The Development of Cause-of-Death Classification in Eighteenth Century Sweden. A Survey of Problems, Sources and Possibilities

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Introduction

The cause-of-death statistics serve several different but closely related functions. In these statistics we have an important source of information for both medical and social research. Firstly, the statistics serve a descriptive function by providing information about the cause-of-death panorama, secondly it may generate hypotheses for epidemiological studies and other research, and furthermore the statistics are used for health political and social political purposes. Thus the cause-of-death statistics are of utmost importance not only as far as medical questions are concerned but also in social and political connections.

What kind of information do the causes of death provide? Recent research has shown that the cause-of-death statistics in fact involve a long row of qualified scientific problems of both medical and philosophical character and that we can not be certain of the reliability of the diagnoses given, their value of information and so on. An important question so far is the problem of selecting the principal cause of death and to determine how complications and other contributory causes should be recorded.[1]

When studying the state of health in a population in a historical perspective we usually use a mortality statistics which are based upon specific causes. That goes for both historical epidemiological studies and the historical demographic research. In that respect Sweden provides unique possibilities to research as we have from the middle of the eighteenth century a nationwide cause-specific statistics, up to the early nineteenth century including Finland, integrated within the well known vital statistics.

It is natural that our information about the growth or decline in a population or the occurrence of a specific disease or different diseases must build upon the cause-specific statistics and that this information must be based upon a quantitative analysis. From a historical perspective however, other questions are pertinent, such as: on what foundations are the cause-of-death statistics based? Wherefrom is the basis of divisions of diseases and injuries

derived, and how has this classification changed over the time? What factors, external as well as internal, have contributed to this development? What kind of problems was the classification of cause of death afflicted with? Can comparisons be made with other countries, and if so, in what way is Sweden related to the international development?

The purpose of this paper is to give a brief orientation of an ongoing study and the possibilities to follow the development of the cause-of-death classification in Sweden with special concern to the questions named above. The period we are going to take a closer look at, is the time of the birth of the oldest Swedish cause-of-death statistics at the middle of the eighteenth century. We are also going to consider some of the questions to put, as to the in many ways intensive development that took place from 1860 to 1911.

The problems, sources and possibilities that are here outlined, I am at present investigating as a specific research task.[2] A central aim is to elucidate the conceptual foundations of cause-of-death statistics and how these have developed from the beginning in 1749 up to 1948, when Sweden joins the international collaboration work concerning causes of death. Consequently, this investigation deals with the development of cause-of-death statistics on a general level, not on the individual level, i.e., I am not studying the lethality in a specific disease, which requires an investigation of the death-books, the primary sources of the vital statistics. As it is not the factual mortality or the occurrence of certain diseases that are to be ascertained, this work differs from demographic investigations regarding aims, sources and methods. However, the results from the demographic research are important for such investigations. The primary sources, i.e., the death-books, ought to be used anyhow as a material of a comparative character. We will come back to that later in this paper.

Before we go further on, attention should be drawn to some basic problems. Even though the conceptual basis is in the centre of interest, we must not forget that organized statistics of this kind, always tend to respond to some kind of demands from the society. In Sweden in the middle of the eighteenth century the leading politicians were in demands of a complete view over the population, its size and conditions of health.[3] Due to the mercantilistic doctrines, a large and healthy population which was able to perform a productive work in the service of society, was tantamount to the wealth of a nation. In order to restrain the feared high mortality, a dangerous threat to the mercantilistic program, a basis for health political considerations was needed. This in turn was necessary for organizing and giving priority to preventive measures of different kinds. Naturally, any health service requires some kind of organized picture of the causes of ill health, and a prerequisite therefore was a general view of the diseases people died of. This demand was to be met by the cause-of-death statistics. Here we have a social condition and a social demand.

The impact of the results of the mortality statistics on health policy in

Sweden around the middle of the eighteenth century was of course enormous. A nationwide health organization was firmly established, and well organized with proportionally enlarged resources. Medical questions were discussed as problems of utmost economic and political value. Much stress has been laid upon the fact that mercantilism in this respect was fruitful for the development. In other words, that rather crass, economic principles drew attention to the medical scene. On the other hand, the increased knowledge about the cause-of-death panorama and mortality trends led to a deeper insight into the health conditions of the population, which together with the contemporary initiatives taken as to establish a Swedish epidemiology in the long run nourished not only social medical thinking in general, but also in connection to that growing humanitarian insights and ideals. Therefore, the history of cause-of-death statistics would benefit from being treated in a history of ideas context, where the social and political conditions will be paid attention to, and where references also will be made to functions and consequences for medicine and society.

Let us focus some other problems too. A statement of cause of death can in itself also be a definition of a certain disease category. But what then is a disease? Which are the factors that constitute its specific nature as a disease in relation to our conception of health? We know that our ability to discover and to identify a disease is dependent on the time and the society in which we are living. This of course also concerns our ability to diagnose the diseases and to treat them successfully. The cause-of-death statistics therefore reflect not only the connection between disease and society but also, and naturally, the scientific standards of the time, as well as attitudes and opinions to death and disease. A statement of cause of death is furthermore not only a definition of a disease category, but also a choice between different diseases. This ability to differentiate between various diseases is also of course due to certain factors. A precondition for discussing the nature and division of disease in terms of this, is of course a generally accepted form of conception, i.e., a nomenclature and a classification of diseases. The history of cause-of-death statistics is therefore intimately linked with not only the history of diseases but also with the history of disease classification and must be treated in these contexts. Nowadays, there is a generally applied uniform basis of division, the International Classification of Diseases (ICD), prepared by the World Health Organization, which consists of 17 different classes of diseases, injuries and causes of death. The ICD also contains rules for its application, for how the death certificates should be filled in, and how the causes of death should be registered in the statistics.[4]

From the historical perspective however, several questions may thus be posed. Regarding the situation during the eighteenth century, some of these I would like to put are: what or which kinds of "classification" were then used? Were there any distinction between causes-of-death classification and classification of diseases in general, so that there were two parallel systems

side by side? Is it possible to study the selection of categories for the cause-of-death statistics during the eighteenth century compared to the contemporary conceptions of the disease panorama, and if so, what sources should then be used? In what way is it possible to study the reflections of the social and scientific conditions and demands?

The conditions for answering these questions will be discussed below; it should be mentioned though that no final results will here be presented, nor is there any claims laid to completeness, but the main purpose is to give a general outline of how the development of cause-of-death statistics can be investigated.

The eighteenth century background: no uniform classification of diseases

When cause-of-death statistics were initiated in Sweden during the middle of the eighteenth century, there was no uniform classification of diseases to start from. This lack of uniformity reflects the prevalent situation in the eighteenth century medicine. The first decades of the century in particular are often described as a period of crisis, characterized by conflicts between the old and the new and between different medical systems.[5] This split was very much a direct consequence of the great scientific revolution of the previous century.

The development of a mechanistic world picture of the scientific revolution had undermined the theoretical foundations of the prevailing medical philosophy, i.e., Galenism. When its theoretical basis, Aristotelianism, was threatened and superseded by the victorious mechanistic natural philosophy its dominating position was spoiled. In spite of this there were no great changes within medicine. The most remained within the old tradition. There was no all-embracing medical system to replace Galenism either. On the contrary, a new conflict, between on one hand a mechanistic conception on all organic functions and a vitalistic conception on the other, was soon established. The leaders of these schools soon worked out independent of each other, widely differing, very often rival systems, which was dominant from the end of the seventeenth century and during practically the whole of the eighteenth century. Within the framework of these closed systems all questions concerning the structure, the composition and the functions of the human body were to be solved and the view on diseases and how to treat them.

Initiatives were taken however, in trying to arrange and systematize the knowledge of diseases into very strict and uniform systems. During the eighteenth century the so called nosological systems based upon the symptoms of the diseases developed. However, none of these systems were to serve as a direct basis for the cause-of-death statistics. In spite of that, they can teach us a great deal about the medical world of the eighteenth century.

An important tradition leads from the English philosopher Francis Bacon (1561-1626), who had insisted upon a revival of the Hippocratic method to collect knowledge about different case histories and their different courses. Here

were possibilities to solve the problems within medical science: viz. to avoid the theoretical systems, and in order to attain reliable results, follow the recommendations given by Bacon and rely on the experience and the knowledge that was made up by collections of clinical observations and systematically try to bring order in a material like that. The great attention focused on the symptoms of the disease has different explanations. The possibilities to try to understand what was going on within the body were of course limited before the era of pathological anatomy and clinical research. Therefore they had to rely on suppositions based upon observable signs and examinations of the symptoms of the patient. Important impulses which supported the doctrines of symptoms were also Bacons assumptions that medicine only would prosper as a science if, besides collecting case-histories, comparisons concerning pathological changes in the different organs were carried out at postmortem examinations with the observed and registered symptoms that characterized the disease before its course to death.

But most of all it was the methods from botany that came to be of utmost importance for the symptomatological classification of diseases. The botanists of the time were still working in an Aristotelian tradition, that taught that every species were once and for all given by God or by nature in an eternal and unchangeable pattern of genera and species. Therefore the botanists would study the nature very intensively and from that learn how to discover the species and distinguish them from each other with the help of their characteristic qualities. Thereafter he could give them names and systematize them into the classification system given by nature. When transferred to medical data this had important consequences. In the same way the nosologists thought that they could reveal the natural order, in which the diseases were organized. Therefore one should get as much information as possible about what was characteristic of the different diseases. Here the study of symptoms was to become very useful.

An important intermediary was the English physician Thomas Sydenham (1624-1689) at the end of the seventeenth century. Inspired by both Hippocratic medicine and the Baconian tradition, he argued for a systematic description of the diseases made upon their characteristic features. He meant that one should classify diseases in the same way as the botanists were classifying plants. The starting point was the careful observations of symptoms, because exactly as plants reveal similar patterns in their characteristic features, diseases manifest themselves with the same symptoms, though they appear in different individuals.

However, these ideas were not to be carried out until the middle of the eighteenth century, in the famous nosological systems of Francois Boissier de Sauvages (1706-1767) and Carl von Linnaeus (1707-1778). Characteristic for these systems were that similar symptoms were made the basis of classification of the diseases, which were split up into classes, orders and genera exactly as within the botanical science.

At the turn of the century, several systems of nosology built upon the criteria of symptoms, the most famous of which was the one of William Cullen (1710-1790), had developed, and even during the first decades of the nineteenth century similar systems were formed. For most of the cause-specific mortality statistics that we have not only in Sweden but also in other countries, these very complicated systems were of minor importance.[6] That means, that there was no connection between the cause-of-death categories, used for the statistical table forms, and the different nosological systems, even though the cause-of-death categories also of course were symptomatological in their character. They existed separately with their different purposes and functions.

The organization of collecting causes of death and the design of table II

Before going any further, we shall just recall the main features in the organization of collecting causes of death in Sweden in the older period. In 1749 a continuous compilation of tables in a national level, the so called *Tabellverket,* was founded, initiating the systematic production of population data. In 1755 a Statistical Committee, the *Tabellkommissionen,* was established, a forerunner to the National Central Bureau of Statistics.[7] The information collected was to include not only the number of births and deaths but also the causes of death. The obligation to report population data was laid upon the parish clergymen, who were to fill in the information required into the table forms. This meant that they transmitted the information from the church books to the table forms. Since the year of 1686, a special church act had imposed making parish registration for all Christenings, marriages, and burials compulsory. The information requested concerning causes of death was to be tabulated on the local level in a separate table, the so called table II. This information later reached Stockholm through a well organized network of administration, and was there collected as to serve as basis for the decisions of the authorities. Twenty-five years later a revision took place and during the first decades of the nineteenth century the table forms were revised furthermore, without though any important change taking place concerning the administrative rules. In 1831 the clergymen were released from the task to fill in the causes of death, with the exception of deaths from childbirth, smallpox, suicide and some other specified accidents. This was the situation up to the middle of the century.

The reasons for introducing cause-of-death statistics in Sweden are already referred to, but should be emphasized as they were of vital importance for the preparation of the cause-of-death table forms. When planning the compilation of statistical data concerns about the state of health in the population, influenced by mercantilistic thought, called for a registration of the mortality in a separate table, where the annual number of deaths should be reported, divided into age, sex and causes of death. Several objections were raised to this

proposal, for example the clergy assumed ignorance of medical issues. The Swedish clergy that was to establish and record the causes of death, was not expected by the opponents to manage this task. Other critics urged that the cause of death should be registered, but that it should be sufficient with a common popular terminology well known to the clergymen.

The leading politician behind the proposal that more information on the causes of death was needed, was J.A. Lantingshausen (1699-1769). On the table form he worked out by himself, no specification was requested though; general observations concerning the diseases with a supposed high mortality rate should, however, be commentated. In the late 1740's, with assistance from the Royal Swedish Academy of Sciences, where a discussion concerning the need of a vital statistics and the necessity of specified table forms for that purpose had been going on for some time, a table form which was to cover the mortality-rate and the diseases people died of, finally was set up. The task was to be fulfilled by Abraham Bäck (1713-1795), who in 1746 at the request of Pehr Elvius (1710-1749), the secretary of the Royal Academy of Sciences, had promised to be helpful in this matter. Bäck was then a newly graduated doctor of medicine, who was later to become the head of the *Collegium Medicum,* the forerunner to the National Board of Health, for a period of almost fifty years. Even Linnaeus, who had just started to develop his own classification system, was asked by Elvius to contribute, a proposal he rejected as an impossible task, claiming the Swedish clergy was not educated in medicine and probably never would be.

Unfortunately we know very little about the final discussions and decisions that formed the complete version of the table forms. As to the table II, we can only draw conclusions from the discussions that led to its preparations and the design it finally got; 33 headings were here tabulated with their Swedish names, from which 21 were diseases and 12 were casualties, i.e., accidental deaths of different kinds.[8] The fact that the diseases and injuries there tabulated were stated by their Swedish names and in the way they were familiar for most people, must be seen as a way to make it easier for the clergy. Health political demands, and practical considerations taking into account the fact that the clergy was to state the cause of death thus directed the preparation and the design of table II.

Sources and areas of investigation

The question is how to form an idea of the basis for the medical terminology used. Here I would like to propose the following procedure. As there was no uniform, generally accepted and applied classification of diseases and injuries to start from, the terms must have been drawn from a wider medical terminology. In order to solve that problem, we have to take into consideration what kind of sources to use for this kind of investigation.

The medical literature, the basis for selection of causes of death and the roots of the terminology

Here one have to go through the medical literature of the time and take a closer look at their scope and character.[9] There are different kinds of works to go through, medical textbooks, the more popular handbooks, and what could be called treatises of a more informative character, concerning communicable diseases called attention to by the authorities. There are also smaller treatises about individual diseases and the way to treat them. Furthermore, there are medical advice and information of different kinds in calenders and prognostic literature. These sources provide rich possibilities of comparisons. Bäck, who was responsible for working out the table II, has probably taken it for granted that the selection of the diseases tabulated should be well known to the clergy. As Britt-Inger Puranen has shown in her thesis on tuberculosis in Sweden, they were very familiar with the terminology of the medical literature mentioned above.[10]

To form an opinion about the selection of cause-of-death categories for table II, it is therefore necessary to examine how these conditions were described in the literature. From these descriptions the same kind of diseases or states of diseases could also be found, though perhaps mentioned with other names or similar names in the literature. In that way the diseases, selected from the literature to be tabulated in the table could clearly be defined. To this must be added complementary knowledge from the smaller treatises concerning certain individual diseases in order to explain further, or to fortify the pictures of the diseases.

An important problem concerns the roots of the terminology. How long back in time could we trace the medical terms in table II? We know already that there are registered notes about causes of death from the time of the church act in 1686, and of course there are notes even earlier. With the help of the medical literature that we have from the seventeenth century and notes about causes of death in the church books, it would be possible to first trace the terms back in time, and then turn again and follow the terminology through the first part of the eighteenth century and into the table. In that way it would be possible to define the "life-length" of the terminology if the names of the diseases have altered and so on. This is how "old" the diseases are, that are tabulated in the table II. It is in this connection it would be valuable to make comparisons with the primary sources, i.e., the death- and burial registers in order to estimate the scope of the terminology. So far the material and the possibilities to follow the "birth" of table II.

Another area of investigation is to consider the new more comprehensive medical terminology used in the table II 1774, the year when the revised version was introduced. The main problem here is to compare the table forms of 1749 with the new one as to the presence and differences of the cause-of-death categories. Here we also have possibilities to follow the prerequisites, in form of medical literature concerning diseases, for working out the new table.

Valuable information is also given by Bäck himself, who stated clearly in which medical handbooks further information can be found about the conditions (the cause-of-death categories) used in the new table.[11] From these and other books the development of the conceptual basis can be followed in the way that was described earlier; i.e., by considering the selection of categories in the table form compared to the diseases mentioned in the handbooks, treatises and so on and thus identifying the "new" cause-of-death categories and their relation to the "old" terminology.

As to the sources of the medical terminology of table II, it would in this way be possible to repeatedly compare the content of the table with the medical terminology of the popular handbooks that tried to cover the current disease panorama. That goes for not only the table form of 1749 and 1774, but also with addition of more literary knowledge for the revisions of 1801 and so on up to the 1830's.[12]

The application field of the mortality statistics and the selection of categories

Next question in this investigation consequently deals with the problem of selecting causes-of-death categories from this more widespread medical terminology. Beginning with the table form of 1749, which, as we have seen, was to be applied for a period of 25 years, it is possible to conclude which disease categories that were included. What decisions then, lay behind this process of selection? Again I would like to recall the connection between medicine and society at the time of the erection of the vital statistics. Here we have to take into consideration the application field of the cause-of-death statistics, their principle purpose being to provide the political authorities with a basis for health political considerations, in a state of fear that the population growth was to decrease due to the assumed high mortality. As was mentioned above, we lack foundations for the decisions which lay behind the concrete and final version of the table forms. Therefore we don't know whether Abraham Bäck was following special directives, or if he was acting entirely on his own when working out the table II. However one could create an opinion about the ambitions of the initiators of the vital statistics, and consequently which ideas Bäck in his turn should have been trying to put into practice. In the different documents, such as acts, letters and reports where the demand of vital statistics and their design was discussed, and which preceded the founding of the vital statistics, several arguments were put forward, directly or indirectly, as to the selection of causes of death.[13]

There were demands of what kind of diseases people died of in general, and which were the causes of the shifts in mortality, together with suggestions that the diseases with the supposed highest mortality-rate would be paid attention to in the first hand. The practical motives with a prospective cause-of-death statistics were emphasized throughout. The medical authorities were, it was expected, in this way to be guaranteed adequate knowledge of all kinds of

damaging and epidemic diseases that threatened to be rampant. The information thereby collected should be used as a support to health political decisions, which would prevent the premature death of the people, not in the least amongst children. If we take it for granted that these demands and expectations in one way or another formed the starting point for Bäck and guided him in his choice, the ambitions could be summarized like this: the table form was supposed to give a survey of the mortality and its distribution into the diseases and injuries, which people generally died of, with a special attention to the diseases where the mortality rate was feared to be too high.

With this in mind one question to put is whether the excluded disease categories were considered as non-fatal, or was it assumed that the mortality rate was not so high in these diseases? In order to confirm whether the contemporary view on which disease, or states of diseases, that were supposed to lead to death, had to exclude some categories, we have again to take support in the medical literature. These problems though are not only connected with the level of contemporary medical thought, but also and unambiguously with contemporary attitudes and opinions to death and disease. Is it possible for instance, that the lack of certain categories of diseases in the table II were due to the fact that they shouldn't be paid attention to? In other words, what was then allowed to be seen, and what information was not allowed to be presented in the statistics and why was that so? In this connection it would be most valuable for this study to continuously check with the churchbooks for one parish or perhaps town and see what diseases or conditions that "disappeared" as disease-units when transferring to the table form, but might have still appeared with its figures in the table II, only tabulated by another medical term.

Now it remains to take the selected cause-of-death categories into closer consideration. Firstly, as was mentioned before, it is possible to follow the history of the tabulated categories back in time and in that way see what meaning and function they had in older Swedish disease-history. Further, with the help of the literature, which was used as a basis for the selection Bäck did, we could investigate to which extent the choice corresponded with the goal he supposedly had. The questions that then ought to be put are: which were the diseases? How could they be translated into modern terminology? Were the diseases chosen to be tabulated looked upon as prevalent or new occurring? Were there any suppositions about the mortality rate in this or that disease and were there any ideas concerning its rampaging different parts of the population; i.e., to what extent were the epidemic diseases feared to "hit" the young respectively the old people and how were these epidemics supposed to be regionally distributed? Which of the tabulated diseases were presumed to be the most dangerous as to the spreading, morbidity and mortality? Was there any ambition to take into account the social need such as diseases or conditions more or less directly resulted by poverty, famine and so on? Here again there is reason to consider the contemporary knowledge of and attitudes to the diseases.

Medical thought and the definitions of causes of death

As to the medical concept of disease, several of the tabulated diseases were not diseases in our modern sense but rather conditions, characterized by general symptoms, and thus differing from the modern anatomical-etiological concept of disease that was developed during the nineteenth century. The way of differing one disease from another is the next problem to consider, and also what factors determining that certain diseases in the table form could be unified and others would be divided, which put the question of the contemporary view on the mutual relationship between diseases. An account of the predispositions of the eighteenth century medicine, when it comes to the ability to create an opinion about diseases and how to define them, is therefore necessary.[15] Concerning the attitudes on the diseases we might, I would like to argue, try to broaden the outlook on the concept of disease and consider its social implications too. This should include not only what social conditions were supposed to determine the cause-of-death panorama, and what diseases that were assumed to be fatal for the wealth of the nation, but also in order to improve our understanding of this period, how these diseases were regarded by contemporary way of thinking as seen in relation to moral and religious conceptions, superstition and traditions in general.

Some of these questions lead unsoughtly to the problems the nosological systems tried to solve. Here there are rich possibilities to make comparisons between table II and for example the nosological system of Linnaeus, as to the selection of diseases and how they were specified. Another important material of comparison consists of the mortality tables that existed in other countries at the same time. Here we can compare with the sum of tabulated categories, the selection of diseases and injuries and their relation to other diseases of the table form and what categories are unified and which are not. In this way the table II of 1749 could be put in relation to both the seventeenth century and the contemporary disease panorama in Sweden and to similar initiatives in other countries.[16]

The revisions of table II

Regarding the revision of 1774, there are two factors to take into account. Firstly, as it was a question of a revision, there was the basis of earlier selection to consider. The main task is here to compare the table form of 1774 with the previous one as to the presence and absence of the old cause-of-death categories. Here we have to take into consideration the changes that the terminology underwent as to the number of entries and the exclusion and inclusion of old respectively new categories, and so on; i.e., a following up of the conceptual basis of the table form. In this way we might also connect to the question of the life-length of the table-terms that has been pointed out before, so that a line could be drawn from seventeenth century terminology and onwards up to the 1770's. As to the process of selecting categories to the for-

mula, the same question as were put to the version of 1749 should of course be put even now, such as the concept of disease, the way of identifying and describing the diseases, and the contemporary level of and attitudes to the morbidity and mortality of the diseases. The possibilities to constant comparisons with the cause-of-death table forms in other countries and with the complicated nomenclature of the nosological system also remains.

This shouldn't be done, however, without putting the revised categories in relation to the suggestions of revisions, critical arguments and opinions in general that together with the new knowledge had collected during the years. That brings us to the second factor to consider when investigating the new design of table II. The first announcements of the figures of the mortality statistics caused both attention and reactions. Suggestions of measures that ought to be taken soon appeared and an increased watchfulness towards indicators of health and disease was generally ordered. This more observant attitude towards health conditions and its causes was reflected in the interaction between medicine, and the attention raised in the society as a whole from the 1750's and onwards, regarding the incidence and prevalence of certain diseases, the occurrence of "new" diseases and so on.

In the Statistical Committee for instance, a discussion took place with future revisions in mind early in the 1750's, and new suggestions with the same purpose were initiated in the years to come. There the necessity of maintaining, including and also excluding this or that category was discussed with the welfare of the state in mind.[17] Other influences are already referred to, such as the medical literature that focused on current problems and the attempts to picture the disease panorama in handbooks of various kinds. Another important basis for considering the future revision was of course the reports from the district local doctors.[18] Yet another factor worth considering, is the discussion concerning the reliability of the statistics not in the least the mortality statistics. In the correspondence of Bäck for instance, there are delivered many critical arguments that gives us important aspects of the problems that the cause-of-death statistics had occasioned.[19] That goes not only for the table form of 1749 but also for the revised formula of 1774. One problem often mentioned was the form the table II was given from the start. The number of entries for example, was too small, more should be added and a certain disease category should be replaced by some other, more frequent disease. It was also stated that the cause-of-death categories were not really reflecting the current situation, but gave a false picture of the mortality. Finally, there were critical arguments in the favour of the nosological system of Linnaeus, indicating that the preprinted table-form system was unadequate and that theoretical problems concerning the rules of classifying thus were observed.

These examples concerning our opportunities to follow the selection of causes of death from a yet not established classification of diseases will do for this older period. In the same way of course, we have to handle concerning the

revisions which took place in 1801 and further up to the 1830's, but of course with new perspectives and by adding new sources.

Contemporary problems of the cause-of-death statistics

This leads us to another area of investigation. When studying the older cause-of-death statistics, the problems of historians today to interpret these old medical terms and translate them into a modern medical terminology are often put forward, the terms vagueness in character mostly ascribed to the symptomatological concept of the disease. But worth noticing, not in the least for interpreting the information given in the table forms, is also, I would argue, another problem of the cause-of-death registration. Hereby we have entered a new kind of selection problem called attention to in the paper by B.I.B. Lindahl in this volume, i.e., the problem of selecting the principal cause of death, and accounting for complications and contributory conditions in the individual case.

A comparison with the present situation can elucidate this problem. Nowadays, the specifications of causes of death are to be affirmed by certificates attested by a physician, where the principal cause, complications, and contributory causes can be stated. For the selection of causes of death there are the more uniform, generally applied ICD-classification to choose categories from, and a manual with guiding principles to help the physicians in their work of certifying. The certificates are used as a basis for the cause-of-death statistics, compiled at the National Central Bureau of Statistics. For the registrars who are to transfer the specifications given by the physicians in the certificates, there are also outlined rules for codifying the information into data, that are applicable to the international rules on cause-of-death statistics.

During the eighteenth century on the other hand, the clergymen whose duty it was to supply the authorities in Stockholm with information on the vital statistics, had a double responsibility. They were both to certify the cause of death (as physicians do today) and register the cause in the table form (the kind of work that the codifiers do nowadays). In order to put the correct diagnosis you might say that the clergymen were well taken care of. Several medical handbooks were compiled and published within the two first decades following the establishment of the vital statistics. In these books, which we have already referred to as sources when it comes to define the tabulated categories, the diseases were described with their characteristic symptoms, courses and sometimes even prognosis together with advice on cures and treatments. In the manuscripts left by Abraham Bäck there is also as we have already mentioned, a compilation of descriptions of the diseases tabulated in the revised table form that was announced in 1774, based on some of these handbooks, but with no more disease category to consider than these which were set up in the formula. None of these books however, and that goes for

Bäcks manuscripts too, included instructions in the modern sense, i.e., the way the ICD-classification is organized with its outlined registration rules and explicit definitions of basic concepts. The handbooks taught how to recognize the diseases and the way to treat them. When death occurred amongst the parishioners they were supposed to certify the cause-of-death in the churchbooks with the support of the descriptions given. No death certificates were issued, where the problems of tabulating one possible cause of death, in the case that two or more possible causes were identified, could be documented. Nor were any kind of testimony requested where they had to give an account for their procedure of ascertaining of this or that diagnosis. Yet the problems existed and were not seldom complained of in the correspondence of Abraham Bäck. The questions discussed concerned the index of terms settled beforehand and preprinted in the table forms, a limited terminology that did not allow for adding new disease categories from another classification, if there ever was one.[21] Further, the conceptual confusion within terminology itself must have been frustrating. Apparently there was a need for a generally applied, uniform basis of division, a nomenclature and classification of diseases, which could guarantee that one meant the same item everywhere, when discussing a tabulated disease category. Finally, the problems of causality that might occur and in some cases did, to the eighteenth century certifiers (the clergymen), only a radical change in the way of reporting and certifying the causes of death could alter the situation. That this in its turn implied that the problems concerning the design of the table form and the development of the classification of diseases also had to be solved, was to be shown in the middle of the next century.

The late nineteenth century: the same questions in a new medical and social context

Before concluding this paper, we shall just glance very quickly at the great changes that occurred in the nineteenth and early twentieth centuries, when several of the demands more or less clearly articulated in the earlier period, were to be fulfilled. As to the early decades of the nineteenth century the administrative methods of preceeding the compiling of tabulated data were just about the same, besides the fact that, due to the clergies complaints, the heavy task to report of the cause of death was cut down to cover only the deaths of childbirth, smallpox, suicide and some other specific accidents.

Great changes were made in the period between 1850 and 1860, The National Central Bureau of Statistics was instituted and an important statute was taken concerning cause-of-death statistics.[22] The Bureau of Statistics made it obligatory to give a specific report about the causes of death occurring in the Swedish cities. The reports should there, it was decided, be founded on death certificates signed by a physician. In the same year, 1860, a new classification of causes of death was instituted, and it was revised a couple of

times during the last decades of the nineteenth century. A very important step was taken in 1911, when the original ambition was reassumed, that the statistical system was to cover the whole population. The obligation to register causes of death based on a physicians certificate was extended to apply not only to cities but also to boroughs and other densely populated communities. The clergymen in the country were again to report on the cause of death, even when there was no physicians certificate available. A new classification system was introduced the same year, and that was revised again in 1931. In 1949 Sweden accepted to follow an internationally applied system concerning medical statistics, which had begun to develop during the late nineteenth century and got its definite breakthrough in 1948, (the ICD-classification).

The conditions for reporting on cause-of-death statistics were changed radically during the nineteenth century.[23] The old medical systems were replaced by new knowledge of a quite different character. The medical revolution of the century, beginning with the birth of pathological anatomy in France and continuing with the breakthrough of cellular-pathology and bacteriology in the middle of the century, totally changed the conception of the nature of the diseases. On an international level initiatives were taken to establish a coordinated organisation of a classification of causes of death. Here the administrative demands from the society, to delineate the causes of bad health, i.e., the most occurring causes of death, and the internal, scientific demands of a generally accepted form of conception as to the meanings and divisions of the diseases, put forward by the physicians, finally got together.

In England important steps were taken by William Farr (1807-1883) at the General Registers Office, which was to register all causes of death from 1837. As there was no established nomenclature or classification of diseases to start from, he constructed a classification system of his own, which was to comply with both administrative and medical demands. He divided the causes of death into three main groups depending on in what way they "hit" the population. Farrs system was not generally applied however, but influenced the international development a lot. In the 1830's the large international statistical conferences started, where the classification of causes of death was an important task. After Farr the leading role was overtaken by Jacques Bertillon (1851-1922) in Paris. In 1893 he presented a classification, very much inspired by Farr, where the main principles of dividing the diseases were based on anatomical-topological foundations. The purpose was not mainly to reflect the scientific development, but to adjust the results of the statistics so it was easier to correspond to the health political demands. This system was generally accepted and applied and the basic principles we still have today in the ICD-classification, though of course it has underwent many changes in connection with the revisions, that are regularly taking place. An important step towards both an increased internationalization and an extension of the cause-of-death classification occurred in 1948 at a conference directed by the

WHO. With the UN involved and a great international forming, a suggestion of classification was accepted, including the whole range of diseases, causes-of-death and injuries, the ICD-classification.

Against this background I would like to put forward what kinds of research problems within the Swedish development that are to be investigated.[24] The main questions remain: what are the changes within the system of classification and what factors have contributed? What was the main distinction between the old classification put through in the older vital statistics and the classification that was released in 1860? Here we have the opportunities to follow again the development of the first tabulated diseases and see what happened to them in the first "modern" classification. What is the Swedish relationship to the international development mentioned very briefly above? How active were the Swedish participants at the statistical conferences, and to what extent were they influenced by the discussions going on there? In this connection it would be valuable to investigate the background of the changes that took place continuously as to the design of the death certificates. Another very important area of investigation is still the distinction between the classification of causes of death, its revisions included, and the contemporary classifications of diseases. Finally, to what extent is this development, as was the case in Sweden in the eighteenth century, and in England and France in the nineteenth century, adjusted to administrative health political conditions and demands. Here I would again refer to one of the basic problems in the introduction of this paper, i.e., the relations between medicine and society reflected in the application field of the cause-of-death statistics. The social demands on mortality statistics in eighteenth century in Sweden we have already treated. In the middle of the nineteenth century and onwards however, the relation between statistics and medicine, and medicine and society had changed in character. The ambition to survey the state of health amongst the population by an organized cause-of-death statistics still remained; the question is, adapted to what new circumstances? A couple of conceivable factors I will suggest below.

The advocates of the new scientific spirit, inspired by the development within natural sciences, and many of those were physicians, showed great confidence in science itself and its capacity to solve problems of any kind. That also included social problems, and bad health was indeed to be looked upon as one of these unsolved problems of society, though of course this attitude could develop into several directions. As to William Farr for example, the medical science could improve the social conditions of people, provided that the causes of bad health were investigated. Due to Farr, social conditions could be synonymous to health conditions and vice versa. Here cause-of-death statistics had a given function, to serve as a tool for a social oriented medicine. On the whole, the late nineteenth century medicine, so much based upon the natural sciences and their methods was prosperous and inspired to great expectations. In the investigation on the development of the cause-of-

death classification from the 1860's and onwards I intend therefore to discuss the selection of causes against this background and how they were to be certified, and to see if the ambitions raised, in for instance England, were reflected in Sweden and in that way try to picture the interaction between internal and external factors.

Conclusions

If we summarize what can be achieved by this investigation of the cause-of-death statistics, we find the following areas: as to the eighteenth century it is to reach and follow the roots of the terminology, i.e., the conceptual basis from its "birth" and onwards and the changes that it undergoes due to medical and social factors. We can observe that complicated problems of both practical and theoretical character were raised, and that complicated questions, debated today, were observed even then. When it comes to the definitions of the causes of death we might even shed some new light upon the problems of validity. As the problems of causality when selecting the causes of death were not carefully examined or documented, the reliability of the old diagnosis must be questioned, in the same way we are observing these problems today, and not only because the terminology is somewhat old-fashioned and hard to translate into modern terminology. Every judgment of the eighteenth century cause-of-death statistics must be seen against this background. In this way the final results might serve as a key to the medical definitions of the eighteenth century that the mortality trends are based on and lead to a better insight and understanding of the medical world of this period. In the same way the latter part of the investigation might form a firmer ground to our understanding of the registered health problems and the basis for epidemiology and their relation to the society in the decades at the turn of the last century.

Notes

1. A survey of cause-of-death validation studies in A. Royston and P.N. Gittelsohn, 'Annotated Bibliography of Cause-of-Death Validation Studies: 1950-1980', *Vital and Health Statistics, Data Evaluation and Methods Research*, Series 2, No. 89, (Hyattsville 1982); The problems of the theoretical and philosophical foundations of cause-of-death classification and statistics today, are treated in L. Nordenfelt, 'Causes of Death. A Philosophical Essay', *Forskningsrådsnämnden, Rapport 83,* 2 (Stockholm 1983); L. Nordenfelt and B.I.B. Lindahl, 'Om grunden för svensk dödsorsaksstatistik: Reflektioner kring grundbegrepp, regler och praxis', *Studies on Health and Society,* 4 (Linköping 1984); B.I.B. Lindahl, 'On the Selection of Causes of Death: An Analysis of WHO's Rules for Selection of the Underlying Cause of Death', L. Nordenfelt and B.I.B. Lindahl (Eds.), Health, Disease, and Causal Explanations in *Medicine, Philosophy and Medicine,* 16 (Dordrecht 1984) pp.137-152; B.I.B. Lindahl, 'Dödsorsaksstatistikens problem i modern tid', L. Nordenfelt (Ed.), *Hälsa, sjukdom, dödsorsak. Studier i begreppens teori och historia* (Malmö 1986), pp. 135-162; B.I.B. Lindahl, E. Glattre, R. Lahti, G. Magnusson and J. Mosbech, 'The WHO Principles for Registering Causes of Death: Suggestions for Improvement', *Department of Social Medicine, Huddinge University Hospital, Huddinge, Sweden* (manuscript 1987); see also the paper by Lindahl in this volume, 'On Weighting Causes of Death. An Analysis of Purposes and Criteria of Selection'; the problems of registering causes of death have also been studied in an empirical material by B.I.B. Lindahl, *Selection of the Principal Cause of Death. Studies on the Basis of the Principal Cause of Death. Studies on the Basis of Mortality Statistics for Rheumatorial Arthritis* (Huddinge 1985).

2. This research task is a work in progress and an extension of preparatory studies being done in a specific research project, Health, Disease, Causes of Death, supported by the Research Council for the Humanities and Social Sciences in Sweden. Project director has been Lennart Nordenfelt of the Department of Health and Society at the University of Linköping: other participants have been Øivind Larsen and Eric Falkum, Department of the History of Medicine at the University of Oslo, B.I.B. Lindahl of the Department of Social Medicine, Karolinska Institute, Huddinge University Hospital, and Eva Nyström, Department of History of Ideas, University of Stockholm; for further references and the directives on research within the project, see the contributions in Hälsa, sjukdom, dödsorsak. The project was initiated at the Department of Philosophy at the University of Stockholm and was later transferred to the Department of the Health and Society at the University of Linköping. The project being formally finished, I am now proceeding my research task according to the outlines I give in this paper at the Department of the History of Ideas at the University of Stockholm. The problems and areas of investigation discussed in the paper focus on the eighteenth century, a smaller space is given though to the late nineteenth century. The whole research task however is covering the period from 1749-1948.

3. For references on the establishment and early history of the vital statistics in Sweden, including the cause-of-death statistics, see footnote 7; the relations between mercantilism and medicine, society and cause-of-death statistics, and their impact on health political measures undertaken during the latter part of the eighteenth century, are discussed by H. Sandblad, *Världens nordligaste läkare. Medicinalväsendets första insteg i Nordskandinavien 1750-1810,* (Stockholm 1979), pp. 3-18; here Sandblad also points out the reflections of humanitarian insight and its further significance in the mercantilistic-influenced social-medical reform-programme laid out by Abraham Bäck (1713-1795); on the suggestions laid and the initiatives undertaken to decrease the mortality rate, see O.E.A. Hjelt, *Svenska och finska medicinalverkets historia*

1663-1812 (Helsingfors 1891-1893), vol. 1, pp. 155-165; for the beginning of a Swedish epidemiology, ibid., vol. 2, pp. 235-238; Sandblad (1979), pp. 10-12.

4. On diseases, causes of death and its classifications, see L. Nordenfelt and E. Nyström, 'Sjukdomsklassifikation i historisk belysning', Nordenfelt (1986), pp. 88-102; the revision applicable today is *Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, Based on the Recommendations of the Ninth Revision Conference, 1975, and Adapted by the Twenty-Ninth World Health Assembly,* 2 vol., WHO (Geneva 1977-78); on the ICD-principles for the selection of causes and outlined rules of registration and its application in Sweden, see L. Nordenfelt (1983), pp. 42-53; Nordenfelt and Lindahl (1984), pp. 7-34; B.I.B. Lindahl (1986), passim; ibid., 'On Weighting Causes of Death'.

5. L.S. King has discussed the problems of eighteenth century medicine in several books and articles, especially in *The Medical Thought of the Eighteenth Century* (1958, 2 ed. New York 1971); ibid., *The Philosophy of Medicine. The Early Eighteenth Century* (Cambridge, Mass. 1978); see also several passages in ibid., *Medical Thinking. A Historical Preface* (Princeton 1982); on the nosological systems, see also L. Nordenfelt and E. Nyström (1986), pp. 75-88.

6. Cause-specific mortality tables existed from time to time in several European cities and towns during the seventeenth and eighteenth centuries; to give a full report of them and their contents is an impossible task, some account of these is requested though; as to England for example, there is a compilation of the famous Bills of Mortality from 1657 to 1758, which reproduces all the annual bills for the years specified, in T. Birch (Ed.), *A Collection of the Yearly Bills of Mortality within the London district from 1657 to 1758, inclusive, ...,* (London 1759); see also footnote 16.

7. On the establishment of vital statistics and its early history in Sweden see A. Hjelt, 'Det svenska tabellverkets uppkomst, organisation och tidigare verksamhet. Några minnesblad ur den svensk-finska befolkningsstatistikens historia', *Fennia,* 16, (Helsingfors 1900); E. Arosenius, *Bidrag till det svenska Tabellverkets historia* (Sthlm, 1928); Hjelt (1891-1893), II, pp. 264-270; S. Lindroth, *Kungl. Svenska Vetenskapsakademiens historia 1739-1813* (Sthlm 1967), vol. I, pp. 370-374; a recent treatise is E. Hofsten, 'Pehr Wargentin och grundandet av den svenska befolkningsstatistiken', E. Hofsten, *Pehr Wargentin den svenska statistikens fader. En minnesskrift med sju originaluppsatser ur Kungl. Svenska Vetenskapsakademiens Handlingar för åren 1754, 1755 samt 1766* (Sthlm 1983), pp. 11-58; A survey on the causes of death statistics, mostly based on this literature is E. Nyström, 'Den svenska dödsorsaksstatistikens framväxt och tidiga historia', Nordenfeldt (1986), pp. 107-120; A short survey in English is given by Nordenfelt (1983), pp. 22-23; the table form suggested by Lantingshausen encloses his memorandum 'Nödvändigheten af närmare underrättelsers inhemtande om Rikets styrka i anseende til dess Inbyggares antal, tillväxt och afgång med mera', printed as supplement III, in Hjelt (1900), pp. 78-86; the participation of Bäck respectively Linnaeus as to the design of the cause-of-death table form is referred to and quoted by several of the authors named above; the engagement of Bäck is registered 8/11 and 13/12 1746 in 'Dagbok öfver Kungl. Vetenskapsacademiens ärenden och handlingar 1744-46', KVA; 'Linnaeus to Elvius, december 1746', T.M. Fries, et al (Eds.), *Carl von Linné. Bref och skrifvelser af och till Carl von Linné* (Sthlm 1907-43), I:2, pp.84-86.

8. The altogether five table forms that were issued from 1749 to 1830 are reproduced with their terms in A.E. Imhof and ø. Larsen, 'Sozialgeschichte und Medizin. Probleme der quantifizierenden Quellenbearbeitung in der Sozial- und Medizingeschichte', *Medizin in Geschichte und Kultur,* 12 (Stuttgart 1976), pp. 244-245; B-I.

Puranen, *Tuberkulos. En sjukdoms förekomst och dess orsaker. Sverige 1750-1980* (Umeå 1984), pp. 377-381.

9. In Hjelt (1891-1893), II, pp. 223-227 are listed medical handbooks and treatises of different kinds, that form the basis for this investigation.

10. Puranen (1984), pp. 53-72.

11. A. Bäck, 'Kårt Underrättelse til någon hjelp för Herrar Pastores, att kunna föra sjukdomarna, som stadna i döden, under sina titlar i IIa Tabellen', printed as supplement in H. Englesson, 'Dysenteristudien', *Acta Medica Scandinavica,* Suppl. LXXXIII (Lund 1937), pp. 277-288 and in Imhof and Larsen (1976), pp. 245-253; the works referred to by Bäck are, J.J. Haartman, *Tydelig Underrättelse, Om de Mäst Gångbara Sjukdomars Kännande och Motande, Genom Lätta och Enfalliga Hus-Medel; Samt et litet Res- och Hus-Apothek; Dem til tjenst som ej hafva tilfälle at rådfråga Läkare,* (1759, 2 ed. Åbo 1765); J.A. of Darelius, *Socken-Apothek och några Hus-Curer, utgifne under Kongl. Collegii Öfverseende och besörjande* (Stockholm 1760); S.A. Tissot, *Goda Råd och Underrättelse angående hälsan för dem, som bo på landet och som ej lätteligen kunna hafva någon förfaren Läkare at rådfråga* (Stockholm 1764); N.R. von Rosenstein, *Underrättelser om barn-sjukdomar och deras bote-medel: tilförene styckewis utgifne uti de små almanachorna, nu samlade, tilökte och förbättrade* (Stockholm 1764); N.R. von Rosenstein, Hus- och reseapoteque, på Hennes Kongl. Maj:ts nådigste befallning upsatt (Stockholm 1765); for the table terms appearing in the form of 1774, see footnote 8.

12. For the revisions of the table forms, see the terms reproduced in literature referred to in footnote 8.

13. These examples drawn from Elvius' memorandum on the size of the Swedish population, 'Svenska Vetenskapsakademiens betänkande angående folkmängden i Sverige och Finland' (1746), printed as supplement II in Hjelt (1900), pp. 75-; the proposal on establishing the vital statistics, 'Sekreta utskottets förslag om tabellverkets upprättande' (12/12 1747), printed as supplement IV in Hjelt (1900), p. 92; Lantinghausens memorandum, 82, 84; in the proposal from the Academy of Sciences turned down by Linnaeus, there was just a demand for 'a methodical catalogue of diseases by their Swedish names', Fries et. al. (1907-43), vol I:2, pp. 84-86.

14. The tabulated causes of death have been analyzed in several demographic accounts; contributions valuable for this investigation are given in Imhof and Larsen (1976), pp. 138-179; A.E. Imhof, *Aspekte der Bevölkerungsentwicklung in den Nordischen Ländern 1720-1750* (Stuttgart 1978), vol I, pp. 327-590; vol II, pp. 591-679; Ø. Larsen, 'Eighteenth Century Diseases, Diagnostic Trends and Mortality', *Scandinavian Population Studies, 5* (Oslo 1979), pp. 38-54; Puranen (1984), passim; for the meaning of the older Swedish cause-of-death terminology, see also G. Lagerkranz, Svenska sjukdomsnamn i gångna tider (1981, 2 ed.Eskilstuna 1983).

15. These problems discussed by Imhof (1978), pp. 338-339, pp. 478-479; Larsen (1979), pp. 46-49; Nordenfelt (1986), pp.75-80.

16. Cf. footnotes 5 and 6; Pehr Wargentin (1717-1783), secretary of the Academy of Sciences from 1749, discusses the mortality in relation to the selection of causes of death in the Swedish respectively English and German tables of mortality, see 'Anmärkningar, Om Nyttan af årliga Förteckningar på födda och döda i et Land', (Kungliga Vetenskapsakademiens Handlingar 6, 1755) printed in facsimile in Hofsten (1983), pp.127-139.

17. The first report on the figures of the compilation of statistical data were collected around 1755 and presented to the Swedish parliament where the high mortality in general and the mortality rate amongst children in special were mostly paid attention to as to the causes of death; in 1756 there was a parliamentary decision on an extension of the health services; next report from the Statistical Committee came in 1761, when the causes of death were discussed in an extensive chapter, every tabulated cause treated in connection to the figures collected; in 1763 the Collegium Medicum received new instruction with enlarged authorities and later in that decade several of the reforms suggested were carried out; in 1765 there was a third report from the Statistical Committee; for general surveys of all these, see footnote 3 and the literature there referred to; elaborated accounts on acts and sources of different kinds are given by Hjelt (1900), pp. 46-59; Arosenius (1928), pp. 15-28; the reports of 1755 and 1761 are edited in A. Hjelt, *De första officiella relationerna om Svenska tabellverket åren 1749-1757. Några bidrag till den svensk-finska befolkningsstatistikens historia* (Helsingfors 1899), the causes of death discussed at pp. 8-10 and pp. 91-132; at the same time Wargentin started to publish his treatises on the mortality statistics in 'Anmärkningar, Om Nyttan af Årliga Förteckningar', Kungliga Vetenskapsakademiens Handlingar, 1-6, 1754-1755), facsimile reprints in Hofsten (1983), pp. 59-139; cf. footnote 16.

18. The reports in Årsberättelser från Provinsialläkare, Riksarkivet, Medicinalstyrelsens arkiv, Coll. med. inlemnade handlingar; some of these reports that were initiated in 1755 were collected and put in order by P.J. Bergius, *Försök til de uti Swerige Gångbara Sjukdomarnas Utrönande för år 1754, 1755, 1756* (Stockholm 1755-1758); extracts and summaries later published by the Collegium Medicum in altogether three publications *Provincial Doctorernas til Kungl. Collegium Medicum inlemnade Berättelser, rörande Deras Ämbets förrättningar, desse senaste åren, i synnerhet sedan sista Riksdag* (Stockholm 1761); *Berättelser, inlämnade till Kongl. Collegium Medicum, rörande Medicinal-Werkets Tilstånd i Riket* (Stockholm 1765); *Berättelser till Riksens Högloftl. Ständer rörande Medicinal Werkets Tillstånd i Riket. Ingifne wid Riksdagen 1769 af Kongl. Collegio Medico* (Uppsala 1769); later this kind of publications were replaced by extracts in medical periodicals.

19. One example of that in Nordenfelt (1986), pp. 128-130.

20. See in this volume, B.I.B. Lindahl, 'On Weighting Causes of Death'.

21. Nordenfelt (1986), pp. 129-130.

22. This survey on the Swedish development is based on Nordenfelt (1983), pp. 23-28, who gives an account in English; see also Nordenfelt (1986), pp. 135-141.

23. On the international development, an account in English in Nordenfelt (1983), pp. 5-22; see also Nordenfelt (1986), pp. 94-105.

24. As to suggestions on further investigations, see examples discussed in Nordenfelt (1983), pp. 23-28 and pp. 135-141; there is a great deal of literature focusing on the relations between medicine and society in Europe during the nineteenth century; my suggestions on the function of cause-of-death statistics from the middle of the century and onwards are inspired by an excellent study on Farr, by J.M. Eyler, *Victorian Social Medicine. The Ideas and Methods of William Farr* (Baltimore and London 1979).