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Between Expertise and Biomedicine: Public Health Research in France after the Second World War

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The transformation of medical research and the rise of biomedicine since the inter-war period have attracted a great deal of attention from social scientists in general, and from historians in particular. A wide range of publications has addressed crucial issues, such as the changing relationship between the clinical and laboratory sciences (the attempt "to experimentalize the clinic", in Jean-Paul Gaudillière's words); the scaling up of research activities related to the shift from one regime of knowledge production to another, and the resulting debate about whether there was such a thing as "Big Medicine"; the role of the "molecularization" of medicine and the life sciences in this evolution.[1] However, the impact of the rise of biomedicine on different, but connected fields of research, such as public health, has not so far attracted the same amount of interest.

As constituent parts of a single intellectual, as well as institutional configuration (or "figuration" in Norbert Elias's words),[2] different research areas can be interdependent in many ways. The rise and fall of a style of thought can challenge scientists operating in other areas, either directly, as when an expanding discipline undermines or trespasses on other domains; or indirectly, by questioning basic, widely shared assumptions, forcing their proponents either to reposition themselves within the changing configuration, or to affect (sometimes ostentatiously) to ignore the challenge. On the other hand, cross-disciplinary alliances reinforce the interdependence that exists between different scientific communities. Competition and co-operation between disciplines also play a crucial role in the allocation of public and private money to higher education and research. Finally, the success of a particular discipline can transform the organization of research as a whole, as when a specific division of labour developed within a new, promising area (e.g. in molecular biology) is imposed by enthusiastic policy makers as a model to be emulated by other scientific fields.

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[1] Jean-Paul Gaudillière, *Inventer la biomédecine: la France, l'Amérique et la production des savoirs du vivant (1945–1965)*, Paris, La Découverte, 2002, p. 93. Pioneer studies by Lily E Kay, *The molecular vision of life: Caltech, the Rockefeller Foundation, and the rise of the new biology*, Oxford and New York, Oxford University Press, 1993, and *Who wrote the book of life? A history of the genetic code*, Stanford University Press, 2000, have paved the way to a mushrooming literature.

[2] For a concise, still enlightening introduction to the "(con)figurational" approach to social processes, see Norbert Elias, *What is sociology*?, New York, Columbia University Press, 1978, pp. 128–32. For an alternative approach to relational analysis of social action, see Andrew Delano Abbott, *Chaos of disciplines*, University of Chicago Press, 2001.

Hygiene, social hygiene, epidemiology, social medicine, community medicine, health promotion: all the public health disciplines and sub-disciplines that have multiplied since the nineteenth century have been strongly affected by the evolution of medical teaching, even after independent schools of public health had been established, as well as by the progress of laboratory research. A famous example of this co-evolution of public health and related medical disciplines can be found in the threat posed to epidemiology by the rise of bacteriology. Although David Lilienfeld's view that "the Bacteriological Era overshadowed epidemiology" and put it into "hibernat[ion]" for some forty years was somewhat simplistic,[3] the challenge from bacteriology nevertheless forced epidemiologists to adapt to the new discipline, if only by criticizing its focus on the "agent" as opposed to the "host".[4]

The aim of this article is to reflect upon the impact of biomedicine on the related field of public health. By examining the transformation of public health research in France between the early 1940s and the late 1970s, I intend to shed light on a specific organizational setting that came to be seen as a handicap for public health researchers, and eventually led to their marginalization. The specificities of the French case make it ideally suited to such a study. First of all, the hegemonic position enjoyed by the Institut National d'Hygiène (INH), which became the Institut National de la Santé et de la Recherche Médicale (INSERM: National Institute for Health and Medical Research) in 1964, allows a detailed examination of the relationship between clinical, population, and laboratory-based disciplines. This is not to say that the Institute, which was established by the Vichy regime in 1941, ever wholly embodied the vast and diverse field of administrative and medical practices captured under the umbrella term of "public health". At any rate, a history of public health interventions in France during this half-century (a topic that has hitherto received little scholarly attention) would far exceed the limits of this article. However, it is important to highlight how the peculiarities of the French situation coalesced to enhance the role of the Institute. On the one hand the lack of interest in public health in medical schools and teaching hospitals, combined with the weakness of these institutions in research, led to the INH's dominant position in investigations concerning the health of the population.[5] On the other, the chronic

[3] David E Lilienfeld, '"The greening of epidemiology": sanitary physicians and the London Epidemiological Society (1830–1870)', *Bull. Hist. Med.*, 1978, **52**: 503–28, on p. 527. For a more balanced analysis, see Anne Hardy, 'On the cusp: epidemiology and bacteriology at the Local Government Board, 1890–1905', *Med. Hist.*, 1998, **42**: 328–46, and *idem*, 'Methods of outbreak investigation in the "era of bacteriology" 1880–1920', *Soz. Präventivmed.*, 2001, **46** (6): 355–60; J Andrew Mendelsohn, '"Typhoid Mary" strikes again: the social and the scientific in the making of modern public health', *Isis*, 1995, **86**: 268–77; and *idem*, 'From eradication to equilibrium: how epidemics became complex after World War I', in Christopher Lawrence and George Weisz (eds), *Greater than the parts: holism in biomedicine, 1920–1950*, Oxford University Press, 1998, pp. 303–31.

[4] See J Andrew Mendelsohn, 'Medicine and the making of bodily inequality in twentieth-century Europe', in Jean-Paul Gaudillière and Ilana Löwy (eds), *Heredity and infection: the history of disease transmission*, London, Routledge, 2001, pp. 21–79; as well as Olga Amsterdamska, 'Standardizing epidemics: infections, inheritance and environment in prewar experimental epidemiology', in ibid., pp. 135–79, and *idem*, 'Achieving disbelief: microbial variation and the disciplinary and national styles in epidemiology', *Stud. Hist. Biolog. Biomed. Sci.*, 2004, **3**: 483–507.

[5] The INH's hegemony in public health research did not go unchallenged. For instance, after the creation of the Institut National d'Etudes Demographiques (INED), in 1946, a group of demographers proved instrumental in framing the anti-alcohol policy, although they tended to approach

difficulties experienced by the Ministry of Health in terms of staffing, funding, and finally legitimacy made French government officials dependent on the INH's (and later INSERM's) expertise.[6] All the same, despite the initial centrality of public health in its activities, the research institute gradually evolved into the country's biomedical powerhouse. Its story therefore provides valuable insights into the growing influence exerted by biomedical approaches to health and disease on apparently distinct areas of research, such as epidemiology.

Interestingly, this slow transformation of a "hygiene-oriented" institute into a biomedical one was quietly overlooked during the commemoration of INSERM's fortieth anniversary, and so was the fact that the Institute did not appear "fully formed" in 1964, but rather took over from the INH.[7] The INH's association with Vichy was understandably repellent. However, this bizarre lapse of memory also hints at the difficulty contemporary French scientists have in associating themselves with the kind of public health research undertaken at the INH, in accordance with a "style of thought" rendered obsolete by the rise of the biomedical approach to disease and health. Indeed, these developments need to be placed in a wider time frame and analysed as a moment in a process that began in the 1940s and continued until the late 1970s, that is some fifteen years after the transformation of the INH into INSERM had taken place.[8]

Investigating the Health of the Population: Hygiene as Expertise

Although the foundation of the Institut National d'Hygiène in November 1941 unquestionably bears the mark of the Vichy regime, it was by no means a direct outcome of the infamous "collaboration policy" promoted by Marshal Pétain in the aftermath of French capitulation to Germany in June 1940. On the contrary, and paradoxically, this creation can also be seen as the end-point of a long series of discussions and negotiations between the Paris-based representatives of the Rockefeller Foundation and a handful of the most dynamic of the French medical "mandarins".[9] The Rockefeller had been active in the

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this particularly French "social plague" merely through its impact on the mortality of middle-aged males, and did not address medical issues (such as the care of alcoholics). INED's influence on the issue vanished after its leading demographer on the topic, Sully Ledermann, died suddenly in 1967. Luc Berlivet, 'Les démographes et l'alcoolisme: le populationnisme, l'INED et la "lutte contre les fléaux sociaux"', *Vingtième Siècle*, 2007, n° 95: 93–113.

[6] This, despite the renewed interest in "social hygiene" and "social medicine" witnessed in the decade or so that followed the Liberation of France; see Lion Murard and Patrick Zylberman, 'Apôtres et experts: une histoire de la médecine sociale', unpublished report for the Ministère de l'équipement, Paris, 1982.

[7] In reality, 1964 marked a redefinition of the aims of and approach to medical research, the renaming of the INH as INSERM put the finishing touch to the incorporation of a few medical research laboratories that had been created in 1952 by physicians under the title "Fondation Claude Bernard"; see Jean-François Picard, 'Poussée scientifique ou demande de médecins? La recherche médicale en France de l'Institut National d'Hygiène à l'INSERM: contributions à l'histoire de la recherche médicale en France au XXème siècle', *Sciences Sociales et Santé*, 1992, **10** (4): 47–106, pp. 85–8.

[8] In 1963, a project was discussed that would have seen the transformation of the INH into a "national institute for medical research", without any reference to "health"; see 'Projet d'un INR', 28 Aug. 1963; INSERM Archives: Bugnard Papers (Centre des Archives Contemporaines (hereafter CAC) 20060293), box 1. However, fears that such a renaming could be interpreted as indifference to peoples' wellbeing ensured that "health" remained in the Institute's title.

[9] Jean-François Picard, 'Aux origines de l'INSERM: André Chevallier et l'Institut national d'hygiène', *Sciences Sociales et Santé*, 2003, **21** (1): 5–26; Jean-François Picard and William H Schneider, 'From the art

Hexagone since 1917, when it started supporting the French government's fight against tuberculosis.[10] Contacts intensified in the early 1920s, and lasted until June 1941, when the Rockefeller's Paris-based staff had to leave the country.[11] Two separate, but partly interconnected issues were debated over these years. First, the possibility of promoting a more "scientific", that is laboratory-based, approach to medical teaching by awarding grants to innovative individuals, or to medical schools that agreed to include pre-clinical sciences in their curriculum. Second, the founding of an institute of public health that would combine teaching and research in a single, appropriately equipped location, under the leadership of Léon Bernard, who held the chair of hygiene at the Paris Medical School.[12] Neither the difficulties encountered by the awards programme, nor the ultimate failure of the second project after more than a decade of alternating hope and frustration, prevented the Foundation from sponsoring innovative research in defeated France. On the contrary, the Rockefeller took great interest in a series of nutrition studies (an understandably crucial topic in wartime) undertaken in Paris and Marseilles. In this case, the provincial city proved even more responsive than the capital, to the point that in the winter of 1940–41 the collaboration between Rockefeller's envoy, George K Strode, and a group of medical researchers headed by Professor André Chevallier at Marseilles University, led to the foundation of an Institut des Recherches d'Hygiène, whose activities quickly expanded beyond nutrition.[13] The Vichy regime was so impressed by these initiatives that the Marseilles Institute was granted 375,000 francs in its first year of existence, a sum increased to one million francs in 1942; in March 1941, the Secretary of State for Health, Serge Huard, even paid a visit to the Institute.[14] It is therefore no surprise, and perhaps even ironic, that once he had been promoted to Secretary of State for Family and Health in Admiral Darlan's new government, in August 1941, Huard built on this experience when making plans for an institut national d'hygiène with headquarters in Paris. A regime that vilified the "Anglo-Saxons" on every possible occasion quietly followed in the footsteps of the Foundation which epitomized American philanthropy. Conversely, the French technocratic elites that were taking advantage of the social and political crisis to promote a "government of technicians" played little part in this creation,[15] although André Chevallier, appointed by Huard as Director General of the

of medicine to biomedical science in France: modernization or Americanization?', in William H Schneider (ed.), *Rockefeller philanthropy and modern biomedicine: international initiatives from World War I to the Cold War*, Bloomington, Indiana University Press, 2002, pp. 106–124; William H Schneider, 'War, philanthropy, and the National Institute of Hygiene in France', *Minerva*, 2003, **41**(1): 1–23.

[10] Lion Murard and Patrick Zylberman, 'La mission Rockefeller en France et la création du comité national de défense contre la tuberculose (1917–23)', *Revue d'histoire moderne et contemporaine*, 1987, **34**: 257–81.

[11] William H Schneider, 'The men who followed Flexner: Richard Pearce, Alan Gregg, and the Rockefeller Foundation medical divisions 1919–1951', in Schneider (ed.), op. cit., note 9 above, pp. 7–60, on pp. 7–13.

[12] Picard and Schneider, op. cit., note 9 above, pp. 113–14. The Rockefeller was also instrumental in the contemporary establishment, along the same lines, of the London School of Hygiene and Tropical Medicine; Lise Wilkinson and Anne Hardy, *Prevention and cure. The London School of Hygiene & Tropical Medicine: a 20th century quest for global public health*, London, Kegan Paul, 2001. The articulation between teaching and research, and its situation within the most important French medical school, would have provided Léon Bernard's Institute with key assets that the all too idiosyncratic Institut Pasteur could not dream of.

[13] Schneider, 'War, philanthropy', op. cit., note 9 above, pp. 13–15.

[14] Ibid., p. 19.

[15] For an historiographical overview, see François Rouquet, 'La technocratie sous Vichy: opportunité,

new national institute, was no stranger to the regime, having previously served as a health expert for the government.

Despite the constraints of the Occupation, about thirty medical researchers, helped by a limited number of technical staff, managed to follow up and even expand on earlier investigations into nutritional deficiencies (Chevallier's topic of choice). In addition, they started a series of studies on issues as diverse as the epidemiology of cancers, syphilis, alcoholism, and other "social diseases"; the quality of water, as well as problems of general and occupational hygiene; and some laboratory research in radiobiology and physiobiology (on the biology of metastases for example).[16] The budget of the Institute grew from 15 million francs in 1942 to 20 million in 1944, two thirds of which was dedicated to public health research.[17] The qualities displayed by Chevallier on this occasion did not prevent him from being criticized when Liberation came. For the INH's activities were not immune from political criticism,[18] even if they were less easily discredited than many of the investigations undertaken at the same time by the Fondation pour l'Etude des Problèmes Humains, better known as "Fondation Carrel", after its promoter and *Régent*, the surgeon-turned-physiologist, Nobel Prize winner, and infamous eugenicist, Alexis Carrel.[19] Although Chevallier managed to deflect the charges brought against him by the "Commission d'Epuration" of the Ministry of Health in August 1944, his growing disagreement with the communist Minister of Health appointed by the provisional government of the French Republic a month later eventually forced him to resign his post at the end of 1945. Nevertheless, he remained on the board of the Institute, and was awarded the American Medal of Merit in August 1946.[20] Chevallier's successor was Louis Bugnard, a professor of biophysics at the Toulouse Medical School, a physician and graduate of the Ecole Polytechnique who had taken advantage of a Rockefeller fellowship to travel to London and work with A V Hill in 1932–34. While the new Director General of the Institute was clearly eager to shift the balance of its

continuité et représentations', in Vincent Dubois and Delphine Dulong (eds), *La question technocratique: de l'invention d'une figure aux transformations de l'action publique*, Strasbourg, Presses Universitaires de Strasbourg, 1999, pp. 55–75.

[16] Picard, op. cit., note 9 above, pp. 14–17.

[17] Ibid., p. 13. The Marseille Institute of Hygiene, of Rockefeller origin, remained one of the most important of the INH's research centres, with 1.5 million francs, a tenth of the first budget (5 million francs) allocated to its activities.

[18] Ilana Löwy, 'La science dans son contexte: l'Institut national d'hygiène et la recherche médicale sous Vichy', *Sciences Sociales et Santé*, 2003, **21** (1): 27–30.

[19] Alexis Carrel adroitly seized the opportunity created by the French capitulation and the subsequent installation of a political regime that attempted to fight the "degeneration" of the country, source of all its problems. He sailed back to France in 1941 (he had by then retired from the Rockefeller Institute) wreathed in glory, his scientific prestige reinforced by the huge international success of his bestseller: *Man, the unknown*, first published in 1935 (in English by Harper & Brothers, and in French by Plon). Thanks to his connections with Pétain's entourage, he persuaded the government to set up a research institute of a new kind, entirely dedicated to the "study of man's problems". Alain Drouard, *Une inconnue des sciences sociales: la Fondation Alexis Carrel (1941–1945*), Paris, INED, Editions de la Maison des sciences de l'homme, 1992; Andrés Horacio Reggiani, 'Alexis Carrel, the unknown: eugenics and population research under Vichy', *French Historical Studies*, 2002, **25** (2): 331–56.

[20] The full citation, praising the help provided by Chevallier, as head of the INH, to the US Army Medical Service in Europe, is included amongst a selection of his personal papers reproduced on a CD-Rom: 'André Chevalier 1896–1964', published in 2005 by INSERM. Chevalier's papers have recently been deposited at the Centre des Archives Contemporaines (CAC) of the French National Archives, in Fontainebleau: see the files 20050593/1 to 6.

activities from expertise, its initial *raison d'être*, towards research, he nevertheless had to muddle through with an organizational setting inherited from wartime.

In matters of medical research, Bugnard was influenced by both the experience of the USA and that of Britain.[21] As early as May 1946, he expressed his support for the creation of an advisory research council.[22] Then, from the early 1950s onwards, he backed the creation of research centres, small groups of scientists located (ideally "embedded") within teaching hospitals, mostly in Paris, whose research topics were not directly linked to any particular public health issue. This was true even of the first of these centres, established by Professor Jean Trémolières (a former head of the Nutrition Section)[23] at the Bichat Hospital to investigate the biochemistry of "human nutrition and dietetics". A similar attempt to combine experimental science with the quest for medical applications characterizes what was to become the most fashionable research field of the late 1940s and 1950s: "medical physics", thanks to the support of Bugnard. Thus, in close association with the Commissariat à l'Energie Atomique (Atomic Energy Commissariat), the INH made rapid progress in the use of radioactive isotopes, whilst developing a new generation of machines for cancer therapy, and contributing effectively to dosimetrics (the measurement of exposure to sources of radiation).[24] However, for a period of about twenty years, efforts in these areas were hampered by the financial and practical limits to the creation of permanent research positions, which were perhaps the most crucial element in the Institute's strategy. A decree in May 1947 had provided medical researchers with the same status as their colleagues at the Centre National pour la Recherche Scientifique (CNRS).[25] However, the paucity of funds,[26] combined with the difficulty of luring promising physicians into joining a research institute in a country where private clinical practice remained central to their professional identity,[27] hindered the creation of full-time, permanent positions. In 1949, 58 out of the 103 researchers employed by the

[21] From December 1945 to March 1946, Louis Bugnard had travelled along the East Coast of the United States, in order to study the American way of doing research. However, the British organization of research might have seemed much easier to emulate than the mighty American one (Bugnard's travel diaries of a later trip to Britain are deposited at CAC: 20010165/1). As late as 1962–63, during negotiations between the INH and the Comission du Plan (Planning Commission) on the development of the Institute, he pledged the creation of fifty research units by the end of the decade, so as to equal the number already established by the British Medical Research Council. Gaudillière, op. cit., note 1 above, pp. 26 and 309.

[22] The minutes of this "Conseil scientifique", as the advisory body was named, for the period up to 1976 are kept at the INSERM Archives: 9440/01and 02.

[23] Trémolières had previously worked with Chevallier on the impact of the war on the diet of the French population, see A Chevallier and J Trémolières, 'Enquêtes sur l'état de nutrition des populations pendant la guerre dans certains pays d'Europe', INH, 80 pages. (This unpublished report is reproduced on the CD-Rom mentioned in note 20 above.)

[24] Jean-Paul Gaudillière, 'Normal pathways: Controlling isotopes and building biomedical research in postwar France', *J. Hist. Biol.*, 2006, **39** (4): 737–64, esp. pp. 757–9.

[25] CNRS had been established as early as October 1939, but did not deal with medical research; Jean-François Picard, *La république des savants: la recherche française et le CNRS*, Paris, Flammarion, 1990.

[26] Although the INH's budget more than doubled between 1944 and 1947, when it amounted to 50 million francs, this was little compared to the one billion francs received by the main French research institutes: CNRS, CEA, and the Pasteur Institute that very year; Picard, op. cit., note 7 above, p. 79.

[27] It was not until the "Debré reform" of 1958 (named after its instigator, Robert Debré, the arch-mandarin and father of the then prime minister) that full-time hospital appointments became the norm rather than the (rare) exception. Until then, even the doctors and professors appointed to teaching hospitals had to make a living out of private practice. Haroun Jamous, *Sociologie de la décision: la réforme des*

INH were trainees (*stagiaires*); ten years later the ratio was largely unchanged, while the overall number of research positions had only slightly increased to 130.[28] Indeed, the rise of biomedicine in France was neither effortless nor quick, and for at least twenty years after the end of the Second World War, the public health sections remained key components of the Institute.

The Social World of Public Health Research

In the 1940s as before, "public health" was a highly fluid term, and the investigations into the health of the population undertaken at the INH took a great variety of forms, while the methods used in the different sections ranged from descriptive statistics to laboratory analysis. Nevertheless, they shared many features, including a common approach to the publication of results, which favoured monographs over journal articles. Altogether, these investigations created a particular research environment, characterized by a specific organization and set of customs, until the slow, hesitant rise of biomedicine *à la française* finally subverted the former social order, transforming what had until then been mainstream practices into anomalies and shameful reminders of an all-too recent past that needed to be forgotten.

The INH was initially organized in four different sections: the Nutrition Section, of great historical importance; the Hygiene Section, whose expertise included occupational issues; a Social Diseases Section covering an enormous domain embracing topics as varied as alcoholism, cancer, and tuberculosis; and finally the Epidemiology Section. Directed by a young physician named Alice Lotte, this last section originally focused on the descriptive statistics of epidemics brought on or worsened by war (such as diphtheria, typhus, measles, and scarlet fever),[29] before widening its field of investigation after the Liberation of France. Epidemiologists also provided other sections with technical assistance in the gathering and treatment of quantitative data. From the end of the Second World War to the mid-1970s, the number of sections as well as their scope increased spectacularly, through a process that mirrored the transformation of public health over the period in most of the western world. Soon after the end of the war, the Social Diseases Section split into a series of separate entities specializing in specific pathologies: there were sections on cancer, alcoholism, tuberculosis, and cardiology. Increased medical specialization, the lynchpin of this new organization of the Institute, also led, conversely, to the amalgamation within a single section of the different groups working on acute infectious diseases.[30] In the 1950s and 1960s, new fields of research were explored, such as paediatrics and perinatal health, and "mental hygiene" (later renamed "psychiatry"),

études médicales et des structures hospitalières, Paris, Editions du CNRS, 1969.

[28] Minutes of the Conseil d'administration meeting, 14 Dec. 1955; INSERM Archives: 9239/01.

[29] Results of these investigations (based on basic cartographical techniques that highlighted the difference in incidence of the various diseases between the French regions) were published in the first issue of the *Recueil des travaux de l'Institut National d'Hygiène*, in May 1944.

[30] Under the leadership of Georges Martin-Bouyer, the Section des Maladies Transmissibles carried out a wide range of activities that eventually included the investigation of non-infectious disease. Martin-Bouyer gained some notoriety in 1972 when he managed to trace the poisoning of over 200 babies to the use of talcum powder contaminated by hexachlorophene (an episode otherwise known as *l'affaire du talc Morhange*).

from a public health perspective that focused on populations rather than clinical cases. Simultaneously, the much broader access to health services ensured by the wide social security scheme established in the aftermath of the Second World War, combined with a rise in the number and size of hospitals, created new research topics (such as the evaluation of the population's "health needs") that had significant economic and political implications. One section was dedicated specifically to clarifying such issues,[31] though this kind of research never received the level of academic and political attention it enjoyed in Britain.[32] In the late 1960s, although INSERM had taken over from the INH and the interest of its Directorate in public health had already declined, the sections merged into the Division de la Recherche Médico-Sociale (DRMS: Division of Medico-Social Research). Dr Lucie Laporte, who had been instrumental in the reorganization and expansion of the Direction de l'Hygiène Sociale at the Ministry of Health, was appointed its director.[33] By the mid-1970s, all the by then eleven components of the DRMS had been gradually regrouped on a large campus situated on the western outskirts of Paris, in the leafy suburb of Le Vésinet.

It is worth reflecting on the very name given to the DRMS. In the second half of twentieth century, the term "medico-social" was widely used in France to describe the blurred area where public health issues mingled with considerations regarding the welfare of the population (admittedly a much wider concern), and the growing number of social services dedicated to that purpose. The meaning and importance of the activities undertaken by the different sections are difficult to grasp as not all of them amounted to research. Constant Burg, INSERM's Director General from 1968 to 1978, tellingly distinguished between what he described as "routine" investigations, which aimed at providing the Ministry of Health with information on the mortality and morbidity of the population, and proper research.[34] Yet, for all of Burg's pronouncements, drawing a clear distinction

[31] From 1966 to 1969, they undertook a pioneering survey of the health needs (*besoin de santé*) of a supposed prototypical population: the inhabitants of Soissons, in Picardie (one amongst the hundreds of French cities with a population of about 20,000 inhabitants); CAC: 19760224/4-120.

[32] The issue had already been touched upon by specialists in "community medicine", such as Jerry Morris, and the importance of the issue for the future of the NHS prompted the rise of "health services research" from the 1980s onwards. See Kelly Loughlin, 'Epidemiology, social medicine and public health: a celebration of the 90th birthday of Professor J N Morris', *Int. J. Epidemiol.*, 2001, **30** (5): 1198–99; and Virginia Berridge, Daphne A Christie and E M Tansey (eds), *Public health in the 1980s and 1990s: decline and rise?*, Wellcome Witnesses to Twentieth Century Medicine, vol. 26, London, Wellcome Trust Centre for the History of Medicine at UCL, 2006, pp. 42–9.

[33] Lucie Laporte had been one of Eugène Aujaleu's closest aides during his eighteen-year-long mandate as head of the Direction de l' Hygiène Sociale, when he reorganized and reinforced the role of the central health administration; Murard and Zylberman, op. cit., note 6 above, pp. 241–51. She then followed Aujaleu when he was appointed as INSERM's first Director, in 1964. See also the entry 'Aujaleu' in Roland Drago, Jean Humbert, and Jean Tulard (eds), *Dictionnaire biographique des membres du Conseil d'Etat* (*1799–2002*), Paris, Fayard, 2004.

[34] Among the sources of information on morbidity were the statistics routinely produced by the system of compulsory declaration of diseases ("dispositif de surveillance des maladies à declaration obligatoires"). In a series of memoranda to the Minister of Health, Simone Veil, Burg worried that INSERM "[was] in an ambiguous situation, as while its budget should fund nothing but research activities, within the Medico-Social [Research] Division it also covers activities that partly amount[ed] to control and routine." ('Confidentiel—Notes à l'attention de Madame Veil, Ministre de la santé', 22 April 1976; Note 2: 'Réorganisation de la Division de la Recherche Médico-Sociale—Division de la Recherche Médico-Sociale: Historique', p. 2. The original text reads: "se trouve dans une situation ambigüe car son budget, qui ne devrait servir qu'à financer des activités de recherche, couvre au niveau de la Division Médico-Sociale, des activités qui relèvent en partie du contrôle et de la routine"). In

between the two kinds of activity remained a difficult task. This was particularly the case in a country where the marginalization of public health in medical education meant that most scientists were unable to distinguish genuine research work from apparently dull, routine, investigations.[35] For example, Burg's description of "Mademoiselle Guidevaux's" section, which specialized in medical statistics, and included a WHO reference centre for the standardization and classification of causes of death, was reserved: "These statistics have been handed over to INSERM by INSEE [France's National Statistics Office]. They cannot, at any rate, be likened to research activity."[36] In fact, the apparently purely bureaucratic work on mortality kept prompting methodological questions that called for proper statistical research, and simultaneously allowed some staff members to embark on epidemiological investigations.[37] Ironically, Madeleine Guidevaux's research on the rise in mortality rates attributable to the heat wave that struck France in 1976 recently resurfaced, when members of parliament in charge of the official enquiry on the alleged political and administrative mishandling of the 2003 heat wave argued that her "interesting study" should have alerted the Department of Health and public health agencies to the imminent disaster.[38]

An examination of the DRMS's workforce reveals, however, the low number of senior researchers appointed to the various sections compared with the number of "technicians" and junior researchers supported by individual grants. In April 1976, the year it was officially disbanded, the Division counted no more than 19 researchers with permanent positions, out of a total of 237 staff members.[39] Indeed, some sections employed no more

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another memorandum of the same series, Burg described three of the sections as "pursuing general activities of research and routine [*sic*], on public health actions . . .". (Note 1: "Réorganisation de la Division de la Recherche Médico-Sociale—Situation actuelle de la recherche en santé publique et en épidémiologie à l'INSERM—Place des Sections Spécialisées de la Division de la Recherche Médico-Sociale', p. 2. The French text reads: "sections ayant des activités générales de recherche et de routine sur les actions en santé publique . . .".) Both documents are kept in: INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (CAC: 2001165), box 23.

[35] Even Bugnard's praise for medical statistics in his foreword to the first of the long series of monographs published by the INH, rang hollow: "Only the progress of statistics, very intensive in these last years, could bring to the physician, the hygienist, and the researcher, the necessary tool for the accomplishment of their task." ("Seuls les progrès de la statistique, très accentués au cours de ces dernières années, pouvaient apporter au médecin, à l'hygiéniste, au chercheur, l'outil indispensable à l'accomplissement de leur tâche.") Ministère de la santé publique, *Documents statistiques sur la morbidité par cancer dans le monde*, Monographie de l'Institut national d'hygiène No. 1, Paris, INH, 1952, pp. 3–5, on p. 3.

[36] "Ces statistiques on été confiées à l'INSERM par l'INSEE [Institut National de la Statistique et des Etudes Economiques]. En aucun cas elles ne peuvent être assimilées à une activité de recherche." Ibid., p. 36.

[37] See, for example, M Guidevaux, B Morando, F Derriennic, 'Mortalité périnatale', *Bull. Inst. Natl. Santé Rech. Méd.*, 1970, **25** (4): 623–37; M H Bouvier and M Guidevaux, 'Mortality from disorders of the respiratory system throughout the world between 1950 and 1972', *World Health Stat. Q.*, 1979, **32** (3): 174–97.

[38] François d'Aubert, Claude Evin, *Rapport fait au nom de la commission d'enquête sur les conséquences sanitaires et sociales de la canicule*, Paris, Assemblée Nationale (Documents d'information de l'Assemblée nationale, n° 1455), 2004, vol. 2, p. 140. The report is online at http://www.assemblee-nationale.fr/12/dossiers/canicule.asp; last accessed 4 July 2008.

[39] In December 1965, that is just before DRMS was established, the number of researchers appointed to permanent positions by the Institute already amounted to 455: 10 *directeurs de recherche*, 52 *maîtres de recherche*, 140 *chargés de recherche*, and 253 *attachés*. The number of technicians was 528. *Propositions de l'INSERM pour le Vème plan*, p. 2; CAC: 19800235/7. Ten years later, the number of researchers had more than doubled to 1,020; meanwhile, the overall budget had jumped from 54 million francs in 1964 to 246 million in 1974. That year, DRMS's resources reached 839,000 francs

Table 1
The Public Health Sections in 1974

Section	Head of Section
Statistical Information on General Mortality and Morbidity	Dr Madeleine Guidevaux
Research on Public Health Actions: 1. Public and Mental Health Problems Linked to the social Environment	Dr Françoise Davidson
Research on Public Health Actions: 2. Prevention	Dr François Chicou
Research on Public Health Actions: 3. Health Problems in the Community ("Collectivité") in relation with the Health Services ("Système de soin")	Dr Denise Minvielle
Cancer	Dr Maurice Brunet
Cardiology	Dr Jacques-Lucien Richard
Tuberculosis and Respiratory Diseases	Dr Alice Lotte and Dr Simone Perdrizet
Transmissible Diseases (other than Tuberculosis)	Dr Gilbert Martin-Boyer
Maternity-Paediatrics	Dr Claude Rumeau-Rouquette
Nutrition	Dr Georges Pequignot
Statistics-Epidemiology and Computer Science ("Informatique")	Dr Françoise Hatton

In 1972, the Section of Psychiatry had been transformed into a research unit: Unit 110, Epidemiology in Mental Health, headed by Dr Raymond Sadoun and based at Saint-Anne psychiatric hospital, in central Paris. ('DRMS—Bilan des activités et orientations actuelles', October 1974, 42 pages; INSERM Archives; 'Archives Direction Générale INSERM, 1969–1989' (CAC: 2001165), box 23.)

than a couple of researchers, mostly medical doctors. The implementation of surveys and the analysis of their results, which were the core activities of the DRMS, required a large number of *boursiers* (INH and later INSERM research fellows), as well as technicians. The former, who numbered 108 at that time, were either medical students, or else young doctors. While most were merely looking for a temporary source of income, others built on this first experience of research to secure more interesting and permanent posts, either within the Division or, more often than not, in clinical research centres or laboratories based in Parisian teaching hospitals.[40] As *boursiers*, their role was primarily to draft or

(salaries, and other personnel expenses excluded). See N Campanini's letter to L Laporte, 27 March 1975, CAC: 19800235/13.

[40] Alice Lotte, Georges Pequignot, and Françoise Hatton belonged to this majority of *boursiers* who entered the world of public health by chance, before embarking on a career in research, and being eventually appointed as head of a section. Lotte was among the pioneers who joined the INH during the war; Pequignot started working in the Nutrition Section ten years later; while Françoise Hatton was one of the last defenders of the DRMS, before it was disbanded and her section was converted into a research unit in 1977/8. (Interview with Hatton, 30 June 2005, and Pequignot, 8 July 2005; a transcription of Lotte's interview by S Mouchet and J F Picard is accessible at http://picardp1.ivry.cnrs.fr/Lotte.html; accessed 11 April 2008.) Two successive heads of the Cancer Section, Pierre Denoix and Robert Flament, moved on to become professors of medicine, and later directors of the Institut Gustave Roussy, by far the most prominent French research and treatment centre in the field (Denoix was eventually appointed Director General for Health).

tailor questionnaires and guidelines to fit the topic of the investigation; to monitor its completion; and finally gather any kind of complementary information where appropriate. For their part, the 110 technicians who worked in the eleven sections in 1976 were responsible for the material aspects of the investigations, including the mechanical and computational sorting of results. In all, this was a rich and ramified social world of highly interdependent occupations, as, for example, *perforateur* (the technicians, mostly women, who "punched the cards") and *opérateur mécano* (for *mécanographe*, in charge of the sorting machines).

For more than fifty years before the introduction of personal computers in the 1970s, a good deal of research in public health and social sciences rested on the correct functioning of such complex networks of machines and highly specialized human actors.[41] Not surprisingly, the management of this extensive and diversified workforce, characterized by a high turnover, proved daunting. The *boursiers* held their positions for only short periods of time, and often had to change sections in order to stay in employment, whereas the large number of poorly qualified technicians in charge of secretarial or mechanical tasks frequently left the Institute to seek more interesting or secure jobs. As a result, a temporary shortage of personnel at the *atelier central de perforation* (central punching workshop) could delay all the ongoing surveys.[42] In 1974, when the number of investigations undertaken reached an all-time high,[43] Lucie Laporte complained that due to the "shortage of permanent employees" only four out of the eleven sections were "adequately staffed".[44] Another peculiarity of this social world of public health was that it was highly feminized, a feature in no way confined to technical and clerical staff. In October 1974, seven of the eleven heads of section were women, while the Division itself (see Table 1 above) was still under the guidance of Lucie Laporte.[45] This situation contrasted sharply with the gender distribution that prevailed elsewhere in the Institute: the INH's and INSERM's successive director generals were all men, as were the members of both the Board of Governors and the Scientific Council. Even today, heads of research units and directors of research are predominantly male.[46] Such a strong contrast could hardly pass unnoticed; according to former DRMS researchers, "les dames

[41] For an exploration of the material culture of punching, sorting, computing, etc., see Jon Agar, *The government machine: a revolutionary history of the computer*, Cambridge, MA, MIT Press, 2003.

[42] The difficulties in the management of the DRMS are spelt out in: '7e plan: Effectifs chercheurs, techniciens, administratifs', CAC: 19800235/13.

[43] Every year, the DRMS submitted a list of surveys (*enquêtes*) either in preparation, or in progress to the Minister of Health for approval. However, more investigations were undertaken to answer demands by the Comité d'Etudes Sanitaires de la Sécurité Sociale that had been established in 1948 to help funding research in public health. For an overview of these surveys, see, especially, 'Liste récapitulative des enquêtes effectuées par les sections spécialisées de l'INSERM', and 'Enquêtes statistiques, études épidémiologiques en cours. Projets d'enquêtes pour l'année 1975', October 1974. INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (CAC classification mark: 2001165), box 19, file 'Le Vésinet 1972'; and box 18, file 'Mlle Laporte'.

[44] L Laporte, 'Note pour Monsieur Maglott, Directeur Administratif et Financier, n° 869/S', 5 December 1974; CAC: 19800235/13. (The French original of the two quotes reads, respectively: "l'insuffisance des effectifs permanents", and "niveau d'effectif satisfaisant".)

[45] Laporte and at least four of these directors had been trained as public health doctors, an unusual background in the world of French medical research. See Laporte's letter to Mr Jeunot (then INSERM's head of personnel), 26 July 1976, N°268/S; CAC: 19800235/4.

[46] See the recent report, *Les femmes dans la recherche française, Livre blanc*, Paris, Ministère de la Recherche, 2002.

du Vésinet", or "les demoiselles du Vésinet" (the latter term emphasized the unmarried status of some of these women, starting with Laporte) were dismissive descriptions of the Division often used by its critics to underline a double distinctiveness: this female leadership had prospered on the fringe of the French medical world, at a safe distance from Paris teaching hospitals (where the research units were located) totally dominated by male mandarins.[47]

All these idiosyncrasies, combined with the difficulties experienced by the Directorate of the Institute in identifying and precisely evaluating the research produced by the different sections, help to explain the gradual marginalization that led to the final disbandment of the Division in the late 1970s. By then, the pace of work in the sections was much slower than in the rest of the Institute, which had become completely focused on supporting research units dedicated to biomedical research. As mentioned above, a trademark of the sections since the creation of the INH had been the organization of large-scale investigations, surveys often, that took years to complete and even longer to publish. Indeed, the most famous of these investigations, appositely titled 'Enquête Permanente Cancer' (Permanent Cancer Survey), has continued unremittingly since its official launch in 1943, resulting in a series of publications over the years.[48] Conceived and initially supervised by Pierre Denoix, a young surgeon who was to become a key figure in French oncology, this study of the incidence and the distribution of the different types of tumour in the country relied on information channelled by the network of cancer clinics (*centres anticancéreux*) that had been set up in the inter-war period, chiefly by the Ligue Nationale Contre le Cancer, the most prominent charity in the field.[49] Another important, though less prominent, research project was the so-called 'Enquête Boulogne'. Following on from a pioneering investigation into the health status and needs of the inhabitants of Soissons, the Community Health Section (overseen by Denise Minvielle) had selected the population of Boulogne-Billancourt, a suburb of Paris close to Le Vésinet, in order to study the differences in the reporting of disease and use of health services between social classes.[50] The investigation, which lasted from 1969 to 1975, constituted a significant attempt to bring the social sciences (chiefly economics and sociology) into French public health research.[51] Such efforts did not enjoy much

[47] Personal communication from Pierre Aïach; interview with Françoise Hatton. I first heard of these terms during informal conversations with the INH/INSERM medical or public health researchers, who quoted them to stress the feeling many had that the DRMS was somehow a world apart.

[48] Marie Ménoret, 'The genesis of the notion of stage in oncology: the French Permanent Cancer Survey (1943–1952)', *Soc. Hist. Med.*, 2002, **15** (2): 291–302.

[49] On Denoix's role in the development of the epidemiology of cancer in France, see Luc Berlivet, 'Une santé à risques. L'action publique de lutte contre le tabagisme et l'alcoolisme en France (1954–1999)', PhD thesis, University of Rennes 1, 2000, pp. 75–7.

[50] D Minvielle, P Aïach, D Cebe, *et al.*, *Problèmes de santé dans une agglomération urbaine en mutation: Boulogne-Billancourt*, Paris, INSERM, 1975. Another much smaller investigation launched approximately at the same time also addressed the problem of social inequalities in health: DRMS, 'Les processus cumulatifs d'inégalités: étude de cas dans un quartier défavorisé de Paris – 11ème', 22 January 1974; INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (CAC classification mark: 2001165), box 18, file 'Mlle Laporte'.

[51] Pierre Aïach, a young economist who had just joined INSERM in 1969, was instrumental in the planning and implementation of the investigation. For comments on his frustrations regarding the medical approach to health and disease that prevailed at INSERM, see P Aïach, 'Une confrontation initiatique. Un exemple de recherche en santé publique: la DRMS', *Cahier du Centre de Recherches Sociologiques*, 1988, **9**: 243–56; and *idem*, 'Limites et ambiguïtés de la recherche en santé publique:

support within the Institute, however. On the contrary, by the end of the 1960s, the DRMS approach was increasingly being superseded by another kind of population-based research. This alternative approach was developed by a group of statisticians working under the direction of Daniel Schwartz, who had managed to gain a foothold in the promising world of biomedicine by establishing their own research unit within a major cancer hospital. In contrast with their colleagues based in the sections, they always took great pains to ensure that their research would lead to useful applications for clinicians as well as biologists.

Medical Statistics at Villejuif: The Importance of Being Useful

As the memory of the DRMS has faded away, evocations of the introduction and expansion of epidemiology at the INH, and later INSERM, never fail to underline the role played by Daniel Schwartz. In some accounts, Schwartz and his school of thought—*l'école Schwartz*, or *l'école de Villejuif* (named after the southern suburb of Paris where their first research unit was located)—appear as pioneers in this field, and as its lone supporters.[52] The great irony is that, when he first embarked on a career in medical research, Schwartz's interests had little to do with public health. Later, the approach to medical statistics promoted by his "school" happened to sit well with the demands and constraints of the burgeoning field which practitioners and commentators alike would later call "biomedicine". Indeed, it was the closing down of the DRMS that led to a shift in the statistician's position among the various disciplines represented at INSERM, and identified them as the main, if not the sole, practitioners of population-based research, even though the range of their research topics and methods was much narrower than those developed by the different sections. In fact, neither Schwartz nor his lieutenants ever aimed at supplanting the DRMS; on the contrary, they openly opposed its disbandment.

Daniel Schwartz was born in 1917 to a prominent medical family. His father was a surgeon in a Paris teaching hospital, while his maternal uncle was none other than Robert Debré, the most formidable French mandarin of the twentieth century, and mentor of many in the generation that introduced biomedicine into the country.[53] Initially, however, Schwartz had no intention of following in their profession, and it took a series of fortuitous events to bring him back to the medical world. After graduating from the prestigious Ecole Polytechnique in 1939, he joined the national tobacco monopoly—the Service d'Exploitation Industrielle des Tabacs et Alumettes (SEITA)—as an engineer. There, an appointment in the agronomy department allowed him to use his knowledge of probabilities and statistics, and to familiarize himself with the fundamentals of plant genetics. As his interest in genetics grew, Schwartz considered switching careers. In 1950, Debré introduced him to a group of young and innovative professors of medicine. He began lecturing on the use of statistics in medical research, but the position he

l'exemple de l'enquête de Boulogne-Billancourt', *Cahiers de Sciences Humaines*, 1992, **28**: 13–21.

[52] This was the view most commonly expressed during my interviews with medical statisticians when I started researching the history of twentieth-century French epidemiology in the mid-1990s. I explored a much more complicated genealogy in my PhD dissertation, Berlivet, op. cit., note 49 above, pp. 73–107.

[53] Ibid., pp. 74–7.

expected in the emerging field of medical genetics never materialized. Four years later, Pierre Denoix, who had heard of him through the inevitable Debré, asked Schwartz to join an investigation into the aetiology of lung cancer. This research project sought to investigate whether the association between smoking and this particular cancer, uncovered almost simultaneously by Bradford Hill and Richard Doll, in Britain, and a handful of American investigators, could also be found in the French population.[54] Suddenly, the *ingénieur des tabacs* (Schwartz's official title), then researching the impact of mosaic disease on tobacco plants, started studying the effect of tobacco smoke on human lungs, bladders, and an increasingly long list of organs, with the complete approval of SEITA's Director General and the financial support of the firm.[55] Though unexpected, the collaboration went very well indeed, and Denoix, appointed as Director of the Institut Gustave Roussy (IGR) in 1956, hired Schwartz to establish a statistical research unit. The first challenge for the engineer-turned-medical-statistician was to build up a proper team, in an era when probability was taught in very few university departments, and certainly not in the medical schools. In fact, only two of the seven researchers on the staff of the research unit in the 1950s and early 1960s were medical doctors; the others were young graduates of the Ecole Polytechnique attracted by Schwartz's reputation and the prospect of a career in scientific research. Even after the INH decided to support their activities and made them the twenty-first Research Unit in 1959, they continued to experience difficulty in attracting medical doctors.[56] Despite the support of Debré and Denoix, this group remained to some extent on the margins of the medical world. In the early 1960s they launched a course intended to spread the gospel of inferential statistics amongst physicians. Initially taught at the Paris University Statistics Institute (ISUP), it remained on the fringes of medical education for some twenty years.[57] Even after Schwartz was appointed professor of medical statistics at

[54] Luc Berlivet, '"Association and causation": the debate on the scientific status of risk factor epidemiology 1947–c.1965', in Virginia Berridge (ed.), *Making health policy: networks in research and policy after 1945*, Amsterdam and New York, Rodopi, 2005, pp. 43–74; *idem*, 'Exigence scientifique et isolement institutionnel: l'essor contrarié de l'épidémiologie française dans la seconde moitié du XXe siècle', in Gérard Jorland, Annick Opinel and George Weisz (eds), *Body counts: medical quantification in historical and sociological perspective*, Montreal, McGill-Queen's University Press, 2005, pp. 335–58, pp. 341–2.

[55] The "Groupe d'Étude sur la Fumée du Tabac" (Tobacco Smoke Research Group) was established by SEITA's Director General in order to finance research on the alleged dangers of tobacco smoke. In 1965, SEITA contributed 600,000 francs to INSERM's budget, while the Social Security contributed a mere 400,000 francs. (*Propositions de l'INSERM pour le Ve plan*, p. 3; CAC: 19800235/7).

[56] One of the first two medical doctors to join the unit later wrote about the kind of sarcasm he was subjected to by fellow interns when he opted for medical statistics: "Colleagues from other disciplines had written on the walls of the staff room, among other notable statements, this sentence: 'Statistics is to the statistician what the gas street-lamp is to the drunkard; it supports him more than it illuminates him.' In 1955, to embark on a career in medical statistics was a real adventure!" ("Mes collègues des autres discipline avaient écrit sur les murs de la salle de garde, entre autre déclarations remarquées, la phrase suivante: 'La statistique est au statisticien ce que le bec de gaz est à l'ivrogne; elle le soutient plus qu'elle ne l'éclaire.' S'embarquer dans la statistique en médecine était, en 1955, une véritable aventure!" Robert Flamant, *Malade ou cobaye: Plaidoyer pour les essais thérapeutiques*, Paris, Albin Michel, 1994, pp. 24–5.)

[57] Schwartz's interests were so alien to French medical education that in 1963 he resolved to set up an association to organize short courses in medical statistics. The Centre d'Enseignement de la Statistique Appliquée à la Médecine (CESAM) proved a great success: the number of students rose from 60 in the first year to over 1200 some twenty-two years later. This rather militant approach also bound the pioneers very strongly together; the young researchers were soon put in charge of lectures, seminars, and

the Paris Medical School (a rare honour for a "non-medic") in 1968, he remained an outsider in the eyes of many of his colleagues. Within the DRMS too, some researchers seem to have shared the opinion that a lack of any clinical background amounted to an insurmountable handicap, and the engineers fresh from the Ecole Polytechnique unfortunately lacked any medical finesse.[58]

Conscious of the interest their quantitative methods generated among a new generation of medical researchers, and of the enduring hostility of many clinicians—even in teaching hospitals—toward the probabilistic approach to health and disease, the newborn Unit 21 adopted a strategy that had already been successfully used by another statistical research unit, that established by the Medical Research Council (MRC) in Britain in the 1920s.[59] Like Major Greenwood and Austin Bradford Hill (the successive heads of this unit to 1961) before him, Schwartz encouraged his team to develop statistical applications in three complementary fields: epidemiology, clinical trials, and laboratory experiments. Although the group's first task had originally been to contribute mathematical expertise to an investigation into the origins of lung cancer, its members were not primarily motivated by an interest in public health. In fact, within Unit 21 the substance of "epidemiology" shrank to little more than the probabilistic analysis of the aetiology of chronic, non-transmissible diseases. Both the Unit's location within the most important cancer hospital in the country, which provided an easy access to a great concentration of patients, and its aspiration to establish close relationships with clinicians, led these researchers to adopt the case-control study as their method of choice, at a time when the DRMS sections favoured surveys.[60] This approach, which compared the characteristics of patients admitted for one specific disease (in this instance lung cancer) with those of patients unaffected by the disease, in order to identify a statistically significant difference between the two groups, was applied in a growing number of areas. While Schwartz himself continued to study cancer, junior members of his team were encouraged to explore other fields. They started working on cardiovascular diseases, reproductive health, paediatrics, and obstetrics. Although the scope of these investigations widened gradually, the "relative risk" approach to aetiology that was revolutionizing epidemiology at the time provided a unifying style of thought.[61] The whole team felt at ease with the methodological tools and scientific concepts underpinning mainstream

"practicals". Many of the most motivated students would later swap places and start teaching in their turn; Berlivet, op. cit., note 49 above, pp. 79–81.

[58] During her interview with Mouchet and Picard in 2002 (op. cit., note 40 above) Alice Lotte (former head of the Epidemiology Section) asserted that: "One had to be a [trained] clinician to comprehend correctly social medicine and epidemiology. . . . There were things that Daniel Schwartz, who was a mathematician, and very clever, did not understand." ("Pour bien comprendre la médecine sociale et l'épidémiologie, il fallait être clinicien. . . . Daniel Schwartz, qui était mathématicien et très intelligent, ne comprenait pas certaines choses.")

[59] Edward Higgs, 'Medical statistics, patronage and the state: the development of the MRC Statistical Unit, 1911–1948', *Med. Hist.*, 2000, **44** (3): 323–40. The Unit had already become world famous for planning and implementing the first properly randomized clinical trial of streptomicyn, as well as the already mentioned investigation into the relation between smoking and lung cancer (see Berlivet, '"Association or causation"', op. cit., note 54 above).

[60] See Unit 21's Annual Reports: Archives INSERM 19920342, 'Dossier U. 21 1960–1974'.

[61] L Fleck, *Genesis and development of a scientific fact*, University of Chicago Press, 1979 (first published 1935); on the rise of "relative risk epidemiology", see Berlivet, '"Association or causation"', op. cit., note 54 above, and G M Oppenheimer, 'Profiling risk: the emergence of coronary heart disease epidemiology in the United States (1947–70)', *Int. J. Epidemiol.*, 2006, **35** (3): 720–30.

Anglo-American epidemiology, and soon established links with some of their more prominent counterparts in Britain (Richard Doll) and the United States (E Cuyler Hammond, Daniel Horn, and Jacob Yerushalmy). Schwartz and his collaborators proved eager to publish in the major French medical journals, and quickly learned also to write for Anglo-American publications.[62]

Equally crucial to the success of Unit 21 was its ability to contribute to the distinct, yet related field of clinical research. IGR had originally hired Schwartz, and helped him to constitute a research team in order to provide statistical assistance to its clinicians. One of their first tasks was to help standardizing and mechanizing medical records produced by the different departments so as to make information more easily available to house physicians. A programme developed for that very purpose had the somewhat bizarre acronym of "PASTIS".[63] Jean Lacour, a former head of department at IGR, later recalled how the Statistical Research Unit helped them to develop a "modern" approach to clinical research that "broke with the archaisms of [their] old methods".[64] Not everyone shared his enthusiasm, however, and resistance to the statisticians' intrusion into clinical matters centred on the randomization of therapeutic trials. Letting chance decide whether or not a patient should receive a promising treatment had already proved the thorniest issue in the debate among British and American physicians.[65] It is a measure of the difficulties encountered by Schwartz and his group that the first properly randomized trial organized at IGR was not completed and published before 1972.[66] This did not prevent them from gaining early international recognition through their participation in the activities of the European Organisation for Research and Treatment of Cancer (EORTC) from its inception.[67] Within France, the statisticians found support among those (still in the minority, but growing in numbers) who relied on inferential methods

[62] Schwartz's attention to the dissemination of results was notable from his first investigation. One of his earliest articles came out in the most important French medical periodical of the time: D Schwartz and P Denoix, 'L'enquête française sur l'étiologie du cancer broncho-pulmonaire: le rôle du tabac', *La Semaine des Hôpitaux de Paris*, 1957, **33**: 424–37; whereas the final results (which underlined the role of inhalation, and pointed at a relationship between smoking and cancer of the bladder) were published in a prominent American journal: D Schwartz, R Flamant, J Lellouch and P Denoix, 'Results of a French survey on the role of tobacco, particularly inhalation, in different cancer sites', *Journal of the National Cancer Institute*, 1961, **26**: 1085–108 (despite what the title suggests, the investigation in question was a case-control study, rather than a survey).

[63] Archives INSERM 19920342, 'Dossier U. 21 1960–1974'; Unit 21's *Annual report for 1969*, p. 34; "pastis" is the name of a popular French anise-flavoured apéritif.

[64] "Ça nous a permis de mettre en œuvre ... un travail qui était moderne et qui sortait de l'archaïsme de nos vieilles méthodes." (Berlivet, op. cit., note 49 above, p. 77.)

[65] In Britain, M Greenwood, and A B Hill had prompted a debate on this question in the early 1930s; Joan Austoker and Linda Bryder, 'The National Institute for Medical Research and related activities of the MRC', in Joan Austoker and Linda Bryder (eds), *Historical perspectives on the role of the MRC: essays in the history of the Medical Research Council of the United Kingdom and its predecessor, the Medical Research Committee, 1913–53*, Oxford University Press, 1989, pp. 35–57, esp. pp. 46–7.

[66] E Eschwege, H Sancho, A Spira, H P Beyer, and D Schwartz, 'Résultats après cinq ans d'un essai thérapeutique sur l'angiome tubéreux cutané', *Archives Françaises de Pédiatrie*, 1972, **29** (1): 49–65. The first reference to this clinical trial is in Unit 21's (unpaginated) *Annual report for 1961* (Archives INSERM 19920342, 'Dossier U. 21 1960–1974'; § C "Recherche dans le domaine thérapeutique").

[67] In 1962, a meeting of seventeen European oncologists from six countries launched the Groupe Européen de Chimiothérapie Anticancéreuse (European Group of Anti-cancer Chemotherapy), which became EORTC in 1968. The Group played a most prominent part in the organization of multicentre clinical trials in oncology.

to design and interpret their laboratory experiments. As the hybridization between medicine, biology and, to a lesser extent perhaps, chemistry and physics, gathered momentum, statistics applied to experimental research quickly appeared as the third significant domain of activity in Unit 21's annual reports. The group was soon able to establish working relationships with a growing number of biophysicists, biochemists, and geneticists. Although some remained reluctant to believe that there was such thing as "statistical research", and tended to belittle the statisticians' contribution as somehow ancillary to their own work, at least Schwartz and his team appeared on the map of French biomedicine, if only on the margins.

The strategic decision to insert Unit 21 firmly within the new world of medical research did not prevent the group from interacting with the DRMS. Up to the early 1970s at least, Unit 21 contributed to various investigations launched by the different sections. Tellingly, however, their interventions focused almost exclusively on the most medicalized aspects of public health, which allowed them to carry out their research in a hospital setting, avoiding studies in the community or any other kind of investigation among the general population.[68] The few preventive programmes to which they contributed merely aimed at adjusting the treatment for cardiovascular disease according to patients' risk profiles.[69] Different public health sections also facilitated Schwartz's plan to develop a team of medical statisticians by taking on some of his young assistants who could not immediately obtain permanent positions in his much smaller research unit. Pierre Ducimetière, a graduate of the Ecole Polytechnique, was for years officially attached to the Cardiology Section, while working very closely with Schwartz. For her part, Claude Rumeau-Rouquette, the first medical graduate to join Unit 21, went on to become the head of the Perinatal Health Section. At the beginning of the 1970s, she began to benefit from a renewal of interest in such issues, and when the department of health launched its *Plan Périnatalité* in 1971, she became their chief expert.[70] In both these functions, however, Rumeau-Rouquette broke with the DRMS tradition. Her approach bore all the marks of Unit 21. So keen was she to reinforce her links with obstetricians and paediatricians that she successfully argued for the relocation of her section to Baudelocque, France's leading maternity hospital, rather than to the public health campus at Le Vésinet. In that matter, as in many others, she received the full support of Constant Burg, for her approach sat very well with his own views on medical research, as opposed to "routine" work. After all, Rumeau-Rouquette's analysis of risk factors for diseases or accidents incurred by the pregnant mother, the newborn, or both, were of immediate interest to clinicians.[71] When Burg's

[68] See, for example, the 'Evaluation of the needs in terms of functional rehabilitation in hospital departments' in collaboration with Minvielle's section: *Annual report for 1967*, p. 18 (Archives INSERM, 19920342, 'Dossier U. 21 1960–1974').

[69] In 1962, the research unit received a request from two clinicians to research cardiovascular diseases; see *Rapport annuel pour l'année 1962*, un-paginated, § A 'Recherche sur les maladies cardiovasculaires'. (Archives INSERM, 19920342, 'Dossier U. 21 1960–1974'.)

[70] Claude Rumeau-Rouquette, *Bien naître: la périnatalité entre espoir et désenchantement*, Paris, EDK, 2001.

[71] See Denoix's enthusiastic letter (as Director General for Health) to Burg, 17 Nov. 1976: 'Note pour Mr le Directeur Général de l'INSERM'; INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (CAC classification mark: 2001165), box 23, file 'DGS (2)'.

criticisms of the Division became fiercer in the mid-1970s,[72] he never failed to balance his denigration with praise for her work, thus underlying the difference between the two approaches.

The End of an Era: the Demise of the DRMS

The disbanding of the Division put a halt to the long-lasting discussion that had taken place over the future of the public health sections. In 1963, Bugnard submitted to government a plan to transform the INH into a national institute of medical research, with the emphasis shifting from "hygiene" to "medical research".[73] However, the scheme proved more difficult to implement than expected, as the sections enjoyed statutory protection under various acts and decrees passed since the 1940s. Furthermore, it appeared difficult to reduce the activities of bodies responsible for informing the Ministry of Health on an increasingly wide range of issues, particularly since the quality of their publications and reports was much praised.[74] The situation changed dramatically as a new generation of medical researchers came of age in the 1960s and early 1970s. Public health was far removed from their research interests, and in the view of laboratory scientists like Burg, who ran small, flexible research teams, the sections consumed too many resources, especially in terms of manpower. More irritatingly still, at a time when INSERM was increasingly encouraging researchers to submit their manuscripts exclusively to the most prestigious Anglo-American journals, their colleagues in the sections still favoured the book-length monograph (in French) as their medium of choice.[75] In 1964, when a series of "specialized scientific commissions" was established to advise INSERM's scientific council, public health underwent a symbolic degradation,[76] as the commission in charge of that field came last on the list. None the less, many clinicians and laboratory scientists still believed that the production of information on the health of the population should remain within the province of the new research institute. As late as December 1976, the Scientific Council approved a resolution that reaffirmed this view.[77] However, members of the council did not know that Burg had already

[72] See, for example, Burg's incensed letters to Françoise Hatton dated 28 Nov. 1974 and 26 Dec. 1974, criticizing two separate investigations recently launched by two different sections. INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (Cote CAC: 2001165), box 18, file 'Mme Hatton'.

[73] See the memorandum: 'Projet d'un INR', 28 Aug. 1963; INSERM Archives: Bugnard Papers (CAC: 20060293), box 1.

[74] Even Burg, in the middle of his offensive against the sections, considered that up to 1970 at least: "le niveau des activités de la DRMS était plutôt meilleur [was rather superior] que le niveau moyen des autres laboratoires de l'INSERM." 'Confidentiel —Notes à l'attention de Madame Veil, Ministre de la santé; Note 3 : Projet de Réorganisation de la DRMS', 22 April 1976, on p. 3. INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (CAC classification mark: 2001165), box 23.

[75] The INH had launched its collection of monographs in 1952. According to most public health researchers, the format imposed by medical journals did not allow them to reveal with precision either the technicalities of their investigations, or the mass of information gathered in the course of a research project that had taken years to complete. (Interview with Françoise Hatton, 30 June 2005.)

[76] Harold Garfinkel, 'Conditions of successful degradation ceremonies', *American Journal of Sociology*, 1956, **5**: 420–4.

[77] See the minutes of the meeting: 'Conseil scientifique 13–16 décembre 1976', INSERM Archives: 9440/02.

submitted to the Minister of Health a highly confidential plan to disband the DRMS in such a way, as he himself wrote, that it would silence the declared opponents of his scheme.[78] Well aware of any changes made to the organization of the Institute, the Director General realized that a unique window of opportunity had just opened. Not only had a 1974 decree, quite providentially, deprived the sections of the statutory protection they had enjoyed since 1941, but the anticipated retirement of Lucie Laporte (the DRMS's director since its foundation) in June 1976, allowed for a complete reorganization of the field.[79] The plan was to transform each of the sections into either a technical support team (a *service commun* in INSERM parlance) or, where possible, into a proper research unit, whose activities could then be monitored by the relevant scientific commission.

At that time, the Director General had extensive powers to choose the members of these commissions. Burg's main concern lay in the high level of unionization among DRMS staff and the consequent risk of political turmoil. The mischievous strategy he developed to overcome this opposition consisted in tarnishing the scientific reputation of the Division to a point where even the most passionate call for its preservation would sound purely corporatist, politically biased, and ultimately illegitimate. To achieve this aim, Burg openly proposed to assign a series of inquiries into the quality of the work produced by the sections to a few professors of medicine, presented as "undisputed authorities". In fact, while the public health credentials of the academics listed in the memorandum were rather limited, all were closely associated with Burg. For this reason, perhaps, Burg felt able to anticipate, with utter confidence, the results of these future investigations:

> There will inevitably ensue [*sic*]: (a) An all-encompassing critique of the DRMS's activities that would make the implementation of the reform project easier; (b) A suggestion to carry on establishing [relocating] the DRMS's sections within relevant specialized hospitals.[80]

Battering the Division in this way, however, would not be enough to convince a Minister of Health who relied on INSERM for information on the health of the population. Burg therefore claimed that civil servants and public health physicians would be better off once the traditional, old-fashioned sections had been transformed into innovative and responsive research units. Again, he cited Rumeau-Rouquette's group as a model, for in 1974, at her own instigation, her section had been transmuted into INSERM's 149th Unit.[81] Burg also pointed out that Schwartz had trained several other brilliant

[78] See the series of memoranda: 'Confidentiel—Notes à l'attention de Madame Veil', 22 April 1976, especially 'Note 4: Modalités d'application', 3 pages. INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (CAC classification mark: 2001165), box 23.

[79] 'Confidentiel—Notes à l'attention de Madame Veil, Ministre de la santé; Note 3 : Projet de Réorganisation de la DRMS', 22 April 1976, on p. 4. INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (CAC classification mark: 2001165), box 23.

[80] "Il en découlera obligatoirement [*sic*]: a- Une critique globale des activités de la DRMS, critique devant faciliter l'application du projet de réforme. b- Une proposition de continuer à implanter progressivement les sections de la DRMS au sein des hôpitaux à orientation spécialisée correspondante." 'Note 4: Modalités d'application', pp. 1–2, on p. 1; INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (CAC classification mark: 2001165), box 23.

[81] 'Note 2: Réorganisation de la Division de la Recherche Médico-Sociale—Division de la

medical statisticians, who could be granted more autonomy, and be encouraged to establish their own independent research groups.

Ironically, Schwartz and his collaborators, with the notable exception of Rumeau-Rouquette, openly opposed a plan that should in principle have reinforced their position. Certainly, their loyalty towards their trade union, which resisted the demise of the public health sections, helps to explain their apparently paradoxical position. However, scientific issues were also at stake, as the attitude of Philippe Lazar, one of Schwartz's closest protégés, clearly demonstrates. The second graduate of the Ecole Polytechnique to join Unit 21 (in 1960), Lazar had been based at Villejuif until 1975, when he spent a sabbatical year at the Harvard School of Public Health. There he discovered another approach to epidemiology, promoted by the likes of Brian MacMahon. He saw for himself how medical statisticians collaborated with public health scientists from various disciplines, and noted the stimulating effect it had on the whole field.[82] Once back in France, Lazar was so eager to see this model emulated in his home country, that he met Burg and pleaded for the transformation of Le Vésinet into a vibrant campus where researchers and graduate students, organized in neither sections nor research units, would work together, teach, and learn. Such an institution had never existed in France, the so-called National School of Public Health (Ecole Nationale de la Santé Publique, based at Rennes) being essentially in charge of training health service managers and civil servants in administrative matters.

Burg thought otherwise. When the DRMS was disbanded in 1977, five sections were transformed into research units, and gradually relocated in various Parisian teaching hospitals. None survived for long, as the peculiarities of their topics, and the small number of scientists on their staff made it extremely difficult for them to meet the criteria established by INSERM's Directorate and Scientific Council for the evaluation of units' activities. The need to appoint many more epidemiologists, as well as other public health scientists, had been clearly stressed in one of Burg's 1976 memoranda.[83] However, the number of such positions effectively opened at INSERM in the following years remained very limited.

Conclusion

The demise of the public health sections, and their fall into oblivion over the thirty-five years that followed, had important long-term consequences. From that moment, the number of legitimate topics of public health interest investigated at INSERM shrank noticeably. The population-based study of human health did not fit well with the reductionist approach favoured in biomedical laboratories. Moreover, the unstable mix of contributions to policy making and pursuit of an independent research agenda, which had

Recherche Médico-Sociale: Historique', p. 4; INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (CAC classification mark: 2001165), box 23.

[82] Interview with Philippe Lazar, 24 Nov. 2005; see also Berlivet, op. cit., note 49 above, pp. 128–9.

[83] 'Confidentiel—Notes à l'attention de Madame Veil, Ministre de la santé', 22 April 1976; Note 2: 'Réorganisation de la Division de la Recherche Médico-Sociale—Division de la Recherche Médico-Sociale Historique', INSERM Archives: 'Archives Direction Générale INSERM, 1969–1989' (CAC: 2001165), box 23, on p. 4.

characterized the work of the sections and helped to secure financial support for the INH in the previous period, was now viewed with aversion. It was seen as a pollution of science, paradoxically, at a time when research units were increasingly urged to collaborate with the pharmaceutical industry and other private firms.[84] This long-term development explains, for example, why social epidemiology, with all its political implications, remained marginal in France, despite the efforts of a research group (Unit 88), which in the late 1970s and early 1980s would pose the sole scientific challenge to the Villejuif School.[85] More generally, some of the key methods favoured within the Division, such as surveys of the general population, did not suit the means allocated to and the constraints imposed on research units. On the one hand restrictions on finance and the size of the workforce, and on the other pressure to produce results within a limited timescale, also account for the extremely small number of cohort studies commissioned by INSERM until very recently. The resulting dependence on "case-control studies" had important consequences for the framing of scientific research within the Institute. Many topics, including issues of burning interest to policy makers, were difficult to investigate by such means. The limits imposed on knowledge of the health of the population proved extremely costly, both in medical and political terms, when in the 1980s and 1990s a series of epidemics (AIDS, hepatitis) and health scares (like the so-called "mad cow disease") challenged the state's capacity to protect its citizens. It took social and political mobilization against AIDS to convince INSERM and the French government to launch a comprehensive survey on the sexual habits of the population.[86] However, on many other crucial issues, including well-identified problems such as smoking and alcohol consumption, the information available to policy makers and the public remained patchy. In turn, a succession of health scandals prompted the creation of public health agencies independent of the Department of Health, whose tasks included both the gathering of available data and the commissioning and practical organization of specific investigations—just as the DRMS had done. The similarities are becoming even more striking as the agencies, such as the Institut de Veille Sanitaire (InVS), increasingly feel the need to expand this area of their research activities.[87] In a recently released interview with a historian of science and medicine, an epidemiologist and close collaborator of Schwartz, who had been associated with a public health section, could not help noticing the similarities between InVS's activities and those of the late DRMS.[88]

[84] On this "revolution", see Viviane Quirke, *Collaboration in the pharmaceutical industry: changing relationships in Britain and France, 1935–1965*, New York and Abingdon, Routledge, 2007, ch. 5.

[85] Berlivet, op. cit., note 49 above, pp. 83–8. Social epidemiology draws attention to the "social determinants of population distribution of health", N Krieger, 'A glossary for social epidemiology', *J. Epidemiol. Community Health*, 2001, **55** (10): 693–700, on p. 693.

[86] Tellingly, the investigation (supervised by Natalie Bajos and Alfred Spira, another of Schwarz's former collaborators) was organized in collaboration with the Institut National d'Etudes Demographiques (INED), which had never stopped surveying the French population on demographic issues. See *Population*'s special issue (vol. 48, no. 5), *Sexualité et Sciences Sociales: les apports d'une enquête*, ed. M Bozon and H Léridon, 1993.

[87] The Institut de Veille Sanitaire (Institute for Public Health Surveillance) was established in 1998; it took over from the Réseau National de Santé Publique (National Network for Public Health) created in 1992.

[88] See Pierre Ducimetière interviewed by J F Picard: "Il semble a *posteriori* que les missions de la DRMS n'étaient pas très éloignées de celles de l'InVS lors de sa création. En plus de la réalisation d'enquêtes *ad hoc*, la DRMS avait la responsabilité de

Meanwhile, the position of INSERM research units specializing in epidemiology and biostatistics, such as the twenty or so groups that came out of the successive partitions undergone by Schwartz's Unit 21, was not as auspicious as might have seemed. The closing of Le Vésinet had almost automatically changed their position within the configuration of disciplines represented at INSERM. Being among the few remaining proponents of the huge research field of public health could certainly count as an asset; at the same time, the fact that these units were the last remaining exponents of a field situated on the lower rungs of the (part implicit, part explicit) scientific hierarchy that prevailed in the research Institute made them an easy target for criticism by more powerful disciplines. In spite of Philippe Lazar's promotion as INSERM's Director General, in 1982, public health remained largely alien to the biomedical world.[89]

l'établissement de plusieurs statistiques de routine dont la statistique nationale des causes de décès [après 1968] qui est demeurée jusqu'à ce jour une activité propre de l'INSERM. Cependant les liens de la DRMS avec le reste de l'INSERM et particulièrement de sa direction générale se sont distendus parallèlement à la priorité donnée au développement de la recherche biomédicale."

http://picardp1.ivry.cnrs.fr/Ducimetiere.html; accessed 11 April 2008.

[89] In an interview with the author (24 Nov. 2005), Lazar made it plain that, as Director of France's main biomedical research institute, he could not afford to be seen to follow a private agenda when a global view of the field was paramount.