn, Fritz, 104  
 School of Tropical Medicine (London), 56, 61  
 Scotland, 103, 106  
 Scull, Andrew, 106  
 Scurvy, pellagra mistaken for, 31  
 Segregation, in insane asylums, 146, 147  
 Semmelweis, Ignaz, 43  
*Simulium* (sand-fly), as cause of pellagra, 56, 59, 63, 64, 68  
 Skin, pellagra as disease of, 4, 29, 31, 35, 37, 38  
 Sleeping sickness, 59, 62, 63  
 Social control, 135, 146  
 South Africa, 4  
 South Carolina, 66–68  
 Spain, 4, 31, 148  
 Staging, of patient photographs, 127  
 State Hospital for the Insane (South Carolina), 67  
 Statistics, use of, 102  
 Stefani, Aristide, 69  
 Straightjackets, manufacture, 143  
 Straightjackets, use, 91  
 Streptomycin, in treatment of tuberculosis, 65  
 Suicide, 80, 81, 89, 143  
 Sunstroke, as cause of pellagra, 51  
 Syphilis, 66, 88, 103–107, 111, 112

## T

Termini, Marianna, 82  
 Tetanus, 47, 66  
 Thompson-McFadden Pellagra Commission, 68  
 Toxicozest theory, pellagra, 46, 47, 59, 70  
 Treviso, 34, 35, 90, 93  
 Tuberculosis, 65, 66  
 Tucker, G.A., 102, 103, 120, 133, 134, 147  
 Tuke, D.H., 101, 108–110, 114  
 Turin, 14  
 Turin, university of, 47  
 Tuscany, 11, 37  
 Typhus, 14, 142

## U

Udine, 90, 93, 143  
 Umbria, 65  
 United Kingdom (UK), 17, 18, 88, 100, 103–105, 111, 112, 124  
 United States, pellagra in, 4, 16, 56, 58, 66, 69, 70, 72, 136, 147, 148  
 Unrest, social, 12  
 Urbanisation, 104

## V

Valpy, A.J., 2, 4  
 Vassalli, Sebastiano, 4  
 Veneto, 8–12, 17, 28–31, 34, 35, 88, 90, 93, 94, 129, 130, 136, 146, 147  
 Venice, 2, 15, 89–91, 103, 106, 124, 129, 130, 134, 143, 146, 147  
 Verdi, Giuseppe, 124  
 Verona, 66, 90  
 Vicenza, 90, 121, 145

Vigna, Cesare, [50](#), [51](#), [94](#), [95](#), [100](#),  
[101](#), [113](#), [120](#), [121](#), [124](#), [128](#),  
[133](#), [134](#), [143](#)

*VMAD: The Venetian Mental Asylums*  
*Database*, [17](#)

Voghera, [60](#)

von Liebig, Justis, [48](#)

## W

Wales, [103](#), [106](#)

Wellcome, Henry, [63](#)

Wendell Holmes, Oliver, [127](#)

Wheat, [7–9](#), [69](#), [70](#), [93](#)

Wilkins, E.T., [101–103](#)

Wootton, David, [42](#)

Work therapy, [92](#)

World War I, [6](#), [70](#), [72](#), [147](#)