

## MORTALITY PROBLEMS IN BRAZIL AND IN GERMANY: PAST-PRESENT-FUTURE. LEARNING FROM EACH OTHER?

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**RESUMO:** Estudo realizado em 1984, por um professor suíço-alemão, especializado em demografia histórica, com a finalidade de promover diálogo mútuo entre países desenvolvidos e em desenvolvimento, sobre demografia. Três pontos são destacados: 1. Tomando a mortalidade infantil de São Paulo no período de 1908 a 1983, como exemplo, é mostrado que o Brasil tem ao seu dispor excelente e variada literatura de pesquisa sobre o assunto, que é injustificavelmente desconhecida pela maioria dos europeus. É enfatizado que o Brasil não depende do conhecimento dos autores europeus para explicações concernentes aos fatores que, sob vários aspectos, estão implicados: podem ser considerados, pelos europeus, dois aspectos do Brasil, a este respeito. No primeiro torna-se evidente que o conhecimento do europeu, do ponto de vista médico-biológico, não é apropriado para se chegar a conclusões sobre os problemas atuais do Brasil e que quaisquer conclusões poderão ser extrapoladas em apenas alguns poucos casos. O segundo aspecto refere-se à reinterpretação da história da mortalidade infantil nos países europeus, até as últimas décadas, que em sentido mais abrangente mostra uma situação semelhante à brasileira. 2. Um diálogo frutífero só poderia ser realizado se ambos os interessados apresentassem francamente seus problemas. Por este motivo, o estudo faz referências enfáticas aos atuais problemas do europeu em relação a estudos da morte e do morrer — problemas que surgem perto da fronteira das transições demográfica e epidemiológica: o envelhecimento da população, as doenças crônicas incuráveis como as principais causas de morte e o problema do idoso. O Brasil parece estar se aproximando da situação europeia, neste particular, e há de se defrontar com estes problemas mais cedo ou mais tarde. Uma discussão já com vistas ao futuro, parece ser proveitosa. 3. O estudo não pretende apresentar um quadro deprimente de problemas que se alternam sucessivamente. Apesar da cautela que se deve ter quando se faz prognósticos, há boas razões para um certo otimismo quanto ao futuro: em primeiro lugar, em relação ao desenvolvimento dos países europeus — presumindo que se continui a seguir as tendências atuais de desenvolvimento — e mesmo em relação ao Brasil.

**UNITERMOS:** Mortalidade, tendências. Epidemiologia.

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### INTRODUCTION

This article is a plaidoyer for a dialog, a mutual discussion of the concerns on both sides. It seems to me that demographic discussions between developed countries, such as Germany, and developing ones, such as Brazil, all too often take a one-way course. They focus upon topics like "Population explosion", "Family planning and birth control", "Re-

duction of infectious and parasitic diseases", and so on. Nobody includes in these discussions the population problems of developed countries, such as the ever-increasing number of elderly, physically dependent, and emotionally isolated people, the heavy toll of deaths due to chronic-incurable illnesses, the agony which often must be endured for months,

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the waiting and yearning for the liberating end. As a result, these dialogs remain very unbalanced and take on a deceptive appearance. Participants from countries *with* problems are discussing with others, who apparently have *none*. The fatal consequence of this is that the one party gets the impression that the other party is living in a kind of paradise. And even though the members of this other party are well aware that they are of course not living in paradise, they do often carry on the discussion as if this false impression were true. They assume an arrogant, schoolmaster-type posture, give out "good advice", and explain to their conversation partners that they only need to copy after them to arrive in paradise too. As a consequence, the historical developments in European countries almost automatically obtain a model character and are transferred on to developing countries without much prior thought, under the assumption that the outcome in these countries will almost inevitably be the same.

It is therefore my intention here to help readjust the balance in the discussion by stressing the following three points:

First: Representatives from developed countries (in the following: we) sometimes make the assumption due to the well-known deficiencies in the registration of vital statistics in developing countries — in Brazil, for example, with regard to the sub-registration of births and deaths, or the lack of exact indications as to the age at death or the appropriate cause of death — that serious research in these fields does not exist and that, consequently, there is an absence of solid publications. This is not the case. I shall demonstrate this by showing that there is demographic, medical, socio-economic, historical, anthropological, and even philosophical research literature on infant mortality in S. Paulo 1908-1983 which is very diversified and sound.

Secondly, in drawing comparisons between Germany and Brazil, for example in regard to the epidemiologic transition, we should not be so quick to turn our own development into the solely valid criterium but rather concede Brazil its own particular development. To me, it appears even more important in this context to point out the problems which have befallen us due to our pre-eminent development and which Brazil will comparably be confronted with in several years or decades if the at present similar course is stuck to. This country will find itself in a situation that is just as little a paradise as is the one which we presently find ourselves in, when it has solved the difficult problems absorbing all of its attention and powers at present.

Thirdly, it is true that the first two points do already provide a better basis for a fruitful discussion since both parties are now seen as being burdened in a like fashion with problems. Nevertheless, stopping at this point could easily lead again to a fatal consequence by causing our conversation partners to resign themselves dejectedly, since their present efforts do not appear to be worth the effort when placed in the larger context: sooner or later, their present acute problems will simply be superseded by those that are widespread in our own countries today.

Even though a good deal of caution has its place when prognoses are made by extrapolating from historical knowledge, it does seem that the closing discussion concerning the foreseeable development especially of the epidemiologic transition gives rise to a certain optimism towards the future: first in us, but then also — again if similar developmental tendencies are adhered to — in Brazil.

## FINDINGS AND DISCUSSION

In the city of S. Paulo, the infant mortality rate sunk quite continuously from

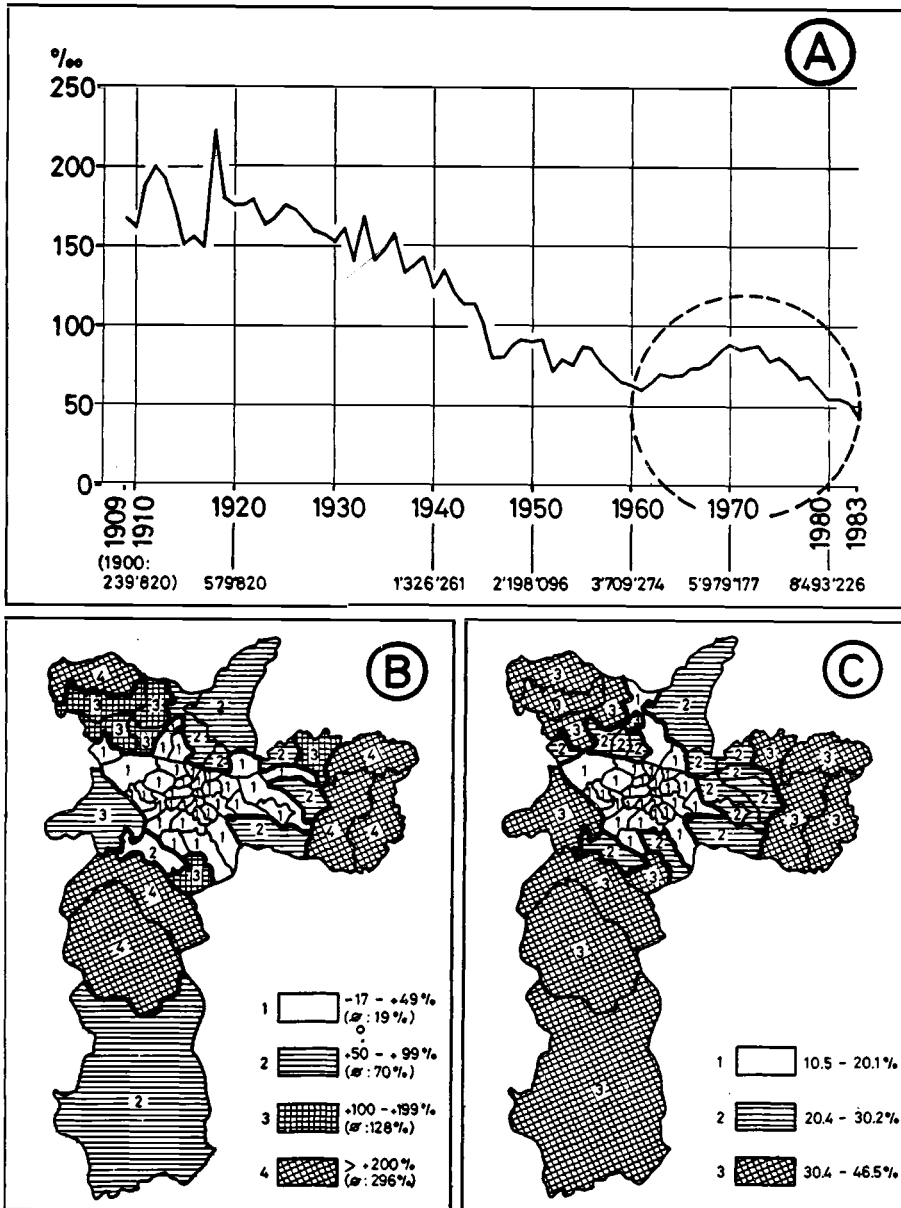


Fig. 1: S. Paulo — SP — Brazil

(A): The infant mortality rate (per 1,000 live births), 1909-1983.

Sources: SEADE<sup>23</sup>; Leser<sup>28</sup>; Palm<sup>42</sup>.

(B): The varying population increase in the 55 districts and subdistricts, 1960-1970. Increase or decrease in the percentage of the level from 1960. (Total increase between 1960 and 1970 from 3,709,274 to 5,979,177 = 61.1%).

Source: Leser<sup>28</sup>.

(C): The varying infant mortality in the 55 districts and subdistricts, 1976. Number of deaths occurring to the "under one year" age group given as a percentage of all death cases. Source: Monteiro<sup>23</sup>.

223 per 1,000 live births in 1918 to 60 in 1961 (Fig. 1A). After that, however, a marked turn in the trend set in. In 1966, the infant mortality rate was again over 70. In 1970, it was even at 88<sup>0</sup>/<sub>00</sub>, that is, it reached the same level that it was at about a quarter of a century ago. The level at the beginning of the 1960's was only again attained at the end of the 1970's, and since then it has conspicuously gone down. In 1983, the rate was at 44.2<sup>0</sup>/<sub>00</sub> <sup>24,25,27,28,30,31,32,33,57</sup>.

Since the quota of the infant mortality rate is considered to be a sensitive indicator of the level of development of a given population or society, and since S. Paulo is not an exception among the Brazilian state capitals as regards the renewed climb of the rate in the 1960's and 70's <sup>42,44,47,56</sup>, this boom initiated almost inevitably a large number, of solid, local, field research work <sup>15,41,51</sup>. Moreover, the indicator function in the sense mentioned above suggested to most of the researchers right from the beginning that a very wide field be kept in view when looking for causes. Few of the studies, consequently, limit themselves just to the medical biological aspects in the narrow sense — for example to the weight at birth, sex, birth rank, or the mother's age (for a discussion see <sup>2,25,26,31</sup>). Rather, the overwhelming majority of the publications clearly show from their titles a marked socio-economic emphasis in the interpretations of the findings <sup>4,27,30,33,42,45,57</sup>. Other publications, which principally have the same perspective, devote themselves to more specialized aspects, especially for example to the problem of the decreased number of mothers who breastfeed their infants <sup>7,22,39,48,55</sup>. Or they analyse the specific, jeopardized situation of disadvantaged population groups, especially for example the "favelados" \*, whereby the

publications even broach the group's distrust, its actual resistance to measures taken by official agencies, by an "elite culture", to improve the level of literacy and general enlightenment, education, and even the health standards <sup>10,21,38,43</sup>. Still other publications try to get to the bottom of the influence of paramedical "authorities" such as the "benzederas" (female faith-healers) or other representatives of a popular medicine with religious hues <sup>35,36</sup>. Or finally, reflections are made on the classical study of the 1930's concerning the infant mortality, (Alcântara <sup>1</sup>), and an attempt is made to revive the philosophical starting point of his interpretation <sup>37</sup>.

We can learn two things from this spectrum of argumentation which, to us Europeans today, seems unusually broad. First of all, the studies very clearly show that the determinants of the infant mortality rate in Brazil are fundamentally different from the ones found in Europe, or respectively, a fundamentally different sequence arises in weighing the importance of the determinants. To say this in a simplified manner: in Brazil, improvements in the area of the exogeneous factors are more decisive, whereas in Europe the endogeneous factors are in the foreground. This can be readily seen in regard to S. Paulo. In Fig. 1A, an unhindered immigration from the country to the city is evident. Between 1960 and 1970, the population increased from 3.7 to 6.0 million inhabitants. All of the city districts were not, however, hit by this wave to the same extent: those districts in the center with the best developed infrastructure were the least stricken (population increase: Ø 19%), the peripheral areas with the least developed infrastructure were hit the hardest (Ø 296%, see Fig. 1B). Against this background, the infant mortality rate, which varies locally but is, on the whole, congruent to the varying rate of growth, is not very surprising. The faster the increase occur-

\* Like slum population.

red, the worse the survival chances became for newborn infants (see Fig. 1C). Many studies of the single aspects verify the relationships in detail. These studies make references to the varying proportion of households which were hooked up to the public water supply, the varying level of water consumption, the variation in respect to families with a very low or sinking income, the varying level of unemployment, the varying degree of intensive care from the public health service or the variation in the number of claims made on the public health service by the local population, the variation in the number of beds offered to women in childbed, and so on<sup>4,28,32,33,57</sup>. In contrast to this, as the infant mortality rate experienced a (mini-) boom in the Federal Republic of Germany during the late 1960's and early 1970's (1968-1972: 22.6 - 23.2 - 23.4 - 23.1 - 22.4<sup>0/00</sup> - Table), it was only logical that the studies, likewise implemented immediately, concentrated for the most part on endogenous-medical aspects such as the forced, additional development of the perinatal care of mothers and infants<sup>8,9</sup>. Consequently, it is obvious that there are different arguments and perspectives in respect to the same phenomenon "infant mortality" for Brazil and Germany. But at the same time it is also evident that different specific approaches need to be implemented when striving to lower the rate. Discussion partners who do not at all or do not sufficiently take this into consideration end up being at cross-purposes.

Secondly, these studies compel us to reevaluate our own view-point with respect to the history of infant mortality in Germany — that is, in retrospect not to judge it exclusively from our present medical-biological perspective, but rather to consider it in a more encompassing "Brazilian" sense, adapted to *Brazil's* present conditions. Similar developments in our past can namely be also ascertained on

the basis of comparable causal relationships, for example the boom in infant mortality during the second half of the 19th century. In Prussia, for example, from 1851 to 1855, approximately 194 out of 1,000 live birth died during the first year of life. In contrast, from 1871 to 1875 the number was 224, but in 1891 it was down to 205 again<sup>49</sup>. We also had an unhindered population influx from the country to the cities during the major phase of industrialization and urbanization. Looking at Berlin, the capital of Prussia, there were 420,000 inhabitants in 1850. In 1900, however, there were 1.9 million. That is about 4.5 times more than in 1850, an increase occurring within 50 years. In S. Paulo, the population rose from 2.2 million in 1950 to 8.5 million in 1980, which is practically a fourfold increase within 30 years. How can the further development of an orderly infrastructure keep pace with such a tempo, in the one case as well as the other, and how can the socio-economic integration of all these new immigrants proceed in an orderly manner? The effects were just as catastrophic for us at that time and were not to be gotten at with medical measures alone<sup>54</sup>.

The following point seems even more important to me. No matter how well the causal relationships are understood — whether or not these are of the exogenous or endogenous type — that still does not mean that the suggested remedies which have been derived from such studies will actually be put into practice. In order for this to come about, a very sturdy *motivation* is in most cases necessary. I would like to clarify this point by using the mini-boom in the Federal Republic of Germany as an example.

It seems questionable to me that the stagnation in the infant mortality rates or their minimal increase — hardly by a single promille — from 22.6<sup>0/00</sup> in 1968 to 23.4<sup>0/00</sup> in 1970 (Table), would by itself have ever been enough to have

occupied our high level politics in several parliamentary debates and ultimately to have stirred the Government into action. Rather, another viewpoint may very well have been more decisive.

TABLE  
Infant mortality (per 1,000 live births) in the Federal Republic of Germany and in the German Democratic Republic, 1960-1976 \*.

Year	F.R.G.	G.D.R.
1960	33.8	38.8
1961	32.0	33.7
1962	29.3	31.6
1963	27.1	31.2
1964	25.3	28.6
1965	23.8	24.8
1966	23.6	22.9
1967	22.8	21.4
1968	22.6	20.2
1969	23.2	20.3
1970	23.4	18.5
1971	23.1	18.0
1972	22.4	17.6
1973	22.7	15.6
1974	21.1	15.9
1975	19.7	15.9
1976	17.4	14.1

Source: Bundesminister für Jugend, Familie und Gesundheit <sup>8</sup>.

The table shows the development of the infant mortality from 1960 to 1976, on the one hand in the capitalistic Federal Republic of Germany (West Germany), on the other hand in the socialistic German Democratic Republic (East Germany) <sup>8</sup>. In West Germany, the rate was indeed cut down by half, although not continuously, during this time period, going from 33.8 to 17.4<sup>0</sup>/<sub>00</sub>. In the politically and socially competing part of Germany, the rate also sank, going from 38.8 to 14.1<sup>0</sup>/<sub>00</sub>. But most importantly, the rate there has been *under* the rate of the Federal Republic since 1966, and it sank faster. *This*, in my opinion, is the decisive point, this is the spur to action, the motivation for the political decision.

Considering S. Paulo, or other Brazilian cities, it is true that even there, the boom of the 1960's and 70's has in the meantime been cut down, and this has occurred even though these cities continuously expanded. The population of S. Paulo, for example, increased again by about 42% from 6.0 to 8.5 million between 1970 and 1980. Nevertheless, infant mortality decreased from 77.1 to 53.6<sup>0</sup>/<sub>00</sub> during the same time period (see Fig. 1A). It would therefore not only be unfair but also wrong to maintain that one had not done anything over there and that things would only become worse and worse. However, consideration of the development of the cities as a whole, while in itself very gratifying, does conceal a very burdensome state of affairs. Particularly disadvantaged population groups, especially in the "população favelada" \*, profited very little from the positive course of development, and it is above all their quota in the entire population which increased constantly. In Porto Alegre, for example, the capital of Rio Grande do Sul, the Brazilian state farthest south, infant mortality climbed from 46.7<sup>0</sup>/<sub>00</sub> in 1968 to 93.0 in 1971, but sank again until 1977, to 44.8<sup>0</sup>/<sub>00</sub> <sup>44</sup>. And this occurred, although here too, the population continued to grow unimpededly. In 1960, the number of inhabitants totaled 635,000; in 1970 886,000; and in 1980 1,126,000. This means practically a doubling within the timespan of two decades. In 1965, 8.1% of the entire population lived in "núcleos de sub-habitação" \*\*; in 1973, 9.5%; but in 1980, 15.2%. And even if this is still "only" a minority group, "only" one sixth of the whole population, this nevertheless meant, in 1980, 171,419 separate human fates <sup>21</sup>. Whoever came into the world there had three times less a chance of

\* Like slum population.

\*\* Allowing for the different social context, the same as "slum-dwellings".

ever completing the first year of life in comparison to the infants of the "população não-favelada"\* (infant mortality rates of 1980: 74.4 and 24.4<sup>0</sup>/<sub>00</sub>, respectively). The "loss of possible years of life"<sup>6</sup> is exceedingly large among the "favelados"\*\*\*; "avoidable" cases of death due to perinatal affections, pneumonia and influenza, intestinal infections, and sepsis are between two and eight times as often among their infants<sup>21</sup>.

All of this is well-known and not just in the offices of the State Secretary for Health in Porto Alegre, which under its own direction carried out the comprehensive field research and published the results<sup>21</sup>. The situation is also well-known in other Government offices dealing with the problems of the "população favelada"\*\*\* — that is, in the Departments of Housing, Public Hygiene, Education, Energy, Security, Labor, and Transportation. But again, this does not automatically mean that decisions have already been made, let alone that action in accordance with such decisions is being taken. In the face of an extremely strained economic situation, one is dealing here with a distribution problem of scanty resources, with the establishment of priorities — ultimately, therefore, once again with a political decision process in which the decisive factor is the *motivation* concerning the starting point of action, where one should first take action. Brazil does not at all need tutoring lessons from us in regard to the causal relationships. Nevertheless, in my opinion a consideration of these problems from outside the country is capable of influencing the motivation in regard to the distribution of scanty resources there so that investments in the solutions to problems are given greater priority. For it seems to me that the difficulty lies in translating the knowledge into remedial

practice since it cannot always be assumed that those who have the power to make decisions, in any case not the majority of them, are motivated in this direction and since such a motivation cannot be reached without difficulty in a country which does not have deeply rooted democratic traditions. I cannot presume to make a more in-depth judgment here since I don't have enough insight into the processes of passing resolutions. — Besides, I am occupied here with the simple question of whether the basic attitude of all of us in Europe is really altruistic. I doubt it many times

In Figs. 2 to 5, Brazilian and German conditions and developments are set respectively in relation to one another. It must be emphasized that one has to proceed carefully with this for several reasons. For one thing, Brazil is more than 34 times as large as the Federal Republic of Germany and is larger than the entire European continent alone. Just as in Europe, for example, the life expectancy or infant mortality in Sicily deviates very considerably from the life expectancy and infant mortality in Iceland, the values in Brazil also differ very substantially between a more "progressive" South and a more "backward" Northeast. Accordingly, the Brazilian average values taken as a whole blur the actual situation just as much as do the European values when taken as a whole. For another thing, in all comparisons, the great source problems resulting from the earlier mentioned registration deficiencies in Brazil have to be taken into consideration. Corrections made in accordance with statistical model calculations can indeed minimize the problematic, but they cannot remove it<sup>13,18</sup>. In several figures, I have therefore limited myself to the data on the state capitals and have disregarded the hinterland whose data is more difficult to record (e.g. Fig. 2 in respect to the epidemiologic transition from 1930 to 1980<sup>34</sup>). Conversely, the data on

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\* Non-slum-population.

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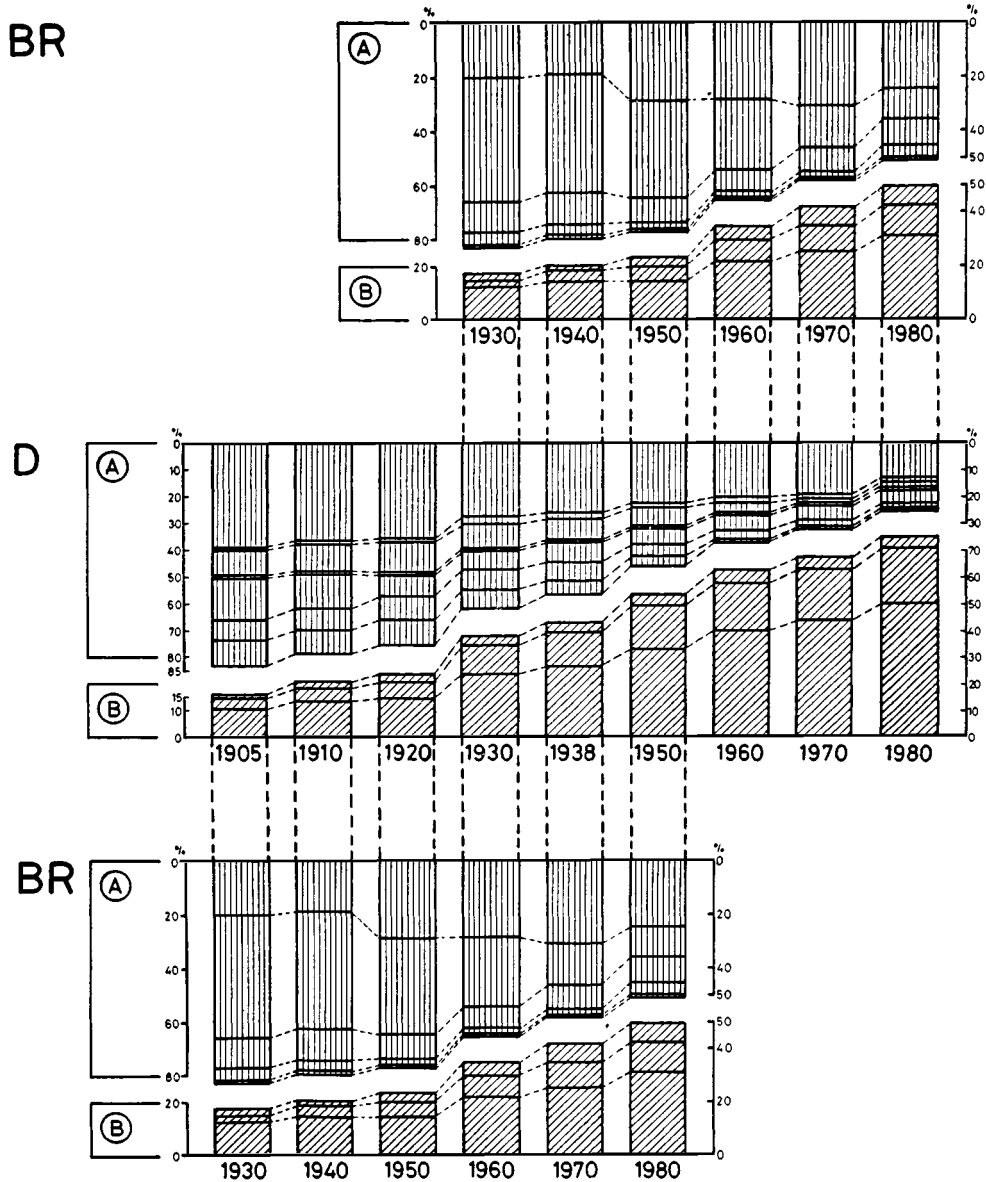


Fig. 2: Epidemiologic transition in Brazil (= BR) 1930-1980 and in Germany (= D) 1905-1980. Top and bottom: Successive shift in the distribution of frequency of the most important causes of death and groups of causes, respectively, in the Brazilian state capitals. Group A covers, from top to bottom: 1. All other causes of death; 2. Infectious and parasitic disease; 3. Diseases of the respiratory system; 4. Diseases of the digestive organs; 5. Deaths cases in connection with pregnancy and child birth. — Group B covers from top to bottom: 1. Accidents; 2. Neoplasms; 3. Cardiovascular diseases. 100% = All death cases in the year in question. Sources: Barros<sup>5</sup>; IBGE<sup>17,18</sup>; RADIS<sup>34</sup>.

Middle: Successive shift in the distribution of frequency of the most important death causes and groups of death causes in the German Reich from 1905-1938 as well as in the Federal Republic of Germany from 1950 to 1980. Group A covers from top to bottom: 1. All other causes of death, including infectious and parasitic diseases; 2. Suicide; 3. Senile deterioration; 4. Maternal mortality; 5. Diseases of the digestive organs; 6. Inflammation of the lungs; 7. Tuberculosis. — Group B covers from top to bottom: 1. Accidents; 2. Neoplasms; 3. Cardiovascular diseases. 100% = All death cases in the year in question. Sources: Statistisches Bundesamt<sup>52,53</sup>.



"Germany" sometimes only relates to the city of Berlin, which of course is also not representative of the entire country in every respect. Thirdly, the colligations of death cases according to the causes of death and furthermore the assignment of these to one of the two groups A and B in Fig. 2 which I have undertaken in regard to both countries, do not at all agree a hundred percent. In short: I intentionally make no use of a hardly tenable comparison of "exact facts" between Brazil and Germany. Rather, I am exclusively concerned with recording and pointing out the longterm tendencies of development and with discussing the consequences that result from this.

Figures 2 and 3 show two aspects of one and the same development. The further the epidemiologic transition has progressed in a country — that is, the less people still fall victim to the "old" causes of death (above all to infectious and parasitic diseases, diseases of the respiratory system and the digestive organs, cases of death in connection with pregnancy and childbirth) — the larger the quota of older and really old people becomes<sup>40</sup>. Moreover, fewer and fewer young people make up the new rising generation because the birth rate is most often sinking simultaneously within the framework of the demographic transition. Or, to put it conversely: the more the people of a given society become older and older because the "old" illnesses are no longer dangerous to them, the more frequently these people reach the symptom threshold of the "modern" chronic illnesses (above all, cancer as well as cardiovascular diseases) which run a lethal course. Although it is not my intention to "measure" Brazil's development in this area according to the German development — neither in Brazil nor in Germany does the development have to proceed continuously or always in the same direction<sup>46</sup> —, nevertheless, the tendency does seem to be similar, taking into consid-

eration a present time lag of about 30 years and, again, the great regional differences within Brazil<sup>34,40</sup>. But if this holds true, that is, if in Brazil as well the "old" causes of death are successively becoming irrelevant to a larger and larger portion of the population and people there are also reaching an older and older age, then Brazil will sooner or later catch up to us in regard to our *problems* as well.

In considering the middle graph of Fig. 2, one sees that death in Germany has fundamentally changed in the course of a few generations. Whereas at the beginning of our century more than four fifths of all death cases were due to the old causes of death, the quota has in the meantime shrunk down to one fourth<sup>53</sup>. The overwhelming majority of people in Germany today die from degenerative and man-made diseases. Dying of a chronic-incurable illness in later life after having endured the misery of being an invalid for weeks, months, or even years on end is, however, a fundamentally different kind of dying as being wrenched away at a blossoming age by a relatively fast killing infectious or parasitic disease. Thus, more and more of us not only have to learn to deal with a hopeless and protracted illness both physically as well as psychologically but also fall into social, medical, and economic relationships of dependency to a greater and greater extent because of the body's increasing deterioration resulting in part from such illnesses. Death thus occurs in installments for most of us today: first occupationally or professionally, when at about 60, 65 the retirement age is reached; then a few years later in terms of the domicile and frequently also in terms of the family, when a move into an old age home or a long-term nursing home becomes necessary what with the increasing frailty of our bodies due to progressive chronic suffering. And finally a few months or years later biologically, after having been brought into a hospital in

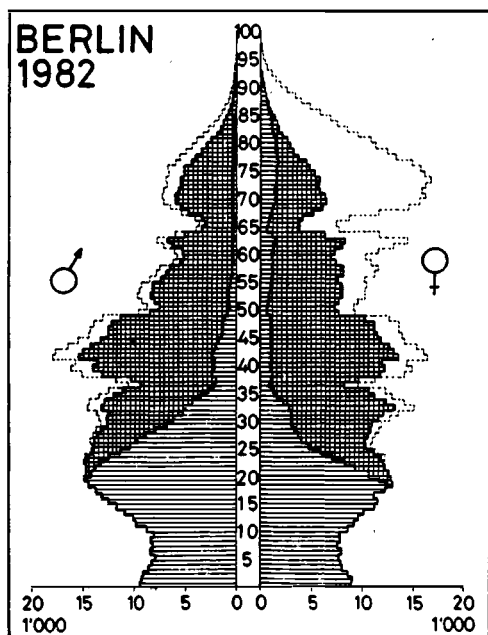
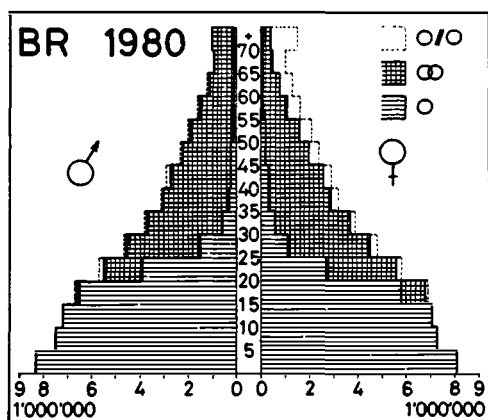


Fig. 3: The populations of Brazil 1980 (119,002,706) and Berlin / West 1982 (1,869,584) according to age, sex, and civil status (single, married, widowed and divorced).  
Sources: IBGE<sup>19</sup> e Gottschalk<sup>20</sup>.

the terminal phase. Moreover, in this last phase of life, additional psychological, sexual, and economic problems confront a larger and larger number of single, primarily widowed women; this is because of the considerably higher life expectancy of the female portion of the population (in 1980/82, in the Federal Republic of Germany 76.9 among women as opposed to 70.2 years among men). The situation is especially extreme in Berlin (see Fig. 3), which, incidentally, is also due to the long-term effects of the Second World War in which many women lost their men<sup>20</sup>. Seen on the whole, the prospects awaiting most of us in the later phase of life are thus not particularly very gratifying. It is very definitely not a paradise.

There already exists extensive literature concerning the very wide-reaching effects of this development not only upon the individual or family, or upon the manner in which the generations get along with one another in all spheres of life, but also upon society, political economics, the health system, social politics, the new branches of science gerontology and geriatrics, the care of the dying within the framework of psychology and theology, and so on<sup>11,12,58</sup>. This literature makes us recognize two things: for one, we see the problems; for another, however, we still have not solved them.

How quickly Brazil is following us on this path becomes clear in Fig. 4, in which death cases are distributed according to age and sex. In point of fact, many cases of death are still occurring there among infants and small children under five years of age — a situation similar to the one in Berlin around the turn of the century. Nevertheless, whoever managed to survive this early phase intact — a phase which now as before is relatively dangerous — has pretty good prospects even today of reaching not only the middle stages but also the later stages

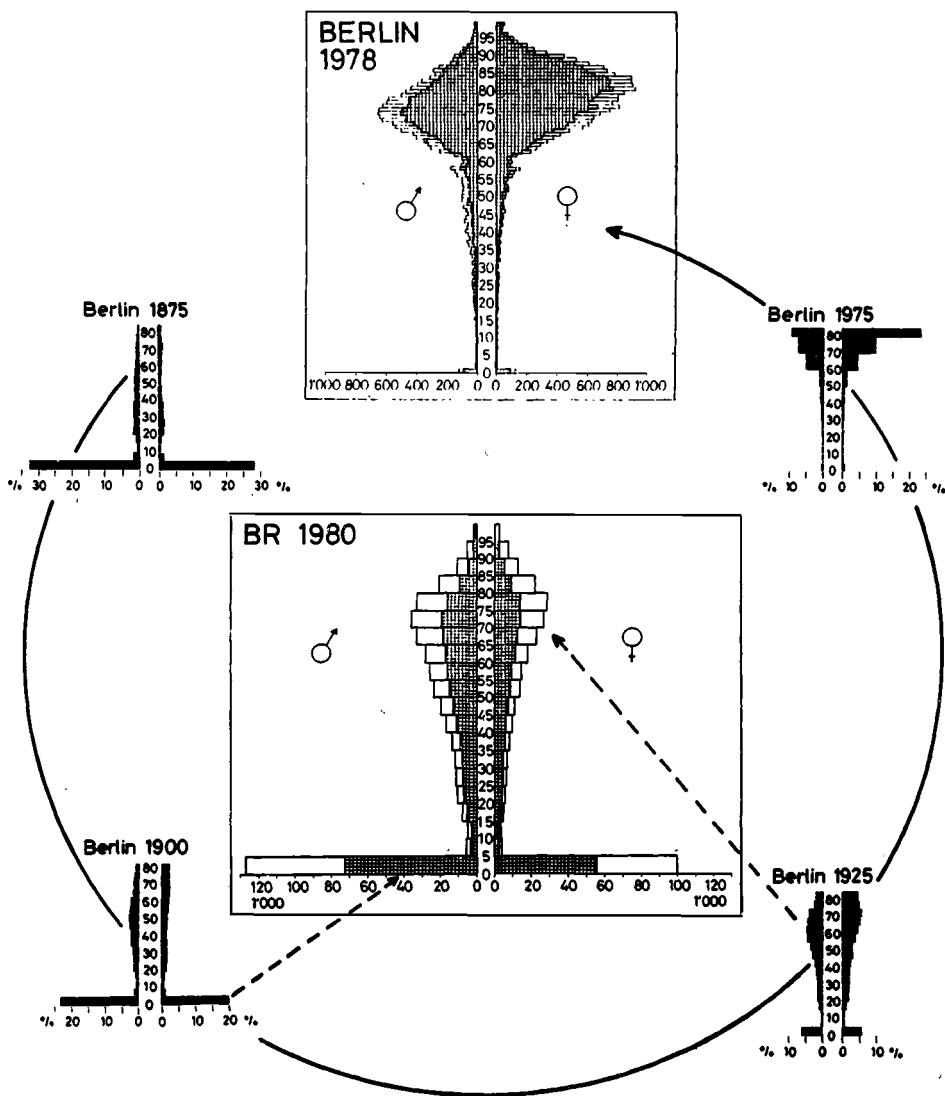


Fig. 4: Number of deaths according to age groups and sex in Berlin 1875, 1900, 1925, in Berlin / West 1975 and 1978, and in Brazil 1980. In the graphs for Berlin 1978 and Brazil 1980, the dark core renders prominent the number of death cases occurring in hospitals<sup>18</sup>. The author wishes to thank the Berlin Bureau of Statistics which made the Berlin-related computations in Figs. 4 and 5 possible.

of life before dying — similar to what we can ascertain of the situation in Berlin during the time period between the two World Wars (around 1925). And simultaneously, the tendency is also beginning to appear in Brazil in which the process of dying is transferred from the home and into the hospital, whereby death and dying are hidden behind hospital walls, are made into events which occur in solitude and isolation, excluded from the scenery of every-day life. According to the data on hand, 57% of the death cases of men and 56% of the death cases of women occurred in hospitals in Brazil, 1980<sup>16</sup>. In Berlin, 1978, it reads: 72% for men and 79% for women.

On the other hand, it is precisely the present-day distribution of the ages at death in Brazil as well as the present state of the epidemiologic transition which makes it understandable why all available energy and resources there are being concentrated on forcefully pushing ahead a development that is already under way. As long as infants and small children continue to make up the largest single age group by far among the death cases and as long as 16.2% of all cases of death under 65 years (in the Brazilian state capitals, 1980) alone are to be attributed to intestinal infectious, 10.4% to pneumonia, and 3.9% to inadequate nutrition as well as to anemia<sup>6</sup>, successful results lie in the attainable realm of the possible. To actually avoid the “avoidable death cases” and to actually make the “lost possible years of life” possible appear to be perfectly feasible tasks. Concentrating upon urgent tasks and tasks considered accomplishable since the relevant causal relationships are known, the drive to make up for time as well as the certainty of being able to do this by employing all available facilities — all this understandably does not leave much room for a foresighted occupation with problems that are also beginning to

appear in Brazil, problems that will some day hit the country in full force when there are no longer “premature death cases” and “lost years of life” due to nutritional deficiencies, intestinal infections, or pneumonia. Brazil will have to deal with those problems which are ours today, as I have briefly sketched them above.

Although in striving for a real dialog it is my intention to make the Brazilians aware of these *our* problems, thereby admitting frankly that, although we recognize them, we still don't have them under control, — I nevertheless do not want the discussion to end with these rather depressing facts. Our discussion partners could otherwise easily come to the fatal conclusion that their present determined efforts to further reduce the infant mortality, to push back infectious and parasitic diseases, to cut back the nutritional deficiencies, to improve the living standards and preventative practices, to better the supervision of the working environment, and so on — that these efforts are not worth the time and expense, since the gradual solution of these present problems seems only to inevitably lead to new problems in the future.

Of course it is not possible for us, as for the Brazilians, to look to some other area of the world in order to find out where the further development of the epidemiologic transition will or could lead to. We in Europe are, after all, at the fore of the development. Nevertheless, such reflections concerning the future are justified, and in my opinion they ultimately, open up a more optimistic view of the future, both for us and in the end for the Brazilians.

Figure 5 at the top shows the development of the survival curve on the one hand in Berlin at different time periods during the last one hundred years or so and, on the other hand, in Brazil in the more progressive South as well as in the

more backward Northeast, in 1977 (Fig. 5A). As was to be expected on the basis of Figs. 2 to 4, the situations in the Brazilian regions lie somewhere between our situation in 1910 and our situation in 1970/72, the Northeast being closer to 1910, the South closer to 1970/72. What is, however, more decisive for my argumentation is that all of the curves, whatever the form be which they may otherwise show, have one thing in common: they always reach the zero-line at approximately 90 years. However much the life span may vary among the people of a given generation, nonetheless, the average of the highest life expectancies totaled at any given time period and totals today little more than 90 years. This holds true in Germany as well as in Brazil.

This state of affairs is not surprising when one makes comparisons with the situations found in animal populations. Fig. 5B shows the survival curve of mouse-like rodent populations which: I) live in the wild; II) are kept in captivity, e.g. in zoos; and III) are allowed to grow old under good laboratory conditions<sup>50</sup>. The physiologically determined average of the highest life expectancy of these three animal populations is just about always the same, just as the case is with people in the course of historical time periods or today at geographically different locations of the world and under very different socio-economic conditions. — In contrast to this, the ecological life expectancy behaves very differently, actually showing great differences. The number of people and, respectively, of animals which prematurely die, varies enormously.

Extrapolating into the future, Fig. 5A accordingly suggests a still constantly increasing bulge in the curve at the middle and later stages of adult life. More and more people will thus be completely filling out the "life-encasement" fixed for them biologically and will not

be dying until the age of 85 or 90. I have recorded the expected survival curve as a dotted "rectangular curve", leaning on the research results of North American geriatricians<sup>14</sup> (for a critical evaluation of this concept, see<sup>29</sup>). According to them, the prerequisite for this is an elevation and ultimately the complete exhaustion of our biological-physiological reserve capacities of our bodies so that those illnesses which our present-day statistics of death causes in Europe mention and which are still wrenching many of us away "prematurely" would not longer have the chance of breaking out before we have completely filled out the "life-encasement". But once the edges of the encasement are bumped against, any kind of negligible health loss would be sufficient to blow out the candle of life which is near to burning out anyway. The result would be the cap sizing of the epidemiologic transition. Protracted, chronic suffering would again be substituted by fast-killing acute illnesses.

The optimistic conclusion of such a development can easily be seen for the individual, family, health system, economy, as well as for the society as a whole: good health and, along with that, the greatest degree of independence just about up to the last breath, diminution of the widespread fear that we have of an agonizingly long process of dying, that is, of not being able to die, and for the first time a high-percentage guarantee of a lifespan that is of standardized length for everyone.

Of course, there are still no grounds for unlimited optimism even when this stage of development is reached. The guarantee of a biologically insured long healthy life does not simultaneously mean a guarantee of a meaningful long life. But the prerequisites needed for meaningful long life would thereby be created, prerequisites more favorable than at any time before in history.

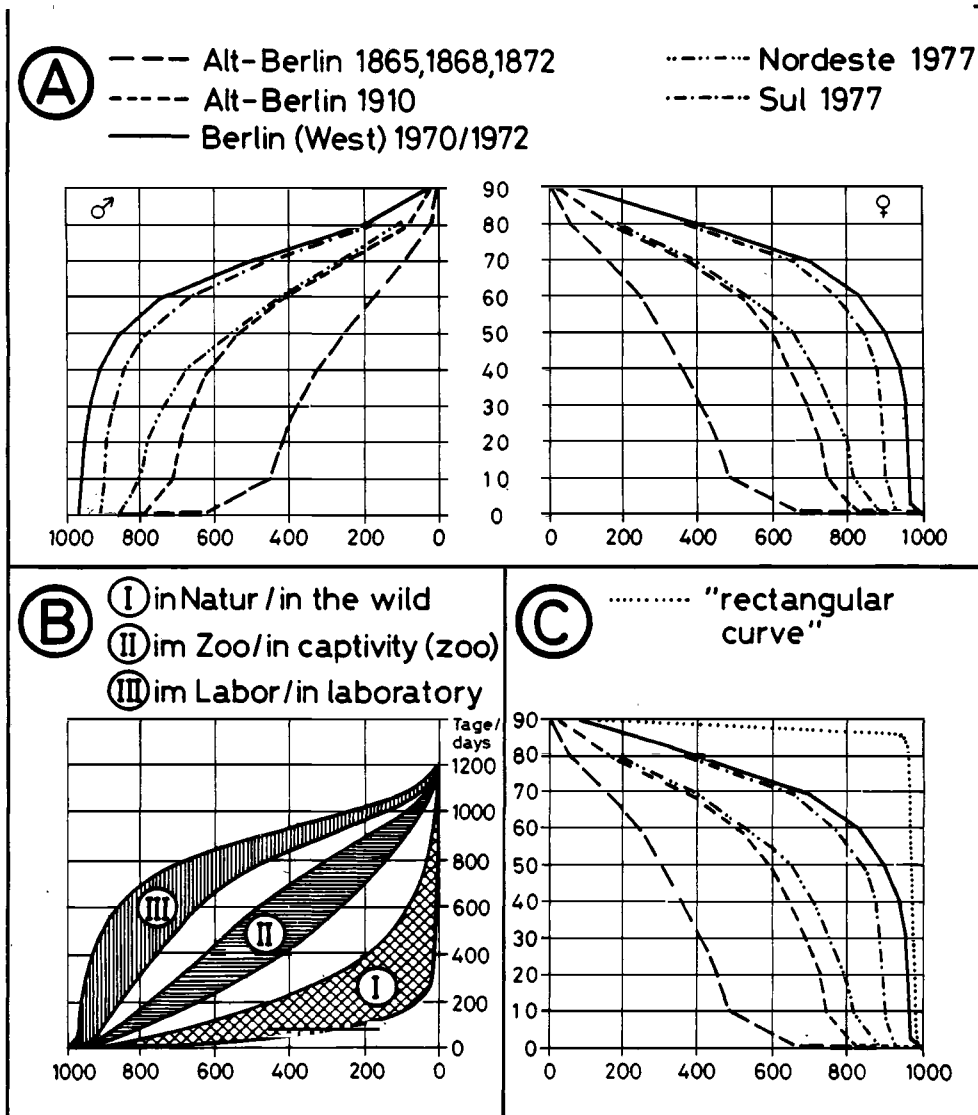


Fig. 5: Survival curves of human and animal populations in the past, present, and future.  
 (A): Survival curves for male and female populations in Alt-Berlin 1865, 1868, 1872; in Alt-Berlin 1910, and in Berlin / West 1970/72, as well as in the northeastern and southern parts of Brazil 1977<sup>17</sup>. (Nordeste = the Brazilian states of Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, and Bahia. Sul = Paraná, Santa Catarina, and Rio Grande do Sul).  
 (B): Survival curves for mouse-like rodent populations, which live: (I) in the wild; (II) in captivity, e.g. in zoos; (III) in good laboratory conditions.  
 Source: Sacher<sup>10</sup>.  
 (C): Supplementary to the female survival curve in graph A, the "rectangular curve" is recorded on the right, an extrapolated projection of the historical development into the future.  
 Sources: Fries & Crapo<sup>14</sup>.

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IMHOF, A.E. [Mortality problems in Brazil and in Germany: past-present-future. Learning from each other? *Rev. Saúde públ.*, S. Paulo, 19:233-50, 1985.

**ABSTRACT:** This article was written by a Swiss-German historical demographer after having visited different Brazilian Universities in 1984 as a guest-professor. It aims at promoting a real dialog between developed and developing countries, commencing the discussion with the question: Can we learn from each other? An affirmative answer is given, but not in the superficial manner in which the discussion partners simply want to give each other some "good advice" or in which the one declares his country's own development to be the solely valid standard. Three points are emphasized: 1. Using infant mortality in S. Paulo from 1908 to 1983 as an example, it is shown that Brazil has at its disposal excellent, highly varied research literature that is unjustifiably unknown to us (in Europe) for the most part. Brazil by no means needs our tutoring lessons as regards the causal relationships; rather, we could learn two things from Brazil about this. For one, it becomes clear that our almost exclusively medical-biological view is inappropriate for passing a judgment on the present-day problems in Brazil and that any conclusions so derived are thus only transferrable to a limited extent. For another, we need to reinterpret the history of infant mortality in our own countries up to the past few decades in a much more encompassing "Brazilian" sense. 2. A fruitful dialog can only take place if *both* partners frankly present their problems. For this reason, the article refers with much emphasis to *our* present problems in dealing with death and dying — problems arising near the end of the demographic and epidemiologic transitions: the superannuation of the population, chronic-incurable illnesses as the main causes of death, the manifold dependencies of more and more elderly and really old people at the end of a long life. Brazil seems to be catching up to us in this and will be confronted with these problems sooner or later. A far-sighted discussion already at this time seems thus to be useful. 3. The article, however, does not want to conclude with the rather depressing state of affairs of problems alternately superseding each other. Despite the caution which definitely has a place when prognoses are being made on the basis of extrapolations from historical findings, the foreseeable development especially of the epidemiologic transition in the direction of a rectangular survival curve does nevertheless provide good reason for being rather optimistic towards the future: first in regards to the development in our own countries, but then — assuming that the present similar tendencies of development are stuck to — also in regard to Brazil.

**UNITERMS:** Mortality, trends. Epidemiology.

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