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Conclusion

It may be now asked, to what purpose tends all this labourious buzzing and groping?¹

William Heberden's 1768 description of angina pectoris and his subsequent writings on the subject have been reviewed. Rare earlier descriptions of what might be understood as the pain of myocardial ischaemia were critically examined. Historical reasons have been given for considering angina pectoris to have been a symptom complex of exceeding rarity prior to Heberden's lifetime rather than a common but unrecognized affliction. Causes for its sudden emergence were sought, together with possible bases for a subsequent rapid increase in prevalence. As angina pectoris was initially a complaint confined almost exclusively to upper- and middle-class Englishmen, reasons for this were sought in the changes in all aspects of life that were taking place in Georgian England and the extent to which they differed from developments or lack of them in other countries. Finally, the subsequent 200-year relationship of coronary heart disease incidence to changes in demographic and lifestyle risk factors, old and new, was reviewed.

There is known to have been a modest growth in the total population of England during the early and middle years of the Georgian era and, particularly among the prosperous, some increase in the numbers of people who lived to middle and old age. These changes accelerated towards the end of the century, with a resulting growth in the number of individuals who reached an age at which they would have been susceptible to symptomatic coronary heart disease. These demographic changes, however, were deemed insufficient by themselves and too late in time to account alone for the sudden emergence and late-eighteenth-century documented prevalence of angina pectoris among the English upper and middle classes. Other possible causes were therefore sought.

During the eighteenth century there were revolutionary changes in agricultural practice in England and, as a result, a dramatic increase in both the availability and the fat content of animal foods. These included veal and beef, lamb and mutton, game, bacon, poultry, eggs and dairy products. There was in consequence a very great increase in the consumption of animal fats, notably by the members of society for whom these foods were readily affordable. Twentieth-century studies suggest that the changes in animal husbandry introduced during the Georgian era would have resulted in the fats becoming increasingly saturated, with an accompanying reduction in their polyunsaturated fatty acid content. These developments are thought to constitute the principle cause for the initial appearance and the subsequent increase

¹ John Graunt (1620–74), *Natural and political observations made upon the Bills of Mortality*, ed. Jacob H Hollander, Baltimore, Johns Hopkins Press, 1939, p. 77.

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in prevalence of angina pectoris among the more prosperous sections of English society during the late eighteenth century.

During the Georgian era the changing diet of the well-to-do was also characterized by greater consumption of salt, sugar and coffee, reduction in fibre and possibly some lessening of fish and vegetable intake. Reasons have been adduced for considering these changes to be relevant ancillary risk factors for development of coronary heart disease, although less certain in their effects than the changes in fat consumption. Obesity was common, with people tending to gain weight as they grew older. High consumption of saturated fats, low fibre intake, very liberal coffee consumption, rising salt intake and obesity have all been implicated since as contributors to increase in blood pressure. This raises the possibility, although incapable of proof, that hypertension with its complications became increasingly prevalent during the course of the Georgian era.

The eighteenth century was the first in which tobacco consumption was at a high level, although caution is needed in ascribing significance to this because cigarettes were then unknown. People smoked pipes exclusively and tobacco was often chewed or taken as snuff, and the role of these as risk factors for development of coronary heart disease is unproven. Increasing secondary exposure to smoke, a known hazard, may have been important. Recruits to the growing business and professional classes became less active physically as they became able to afford servants. There is also evidence to suggest that improvements in horse-drawn vehicles resulted in middle- and upper-class people travelling in carriages more and walking or riding on horseback less as the century progressed. These changes had a possible impact on levels of physical activity comparable to those which resulted from rising car ownership during the twentieth century. Finally there were some increasing pressures unique to the rising middle classes, notably stresses associated with upward mobility, the need to remain subservient to those possessed of “*ancienne richesse*” and the growing anxieties that accompanied financial insecurity. These causes for worry could be considered significant in light of the currently recognized association of mental stress with predisposition to development of coronary heart disease. Each risk factor was initially considered separately, but two or more would frequently have coexisted in individuals or groups of people and interacted in ways now known to have not only additive but multiplicative effects on coronary heart disease incidence.

Heberden's case reports and those of later eighteenth-century physicians included not only the typical and stable pain that occurs with exertion and is relieved by rest, but also its onset at rest, unstable angina, prolonged episodes of pain with collapse, congestive changes and in some instances death. It would appear, therefore, that not only angina of effort but coronary heart disease in most if not all of its clinical variations became manifest and then increasingly prevalent during the late eighteenth century. The risk factors that have been considered could therefore be deemed contributory to the emergence of coronary heart disease in all of its clinical presentations.

By the early nineteenth century angina pectoris had been recognized throughout the western world and it probably became somewhat more prevalent during the

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Victorian era when demographic factors played a more important role than formerly, with rapid growth of populations and their aging as expectation of life lengthened. The dietary risk factors that were first embraced in eighteenth-century England retained their importance in the nineteenth and became characteristic of other countries as they began to apply the farming practices developed in England during the earlier Agricultural Revolution. During the twentieth century there was an undoubted great increase in the prevalence of angina pectoris as a manifestation of coronary heart disease. Populations rose in numbers and aged as expectation of life lengthened. By mid-century, improving economic conditions in the developed world resulted in high risk diets becoming affordable by members of all social classes, whilst arrival of the car and mechanization in the workplace contributed to their ever more sedentary lifestyles. As in the eighteenth century, the impact of completely new risk factors became felt. In the Victorian era it was the cigar, and in the early twentieth century the introduction of hardened margarines with their high trans-fatty acid content and, above all in importance, the cheap cigarette. With all these developments angina pectoris became for the first time a complaint widespread amongst all the social classes of developed countries. By the 200th anniversary of Heberden's presentation to the Royal College of Physicians of London, angina pectoris had become a marker of the coronary heart disease that had become the leading cause of death throughout the developed world. This anniversary, however, marked the beginnings of effective lifestyle and medical interventions that were followed by a decline in incidence and mortality. The "natural" history of angina pectoris had come to an end.

England had led the way in the agricultural and social changes that have been described, and Georgian England was characterized by a degree of inventiveness and innovation greater than in all the centuries of recorded human endeavour that had preceded it. The Agricultural Revolution resulted in greater prosperity, diminution of want and hunger, ability to feed a growing and productive urban population. It was accompanied by a better distribution system and a consequent reduction in the impact of famine. It contributed in no small measure to better health among the general population, a rising expectation of life and an improvement in its quality. These formidable advances must be weighed in the balance when considering any untoward consequences, one of which has been the theme of this work. At the same time, the events of the eighteenth century carry a warning for the future. The evidence presented in Chapters IV and V suggests that the chemical differences between the fats of farmed animals on the one hand and those of marine mammals and fish on the other are not endogenous, but the result of changes in the land animals as a result of the human intervention in their feeding patterns. As marine mammals become threatened and killing them either restricted or abolished, their availability for human consumption becomes less. As the seas, rivers and lakes are vacuumed clean and traditional ways of fishing replaced by farming of fish, their fat content is being increased and its composition altered by artificial feeding.² The

² R George and R Bhopal, 'Fat composition of free living and farmed sea species: implications for human diet and sea-farming technique', *Br Food J*, 1995, 97: 19–22.



*Illustration 11: 'Okay, will somebody please bring me up to date?' (Arnie Levin, cartoonist). (Reproduced from the *New Yorker* collection, 29 January 1996. From cartoon bank with permission.)*

eighteenth-century changes in land animal feeding practices are now being replicated in the waters. Whether this will prove deleterious to human health is indeterminate at present but the possibility exists. The cloud may be no smaller than a man's hand, but a cloud it is.

In a sense, the reader has been throughout in the position of a person going through a door marked "pull" when everyone else is moving in the opposite direction and following instructions to "push". We are now living in a world which passes judgement on major lifestyles in ways that are almost Orwellian in their simplicity. Animal fats, excess calorie intake, sugar, salt and coffee are bad; fish, vegetables and fibre are good. Tobacco consumption and inactivity are bad; exercise is good. In the preceding chapters the reader was projected into a world that was almost exactly the reverse. In England, the eighteenth century was an era in which animal fats were used in increasing amounts in order to prepare dishes for which gourmet cooks and fashionable hostesses were esteemed. Obesity was seen as an indication of success and "roast beef was the Englishman's sacramental meal".³ It was a time when sugar was enjoyed and welcomed as a product of an expanding empire of which people were proud, and with the prosperity of which they identified themselves. High fibre foods were deemed nutritionally undesirable and eating white bread was a symbol of refinement. Vegetables were held in low esteem whilst salt was welcomed as a condiment and valued as a preservative. The atmosphere in which men drank coffee was convivial, often intellectually stimulating and valuable for the transaction of

³ Roy Porter, *English society in the eighteenth century*, Harmondsworth, Penguin, 1990, p. 21.

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business. Members of the clergy and advocates of temperance considered coffee a valuable substitute for alcohol. The discontinuance of fish consumption on special religious days and its replacement by meat was associated with the Enlightenment. The dietary changes were linked with the abandonment of religious rituals that were no longer thought meaningful by people who prided themselves on being guided by reason. Tobacco was welcomed as a pleasurable solace. Improved methods of transport and the resulting reduced need to walk or ride on horseback were hailed as signs of progress and an unqualified blessing. In the eighteenth century coronary heart disease involved the privileged exclusively. During the late twentieth century it became increasingly common among the underprivileged. Because of all these contrasts, readers must be able to effect a complete reversal in attitude, necessary as they are taken back in time some two centuries and more. Personally, after long continued and near total immersion in the world of the eighteenth century, I can empathize with the *cri du coeur* of the man at the head of the table in the accompanying cartoon (Illustration 11). It is an expression of my own need for help in order to return to the present day, and in this respect the artist has done me a great service.