

PROBLEMATIZING RETROSPECTIVE DIAGNOSIS IN THE HISTORY OF DISEASE*

Jon Arrizabalaga

Department of History of Science
Institución Milà i Fontanals, CSIC

TWENTIETH-CENTURY HISTORIOGRAPHY OF HUMAN DISEASE: A PRELIMINARY OUTLINE FROM A SOCIO-CONSTRUCTIONIST PERSPECTIVE

The perception of biomedical achievements in the last century has led most Westerners and those in the rest of the world under the influence of Western scientific culture, to assume that their own representations of disease and of its causes are the most authentic, the «truest», on the assumption that such representations are the culmination of an historical process through which modern medical science gradually achieved a better understanding of these phenomena—in accordance with a mathematical image, so esteemed by Popperian philosophers of science, of scientific knowledge as asymptotic to natural reality.

Until well into the 1920s this idea was indisputable among historians of disease not least as a result of the «disciplinary» and, above all, legitimizing role with respect to modern medicine that History of Medicine had played after its institutionalization in German and Central European medical faculties during the late nineteenth century. The great impact that new laboratory medicine was having from the mid nineteenth century on the re-conceptualization of diseases had meant that the history of human diseases was reconstructed as a process of acquisition of knowledge and techniques leading to the present time in a linear, progressive and inexorable way. From the late nineteenth-century, the laboratory was presented in the historico-medical studies as the scenario where, definitively, medicine had succeeded in endowing itself with a method—the systematical resort to experimental research—reliable and rigorous, to

* This study has been partly funded by the research fellowship PB 98-0406-C02-02 of the DGEIC (Spanish Government). Earlier versions of this article were presented at the 19th International Congress of Historical Sciences (Oslo, 6-13 August 2000) and at the 11th Simposium de la Sociedad Española de Historia de la Medicina (Jaraiz de la Vera, Cáceres, 22-23 September 2000). I am grateful to Andrew Cunningham for his suggestions and for his help with its English style, and to Fernando Salmón for his comments.

objectivize the reality of human disease and health. And the germ theory, whose development in this context from the 1870s had allowed the promotion from new perspectives, of medical investigations into the nature, causes, prevention and treatment of infectious diseases —the group of afflictions of by far the greatest impact on the history of humankind and even nowadays the main health concern for a great number of human communities—, was considered as the key to «the first *successful* understanding of plague and other terrible diseases, which replaced the old, unsuccessful and *misguided* attempts» of earlier physicians to achieve this aim¹.

Although Western science and medicine reinforced their position as basic to the new political order resulting from the Second World War on both sides of the Iron Curtain, for both of them the «age of innocence» was over forever after such war. They stopped being considered as value-free, neutral activities whose development was independent from the socio-cultural context where they took place, and due only to the logic of scientific knowledge, and came to be seen as social activities developed by human beings and, as such, capable of being used in a responsible or irresponsible, beneficial or harmful way. Although the impact of a new social and cultural (*Kulturgeschichte*) history was already detectable in the medical historiography by the 1920s², it was only from the 1940s when the number of histories of disease significantly increased, which stressed the socio-cultural specificity inherent to human diseases, while interest in the «bacteriologic» histories of disease was gradually decreasing. Even without the pioneering contribution by the «father» of the *Annals*, Marc Bloch, in his *Les rois thaumaturges* (1924)³ on the healing rituals of scrofula by means of the «royal touch» in medieval and renaissance France and England, some of the studies published from the 1940s by Henry Sigerist⁴ and by his pupils George Rosen⁵, Oswei

¹ CUNNINGHAM, A. (1992), «Transforming plague: the laboratory and the identity of infectious disease». In: CUNNINGHAM, A.; WILLIAMS, P. (eds.), *The laboratory revolution in medicine*, Cambridge, Cambridge University Press, p. 240. According to this «bacteriologic view», the history of medicine was «presented as the story of the fight of evidence and common sense over theory and stupidity», a battle eventually won thanks to the laboratory. To reassert their positions, «bacteriologic» historians invented their own genealogy vindicating men like Fracastoro, Leeuwenhoek, Redi, Spallanzani and Semmelweis as microbiologists and bacteriologists *avant-la-lettre*; and they introduced themselves as «the successors to these far-sighted men whose fate had inevitably been not to have been appreciated in their own day» (*ibidem*, pp. 238-242).

² WINAU, R. (1983), «The role of medical history in the history of medicine in Germany». In: GRAHAM, L.; LEPENIES, W.; WEINGART, P. (eds.), *Functions and uses of disciplinary histories*, Dordrecht-Boston-Lancaster, D. Reidel Publishing Company, pp. 114-116.

³ BLOCH, M. (1924), *Les rois thaumaturges*, Strassburg, Faculté des Lettres.

⁴ SIGERIST, H.E. (1941), *Medicine and human welfare*, New Haven, Yale University Press; idem (1943), *Civilisation and Disease*, Ithaca, Cornell University Press.

⁵ ROSEN, G. (1943), *The history of miners' diseases, A medical and social interpretation*, New York, Schuman; idem (1958), *A history of public health*, New York, MD Publications; idem (1968), *Madness in society - Chapters in the historical sociology of mental illness*, New York, Harper & Row (Spanish version: *Locura y sociedad. Sociología histórica de la enfermedad mental*, Madrid, Alianza, 1974).

Temkin⁶ and Edwin Ackerknecht⁷ outstandingly illustrate this change with respect to history of disease⁸.

From the 1960s the idea gradually spread that those phenomena labeled as diseases are not merely biological events essentially continuous in space and time or, at most, subjected (in the case of infectious diseases) to bio-evolutionary changes linked to the host-parasite interaction. They are also, and above all, human constructs resulting from specific socio-cultural contexts and, as such, only understandable within these specific coordinates. This kind of approach to the history of disease has been commonly known as «socio-constructionist» or merely «constructionist»⁹. This «constructionist» perspective that underlines the dual —namely, biological and social— condition of disease, opened the door to a huge number of bitter disputes about the role of each term of the biology-culture relationship in the genesis and development of human diseases in different social contexts, either past or present, as well as about the necessary or negotiated character of this relationship¹⁰.

While originating from different disciplines (medical sociology, medical anthropology, social history and social studies of science, mostly), all «constructionist» approaches have in common their emphasis on the premise that disease is primarily a

⁶ TEMKIN, O. (1945), *The falling sickness. A history of epilepsy from the Greeks to the beginnings of modern neurology*, Baltimore, The Johns Hopkins Univ. Press (2nd. ed.: Baltimore, The Johns Hopkins University Press, 1971).

⁷ ACKERKNECHT, E.H. (1951), *Malaria in the Upper Mississippi Valley, 1760-1900*, Baltimore, Johns Hopkins Press; idem (1963), *Geschichte und Geographie der wichtigsten Krankheiten*, Stuttgart, F. Enke; idem (1971), *Medicine and Ethnology*, Bern, Huber.

⁸ Robert Jütte claims that «not historians but sociologists and anthropologists were the first to point out the ‘historicity’ of illness and health, showing that these two phenomena were neither ‘objective’ nor ‘natural’ things but social constructs» and that «they also made us aware of the relativity of categories such as ‘health’ and ‘illness’ by contrasting the conceptualization of illness in different social systems and by describing diseases which are typical of various historical ages or given societies». However, this does not do justice to the relevant contributions made at this point by Sigerist and his pupils from the 1940s. See JÜTTE, R. (1992), «The social construction of illness in the early modern period». In: LACHMUND, J.; STOLLBERG, G. (eds.), *The social construction of illness. Illness and medical knowledge in past and present*, Stuttgart, Franz Steiner, p. 23.

⁹ Although I share Charles Rosenberg’s uncomfortableness with the use of the phrase «social construction of disease» because of its being a sort of tautology —in the end, everything is social in human societies—, it seems to me convenient to keep it for lack of another better phrase. Nicolson and McLaughlin have noted that sociologists of medicine tend to employ the term «constructionist», while sociologists of science prefer that of «constructivist». Yet they perceive no systematic difference in the meanings of the two terms. See ROSENBERG, C.E. (1992), «Introduction. Framing Disease: Illness, Society, and History». In: ROSENBERG, C.E.; GOLDEN, J. (eds.), *Framing disease. Studies in cultural history*, New Brunswick (New Jersey), Rutgers University Press, p. xiv; NICOLSON, N.; MCLAUGHLIN, C. (1987), «Social constructionism and medical sociology: A reply to M. R. Bury», *Sociology of Health and Illness*, 9, p. 122.

¹⁰ ROSENBERG, C.E. (1988), «Disease and social order in America: Perceptions and expectations». In: FEE, E.; FOX, D.M. (eds.), *AIDS. The burdens of history*, Berkeley, University of California Press, p. 12.

social phenomenon and, therefore, it can only be fully understood in the precise socio-cultural context where it has been perceived as so. Yet, in general terms, in the three first approaches an additional role has been given to the complex biological processes of the body that are objectifiable by means of medical knowledge, and the real existence of these processes has not been problematized.¹¹ In the social studies of science, by contrast—and from the 1980s also in some tendencies of medical anthropology—the neutral condition of medical knowledge about biological phenomena has been denied, so that these phenomena have begun to be considered as social constructs, too. This last view has been carried to extremes among those who deny the duality object vs. representation supposedly inherent in scientific knowledge, which they revile as «ideology of representation» by claiming that any object of scientific knowledge—in our case, disease—cannot be considered as a true, objective entity pre-existing its representation, for it merely consists of such a representation¹².

Since the late 1970s, «constructionist» approaches emphasizing to a greater or lesser extent—depending upon the interpretative tendency, the nature of the illness at issue, and/or its socio-cultural context—the burden of culture in conceptualizing diseases, have gradually increased their influence and have ended up pervading a great deal of historical studies.¹³ Yet this pervasion has been by no means uncontro-

¹¹ LACHMUND, J.; STOLLBERG, G. (1992), «Introduction». In: LACHMUND, J.; STOLLBERG, G. (eds.), *The social construction of illness. Illness and medical knowledge in past and present*, Stuttgart, Franz Steiner, pp. 9-14.

¹² WOOLGAR, S. (1988), *Science: the very idea*, London-New York, Ellis Horwood-Tavisock.

¹³ See, e.g., FIGLIO, K. (1978), «Chlorosis and chronic disease in nineteenth-century Britain: the social constitution of somatic illness in a capitalist society», *Social History*, 3, 167-197; MISHLER, E.G. (1981), «The social construction of illness». In: MISHLER, E.G. et al., *Social contexts of health, illness and patient care*, Cambridge, Cambridge University Press, pp. 141-168; WRIGHT, P.; TREACHER, A. (eds.) (1982), *The problem of medical knowledge. Examining the social construction of medicine*, Edinburgh, Edinburgh University Press; LATOUR, B. (1984), *Les microbes: Guerre et paix. Suivi de irreductions*, Paris, A.M. Métaillé; TURNER, B.S. (1987), *Medical power and social knowledge*, London, SAGE Publications; GILMAN, S.L. (1988), *Disease and representation. Images of illness from madness to AIDS*, Ithaca-London, Cornell University Press; ROSENBERG, C.E. (1988), «Disease and social order in America: Perceptions and expectations». In: FEE, E.; FOX, D.M. (eds.), *AIDS. The burdens of history*, Berkeley, University of California Press, pp. 12-32; ARRIZABALAGA, J. (ed.) (1991), *Historia de la enfermedad: nuevos enfoques y problemas*, monographical section at *Dynamis*, 11, pp. 17-385; VAUGHAN, M. (1991), *Curing their ills. Colonial power and African illness*, Cambridge, Polity Press; CUNNINGHAM, A. (1992), «Transforming plague: the laboratory and the identity of infectious disease». In: CUNNINGHAM, A.; WILLIAMS, P. (eds.), *The laboratory revolution in medicine*, Cambridge, Cambridge University Press, pp. 209-244; LACHMUND, J.; STOLLBERG, G. (eds.) (1992), *The social construction of illness. Illness and medical knowledge in past and present*, Stuttgart, Franz Steiner; RANGER, T.; SLACK, P. (eds.) (1992), *Epidemics and ideas. Essays on the historical perception of pestilence*, Cambridge, Cambridge University Press; ROSENBERG, C.E.; GOLDEN, J. (eds.) (1992), *Framing disease. Studies in cultural history*, New Brunswick (New Jersey); Rutgers University Press; WILSON, A. (2000), «On the history of disease-concepts: The case of pleurisy», *History of Science*, 38, 271-319.

versial, being the source of exciting paper disputes¹⁴ as much as of deaf opposition by some medical historians. In some cases, these historians have resisted the new approaches for reasons similar to those of many physicians and scientists who reject any approach to medicine and science questioning their ideal image—inherited from positivism—as rational, linear and indefinitely progressive, truth searching, universal, altruist and beneficent activities. More recently, David Harley has convincingly proposed building a unifying framework for the history of disease and of medical practice by combining rhetorical and semiotic analysis within the social construction of sickness and healing¹⁵.

The rise of social constructionism cannot be fully understood without taking into account the new social movements emerging in the sixties and the liberal-conservative consensus characterizing the governmental policies of Western developed countries from the beginning of that decade. Its zenith coincided with the drastic breakdown of this consensus in the early eighties as a result of the arrival to political power in the Western democracies (beginning with the USA and the United Kingdom) of an authoritarian New Right raising the flag of neo-liberalism, and the world hegemony of which has been reinforced with the New International Order resulting from the Fall of the Berlin Wall. In the new circumstances, these interpretations of human diseases are being strongly contested by biomedical scientists, and determinist views of disease are being reintroduced in line with the assumptions of social neo-Darwinism and sociobiology, according to which biological laws are sufficient to explain not only human diseases but also the whole of human nature and behaviour as well as the whole of human social organization¹⁶.

¹⁴ BURY, M.R. (1986), «Social constructionism and the development of medical sociology», *Sociology of Health & Illness*, 8, 137-169; NICOLSON, N. & MCLAUGHLIN, C. (1987), «Social constructionism and medical sociology: A reply to M. R. Bury», *Sociology of Health and Illness*, 9, 107-26; BURY (1987), «Social constructionism and medical sociology: a rejoinder to Nicolson and McLaughlin», *Sociology of Health & Illness*, 9, 439-441; NICOLSON & MCLAUGHLIN (1988), «Social constructionism and medical sociology: The case of the vascular theory of multiple sclerosis», *Sociology of Health and Illness*, 10, 234-261.

¹⁵ HARLEY, D. (1999), «Rhetoric and the social construction of sickness and healing», *Social History of Medicine*, 12, 407-435.

¹⁶ During the last two decades this new situation is reflected in the dominant research lines about human diseases, as well as in the overwhelming echo of their results in the media. On the one hand, the scientific research policies of the Western countries have strongly supported the reductionist and technological options at the expense of a social discourse more and more domesticated and subjected to the so-called doctrine of the «single thought», or purely evanescent. See RAMONET, I. (1995), «Pensamiento único y nuevos amos del mundo». In: CHOMSKY, N.; RAMONET, I., *Cómo nos venden la moto*, Barcelona, Icaria, pp. 55-98. On the other hand, the results of these investigations acritically spread through the media which too frequently torment us with supposedly definitive *breakthroughs* about the genetic bases of supposedly distinct entities like schizophrenia, homosexuality, «anti-social» behaviour or the supposed intellectual inferiority of ethnic minorities; or with entirely excessive expectations about the benefits for

Now, historiography of disease does not need to be subsidiary to any «disciplinary» history. But the current great paradox consists in the fact that a flourishing research area —and the same applies to history of medicine and of science— is coexisting with a growing indifference on the part of physicians and scientists, who more and more seek to legitimize their professional activities through emerging areas like bioethics and the public understanding of science, that provide them with more powerful instruments for practical intervention and/or more indulgent views of their professional activities. And all this is happening in the context of a huge anti-historical offensive by postmodernist theorists and critics who question whether it is possible to do history at all, for they challenge the validity of the results provided by historical research. Similarly, the prophets of the End of History who, by claiming that history is now over because liberal-democratic, free-market capitalism has triumphed all along the line over popular-democratic, planned-economy socialism, are at the same time discrediting any Utopia that might allow the ever growing number of the dispossessed to imagine a better world to fight for¹⁷.

At the opening of this new century, only the so-called «newly emerging diseases» and, particularly, a planetary phenomenon as peculiar as AIDS seem to have managed, at least partly, to stop the currently dominant claims of explaining human diseases in a-historical and strictly biological terms.¹⁸ I in no way intend to deny the biological reality inherent in most human diseases, but I would like to emphasize that a real understanding of disease always goes far beyond its mere biology, and that, as Charles Rosenberg¹⁹ has pointed out, «there is no simple and necessary relationship between disease in its biological and social dimensions», so that «meaning is not necessary, but negotiated». In this sense, Rosenberg²⁰ insists, AIDS has contributed to the creation, more than any other specific event, of a new «post-relativist» consensus on diseases, in which there is room not only for biological factors, but also for cultural ones, and the complex and «equivocal» relationships existing between both groups of factors are also underlined.

humankind of such research projects as that of the human genom. All this endorses the suffocating supremacy of the most radical biologicist reductionism on the investigation of human disease, health, behaviour and intelligence. See, LEWONTIN R.C.; ROSE, S.; KAMIN, L.J. (1984), *Not in our genes. Biology, ideology and human nature*, Nueva York, Pantheon Books; LEWONTIN, R.C. (1993), *The doctrine of DNA. Biology as ideology*, Harmondsworth: Penguin.

¹⁷ VÁZQUEZ MONTALBÁN, M. (1995), *Panfleto desde el planeta de los simios*, Barcelona, Crítica, pp. 79-80.

¹⁸ GARRETT, L. (1995), *The coming plague. Newly emerging diseases in a world out of balance*, London, Virago; ARRIZABALAGA, J. (2000), «Las ‘enfermedades emergentes’ en las postrimerias del siglo XX: el sida». In: DURAN, M.A. (ed.), *Enfermedad y sociedad en el inicio del siglo XXI [Política y Sociedad, 35/3 (monographic issue)*, 93-100].

¹⁹ ROSENBERG (1988), p. 12.

²⁰ ROSENBERG (1988), pp. 13-14.

PROBLEMATIZING RETROSPECTIVE DIAGNOSIS: TWO *AD HOC* CASES

The preceding discussion has allowed me to introduce the premises of the social constructionism of disease as I understand this historiographical approach. From this discussion it is difficult to imagine that any medical label of disease can be fully understood outside its relevant representational framework —always defined in terms of specific space-time coordinates. Actually, in labeling past diseases with diagnosis labels taken from the representational framework of modern medicine, the farther back we go into the past, the greater our difficulties in making sense of them. We are never entirely free from difficulties —even in dealing with late twentieth-century modern medicine, as the cases of AIDS and other newly emerging diseases show us²¹— but it is obvious that these difficulties are qualitatively greater if we are concerned with systems of medicine other than laboratory medicine, such as pre-modern university, non-Western, alternative or popular medicine²².

In a recently published article, I have already referred to some of the complexities inherent in retrospective diagnosis from a historico-medical viewpoint.²³ In order to show a little more about them, I will point to a couple of highly expressive additional cases. The former concerns a sort of written source widely resorted to by historians, namely the pre-bacteriological histories of diseases, with special attention to the case of typhus. The latter deals with the intriguing epidemic condition known as English sweating sickness or *sudor Anglicus*, a very peculiar case of pre-modern disease, since there has been no agreement among historians as to its identity.

Pre-bacteriological histories of diseases

The first case concerns a peculiar sort of source that historical demographers and epidemiologists have often resorted to in their research, and from which seriously distorted identifications of past diseases can be inferred —particularly, though not exclusively, for the pre-laboratory period. I am referring to the huge amount of reference works on the history of diseases —the chronologies, epidemiologies and bibliographies regarding great epidemics like plague, cholera, smallpox, typhus, yellow fever, tuberculosis and venereal diseases—, that eighteenth— and nineteenth-century historians of disease, mostly professional physicians, bequeathed to us as a result of their

²¹ ARRIZABALAGA, J. (1999), «Medical causes of death in preindustrial Europe: Some historiographical considerations», *Journal of the History of Medicine and Allied Sciences*, 54, 241-260; Arrizabalaga (2000).

²² BERNABEU-MESTRE, J. (1991), «Enfermedad y población: Una aproximación crítica a la epidemiología histórica española», *Revista de Salud Pública*, 2, pp. 73-74.

²³ ARRIZABALAGA (1999), pp. 256-258.

attempts to learn from the past lessons for their own pathological and epidemiological concerns. The information provided by these wide-ranging works —traditionally perceived as essential auxiliary tools in the history of disease— have often biased historians' attempts to identify past diseases. In fact it cannot be stressed enough that the contents of these works can by no means be taken as historically «neutral». This also applies to those works merely consisting of edited collections of historical documents referring to past epidemics, for any selection implies the inclusion of some past diseases and the exclusion of others in accordance with the editor's medical views and concerns. But, quite obviously, those works including medical interpretations of past infectious diseases are much more susceptible of biases. In these reference sources, when diseases are assigned labels other than those from the germ theory framework, a double «translation» is involved. First, there is the translation made by those —usually pre-bacteriological— scholars who «read» on to the original historical source and interpreted a peculiar disease label in terms of their own medical views. Second, there is the one made by us whenever we convert these disease labels into others more consonant with our own modern medical framework. This applies to all those interpretative epidemiological works written before the 1880s (Pasteur's *théorie des germes* was formulated in 1878, and Koch's «postulates» in 1882) as well as to many of those which appeared up to the 1930s, when the germ theory became definitively accepted²⁴.

To illustrate my point I will focus on the historical case of typhus. Nowadays, this term unequivocally evokes the disease known as epidemic typhus. But this is a modern medicine feature, which results from its framing as so according to the patterns of the germ theory in the early twentieth century. Before that time, it was a typically multivocal word. Derived from the Greek τυφος (= smoke, vapour, conceit, vanity, stupor) and related to the verbs τυφῶ (= to smoke, smoulder) and τυφῶο (=to stun), it was mentioned in the Hippocratic book *Internal affections* in referring to five kinds of burning fevers, only one of which was accompanied by stupor²⁵. Additionally, in the Hippocratic *Epidemics* some clinical cases are described including the symptom τυφώδες that is usually translated as «delirium»²⁶. Hippocrates' commentator, Erotian (first century A.D.), glossed the word τυφώδες as a burning fever beginning slowly and accompanied with stupor. On the other hand, Castelli's eighteenth-

²⁴ See among others, HIRSCH, A. (1860-1864), *Handbuch der historisch-geographischen Pathologie*, Erlangen, F. Enke, 2 vols.; CORRADI, A. (1865-1892), *Annali delle epidemie occorse in Italia dalle prime memorie fino al 1850 compilati con varie note e dichiarazioni*, Bologna, Memorie della Società medico-chirurgica di Bologna, 5 vols.; HAESER, H. (1882), *Lehrbuch der Geschichte der Medizin. Band III. Geschichte der epidemischen Krankheiten*, Jena, H. Dufft.

²⁵ HIPPOCRATES, *Internal affections*, #39-43 (Littré VII, 260-275).

²⁶ HIPPOCRATES, *Epidemics*, II/5, 16; IV, 2, 13, 51 (Littré V, 130-131, 144-145, 150-151, 192-193).

century medical lexicon shows that τυφοϛ was translated into Latin as *stupor attonitus* («astounded stupor»)²⁷.

At all events, the word *typhus* seems not to have been re-introduced in the Western medical tradition as a term to label diseases until the French vitalist professor of the medical faculty of Montpellier, François B. C. de Sauvages, consolidated in his *Pathologia methodica, seu de cognoscendis morbis* (Lyon, 1759) a variety of ailments including what Thomas Willis had called putrid malignant fever in the seventeenth century²⁸. Only after that time did this word begin to appear widely in different vernacular languages (*typhus* in English, German and French, *tifo* in Italian, *tifus* or *tifo* in Spanish).

During the nineteenth century *typhus* was widely used in European medicine as a nosological word which referred to any «continuous and contagious fever breaking out as a result of people's gathering in prisons, hospitals, barracks, ships, etc..., that involves a disorder of the nervous system, a morbid condition of the mucous membranes, and almost always a petechial rash», as the classical philologist, editor and translator of Hippocrates, Emile Littré, defined this term in his prestigious French dictionary in the 1870s²⁹. Littré's entry continued by referring to four specific kinds of typhus, namely *abdominal*, *abortif*, *ictéroïde* and *de l'Orient*³⁰. Littré's expressive words, in addition to what he wrote on the veterinary meaning of this term³¹, allow us to realize the huge distance between the present-day concept of epidemic typhus and that held one century ago: in late nineteenth century pre-bacteriological medicine, the word *typhus* was applicable to no less than three rather identifiable infec-

²⁷ ALAMILLO SANZ, A; LARA NAVA, M.D. (1990), *Tratados hipocráticos. VI. Enfermedades*, Madrid, Gredos, p. 257; Castelli, B. (1792), *Lexicon medicum graeco-latinum*, Padua, Tomasso Bettinelli, vol. II, p. 371.

²⁸ «Previous to the times of de Sauvages —Allbutt's *A system of medicine* said in 1897— typhus was known as 'pestilential' or 'putrid fever' or by some name suggested by the eruption or expressive of the locality in which it appeared, as 'camp', 'jail', 'hospital' or 'ship fever'. See ALLBUTT, T.C. (ed.) (1896-1899), *A system of medicine*, London, Macmillan & Co., 8 vols.: vol. II, p. 354, as quoted by *The compact edition of the Oxford English dictionary* (1987), Oxford, Oxford University Press, vol. II, p. 3455.

²⁹ «Fièvre continue et contagieuse qui naît de l'emcombement des hommes dans les prisons, les hôpitaux, les casernes, les vaisseaux, etc... et qui présente un trouble du système nerveux, un état morbide des membranes muqueuses, et presque toujours une éruption pétéchiiale». See LITTRÉ, E. (1970), *Dictionnaire de la langue française*, Paris, Gallimard-Hachette, vol. VII, p. 1427.

³⁰ «*Typhus abdominal*, nom que les Allemands donnent à la dothiéntérie ou fièvre typhoïde. #*Typhus abortif*, maladie qui a certains rapports avec la fièvre typhoïde. #*Typhus ictéroïde*, typhus des tropiques, typhus de l'Amérique, noms données à la fièvre jaune. #*Typhus de l'Orient*, la peste». See LITTRÉ (1970), vol. VII, p. 1427.

³¹ «*Terme de vétérinaire*. Maladie de l'espèce bovine éminemment contagieuse, qui présente les caractères de la phlegmasie sur-aiguë gastro-intestinale, avec les signes de l'empoisonnement miasmatique: on a distingué deux variétés: le typhus contagieux et le typhus charbonneux». See LITTRÉ (1970), vol. VII, p. 1427.

tious diseases that are significant for the purposes of historical demography and epidemiology, and particularly relevant for the epidemiological transition,³² namely plague (*typhus de l'Orient*), yellow fever (*typhus ictéroide*) and typhoid fever (*typhus abdominal*). This is irrespective of its more generic meaning presumably embracing among others the disease modern medicine began to name epidemic typhus between 1910 and 1940³³.

Similarly, the words or phrases related to typhus (*tifus*, *tifo*, *tifoidea*, *tifódicas*, *tifoso*) in the titles of the nineteenth-century manuscript memories at the Royal Academy of Medicine of Barcelona³⁴ confirm the widest meaning of this term and thus its distance from current medical theory. There are words as follows, *tifo* (1836), *tifo castrense* or *tifus castrense* («barrack typhus») (1836-1837), *tifo epidémico* (1844), *epidemia de tifo* or *de typhus* (1833, 1849, 1856, 1884), *epidemia de Tiphus* (*fiebres malignas, tabardillo pintado, fiebre tifoidea*) (1858), *tifus y fiebres tifoideas* (1866), *epidemia de fiebre tifoidea* (1868, 1889, 1898-1900), *fiebre tifoidea de forma mucosa* (1847), *fiebre tifoidea de forma atáxica maligna cerebral* (1865), *fiebre tifoidea pútrida* (1888), *calentura* [fever] *tifoidea* or *tifus europeo* (1846), *entero-mesenteritis tifoidea* (1867), *metro-peritonitis tifoidea* (1836), *afecciones tifódicas que endémicamente reinan* (1849), *epidemia de coqueluche complicada con fiebre tifoidea* (1871), *virus ileo-tifoso* (c.1895), *tifus icteroides* or *fiebre amarilla* (1822).

Much the same applies to typhus in other nineteenth-century national medical traditions. Let us have a look at the cases of France and Germany. In a wide historico-medical bibliography published by Julius Pagel —the Professor of History of Medicine at the University of Berlin— in 1898, there is a section on the history of epidemics (*Geschichte der Seuchen*) where specific subsections are dedicated to epidemics of *Pest* (plague), *Schweissfieber* («sweating fever»), *Typhus* (typhus), *Gelbfieber* (yellow fever) and *Cholera* (cholera)³⁵. Under the sub-heading *Typhus*, Pagel also reported the following disease labels: *typhus epidemicus*, *Typhusepidemie* or *Typhus-Epidemie*, *typhus exanthematicus*, *Petechialtyphus*, *Kriegstyphus* («war typhus»), *typhösen Krankheiten*, *Abdominaltyphus*, *epidemia typhi enterici* («epidemic of intestinal typhus»), *typhoide feber*, *fièvre typhoide* and *typhöse Fieber*³⁶.

As to the case of France, in the medical bibliography published in 1874 by the librarian in charge of the «medical sciences» at the Bibliothèque Nationale (Paris),

³² OMRAN, A. (1971), «The epidemiological transition: a theory of the epidemiology of population change», *Milbank Quarterly*, 49, 509-539.

³³ See the entry «Typhus, Epidemic» by Victoria A. Harden, in KIPPLE, K.F. (ed.), *The Cambridge world history of human disease*, Cambridge, Cambridge University Press, pp. 1080-1084.

³⁴ CORBELLA, J. (1993), *Memories manuscrites de la Reial Acadèmia de Medicina de Catalunya*, Barcelona, PPU.

³⁵ PAGEL, J. (1898), *Historisch-medicinische Bibliographie für die Jahre 1875-1896*, Berlin, S. Karger, pp. 918-936.

³⁶ PAGEL (1898), pp. 929-931.

Alphonse Pauly, the section dedicated to the history of epidemics (*Histoire des épidémies*), includes the following subsections, *Épidémies non déterminées* («undetermined epidemics»), *peste* (plague), *suette* («sweating»), *typhus* (typhus), *fièvre jaune* (yellow fever) and *choléra* (cholera)³⁷. Within the sub-section *typhus*³⁸, Pauly included works with the following disease labels in their titles: *typhus des Arabes*, *typhus carcerum* (*typhus carcéral*, *tifo carcerate*), *typhus contagiosus* (*typhus contagieux*, *tifo contagioso*), *typhus épidémique* (*tifo epidemico*), *typhus exanthématique ou pétéchiâl*, *Petechialtyphus*, *Kriegspest*, *épidémie typhique*, *febris castrensis petechialis epidemica*, *fièvre petequial o tabardillo*, *febris petechialis*, *fièvre pestilentielle épidémique appelée fièvre de camp, d'hôpital, de prison, etc.*, *jail, hospital or ship fever*, *febbre tifiche*, *Abdominaltyphus* —a long list expressive enough not to require further commentaries.

It is, therefore, hardly surprising that, according to my own estimates, about 900 (15%) of the 6,000 epidemics in specified Italian places and dates from the fifth century BC until 1850 that Alfonso Corradi recorded in his well-known *Annali* during the second half of the nineteenth century, were retrospectively diagnosed as *tifo*. This label, along with those of *peste o peste bubonica* (about 1,200) and *pestitenza* (about 800) apparently caused about 2,900 epidemics, that is 48% of the total number.³⁹ Does it mean that behind the *tifo* label was always the epidemic, acute and highly fatal disease caused by the *Rickettsia prowazekii* and transmitted through the bite of the body louse (*Pediculus humanus corporis*), we now call thyphus, typhus fever, epidemic typhus or epidemic typhus fever (*typhus-esantematico*, in Italian)? No way, I think. On the other hand, neither can we be sure whether other labels used by Corradi, and untranslatable into present-day medicine, such as some of those referring to fevers (*febbre maligna* [72 items], *febbre biliosa* [15 items], or *febbre nosocomiale* [3 items]), actually hid what we would now diagnose as typhus.

As I have already referred to, nineteenth-century pre-bacteriological physicians currently applied to term typhus —with or without qualifiers— to a wide range of conditions, which medical bacteriologists later framed into no less than four disease entities, namely plague, yellow fever, typhoid fever and epidemic typhus. Discussions around an eventual diversity of meanings for the *typhus* term had begun about 1830, but the present distinction between epidemic typhus and typhoid fever was only settled, as in the case of other infectious diseases, with the development of the germ theory in the late nineteenth century. Actually, typhoid fever was framed between 1880 and 1900, and *typhus* later on, between 1910 and 1940. Typhoid or typhoid fever (*febbre tifoide* or *tifoidea*, in Italian) is a usually endemic, chronic and

³⁷ PAULY, A. (1874), *Bibliographie des sciences médicales. Bibliographie – biographie – histoire – épidémies – topographies – endémies*, Paris, Librairie Tross, cols. 1319-1556.

³⁸ PAULY (1874), cols. 1420-1425.

³⁹ CORRADI (1865-1892), vol. V, pp. 627-687.

low-mortality infection caused by a bacterium (*Salmonella typhi*) that is transmitted through faeces contaminating foods or water, while typhus, typhus fever, epidemic typhus or epidemic typhus fever (*typhus-esantematico*, in Italian) is an epidemic, acute and high-mortality infection caused by *Rickettsia* — a sort of germ somewhere in between bacteria and virus — and transmitted by the bite of the body louse (*Pediculus humanus corporis*)⁴⁰.

Sudor Anglicus

The sweating sickness or *sudor Anglicus* — the epidemic disease that struck the lands touching the English Channel at least five times from 1485 to 1551 — continues to be «one of the great puzzles of historical epidemiology because no modern disease corresponds very well to its principal epidemiological and clinical features»⁴¹. It has been often identified or related to the epidemic one known as *suette miliaire* («miliar sweating») that repeatedly struck France during the eighteenth and nineteenth centuries.⁴² Since Gruner's and Hecker's classical studies⁴³, many historians have dealt with the five fifteenth- and sixteenth-century epidemics of this intriguing disease,

⁴⁰ For more information, see the entries «Typhoid Fever» by Dale Smith, and «Typhus, Epidemic» by Victoria A. Harden, in KIPLE, K.F. (ed.), *The Cambridge world history of human disease*, Cambridge, Cambridge University Press, pp. 1071-1077 and 1080-1084, respectively.

⁴¹ CARMICHAEL, A.G. (1993), «Sweating sickness». In: KIPLE, K.F. (ed), *The Cambridge world history of human disease*, Cambridge: Cambridge University Press, p. 1023. For a recent, brief historical account of this condition see A. CUNNINGHAM and O.P. GRELL (2000), *The four horsemen of the Apocalypse. Religion, war, famine and death in Reformation Europe*, Cambridge, Cambridge University Press, pp. 272-274.

⁴² See, e.g., the wide subsection on *épidémies de suette* in Pauly's medical bibliography (1874, cols. 1412-1419), where the following disease labels — mostly from nineteenth century France — can be collected from, namely *sudor Anglicus* (*englische Schweiss*, *sudore inglese*, *English sweating sickness*, *sudore anglicano*), *suette miliaire*, *suette vésiculaire ou miliaire*, *suette éruptive*, *suette épidémique*, *suette éruptive épidémique*, *maladie miliaire et épidémique*; and that on *Epidemien von Schweissfieber* in Pagel's (1898, pp. 928-929), where he reported bibliographical references including the disease labels as follows: *suette miliaire* or *febris miliaris*, *la miliaire*, *la suette*, *Schweissfriesel-Epidemien* («epidemics of petechial sweat»), *Miliaria-Epidemie*, *exanthematischen Prozesse* and *Frieselepidemie* («epidemics of petechia»). On the other hand, in 1933 Manley Bradford Shaw — a medical doctor from Baltimore — claimed that the *suette miliare* was a «descendant of the sweating sickness, or perhaps the sweating sickness itself, mollified with the course of time» and retaining «many of the characteristics of the English plague». See SHAW, M.B. (1933), «A short history of the sweating sickness», *Annals of Medical History, New Series*, 5, p. 258.

⁴³ GRUNER, C.G. (1847), *Scriptores de sudore Anglico superstites*, Jena, F. Markius; HECKER, J.F.C. (1834), *Der englische Schweiss. Ein ärztlicher Beitrag zur Geschichte des fünfzehnten und sechzehnten Jahrhunderts*, Berlin, Enslin. English translation in idem (1844), *The epidemics in the middle ages*, London, The Sydenham Society, pp. 79-174.

with particular attention to its identity. The fact that there has been no consensus among them about its nature makes it a good idea to explore some of the multiple labels that sweating sickness has been given during the last one hundred and fifty years or so. Let me just begin by illustrating the kind of theories about the identity and causes of this past disease that were current during the nineteenth century by taking the assumptions by two important historical epidemiologists, namely J.F.C. Hecker and Charles Creighton. The former stated in 1834 that the sweating sickness was «an inflammatory rheumatic fever, with great disorder of the nervous system» much of which was owed «to the peculiarity of the climate, more still to atmospheric changes, and something also to the habits of the people and the circumstances of the times»⁴⁴. Sixty years later, in 1891, Creighton, a follower of the Pettenkoferian theory of epidemic diseases, preferred to claim that the agent of the sweating sickness was a soil poison, the periodic activity of which was determined by «the movements of the ground-water, which in turn depend on the wetness or dryness of seasons». He suggested that this soil poison was native to Normandy, where the sweat had developed «as an [endemic] indigenous malady in the long course of generations», and that it had been carried from France by the mercenary soldiers provided to Henry VII by the French king Charles VIII⁴⁵ —in line with the traditional assumption that diseases, like all bad things, are always exogenous.

Well into the bacteriological era, in 1933 M.B. Shaw, a Baltimore doctor, asserted that the causative agent of the sweating sickness, though «unknown», was «apparently infectious and contagious in nature» and spread in an analogous way «to that of influenza, in rate and manner».⁴⁶ One year after, Hans Zinsser, after having ruled out its eventual identification with influenza as well as with any form of typhus, pointed out that sweating sickness could be neither identified «with any epidemic disease now prevalent» nor «properly classified with any of the known infectious diseases», and was inclined to think that it was «caused by a filterable virus of a variety at present unknown» that «had for centuries been prevalent on the Continent in milder form, and in England spread in an entirely susceptible community» before it became finally extinct as a result of the immunization of British population, too⁴⁷.

Three decades after, in 1965, the pages of *Medical History* took in a controversy between Adam Patrick, a fellow of the Royal College of Physicians, and R.S. Roberts, an academic historian from Queen Mary College, London, both of them leaning upon a number of nineteenth- and twentieth-century medical and epidemiological

⁴⁴ HECKER (1844), pp. 187, 191.

⁴⁵ CREIGHTON, Ch. (1891-1894), *A history of epidemics in Britain*, 2 vols., Cambridge, Cambridge University Press, vol. I, pp. 273-279.

⁴⁶ SHAW (1933), p. 265.

⁴⁷ ZINSSER, H. (1934), *Rats, lice and history. The biography of a bacillus*, London, Papermac-Macmillan, pp. 99-100.

sources. Patrick suggested that the sweating sickness was not an infectious disease but the result of mass food-poisoning by fungi or some other contamination of cereals, while Roberts was in favour of the thesis by W.H. Hamer (1906) and F.G. Crookshank (1918-1919) that the sweating sickness «was but one form taken by influenza which was sweeping across Europe in epidemics at that time». Roberts specified that their arguments were «part of a wider thesis on the ‘epidemic constitution’» and, significantly enough, he introduced these two British epidemiologists as representative of the «full acceptance of the germ theory» and of «some appreciation of its over-simplifications»⁴⁸.

In the 1970s, Maurice B. Strauss, a professor of Medicine at Tufts University, Boston, turned out to be more cautious about the nature of sweating sickness which according to him, continued to be «a mysterious ailment unlike any infectious disease known in the succeeding four centuries». Yet he hypothesised that the mechanism of its rapid course was «not unlike that of cholera or of desert dehydration», albeit he did not dare to go beyond this point⁴⁹.

In the eighties and nineties, discussions on the identity of English sweating sickness have been focused on infections by arboviruses —an arthropod-borne large order of RNA viruses which can cause four different sets of diseases, namely encephalitides, diseases with fever and rash, diseases with hemorrhagic manifestations, and mild fevers⁵⁰. In 1981, John A.H. Wylie, a retired pathologist and theologian, and Leslie H. Collier, a professor of Virology at the University of London, assumed that all the epidemics of English sweating sickness possessed «a common aetiology» and, after having ruled out a great number of alternative microbial disease labels, they stated that the descriptions of epidemiological and clinical aspects of this disease «could be plausibly explained in terms of arbovirus infection». Although they noted that the usual transmission of arboviruses is by an insect vector, they preferred to emphasize the «striking resemblance» of *sudor Anglicus* with «certain arbovirus infections that have their reservoirs in mice, muskrats, and hedgehogs [i.e., small mammals] and that are tick-borne, namely, group B tick-borne or Russian spring-summer encephalitis, and Omsk haemorrhagic fever»⁵¹. Well aware that hemorrhagic manifestations are characteristic of both of these fevers, Wylie and Collier claim that

⁴⁸ PATRICK, A. (1965), «A consideration of the nature of the English sweating sickness», *Medical History*, 9, 272-279; ROBERTS, R.S. (1965), «A consideration of the nature of the English sweating sickness», *Medical History*, 9, 385-389. For the relevant works by Hamer and Crookshank, see ROBERTS (1965), p. 389.

⁴⁹ STRAUSS, M.B. (1973), «A hypothesis as to the mechanism of fulminant course and death in the sweating sickness», *Journal of History of Medicine and Allied Sciences*, 28, p. 48.

⁵⁰ DOWNS, W.G. (1993), «Arboviruses». In: KIPLER, K.F. (ed.), *The Cambridge world history of human disease*, Cambridge; Cambridge Univ. Press, pp. 587-595.

⁵¹ WYLIE, J.A.H.; COLLIER, L.H. (1981), «The English sweating sickness (*sudor Anglicus*): a reappraisal», *Journal of the History of Medicine and Allied Sciences*, 36, pp. 438-445.

the scarcity of hemorrhage signs in the medical descriptions of sufferers from the sweating sickness cannot surprise us, since the fear provoked by this disease might have prevented physicians from careful clinical explorations of their patients and, as a last resort, since significance of this physical sign was not recognized until the end of the nineteenth century⁵².

Sixteen years later, in the concluding comments to his careful historico-epidemiological study on the last epidemic of *sudor Anglicus* in 1551, Alan Dyer—an historian at the University of Wales—agreed with Wyllie and Collier that this epidemic was caused by an arbovirus, but he claimed that its very rapid diffusion was very difficult to explain by any means other than human-to-human transmission. Dyer admitted that this means of transmission was extremely exceptional in any case of arbovirus infection, although he pointed out that «there are occasional references in the medical literature to the possibility that these diseases, once begun by arthropod vectors, are capable of transmission between humans, chiefly, by means of airborne droplets».

«Many arboviruses and the diseases they cause—he stated—are naturally restricted to particular geographical regions, presumably because of the relative immobility of their animal hosts and the delicate web of interrelationships and environmental conditions which sustain the chain of circumstances essential to the continuation of these infections: this factor too would fit in very well with the apparent fact that the sweating sickness was firmly based in England, and possibly endemic in only one region, even if it was capable of occasional crossings of the Channel. It would also help to explain its apparent disappearance after 1551, aided by the spread of immunity through exposure, but brought about by the rupturing of that chain of environmental circumstances in some way, possibly by the woodland clearance and marsh drainage symptomatic of that general process of agrarian change which was a feature of the mid to the late sixteenth century, ...»⁵³.

In a comment to this article published one year after, Mark Taviner, Guy Thwaites and Vanya Gant—an historian and two biomedical scientists—aimed «to refine an hypothesis for an aethiological agent by once again returning to contemporary descriptions of the clinical features of the sweating sickness», and pointed out «the similarities between the clinical features and epidemiological characteristics of the sweating sickness and those of the Hantavirus Pulmonary Syndrome (HPS) which was first recognized in the southwestern United States in May 1993». The Hantaviruses are a genus of arboviruses belonging to the family *Bunyaviridae*, which is transmitted by means of mites and mainly hosted in small animals and humans⁵⁴.

⁵² WYLLIE & COLLIER (1981), p. 445.

⁵³ DYER, A. (1997), «The English sweating sickness of 1551: an epidemic anatomized», *Medical History*, 41, pp. 382-384. literal quotations from pp. 383-384.

⁵⁴ TAVINER, M.; THWAITES, G.; GANT, V. (1998), «The English Sweating Sickness, 1485-1551: A viral pulmonary disease», *Medical History*, 42, 96-98; DOWNS (1993), p. 591.

In 1999, by contrast, James R. Carlson, pathologist at the University of California at Davis, and Peter W. Hammond, with the help of a quite impressive amount of current biomedical and epidemiological studies on virus diseases, developed a long discussion to conclude that the Crimea-Congo hemorrhagic fever (CCHF) virus «remains a good candidate for ethiological agent of sweating sickness»⁵⁵. Along with Lassa, Ebola and Marburg, this is one of the four arboviruses producing hemorrhagic fevers that can be person-to-person transmitted, and the only one among them that has been associated with epidemics not restricted to Africa. CCHF virus—an arbovirus also belonging to the family *Bunyaviridae* but to the genus *Nairovirus*— became first epizootic in the Crimean Peninsula at the end of the World War II (1944-1945)⁵⁶. Carlson and Hammond felt self-confident enough with their assumptions to claim that their thesis allowed «conclusions to be developed about the historical record, as well as about the biological potential of CCHF virus»⁵⁷, and they conjectured that,

«... epizootics of CCHF virus in England originated in the upper classes from the popular sort of deer hunting ... primary infection sources included tick bites and exposure to infected meat. CCHF virus could have spread within more crowded environments by person-to-person transmission from a primary human source or from the kitchen by the preparation of infected venison»⁵⁸.

Their conviction that CCHF virus was the identity of the etiological agent of *sudor Anglicus* is so strong that they have no reservations at all in asserting that it «may have emerged, unique to only the time and place of sweating sickness, and for unexplained reasons, no longer exists and will never be identified» or, alternatively, «it could be that the infectious agent remains with us today, but it is somewhat silent, beyond our limits of detection»—although, they added, this last hypothesis «remains only remotely possible if current evolutionary theory holds true»⁵⁹. On the other hand, they also discarded the possibility of definitely proving «the existence of CCHF virus in England during the Tudor period» by arguing that it would be improbable that «even molecular archeological techniques would be successful» in detecting this RNA virus «because RNA rapidly degrades in the environment»⁶⁰.

⁵⁵ CARLSON, J.R.; HAMMOND, P.W. (1999), «The English sweating sickness (1485-c. 1551): A new perspective on disease etiology», *Journal of the History of Medicine and Allied Sciences*, 54, p. 51.

⁵⁶ *Ibidem*, p. 39.

⁵⁷ *Ibidem*, p. 52.

⁵⁸ *Ibidem*, pp. 48-49.

⁵⁹ *Ibidem*, pp. 51-52.

⁶⁰ *Ibidem*, p. 52.

Last but not least, Carlson and Hammond insisted on Wylie's and Collier's claim that the lack of emphasis on hemorrhage signs may have explained as follows,

«because of the fear engendered by sweating sickness, patients were not examined thoroughly by physicians, and the popular treatment, to completely cover the patient with bed clothes with no exposure of the skin to the air, could have further hidden important signs of bleeding»⁶¹.

FINAL COMMENT

I expect I have provided readers with enough stuff⁶² to further reflection on the conceptual and methodological complexities inherent to the practice of retrospective diagnosis of disease from a historico-medical perspective. The two historical cases I have chosen for this occasion expressively illustrate, on the one hand the double «translation» implied in labeling pre-modern infectious diseases when historical research is based upon sources for the history of disease which were written before the germ theory; and on the other, how far conjectures by historians of disease with the aim of retrospective diagnosis could sometimes go, and how intriguingly close their proposed disease labels are to the nosological concerns of medicine at their precise historical times.

BIBLIOGRAFÍA

- ACKERKNECHT, E.H. (1951), *Malaria in the Upper Mississippi Valley, 1760-1900*, Baltimore, Johns Hopkins Press.
- ACKERKNECHT, E.H. (1963), *Geschichte und Geographie der wichtigsten Krankheiten*, Stuttgart, F. Enke. [English versión: *A history and geography of the most important diseases*, New York, Hafner, 1965].
- ACKERKNECHT, E.H. (1971) *Medicine and ethnology*, Bern, Huber.
- ALAMILLO SANZ, A.; LARA NAVA, M.D. (1990), *Tratados hipocráticos. VI. Enfermedades*, Madrid, Gredos.
- ARRIZABALAGA, J. (ed.) (1991), *Historia de la enfermedad: nuevos enfoques y problemas*, monographical section at *Dynamis*, 11, pp. 17-385.
- ARRIZABALAGA, J. (1999), «Medical causes of death in preindustrial Europe: Some historiographical considerations», *Journal of the History of Medicine and Allied Sciences*, 54, 241-260.

⁶¹ CARLSON & HAMMOND (1999), p. 38.

⁶² In addition to my above-mentioned previous article. See Arrizabalaga (1999).

- ARRIZABALAGA, J. (2000), «Las «enfermedades emergentes» en las postrimerías del siglo XX: el sida». In: DURÁN, M.A. (ed.), *Enfermedad y sociedad en el inicio del siglo XXI*, [Política y Sociedad 35/3 (monographical issue), 93-100].
- BERNABEU-MESTRE, J. (1991), «Enfermedad y población: Una aproximación crítica a la epidemiología histórica española», *Revista de Salud Pública*, 2, 67-88.
- BLOCH, M. (1924), *Les rois thaumaturges*, Strasbourg, Faculté des Lettres.
- BURY, M.R. (1986), «Social constructionism and the development of medical sociology», *Sociology of Health & Illness*, 8, 137-169.
- BURY, M.R. (1987), «Social constructionism and medical sociology: a rejoinder to Nicolson and McLaughlin», *Sociology of Health & Illness*, 9, 439-441.
- CARLSON, J.R.; HAMMOND, P.W. (1999), «The English sweating sickness (1485-c.1551): A new perspective on disease etiology», *Journal of the History of Medicine and Allied Sciences*, 54, 23-54.
- CARMICHAEL, A.G. (1993), «Sweating sickness». In: KIPLE, K.F. (ed), *The Cambridge world history of human disease*, Cambridge, Cambridge University Press, pp. 1023-1025.
- CASTELLI, B. (1792), *Lexicon medicum graeco-latinum*, Padua, Tomasso Bettinelli, 2 vols.
- CORBELLA, J. (1993), *Memòries manuscrites de la Reial Acadèmia de Medicina de Catalunya*, Barcelona, PPU.
- CORRADI, A. (1865-1892), *Annali delle epidemie occorse in Italia dalle prime memorie fino al 1850 compilati con varie note e dichiarazioni*, Bologna, Memorie della Società medico-chirurgica di Bologna, 5 vols. [Facsimilar edition: Bologna, Forni, 1972].
- CREIGHTON, Ch. (1891-1894), *A history of epidemics in Britain*, Cambridge, Cambridge University Press, 2 vols.
- CUNNINGHAM, A. (1992), «Transforming plague: the laboratory and the identity of infectious disease». In: CUNNINGHAM, A.; WILLIAMS, P. (eds.), *The laboratory revolution in medicine*, Cambridge, Cambridge University Press, pp. 209-244.
- CUNNINGHAM, A.; GRELL, O.P. (2000), *The four horsemen of the Apocalypse. Religion, war, famine and death in Reformation Europe*, Cambridge, Cambridge University Press.
- DYER, A. (1997), «The English sweating sickness of 1551: an epidemic anatomized», *Medical History*, 41, 362-384.
- FIGLIO, K. (1978), «Chlorosis and chronic disease in nineteenth-century Britain: the social constitution of somatic illness in a capitalist society», *Social History*, 3, 167-197.
- GARRETT, L. (1995), *The coming plague. Newly emerging diseases in a world out of balance*, London, Virago.
- GILMAN, S.L. (1988), *Disease and representation. Images of illness from madness to AIDS*, Ithaca-London, Cornell University Press.
- GRUNER, C.G. (1847), *Scriptores de sudore Anglico superstites*, Jena, F. Markius.
- HARLEY, D. (1999), «Rhetoric and the social construction of sickness and healing», *Social History of Medicine*, 12, 407-435.
- HECKER, J.F.C. (1834), *Der englische Schweiss. Ein ärztlicher Beitrag zur Geschichte des fünfzehnten und sechzehnten Jahrhunderts*, Berlin: T.C.F. Enslin. [English translation: *The epidemics in the middle ages*, London, The Sydenham Society, 1844, pp. 79-174].

- HAESER, H. (1882), *Lehrbuch der Geschichte der Medizin. Band III. Geschichte der epidemischen Krankheiten*, Jena, H. Dufft.
- HIRSCH, A. (1860-1864), *Handbuch der historisch-geographischen Pathologie*, Erlangen, F. Enke, 2 vols. [2nd ed.: Stuttgart, F. Enke, 1881-1883, 3 vols.; English translation from the 2nd ed.: London, The New Sydenham Society, 1883-1886, 3 vols.]
- JÜTTE, R. (1992), «The social construction of illness in the early modern period». In: LACHMUND, J.; STOLLBERG, G. (eds.), *The social construction of illness. Illness and medical knowledge in past and present*, Stuttgart, Franz Steiner, pp. 23-38.
- KIPLE, K.F. (ed.) (1993), *The Cambridge world history of human disease*, Cambridge, Cambridge University Press.
- LACHMUND, J.; STOLLBERG, G. (1992), «Introduction». In: LACHMUND, J.; STOLLBERG, G. (eds.), *The social construction of illness. Illness and medical knowledge in past and present*, Stuttgart, Franz Steiner, pp. 9-19.
- LACHMUND, J.; STOLLBERG, G. (eds.) (1992), *The social construction of illness. Illness and medical knowledge in past and present*, Stuttgart, Franz Steiner.
- LATOUR, B. (1984), *Les microbes: Guerre et paix. Suivi de Irreductions*, Paris, A.M. Métailié.
- LEWONTIN, R.C. (1993), *The doctrine of DNA. Biology as ideology*, Harmondsworth, Penguin.
- LEWONTIN, R.C.; ROSE, S.; KAMIN, L. J. (1984), *Not in our genes. Biology, ideology and human nature*, Nueva York, Pantheon Books.
- LITTRÉ, E. (1970), *Dictionnaire de la langue française [1867-1877]*, Paris, Gallimard-Hachette, 7 vols.
- MISHLER, E.G. (1981), «The social construction of illness». In: MISHLER, E.G. *et al.*, *Social contexts of health, illness and patient care*, Cambridge, Cambridge University Press, pp. 141-168.
- NICOLSON, N.; McLAUGHLIN, C. (1987), «Social constructionism and medical sociology: A reply to M. R. Bury», *Sociology of Health and Illness*, 9, 107-26.
- NICOLSON, N.; McLAUGHLIN, C. (1988), «Social constructionism and medical sociology: The case of the vascular theory of multiple sclerosis», *Sociology of Health and Illness*, 10, 234-261.
- OMRAN, A. (1971), «The epidemiological transition: a theory of the epidemiology of population change», *Milbank Quarterly*, 49, 509-539.
- PAGEL, J. (1898), *Historisch-medicinische Bibliographie für die Jahre 1875-1896*, Berlin, S. Karger.
- PATRICK, A. (1965), «A consideration of the nature of the English sweating sickness», *Medical History*, 9, 272-279;
- PAULY, A. (1874), *Bibliographie des sciences médicales. Bibliographie - biographie - histoire - épidémies - topographies - endémies*, Paris, Librairie Tross (facs. repr.: London, Derek Verschoyle Academic and Bibliographical Publications Ltd., 1954).
- RAMONET, I. (1995), «Pensamiento único y nuevos amos del mundo». In: CHOMSKY, N.; RAMONET, I., *Cómo nos venden la moto*, Barcelona, Icaria, pp. 55-98.
- RANGER, T.; SLACK, P. (eds.) (1992), *Epidemics and ideas. Essays on the historical perception of pestilence*, Cambridge, Cambridge University Press.
- ROBERTS, R.S. (1965), «A consideration of the nature of the English sweating sickness», *Medical History*, 9, 385-389.
- ROSEN, G. (1943), *The history of miners' diseases, A medical and social interpretation*, New York, Schuman.

- ROSEN, G. (1958), *A history of public health*, New York, MD Publications.
- ROSEN, G. (1968), *Madness in society - Chapters in the historical sociology of mental illness*, New York, Harper & Row.
- ROSENBERG, C.E. (1988), «Disease and social order in America: Perceptions and expectations». In: FEE, E.; FOX, D.M. (eds.), *AIDS. The burdens of history*, Berkeley, University of California Press, pp. 12-32.
- ROSENBERG, C.E. (1992), «Introduction. Framing disease: Illness, society, and history». In: ROSENBERG, C.E.; GOLDEN, J. (eds.), *Framing disease. Studies in cultural history*, New Brunswick (New Jersey), Rutgers University Press, pp. xiii-xxvi. [First version: «Disease in history: Frames and framers». In: ROSENBERG, C.E.; GOLDEN, J. (eds.), *Framing disease: The creation and negotiation of explanatory schemes*, New York, The Milbank Memorial Fund (*The Milbank Quarterly* 67, suppl. 1, 1989, 1-15).
- ROSENBERG, C.E.; GOLDEN, J. (eds.) (1992), *Framing disease. Studies in cultural history*, New Brunswick (New Jersey), Rutgers University Press.
- SHAW, M.B. (1933), «A short history of the sweating sickness», *Annals of Medical History, New Series*, 5, 246-274.
- SIGERIST, H.E. (1941), *Medicine and human welfare*, New Haven, Yale University Press.
- SIGERIST, H.E. (1943), *Civilisation and disease*, Ithaca, Cornell University Press.
- STRAUSS, M.B. (1973), «A hypothesis as to the mechanism of fulminant course and death in the sweating sickness», *Journal of History of Medicine and Allied Sciences*, 28, 48-51.
- TAVINER, M.; THWAITES, G.; GANT, V. (1998), «The English Sweating Sickness, 1485-1551: A viral pulmonary disease», *Medical History*, 42, 96-98.
- TEMKIN, O. (1945), *The falling sickness. A history of epilepsy from the Greeks to the beginnings of modern neurology*, Baltimore, The Johns Hopkins Univ. Press (2nd. ed.: Baltimore, The Johns Hopkins University Press, 1971).
- TURNER, B.S. (1987), *Medical power and social knowledge*, London, SAGE Publications.
- VAUGHAN, M. (1991), *Curing their ills. Colonial power and African illness*, Cambridge, Polity Press.
- VÁZQUEZ MONTALBÁN, M. (1995), *Panfleto desde el planeta de los simios*, Barcelona, Crítica.
- WILSON, A. (2000), «On the history of disease-concepts: The case of pleurisy», *History of Science*, 38, 271-319.
- WINAU, R. (1983), «The role of medical history in the history of medicine in Germany». In: GRAHAM, L.; LEPENIES, W.; WEINGART, P. (eds.), *Functions and uses of disciplinary histories*, Dordrecht-Boston-Lancaster, D. Reidel Publishing Company, pp. 105-117.
- WOOLGAR, S. (1988), *Science: the very idea*, Londres-New York, Ellis Horwood-Tavisock.
- WRIGHT, P.; TREACHER, A. (eds.) (1982), *The problem of medical knowledge. Examining the social construction of medicine*, Edinburgh, Edinburgh University Press.
- WYLIE, J.A.H.; COLLIER, L.H. (1981), «The English sweating sickness (sudor anglicus): a reappraisal», *Journal of the History of Medicine and Allied Sciences*, 36, 425-445.
- ZINSSER, H. (1934), *Rats, lice and history. The biography of a bacillus*, London, Papermac-Macmillan.