

# Speaker's corner

Science, policy, politics, a complex and unequal world and the emerging of a new infectious disease

In developed countries, infectious diseases (ID) fully dominated the population health problems until the first decades of the past century, and continue in poorest countries today. Epidemics like plague or cholera, at different times, have killed significant proportions of the population from important cities, including European ones. The decline of ID in the 19th century, raised, in scientific circles, the belief that they would disappear and that their persistence in poor countries would also diminish following the tendency observed in developed countries. A world without ID was announced. The most complete formulation of this idea is the so called epidemiological transition theory.<sup>1</sup> However, the unexpected happened: over the last decades of the 20th century ID emergence/re-emergence was registered, even in the rich parts of the world. In the poorest parts the new diseases have added to already large ID burden.<sup>2</sup>

Historical studies bring us some enlightenment. A historian analysing the importance of this group of diseases in the history of human society made some surprising observations.<sup>3</sup> He criticised the dominant notion that ID had not had an important influence on the course of human civilisation, and argued that ID have been at least as important as economic and military forces. Other historical studies have also emphasised the importance that the occurrence of ID, mainly in epidemic forms, has had in the formation of the theological, social, and political thinking prevailing within different human societies in medieval and modern times.<sup>4,5</sup>

Until the end of the 19th century miasmatic (localist/environmentalist) and contagionist theories were in marked opposition regarding the explanation of the occurrence and dissemination of ID. This conflict raised not only scientific debates, but also different ID prevention strategies (sanitationists versus quarantinists). The public health policies in response to the endemic and epidemic ID problem at the time reflected not only the level of contemporary scientific debate but also the authoritarian and interventionist character of the nations.<sup>6,7</sup> The bacteriological revolution at the end of the 19th century strengthened the contagionists and their preventive models, and restrained the sanitationists. The intense scientific development that followed, which led to the discovery and development of successive generations of antibiotics (and later antivirals) and the vaccines strengthened the views of the contagionists.

However, unexpected emergence/re-emergence of ID has created a dilemma. The first report to outline an authoritative approach to the problem<sup>8</sup> as well as others that immediately followed<sup>9-11</sup> made evident that this emergence/re-emergence was largely a consequence of human intervention on the natural and social environment (which in some sense makes them more close to the 19th century environmentalists than contagionists). As both public health and medical policies and practices reflect scientific but also other conceptions, it is understandable that environmental and social changes, nowadays recognised as the reasons for ID emergence/re-emergence, were not initially appreciated. This oversight was the consequence of the false impression (scientifically constructed) that scientific knowledge and technology would ensure the final defeat of ID.

The emergence of the severe acute respiratory syndrome (SARS) has been followed by an unprecedented scientific effort. Researchers and scientific editors rapidly made impor-

tant information about the aetiological agent and several epidemiological features available, so that preventive measures were implemented and the search for curative medicines and an efficacious vaccine was set in motion. The internet made possible the dissemination of qualified information about a health problem at a speed never before seen. However, if we take in a historical perspective so far the approaches given to the problem have more similarities with the contagionists than environmentalists traditions. In the same way, the preventive approach in different countries, apart from the scientific knowledge accumulated, reflects the degree of authoritarianism of political regimes, and the moral and legal traditions associated with individual and collective rights. It is worth noting that these efforts do not prevent the spread of fear and strong economic effects, even in areas where the epidemic did not occur.

As far as science and public health policies and practices are concerned, emergence/re-emergence of ID presents as a complex problem,<sup>12,13</sup> requiring the participation of several different subjects and approaches. The study of the structural and molecular characteristics of the agents must be accompanied by the exploration of the environmental, social, economic, political, moral, and legal contexts that facilitate or inhibit the emergence and spread of such agents. Approaching the problem and elaborating prevention alternatives is complicated by the the existence of a complex social context with overwhelming needs and privations, an environment that is technologically modified but frequently unfriendly, the existence of large territories where unknown microbes circulate. All efforts must now be focused to avoid errors already made in the past. Research priorities must include the study of the broad and specific determinants of the previous emerging/re-emerging diseases. Partial and deformed views of complex problems have generated illusions and traps and have led to enormous failure in our ability to make previews and prognostics resulting in negatives consequences for all humanity.<sup>14</sup>

The continuous biomedical scientific development enabling the study of diseases at a molecular level must not induce anyone to think that the lack of scientific knowledge was the only reason behind the limitations and mistakes of the old contagionists. In addition, the new environmentalists must be prepared to accept that these and other scientific developments bring about new unforeseen possibilities for understanding more about the stages that exist between health and disease, and between molecules and societies.

**M L Barreto,**

Instituto de Saúde Coletiva, Federal University of Bahia, Brazil;  
mauricio@ufba.br

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## THE JECH GALLERY.....

### Environmental hygiene in Shanghai: Meat for sale

This photograph was taken in March this year on a street in Shanghai just before SARS became world news. It reminds us that environmental health is still an issue in many parts of the world, even in such apparently booming and modernising metropolises in today's China.

**J R Ashton**  
Joint Editor

