

DR MARC D'ESPINE'S STATISTICAL NOSOLOGY

by

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THE BACKGROUND

Nosologies, lists of diseases or causes of death, have been compiled from quite early times, usually in connection with medical research or teaching. The one illustrated and discussed here was constructed in Geneva by Dr Marc d'Espine during the first half of the nineteenth century for "statistical" purposes, that is, for the analysis of causes of death as registered in the Canton. In its time it was of some importance, for it was one of the two contenders for use as an international standard which were offered to the International Statistical Congress, which held nine meetings between 1853 and 1876. The other nosology was that presented by the Englishman William Farr.

Jacob Marc d'Espine was born in Geneva on 29 April 1806,¹ but his family later moved to Odessa.² From there he went in 1826 to Paris to study medicine, remaining until 1833.³ Afterwards he acknowledged his debt to two of the great Parisian teachers of the time: Gabriel Andral (1797–1872) and, more particularly, Pierre-Charles Louis (1787–1872). Indeed, in 1832, he was one of six Genevans among the thirteen members of Louis's 'Société Médicale d'Observation'⁴ devoted to the study of disease by "numerical analysis". Farr, who was nineteen months Marc d'Espine's junior, was coincidentally in Paris between 1830 and 1832 and mentions the same teachers.

In the late 1830s both men were independently analysing information on causes of death; and in the first account of his work, each explained how he had found existing nosologies unsatisfactory and had to construct one for himself.⁵ At the time they were the only two men in Europe carrying out such a task and both continued to do it successfully for many years. Others had tried and failed. As early as 1764, Frederick II of Prussia, prompted by Süssmilch,⁶ had such an exercise initiated, using fifty-six causes of

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¹ There are notes on Marc d'Espine's life in Constant Picot and Emile Thomas, *Centenaire de la Société médicale de Genève, 1823–1923: notice historique*, Geneva, Sonor, 1923, p. 129; and in 'Jacob Marc d'Espine', *Médecins suisses célèbres* no. 26, *Médecine et hygiène*, June 1978. Dr Roger Mayer of Geneva very kindly sent photocopies of these.

² M. Pierre Marc d'Espine kindly supplied this information on his family's history.

³ Erwin H. Ackerknecht and Heinrich Buess, *Kurze Geschichte der grossen schweizer Ärzte*, Bonn, Huber, 1975, p. 54; and Eduard-Rudolf Müllener, 'Genfer Medizinalstatistik und Hygiene in der ersten Hälfte des 19. Jahrhunderts', *Gesnerus*, 1964, 21: 162.

⁴ Erwin H. Ackerknecht, *Medicine at the Paris Hospital 1794–1848*, Johns Hopkins University Press, 1967, p. 104.

⁵ Marc d'Espine mentioned the nosologies of Stahl, Brown, Boerhaave, Cullen, Girtanner, Reich, Broussais, des Sauvages, and Pinel.

⁶ Jacqueline Hecht, 'La vie et l'oeuvre de Johan Peter Süssmilch', in Johan Peter Süssmilch, *L'ordre divin: aux origines de la démographie*, Paris, Institut national d'études démographiques, 1979, p. 123.

death, but had soon abandoned it. As late as 1831, the Swedish registration system gave up recording causes of death, apart from four specific causes, because of the unreliability of the information as reported by the clergy.⁷ Both Marc d'Espine and Farr were breaking new ground and although their results differed, one must not overlook the magnitude and importance of their achievement.

Marc d'Espine's work was restricted to the small canton of Geneva, but it was not unknown elsewhere, nor did he labour in isolation. There survive seventeen letters he wrote between 1845 and his death in 1860 to Adolphe Quetelet, the famous Belgian astronomer and founder of the International Statistical Congress.⁸ Louis-René Villermé, a well-known French writer on the effects of industrialization, presented a paper for him in Paris.⁹ Marc d'Espine continued to correspond with his former teacher Pierre-Charles Louis.¹⁰ Müllener attributes twenty-six publications to him.¹¹

In 1839, Farr published an analysis of causes of death based on the first six months of civil registration of deaths in England and Wales, that is from July to December 1837.¹² The following year saw Marc d'Espine's first report.¹³ It was, of course, on a far smaller scale: 1,323 deaths in a year in Geneva, against a hundred times that many in six months in England and Wales. In an appendix, he commented on the start of registration in England and Wales: "an immense step forward and one which does them the greatest credit". After summarizing Farr's results, he gave details of the nosological classification used, and criticized its main division of diseases into "epidemic" and "sporadic", preferring instead that of "acute" and "chronic". Nevertheless, he concluded that England could not have made "a better choice of a doctor to establish a statistical nosology than someone as enlightened as Dr Farr".

Farr replied promptly in a long footnote in the next *Annual report of the Registrar-General*.¹⁴ He described Marc d'Espine's work approvingly, but rebutted his criticisms of the nosology. Finally he suggested that should France start collecting information on causes of death, they could find no one better qualified to analyse it than Marc d'Espine. After this exchange each continued to use his own nosology, although when Farr revised his in 1842, he seems to have noted some of Marc d'Espine's suggestions, notably that tubercular diseases should form a single group, irrespective of site. On the other hand, he remained firmly opposed to the acute/chronic division. Marc d'Espine continued annual analyses with minor changes,

⁷ Erland Hofsten and Hans Lundström, 'Swedish population history', *Urval* 1976, 8: 44.

⁸ These letters are the property of the Académie Royale de Belgique in Brussels. I am most grateful for the Academy's permission to consult and use them, and also to the Leverhulme Research Trust for funding my trip.

⁹ 'Rapport verbal de M. Villermé sur un mémoire de M. Marc d'Espine intitulé "Influence de l'aisance et de la misère sur la mortalité"', *Séanc. Trav. Acad. Sci. morales et politiques*, 1847, 12: 242-8.

¹⁰ Private communication from Dr Roger Mayer, Geneva.

¹¹ Müllener, *op. cit.*, note 3 above, p. 163.

¹² William Farr, 'Letter', *First annual report of the Registrar-General of births, deaths and marriages in England*; [Parliamentary Papers, House of Commons Session 1839, vol. XVI, pp. 63-71].

¹³ Jacob Marc d'Espine, 'Essai statistique sur la mortalité du Canton de Genève pendant l'année 1838', *Annls Hyg. publ. Méd. lég.*, 1840, 23: 111.

¹⁴ William Farr, 'Letter', *Second A.R.R.G.*; [PP, 1840, XVII, Appendix, p. 8].

but publication was sporadic.¹⁵ They took the form of large, poster-sized sheets, like that illustrated here (see fig. 1, insert), although that for 1844–5 included an explanatory booklet in which he again complained about Farr's system. There is evidence that they exchanged publications.¹⁶

In September 1853, the two men met in Brussels at the first Session of the International Statistical Congress. "Cause of death" was not specifically on the agenda, although Marc d'Espine had written about the subject to Quetelet, who organized the session and its agenda.¹⁷ However, Congress passed a resolution that "there is a need to formulate a uniform nomenclature of causes of death which would be applied in all countries. This nomenclature, whose importance cannot be exaggerated, will be the subject of future studies and will be agreed at the next Congress".¹⁸ The two men were asked to agree upon and present a solution.

At that time Farr was well advanced in the preparation of a revised nosology which appeared in 1856 in the *Sixteenth annual report*, relating to 1853. He presented this to Congress with a long, similarly classified list of illnesses not normally fatal. This new nosology differed considerably from the earlier ones, but conceded nothing to Marc d'Espine's acute/chronic distinction. Marc d'Espine's contribution differed little from that presented in this article. Both forms were put before the Paris Congress in 1855 because, as the *Commission organisatrice* cynically remarked, "As perhaps could easily have been predicted, the two learned Doctors, having exchanged a certain number of written communications between London and Geneva, had to renounce any hope of agreement."¹⁹

However disagreement was not total. The "nomenclature," that is, the names by which the diseases were to be known, was agreed during the Session, and aided by Doctors Rayer, Bertini, Virchow, Meding and Hubertz, Marc d'Espine and Farr presented a concordance of 139 names of diseases in Latin, French, Italian, English, German, Swedish and Danish. The list was "classified" in the sense that it grouped causes of death roughly, but not in accordance with either of the two proposals: its two main classes were "well-defined diseases" and "incompletely-defined diseases". Congress left the choice of classification system unresolved.

The next session took place in Vienna in 1857. It seems probable that the *Tableau* presented here was intended as a contribution. The Austrian Preparatory Commission presented a paper which took neither side. Indeed they avoided the issue, or perhaps did not understand it. The matter was discussed fairly briefly. Marc d'Espine was not there, possibly because of illness, and Farr forebore to press the point. It must be admitted that at both Paris and Vienna there was considerable opposition to the

¹⁵ For example, the *Annuaire de la mortalité genevoise pendant l'année 1842*, and the *Annuaire de la mortalité genevoise, années 1844–45*.

¹⁶ Letter from Marc d'Espine to Quetelet, 24 Nov. 1853. Cf. note 8 above.

¹⁷ Letter from Marc d'Espine to Quetelet, 26 Aug. 1853. Cf. note 8 above.

¹⁸ International Statistical Congress, *Compte rendu des travaux du congrès général de statistique réuni à Bruxelles*, Brussels, 1853, p. 146.

¹⁹ Jacob Marc d'Espine, 'Projet de classification des causes de mort physiologiques, accidentelles et morbides, à l'usage de la statistique mortuaire de tous les pays; préparé pour le Congrès International de Statistique de Paris', *Compte rendu de la deuxième session du Congrès International de Statistique*, Paris, 1856, p. 133.

desirability, or even possibility, of a standard list of causes of death. Some doctors present argued that statisticians had no right to dictate to medical men; that even a purely medical congress would find it impossible to agree on such a list; and that it would be an obstacle to progress and an infringement of their freedom to name diseases as they chose. Again Congress reached no conclusion.

After the Vienna Session, presumably because the issue was still open, Marc d'Espine wrote an entire book to support his case.²⁰ In the introduction he gave three main reasons for writing. First, he pressed the need for '*médecins vérificateurs*' to check the causes of death entered by general practitioners. Second, he argued again for his nosology. Third, he tried to combat "the doubts manifested by some members [of Congress] of both the possibility and utility of the enquiry". He also pointed out that, however carefully observations were made in hospitals, as in Paris, or by general practitioners, they could not be compared with the total population at risk and therefore would not reveal aetiological factors. He hoped that his book would show that this information had already proved useful and important. The book is rather wordy but presents what is, given the limitations of the data, a remarkable analysis of causes of death and their background. The *Tableau* discussed here is dated earlier and bibliographers normally list it separately, but it may also be found folded in a back-cover pocket in copies of the book, which was presumably intended as a contribution to the Congress's fourth session in London in July 1860. Farr organized its agenda, but omitted cause of death, explaining that this had already been discussed sufficiently. In the event, this did not matter, as Marc d'Espine had died on 15 March 1860, four months before the session opened.

The International Statistical Congress held another five full sessions before its sudden collapse in 1878, but the subject of a standard international nosology was never raised again. Farr presumably felt it unnecessary to re-open the issue and no one else thought fit to challenge a system which was working well in Britain and was gradually spreading, if with considerable amendment, to other countries.

THE DOCUMENT

The *Tableau* in which the nosology appeared is reproduced as figure 1 (insert).²¹ As the history above has shown, it was the last of a series of similar tables, although this 1854–55 one was for a particular purpose. It is a handsome document, measuring 633mm by 944mm, possibly intended for display²² and probably produced by lithography. The top section, about a fifth of the whole, contains three elements: the title, describing its purpose and Marc d'Espine's qualifications for the task; the *Explication* (appendix A); and six subsidiary tables. These cover: the population at the

²⁰ The full title would appear to be: *Essai analytique et critique de statistique mortuaire comparée renfermant les monographies étiologiques des accidents et de la plupart des maladies mortelles et expliquant les lois générales de la mortalité des peuples, par les influences combinées des diverses causes de mort*, Paris, Joel Cherbuliez, 1858.

²¹ The photograph of the *Tableau* reproduced here was taken from that folded into the back of the copy of *ibid.*, in the Library of Glasgow University. I am most grateful to the Librarian for photographing it, and granting permission for publication.

²² This item is recorded as "Presented by H. M. The Queen. Sheet framed and glazed" in the Royal Statistical Society, *Catalogue of the Library of the Statistical Society of London*, London, E. Stanford, 1884.

census of 1843 and projected to 1855, births, marriages, the weather in 1854 and 1855, and the surface areas of various parts of the Canton.

The main section, below this, is not a conventional table but a statistical worksheet. At the left margin is a list of causes of death classified according to Marc d'Espine's nosology. In the centre are twenty-four columns, one for each month of the two-year period 1854–1855. In the spaces representing each combination of cause of death and month are symbols, one for each death recorded, showing the characteristics of the deceased. The system is explained in the *Explication* (appendix A). In this way it is possible to discover, for any death, its cause and the aetiological factors: the month of occurrence, and the age, sex, residence (urban or rural), and occasionally relative affluence of the deceased. At the right margin and underneath the table, are, finally, the totals from the rows and columns of symbols. Curiously, the row totals are given for individual causes of death only. Despite the grouping of causes used in the nosology, there is no attempt at aggregation.

It is clear from its title that this presentation formed part of Marc d'Espine's submission. Individual details for each death were given because, as he wrote in the explanation, this "facilitated the derivation of all imaginable secondary tables". He presumably used this layout to construct the tables in his own book, but this option was also available for others.

The *Tableau* can be criticized for its rigidity. It would be difficult to use if replicated many times, as Marc d'Espine suggested for larger countries, or divided, as it would need to be if information were presented for a number of small areas within a country rather than with the broad urban/rural division indicated here. It would seem impractical to introduce such new forms of personal classification as occupation, the effect of which Farr was already investigating.

We do not know much about the ways in which large amounts of data were handled in the days before mechanical counting machines. Sheets of this size were certainly used and, as Marc d'Espine himself showed in the *Essai analytique*, analyses of remarkable complexity could be made. The system itself had been used for many years, and must therefore have seemed satisfactory for a population the size of Geneva's. The *Tableau* is ingenious and elegant, although possibly expensive to print. It was certainly admired and used by contemporaries.

In the *Explication*, Marc d'Espine also mentions that each death was classified on the basis of two reports, one from the deceased's own doctor and one from a "visiting" doctor. Both at the Congress and in his writing he insisted on the need for such verification. The small numbers of deaths in Geneva and the opportunity to discuss individual cases no doubt revealed how often disagreements took place. Marc d'Espine was therefore not proposing merely a nosology, but also a system of gathering information on cause of death and a form of presentation which would facilitate its analysis.

THE NOSOLOGY

The "numerical method" practised in Paris was confined to information on hospital patients and therefore needed large institutions. These did not exist in "little" Geneva,²³

²³ Ackerknecht and Buess, *op. cit.*, note 3 above, p. 54.

so Marc d'Espine turned to the population as a whole. The registration system in Geneva, established over three hundred years earlier, worked well, although it made no direct provision for recording causes of death. As mentioned above, Marc d'Espine obtained these by getting two reports on each death registered, one from the deceased's practitioner and another from a "visiting doctor". In a town the size of Geneva, with about 1500 deaths a year, it was possible to discuss individual cases and indeed to involve his colleagues in the construction of a nosology. In this way, the nomenclature of causes was allowed to evolve without any predetermined doctrine.²⁴ He himself tells us that he was at first reluctant to formalise his system, preferring to let it develop in response to medical needs. He was later to write, however, that "the nomenclature of fatal diseases must be set up in advance and known to all doctors".²⁵ In the event, the classification grew from an initial 90 items to 143 items in 1855.

Farr's situation differed greatly. We do not know exactly when he was appointed, but on arrival in the General Register Office, or soon after, he must have been faced with a great mass of certificates (150,000 in the first six months) on which causes of death, sometimes diagnosed by a doctor, sometimes guessed by an informant, were entered. His first hurried attempt to sort these into a systematic nosology was soon replaced when, after discussion with the medical profession, a more considered version was constructed. Fifteen years later a third version, the result of increased experience and medical knowledge, was introduced and this was the one presented to the International Statistical Congress. Towards the end of his forty-year tenure of office he experimented with a fourth, based on the ideas of the Royal College of Physicians.²⁶ Once in use, a nosology was seldom subject to major amendment. With over 300,000 deaths a year, the practical problems of training and overseeing coding clerks were immense.

It will now be useful to follow Congress's example and consider separately the 'nomenclature', or terminology used, and the 'classification' or method of grouping. Full details of the former are in figure 2 and appendix B. At the Paris session of 1855, as mentioned above, doctors from six countries were able to agree on this nomenclature in their various languages. They seem to have worked primarily on the basis of the Geneva list—most of the doctors present probably found Marc d'Espine's French more familiar than Farr's English, and thought Marc d'Espine the more qualified of the two. The fact that this degree of agreement was possible suggests that the Genevan and English terminologies were reasonably compatible and made sense to doctors elsewhere. They contained roughly the same number of entries. Indeed the words used by Marc d'Espine, while sometimes old-fashioned, are seldom obscure even today.

²⁴ Marc d'Espine, 'Essai statistique', op. cit., note 13 above, pp. 13, 102, 118; Müllener, op. cit., note 3 above, p. 167.

²⁵ Marc d'Espine, *Essai analytique*, op. cit., note 20 above, p. 121.

²⁶ John M. Eyler, *Victorian social medicine. The ideas and methods of William Farr*, Baltimore and London, Johns Hopkins University Press, 1979, pp. 53–60. Farr explained his position at length in his 'Letters' to the *Annual reports*, especially in the *First*, *Fourth*, *Fifth*, and *Sixteenth*, and in his paper to the Paris session: 'Projet de classification [des causes de mort physiologiques, accidentelles et morbides]', *Compte rendu de la deuxième session du Congrès International de Statistique*, Paris, 1856, pp. 147–68. For comments on both

There is one general difference in the terminology, namely Marc d'Espine's use of two- and three-word entries, against Farr's single word ones. Sometimes this is difficult to explain. Why "*tétanos spontané*" and "*epistaxis en particulier*" when no other forms of *tétanos* or *epistaxis* are listed? In other instances, Marc d'Espine's terminology seems to reflect his ideas. Thus, by making the primary distinction between "chronic" and "acute" in the classification, he was forced to use these words in many of his entries. However, it is probably correct to say that, with possible minor exceptions, both tables contain all the main causes of death as distinguished at the time, without redundant entries. Differences in the number of entries used, and the form they took, seem to have arisen from the classification systems used, from differences in the characters of the two men and from the systems whereby the information on cause of death was collected. Fifteen years of experience indicated that in both places doctors were able to supply information on what caused their patients to die in a form which could be entered into the respective nosologies. Doctors present at the Congress suggested that this was true elsewhere, in towns if not in the country. Despite the minor differences in terminology, it was therefore possible for a group of doctors, led by Marc d'Espine and Farr, to put an agreed nomenclature before the Congress for its approval. It was Marc D'Espine who presented this and moved its adoption.

The classification was a different matter, for here the two nosologies differed widely. Marc d'Espine proposed grouping causes of death in eight primary classes (see appendix B for details):

- I Still births
- II Indeterminate deaths
- III Violent deaths
- IV Deaths by morbid accidents
- V Deaths from acute diseases
- VI Deaths from chronic diseases
- VII Congenital malformations
- VIII Old age

There was no real difficulty with groups I, II, III, VII, or VIII. It was in the field of "morbid causes" that the differences lay. Part III of the *Essai analytique*, which is devoted to these, gives a clear account of Marc d'Espine's views. "The duration" he wrote "and the nature—simple inflammation or specific—of morbid causes of death are the two ideas upon which my whole classification of fatal diseases depends".²⁷ "Duration" he divided into three types: deaths from morbid accidents, that is sudden but not violent deaths (group IV); deaths from acute diseases (group V); and deaths from chronic diseases (group VI). He defines "acute" as lasting "several hours, days or weeks" and "chronic" as "some months or years".

Marc d'Espine adhered firmly to this primary system of classification by duration. Müllener suggests this was Genevan practice.²⁸ "The first question—how did this death occur? accident? accident-like occurrence? acute or chronic sickness?"

nosologies by a not uncritical friend of Farr, see H. W. Rumsey, *Essays and papers on some fallacies of statistics* . . . , London, Smith, Elder & Co., 1875, ch. 1.

²⁷ Marc d'Espine, *Essai analytique*, op. cit., note 20 above, p. 121.

²⁸ Müllener, op. cit., note 3 above, p. 169.

Interestingly, W. P. Alison, a Scottish doctor, made a similar proposal when criticizing Farr's first nosology. Müllener points out that until 1800 most Genevan doctors had trained in Edinburgh, and that Genevan medicine in Marc d'Espine's time was a "synthesis of Anglo-Saxon and French ideas".

MARC D'ESPINE'S ACUTE AND CHRONIC DISEASE CLASSIFICATIONS

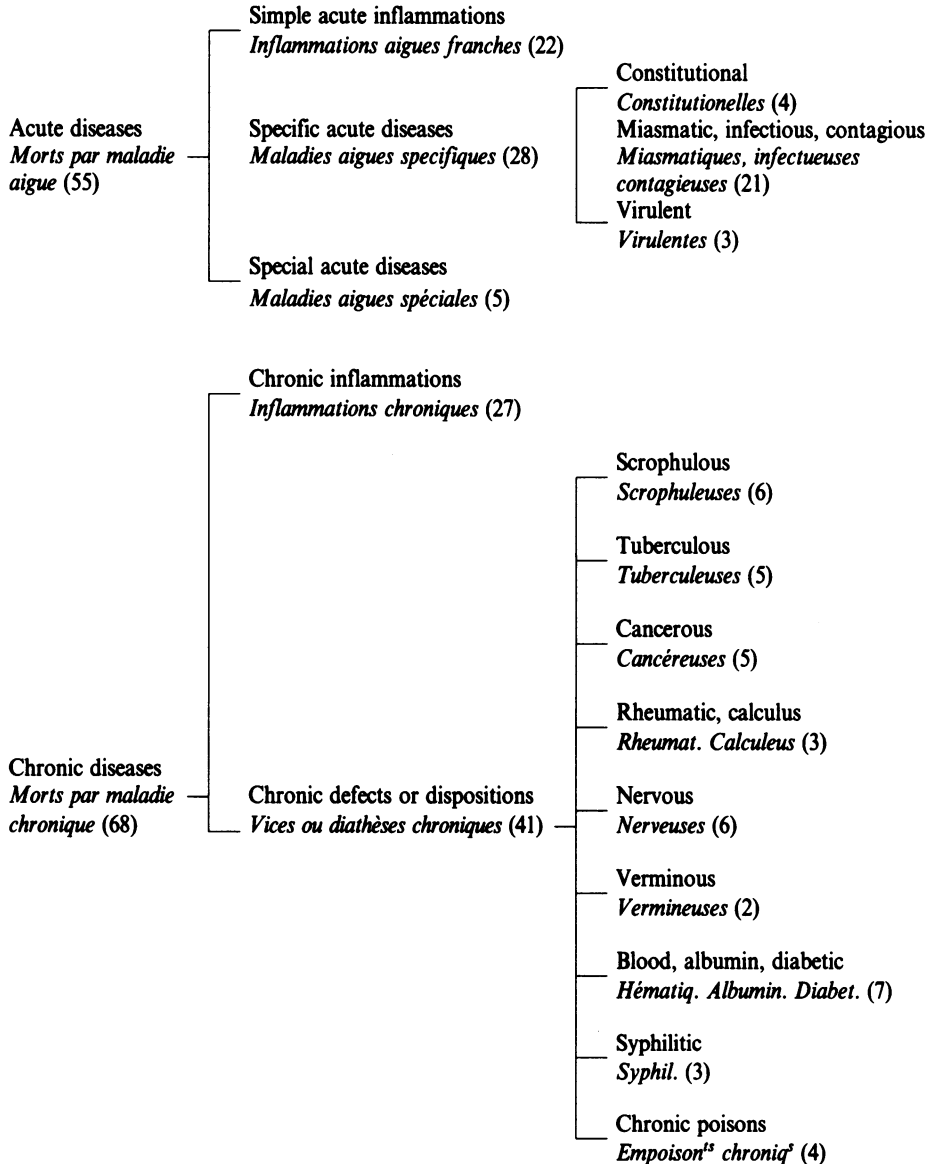


Figure 2

Acute and chronic diseases were further sub-divided according to the system shown in figure 2. One sub-group is common to both acute and chronic diseases. This is "inflammations" which are "diseases peculiar to each of the functions or parts of the body . . . and which a mechanical or chemical irritation can reproduce artificially". These "have as many forms as there are functions or organs". In the classification, there are twenty-two acute, and twenty-seven chronic inflammations. Each relates to a separate function or organ of the body, although this is often specified through the name of the disease, for example "nephritis" rather than "inflammation of the kidneys."

The other large sub-group in the group of acute diseases is called "specific diseases". Marc d'Espine explained that "it is impossible to reproduce these by irritation". This sub-group is sub-divided in turn. Most of the "specific acute diseases", (twenty-one out of twenty-eight) are entitled "miasmatic, infectious and contagious"; these are essentially the "infective and parasitic diseases" of the present international classification. Both Marc d'Espine and Farr had very similar lists in this section. Farr called such diseases "epidemic, endemic and contagious" in his submission to the Paris meeting. This was the era of the great miasma controversy, when the ways in which these diseases were caused and spread were hotly debated. In their nosologies, both men seem to have avoided committing themselves.²⁹ Besides this large sub-division within "specific acute diseases", Marc d'Espine had two smaller ones: "constitutional" and "virulent". There is also a small sub-group of "special acute diseases", mainly concerned with childbirth.

Among chronic diseases, those not subsumed as inflammations, namely the "chronic defects or dispositions", were divided into nine sub-divisions, starting with the "scrophulous", "tuberculous", and "cancerous". These pathological conditions are recognized, broadly speaking, today. Within each sub-group the diseases listed mainly relate to site. A rather unexpected entry is "chronic poisons". Curiously, the *Essai* mentioned one further type, "psoric [itches] and herpetic" (*psorique et herpétique*), not included in the *Tableau*.

In describing his system, Marc d'Espine made a number of comments which help to explain why he and Farr came to adopt such different methods of classification. For Marc d'Espine, both "epidemic, endemic and contagious diseases" and the "site" played a minor role, because his Paris training in pathological anatomy had led him to concentrate on pathological aspects. In the *Essai analytique* he wrote that it was "impossible to find a differential element more important pathologically, more in accord with modern medical philosophy and at the same time more discriminating, more practical, more easily applied and more favourable to aetiological research than that which I have adopted for dividing acute diseases into two groups".³⁰ Commenting on the figures for 1844–5, he stated that "General causes act differently according to the nature of the disease rather than according to the organs affected." He particularly objected to the use of "epidemic" or "sporadic" as a form of classification, writing that one must not "attribute in advance and irrevocably to every disease an epidemic or sporadic label without knowing whether one day a certain disease, whether acute or

²⁹ Eyler, *op. cit.*, note 26 above, ch. 5, discusses Farr's views on this.

³⁰ Marc d'Espine, *Essai analytique*, *op. cit.*, note 20 above, p. 137.

chronic, will not be found to be epidemic in a certain country under certain conditions but sporadic in another country where these conditions do not apply".³¹

For Farr the priorities were quite different. Of his "epidemic, endemic and contagious", or "zymotic", diseases he wrote in his first 'Letter' to the Registrar-General that they were "the index of salubrity", and that of "the utility of keeping this class of disease distinct in a practical sanatory report there can be no question".³² In submitting his proposed nosology to the Paris meeting he commented at length: "They decimate armies, they destroy fleets, in ravaging prisons they kill men who often justice has not condemned", but essentially "they are . . . in some way under public control and it is possible to arrest their development by a combination of well-conceived sanitary measures."³³ For Müllener, Farr's nosology was "for studying public health", Marc d'Espine's was a "research instrument".³⁴ Despite the latter's claim in the *Explication* to have based his classification on aetiological principles, the classification was essentially pathological. The difference of opinion stemmed from a fundamental difference of approach and was never resolved.

Marc d'Espine and Farr had both given much thought to the systems they were proposing, and which had been in use in their countries with worthwhile results for many years. Both nosologies contain quirks, but each was governed by a sound internal logic. The differences were very clear to the two men, but less so to others, even in Paris where the local organizers did not provide an agenda paper themselves, although they were shortly to publish some statistics based on their own nosology.³⁵ At the Vienna session there was great confusion. One can wonder whether, if Marc d'Espine's system had been chosen, it would have survived the changes which were to come in medical knowledge. One cannot deny that it was a serious contender for submission to the Congress.

THE AFTERMATH

Although the International Statistical Congress did not discuss nosologies after Marc d'Espine's death, the publicity the debate had caused amongst statisticians, and the general recognition of the need for better information for medical and public-health purposes, led to the collection of cause-of-death statistics in a growing number of countries. The difficulties which arose were seldom those of classification. Around 1860, the very active Paris Statistical Office regretted that the "results of their effort were too often paralysed by the obstinate refusal of a notable part of the medical profession".³⁶ It was only in 1906 that all French doctors not without some reluctance, accepted their responsibility to report cause of death.³⁷ The Belgian system started in

³¹ *Ibid.*, p. 138.

³² Farr, 'Letter', *First A.R.R.G.*, op. cit., note 12 above, p. 93; quoted in Eyler, op. cit., note 26 above, p. 55.

³³ Farr, 'Projet de classification', op. cit., note 26 above.

³⁴ Müllener, op. cit., note 3 above, p. 172.

³⁵ *Statistique de la France*, second series, vol. XI, *Mouvement de la population pendant les années 1858, 1859 et 1860*, Strasburg, 1863. Their nosology, like Farr's, covered first "fevers", and was thereafter mainly based on site. It had 178 categories.

³⁶ *Ibid.*

³⁷ Jean-Noël Biraben, 'Sur la population française au XVIIIe et XIXe siècles', in *Hommage à Marcel Reinhard*, Paris, Société de Démographie Historique, 1973.

1867 with 116 categories, but these were reduced to thirty-three in 1874, because of problems of collection.³⁸ Many English-speaking countries, among them the British colonies, followed Farr, or his successor William Ogle's amended version.

In 1893 the matter of an international classification was again raised, this time in the International Statistical Institute, an organization set up in 1885 to replace the Congress which had collapsed seven years earlier. The proponents were the father and son L. A. and J. Bertillon, working in the Paris Statistical Office. Although they did not acknowledge it, Farr's system provided the basis of their proposal.³⁹ The resulting International Classification, now in its ninth revision, starts with "infectious and parasitic diseases", moves to the "neoplasms" of all sites, and then groups diseases entirely by site, thus firmly following Farr's original. Perhaps for this reason, Marc d'Espine's nosology looks curiously clumsy and old-fashioned today.

³⁸ Belgium, Ministère des Affaires Economiques, *Démographie de la Belgique de 1821 à 1939*, Brussels, 1943, p. 193.

³⁹ Michel Dupâquier, 'La famille Bertillon et la naissance d'une nouvelle science sociale: la démographie', *Population*, 1984, no. 2.

APPENDIX A

MARC D'ESPINE'S EXPLICATION

Each symbol separated from the following one by a comma indicates a death. Its position indicates the year and month when it took place and the accidental or morbid cause which produced it. The symbols with a circumflex (eg. m.Ķ) relate to deaths of inhabitants of the town of Geneva: those without a circumflex to those of inhabitants of the rest of the Canton. The number in the symbol designates the age of the deceased in years if no letter follows and in months, weeks, days or hours if it is followed by the letters *m*, *s*, *j* or *h*. The letters *m* or *f* which precede the number indicate the masculine or feminine sex and the letter *r*, which precedes the letter indicating sex in some instances, means death of persons who had lived all their lives in wealth or great affluence.

I must make it clear that the nomenclature of causes of death conforms in detail and as a whole to that which was agreed at the International Congress at Paris. I have confined myself to classifying the main divisions of types of morbidity according to the aetiological principles whose adoption I proposed to Congress, but on which they did not wish to come to a definite decision, postponing to the next session the adoption of a classification of fatal diseases. As it stands the table lends itself to all statistical research on deaths which relates how conditions of age, sex, seasonality, place of residence and degree of affluence or social position affect various fatal diseases or accidents.

I therefore put forward my table as a specimen for reports on mortality in the various states which have adopted the nomenclature of causes of death decreed at the Paris session. Its layout combines clarity, accuracy and brevity with the advantage of allowing the derivation from the report of all imaginable secondary tables. One can concentrate into a table of the present size the annual deaths in a population of 150,000 souls. Belgium and Piedmont could include all their annual deaths on twenty-five such sheets, Bavaria and Prussian on 100 sheets and France on 200, and such tables would allow all desirable research without the necessity of going back to original data. In this way the original facts are copied and laid out in a manner which concentrates them in the smallest possible space and in an order which allows any part to be extracted with a great economy of time.

The extraction of information from medical notes which has permitted the construction of this table has been done with great care and after the examination of two reports given in each case by the medical practitioner and a visiting doctor. My honourable colleague and friend Doctor Duval has gladly carried out this extraction with me, and I take the opportunity of expressing my gratitude.

APPENDIX B

MARC D'ESPINE'S FULL NOSOLOGY, AS USED FOR 1854-1855

MORTS-NÉS

1. Mort-nés

MORTS INDÉTERMINÉES

2. Morts indéterminées

MORTS VIOLENTES

3. Suicide 4. Homicide 5. Exécution juridique 6. Accidents involontaires 7. Mort violente de cause inconnue

MORTS PAR ACCIDENTS MORBIDES

8. Apoplexie cérébrale foudroyante 9. Apoplexie pulmonaire 10. Syncope 11. Hémorragie foudroyante 12. Epistaxis en particulier 13. Mort subite

MORTS PAR MALADIE AIGUE

INFLAMMATIONS AIGUES FRANCHES

14. Meningo-Encephalite franche 15. Myélite aigue 16. Péri et endo-cardite aigue 17. Artérite gangrène senile 18. Oedème de la glotte 19. Bronchite et Bronchiolite aigue 20. Pneumonie 21. Pleurésie aigue 22. Glossite aigue 23. Mugeut et aphtes essentielles 24. Gastrite aigue 25. Entérite aigue 26. Pérityphlitis 27. Péritonite aigue franche 28. Iléus et invagination 29. Hernie étranglée 30. Hépatite aigue 31. Néphrite aigue 32. Cystite aigue 33. Métrite aigue (non puerpérale) 34. Phlegmon (voies urinaires) 35. Phlegmon local quelconque

MALADIES AIGUES SPECIFIQUES

Constitutionnelles

36. Céphalite et meningite tuberculeuse 37. Tuberculisation aigue 38. Croup membraneux (endémiq. sans dypht.) 39. Rhumatisme aigue

Miasmatiques, infectieuses, contagieuses

40. Variole (naturelle) 41. Varioloïde (après vaccine) 42. Miliare (suette) 43. Rougeole 44. Coqueluche 45. Scarlatine 46. Angine dyphtéritique 47. Stomatite gangreneuse (noma.) 48. Oreillons 49. Fièvre intermittente 50. Fièvre remittente des enfants 51. Fièvre typhoïde 52. Grippe ou Influenza 53. Dyssenterie 54. Choléra indigène 50. Choléra asiatique 56. Choléra infantile 57. Pyémie et Phlébite 58. Tétanos spontané 59. Erysipèle 60. Anthrax

Virulentes

61. Pustule maligne. Charbon 62. Rage 63. Morve

MALADIES AIGUES SPECIALES

64. Avortement (suites) 65. Accouchement (suites) 66. Fièvre puerpérale 67. Eclampsie de la grossesse 68. Scléreme

MORTS PAR MALADIE CHRONIQUE

INFLAMMATIONS CHRONIQUES

69. Inflammation cérébrale chronique 70. Paralyse 71. Myélite chronique 72. Paraplégie 73. Maladie organique du coeur 74. Maladie organique des gros vaisseaux 75. Pneumonie chronique 76. Pleurésie chronique 77. Hydrothorax

Tableau Général des Décès du CANTON de GENÈVE pour les années 1854 et 55,

Classés d'après la nomenclature des causes de mort adoptée au Congrès International de Statistique de Paris. Proposé comme spécimen aux divers États qui ont été représentés au Congrès par le Doct. Marc D'Espine.

Année Nombre du Conseil de Santé de Genève et Rapporteur au Congrès de Paris sur la statistique nosologique de mortalité.

Explication. Chaque formule typographique de cette table qui se voit par une règle désigne un décès... La position indiquée l'année, le sexe et le lieu de la cause accidentelle ou mortelle qui l'a produit... Le tableau avec un cercle (C) est relatif aux décès de la cause accidentelle, celle sans aucun signe... à cause des habités du reste du Canton... à cause de la forme désignée l'âge du décès... le nombre d'années et le nombre d'années de la cause... le nombre de jours qui précèdent le décès... le nombre de jours qui précèdent le décès... le nombre de jours qui précèdent le décès...

Renseignements statistiques sur le Canton de Genève, relatifs à l'état et au progrès de la mortalité.

Tableau de la Population du Canton de Genève		
Années	Hommes	Femmes
1854	7524	7524
1855	7524	7524

Tableau Nosologique d'après les observations relatives à l'Observatoire de Genève en 1854 et 1855.

Nomenclature	1854		1855		1854-55	
	1854	1855	1854	1855	1854	1855
Fièvre typhoïde	12	15	10	12	22	27
Choléra	5	8	4	6	9	14
...

Nomenclature	1854		1855		1854-55		1854		1855		1854-55		1854		1855		1854-55	
	1854		1855		1854-55		1854		1855		1854-55		1854		1855		1854-55	
	1854	1855	1854	1855	1854	1855	1854	1855	1854	1855	1854	1855	1854	1855	1854	1855	1854	1855
Morts-nés	7	7	7	7	14	14	7	7	7	7	14	14	7	7	7	7	14	14
Morts interminables	3	3	3	3	6	6	3	3	3	3	6	6	3	3	3	3	6	6
Morts violentes	6	6	6	6	12	12	6	6	6	6	12	12	6	6	6	6	12	12
Morts par accidents mortels	10	10	10	10	20	20	10	10	10	10	20	20	10	10	10	10	20	20
Morts par maladie aiguë	100	100	100	100	200	200	100	100	100	100	200	200	100	100	100	100	200	200
Morts par maladie chronique	100	100	100	100	200	200	100	100	100	100	200	200	100	100	100	100	200	200

FIGURE 1: Marc d'Espine's table of the nosology and details of deaths in Geneva, for 1854-55, reproduced with the permission of the Librarian, Glasgow University Library.

78. Catarrhe ou bronchite chronique 79. Emphysème pulmonaire 80. Asthme
81. Calculs biliaires 82. Hépatite chronique 83. Ictère 84. Tumeurs abdominales
85. Tumeurs des ovaires 86. Ascite 87. Entérite chronique 88. Diarrhée
89. Maladies de la Rate 90. Néphrite chronique 91. Cystite chronique
92. Maladies de la Prostate 93. Hydropisie 94. Gangrène 95. Polypes

VICES OU DIATHESES CHRONIQUES

Scrophuleuses

96. Scrophules 97. Tumeur blanche 98. Maladie de Pott 99. Rachitisme 100. Goitre
101. Crétinisme

Tuberculeuses

102. Phthisie tuberculeuse 103. Péritonite tuberculeuse
104. Entero-mésentère tuberculeuse 105. Autres tubercules partiels
106. Diathèse tuberculeuse

Cancereuses

107. Cancer: bouche, phar. oesoph. face, sens
108. Cancer: gastr. pancr. intest. rect. foie
109. Cancer: utérin, vessie, scrot. test. penis
110. Cancer: sein, côtes, gland. cerveau, membres
111. Diathèse cancéreuse

Rhumat calculeus

112. Rhumatisme chronique 113. Goutte 114. Calculs vess. reins

Nerveuses

115. Hystérie 116. Chorée 117. Epilepsie 118. Diathèse convulsive
119. Asthme thymique 120. Aliénation

Vermineuses

121. Vers 122. Hydatides

Hématiq. Albumin. Diabet.

123. Scorbut. 124. Purpura 125. Fongus hématodés 126. Anémie 127. Chlorose
128. Albuminurie 129. Diabète

Syphil.

130. Syphilis, ulcér. larynx, pharynx 131 id. exotoses, caries
132. id. autres sympt. consécutifs

Empoison.^{ts} chroniq.^s

133. Iodisme 134. Alcoolisme. Délirium tremens 135. Autres Saturations
136. Febris afame. Inanit. chronique

MORTS PAR VICE DE CONFORMATION OU DEBILITE CONGENIALE

137. Faiblesse congéniale 138. Hydrocéphalie 139. Cyanose 140. Spina bifida
141. Imperforation de l'anus 142. Autres vices de conformation

MORTS PAR VIEILLESSE

143. Marasme sénile