I

Introduction

Old diseases are passing away ... but new ones are continually taking their place.[1]

In 1768 William Heberden made a presentation to the Royal College of Physicians of London in which he described angina pectoris in a manner that is readily recognizable to the twentieth-century physician and patient. He reported on a score of individuals who clearly could be grouped together as having a symptom complex common to them all.[2] The number of similar patients that he saw subsequent to his initial presentation rose nearly fourfold in the next decade,[3] during which reports of angina by many other English medical writers appeared for the first time. This is in striking contrast to the paucity of earlier accounts and to the degree of uncertainty with which they could be identified as being descriptions of the characteristic pain.

There are two mutually exclusive explanations for these developments. The first is that angina pectoris had long afflicted humankind and not been uncommon, but had largely gone unrecognized. The second is that coronary heart disease was for all practical purposes a condition emerging *de novo*, its symptoms afflicting sufferers in the mid-eighteenth century for what was virtually the first time, and with its incidence increasing dramatically thereafter. The present work is devoted to the thesis that the second explanation is the correct one. Reasons why angina first made its appearance at that time have been sought among the many changes in living patterns that took place uniquely in England, during the eighteenth century in particular, and at a greater speed and extent than ever before. The subsequent relationships between risk factors new and old and the natural history of coronary heart disease during the succeeding 200 years have been outlined.

The history of clinical medicine consists not only of the record of the recognition of disease patterns and the evolution of ideas about causation of illnesses and their treatment, but also a record of the disease processes themselves. Some conditions have varied in their severity over the course of human history while others have changed in their presentation. Some have become more common and others more rare. Some illnesses have disappeared, others have emerged.

Human history and prehistory have been characterized by a succession of adverse events and forces, each capable of causing a great variety of diseases to which our progenitors had never been subject during human beginnings in the Olduvai Gorge. As migration took them into areas of desert, they became subject to extreme heat, dehydration and solar exposure, with all their consequences. Wandering further

[1] William Boyd, *A textbook of pathology*, 8th ed., Philadelphia, Lea and Febiger, 1970, pp. 10–11.

[2] William Heberden, 'Some account of a disorder in the breast', *Med Trans Coll Physns Lond*, 1772, **2**: 59–67, pp. 59–62.

[3] William Heberden, *Commentaries on the history and cure of diseases*, Boston, Wells and Lilly, 1818, p. 294.

northward into the temperate zones and beyond exposed them to the effects of wet, cold and lack of ultraviolet light. Ascent into mountain ranges brought hypoxia and its secondary effects and, more recently, the bends became manifest with descent into the depths of the sea for the first time. With the move from nomadic hunting and gathering to settlement in agricultural communities and the accompanying changes to diets that became excessively reliant on cereals, a variety of deficiency diseases became manifest. Development of animal husbandry brought in its train close and prolonged contact with animal pathogens that could be transmitted, with the resulting emergence of new human infections. The back-breaking work of cultivation resulted in orthopaedic problems. Increasing population density facilitated the spread of transmittable diseases in epidemic form. Examination of skeletal remains at archaeological sites has revealed the telltale evidence of bone thinning and inflammatory and osteoarthritis changes.[4] The beginning of communal living resulted in exposure to the stresses linked with crowding and disruption of earlier social patterns. A high incidence of fractures found at sites associated with early farming communities is a possible indicator of resulting violence.[5] More recently, illnesses attributable to excess have superseded those due to deficiency, at first among the privileged few but subsequently among widespread populations that had previously suffered deprivation.[6]

The long sea voyages of exploration beginning in the late fifteenth century led to a greatly increased prevalence of deficiency diseases such as scurvy and the spread of illnesses endemic in one part of the world to other regions previously spared.[7] A possible example in Europe is syphilis, first recorded after Columbus' crews returned from their first voyage to the New World and disseminated widely following a series of military campaigns in southern Italy in the early sixteenth century.[8] Sometimes migrants moved into areas inhabited by pathogens or their carriers, with neither of which there had been any previous contact;[9] at other times the pathogens became disseminated into areas of long-standing human habitation that had previously been spared, examples being malaria and yellow fever introduced into America after its original inhabitants' first contact with people from the Old World.[10]

In recent times, the increasing impact of human activity on the environment has brought new diseases in its train. The first industrial exposure probably came with inhalation of smoke from wood fires in caves. This was the forerunner of a myriad of toxic factors produced during farming, mining and manufacturing, and resulting in an increasingly polluted environment.[11] The resulting diseases were not necessarily

[4] Clark Spencer Larson, 'Biological changes in human populations with agriculture', *Annu Rev Anthropol*, 1995, **24**: 185–213, pp. 198–200.

[5] Ibid., p. 198.

[6] Ellen Ruppel Shell, 'New World Syndrome', *Atlantic Monthly*, 2001, **287**: 50–3.

[7] J Diamond, *Guns, germs and steel: the fates of human societies*, London, W W Norton, 1997, p. 210.

[8] Albert S Lyons and R Joseph Petricelli II, *Medicine: an illustrated history*, New York, Harry N Abrams, 1978, p. 376.

[9] Diamond, op. cit., note 7 above, p. 327.

[10] Ibid., p. 358.

[11] Bernardino Ramazzini, *Diseases of workers*, transl. from the Latin text, *De morbis artificum*, of 1713, by Wilmer Cave Wright, London, Hafner, 1964, pp. 15, 62, 337.

confined to the respiratory system. In 1817, James Parkinson described for the first time the "shaking palsy", the neurologic illness to which his name was later attached.[12] The absence of earlier clinical descriptions of this obvious and readily identifiable disability raises the possibility that Parkinsonism is a condition which only became manifest early in the nineteenth century. An association with manganese and carbon monoxide poisoning has since been recognized and exposure to industrial pollutants consequent to the industrial revolution proposed as a cause. Cerebral lesions resembling those of Parkinsonism have been produced in experimental animals by exposure to coal tar derivatives.[13] Environmental diseases have culminated in the late twentieth century in an array of illnesses associated with exposure to radiation.

Throughout the ages the endeavours of physicians have made their contribution to new diseases. Sometimes these were caused by medication. At other times they resulted from non-pharmacological forms of treatment, examples being the anaemia and complications of reduced blood volume that on occasion followed the frequent bloodletting of earlier times. Lately, the increased longevity which has resulted from the successes of medicine has brought in its train a rise in prevalence of the degenerative diseases of later life. Within the sphere of cardiology, an example of an apparently new disease is provided by Dressler's syndrome. Myocardial infarction with initial survival was described by W P Obrastzow and N D Straschesko in 1910,[14] and followed by James Herrick in 1912.[15] The auscultatory features of pericarditis had been reported by Joseph Skoda in the middle of the nineteenth century.[16] However, it was not until 1953 that L Faure and M Cazeilles described a patient with initial electrocardiographic evidence of acute myocardial infarction accompanied by a transient pericardial rub, a scratching sound heard with a stethoscope and associated with inflammation of the membranes covering the heart. In this individual, who was being treated with anticoagulants, initial improvement was followed after an interval by episodes of fever, lancinating chest pain and recurrence of the rub.[17] Three years later William Dressler, who had already described a similar course of events after heart valve surgery, reported ten similar patients. He described them as having a condition which did not "fit in any of the usual complications of myocardial infarction listed in the textbooks".[18] In these patients too, myocardial infarction was followed after an interval of comparative wellbeing by a succession of pleuritic and pericardial pains, fever and a pericardial rub.[19] The number of patients was sufficient to qualify the condition as a distinctly recognizable

[12] James Parkinson, 'An essay on the shaking palsy 1817', reprinted in Robert H Wilkins and Irwin A Brody, *Neurological classics*, New York, Johnson Reprint Corporation, 1973, pp. 88–92, 89–90.

[13] Carl Pinsky and R Bose, 'Pyridine and other coal tar constituents as free radical-generating environmental neurotoxicants', *Mol Cell Biochem*, 1988, **84**: 217–22, p. 219.

[14] W P Obrastzow and N D Straschesko, 'Zur Kenntnis der Thrombose der Koronarterien des Herzens', *Zschrf Klin Med*, 1910, **71**: 116–32, pp. 118–23.

[15] James B Herrick, 'Clinical features of sudden obstruction of the coronary arteries', *JAMA*, 1912, **59**: 2015–20, pp. 2017–18.

[16] L J Acierno, *The history of cardiology*, Camforth, Lancs, Parthenon, 1994, p. 466.

[17] L Faure and M Cazeilles, 'Pericardite aiguë récidivante et infarctus du myocarde', *Journal de Médecine de Bordeaux et du Sud Ouest*, 1953, **130**: 489–92, pp. 490–1.

[18] William Dressler, 'A post-myocardial-infarction syndrome', *JAMA*, 1956, **160**: 1379–83.

[19] Ibid., pp. 1379–83.

and eponymously named Dressler's syndrome. Speculation as to its causes included activation of a viral infection of the heart and, in some instances, an inflammatory response to bleeding into the pericardial sac as a consequence of the anticoagulant therapy which had recently been introduced for treatment of ischaemic heart disease.[20] In addition to the patient of Faure and Cazeilles, some of Dressler's patients were treated with anticoagulants, as were many others who were subsequently recognized as having the condition.

In some cases recognition followed the appearance of a disease that may never have been manifest previously. At other times a disease formerly extremely rare may have become significantly more common. In some instances the "newness" of a disease is speculative; in others it is definite. Certainly the spread of Acquired Immune Deficiency Syndrome (AIDS) over the past twenty years has shown in dramatic fashion that a completely new human ailment can become manifest.[21] L Garrett, writing in 1994, added nine other formerly unknown infectious diseases, and the list continues to grow.[22]

The emergence of new diseases continues and is not confined to physical complaints. Thus in 1979, Gerald Russell described thirty patients that he had seen during the previous six and a half years. In all cases periods of self-imposed near starvation were interrupted by uncontrollable binge eating followed by self-induced vomiting or purgation. The author, who named the condition "bulimia nervosa", noted that there were only three previous references in the literature, the earliest as recently as 1976. None had described the full-blown syndrome. No association with any endocrine disturbance was found and the condition had diagnostic criteria clearly distinguishable from anorexia nervosa.[23] It would be hard to imagine that a symptom complex so dramatic would have gone totally unnoticed before the 1970s, suggesting therefore that bulimia nervosa too is a new condition.

The present work is devoted to the thesis that the description of angina pectoris in 1768 by William Heberden marked not a first recognition of a syndrome formerly widespread although unrecognized, but rather the appearance and subsequent increase in frequency of a condition previously rare almost to the point of being nonexistent. It is also suggested that such few earlier and questionable descriptions as are extant may, in some instances at least, have referred to angina pectoris caused by other than arteriosclerotic coronary arterial disease, the latter being a virtually "new" condition. This was my hypothesis, put forward over thirty years ago. I then suggested that increasing expectation of life could not alone explain the phenomenon and noted that even before the eighteenth century a privileged minority of the population of England had lived to late middle and old age and had access to adequate or even excessive amounts of animal foods. Reasons for the apparent appearance of angina pectoris on the medical scene *de novo* were not therefore

[20] George E Burch and H L Colcolough, 'Postcardiotomy and postinfarction syndromes—a theory', *Am Heart J*, 1970, **80**: 290–1, p. 290.

[21] Samuel Broder, T C Memgan Jr and D Bolognesi, *Textbook of AIDS medicine*, London, Williams and Wilkins, 1994, pp. 3–5.

[22] L Garrett, *The coming plague*, New York, Farrar, Straus and Giroux, 1994, p. ix.

[23] G Russell, 'Bulimia nervosa': an ominous variant of anorexia nervosa', *Psychol Med*, 1979, **9**: 429–48, p. 429.

adequately explained at that time.[24] My hypothesis received some attention, with a contrary view being expressed by Howard Sprague.[25] J O Leibowitz, in his classical history of coronary arterial disease, quoted the two opposing opinions without attempting to arbitrate between them.[26] Subsequent histories of cardiovascular disease have tended to record the late eighteenth-century descriptions of angina pectoris by Heberden without discussing possible reasons for its sudden widespread recognition. The present work reviews the evidence, necessarily in some measure negative, for angina pectoris being considered a condition that had been virtually non-existent before the mid-eighteenth century. The limitations of applying twentieth-century understanding to eighteenth-century conditions are acknowledged. Developments from the beginning of the eighteenth century and even somewhat earlier are considered, as the onset and progression of coronary atherosclerotic changes usually precede the onset of symptoms by many years and the pain may be present for a long time before medical help is sought. One of Heberden's patients first developed angina pectoris as early as 1734, some thirty-four years before his ground-breaking oral report to a medical audience.

For several reasons, the emphasis is mainly on conditions in England, where the original classical description of angina pectoris was made and where Heberden's patients lived. As detailed later, the factors thought to have contributed to the emergence of overt coronary arterial disease developed both earlier and more rapidly in eighteenth-century England than elsewhere. The report by Samuel Black from Ireland may appear to be an exception as far as location is concerned. However, as he practised in Ulster and saw "none in the poor and laborious", it is probable that his patients were drawn from the Protestant minority with English middle-class lifestyles. Many English descriptions of angina pectoris followed closely upon that of Heberden, but almost half a century separated his description from any but the most scanty of written accounts emanating from either the Continent of Europe or from North America. As will become evident in the text, population records and other pertinent documentation were developed to a surprisingly advanced extent in England at that time. Furthermore, all its imports and exports of commodities such as coffee, sugar and tobacco were shipborne so that the amounts involved could be tallied the more readily at the ports and documented for posterity. Lastly, the study of trends extending for nearly a century is facilitated by the constancy of England's boundaries. Their political and economic significance remained unchanged from the 1707 union with Scotland until that with Ireland in 1800. In contrast, data for Austria, for example, would have had to take account of the loss of Silesia in the mid-eighteenth century; data for Prussia would have had to take note of its acquisition. The initial failure of physicians to report angina pectoris in countries other than England was the subject of comment by Samuel Black scarcely half a century after

[24] Leon Michaels, 'Aetiology of coronary heart disease: an historical approach', *Br Heart J*, 1966, **28**: 258–64, p. 263.

[25] Howard Sprague, 'Environment in relation to coronary artery disease', *Arch Environ Health*, 1966, **13**: 4–12, p. 11.

[26] J O Leibowitz, *The history of coronary heart disease*, London, Wellcome Institute of the History of Medicine, 1970, pp. 173–5.

Table I.1
Male manifestations of coronary heart disease.
Framingham Study: 10 year follow-up, age 50 to 59 at entry

	Cohort	
Year	1950	1970
Number of subjects at entry	485	512
Myocardial infarction	54	43
Angina pectoris	60	44
Other (AP CCF & sudden death)	26	22
All CHD	140	109

Adapted from data published by Pamela A Sytkowski, William B Kannel and Ralph B D'Agostino, 'Changes in risk factors and the decline in mortality from cardiovascular disease. The Framingham Heart Study', in *New Engl J Med*, 1990, **322**: 1635–41, pp. 1637–8.

Heberden's first presentation. Writing in 1819, he remarked on the failure of Baron Corvisart, Napoleon's physician, to make any mention of angina pectoris in a book devoted exclusively to diseases of the heart and great vessels. Black concluded that this failure reflected a real disparity between the United Kingdom and France with respect to the incidence of the complaint.[27]

Whilst angina pectoris was the subject of eighteenth-century descriptions, twentieth-century epidemiologic studies commonly use myocardial infarction, fatal or nonfatal, as additional end points, chosen because of their objective nature. Deductions from such investigations are here considered justified because in the eighteenth-century case reports already included worsening angina pectoris, onset of the pain at rest, prolonged episodes unrelieved by rest and ultimately death, instantaneous on occasion. It would therefore appear that the constellation of symptoms reported by Heberden and his contemporaries included not only classical stable angina of effort but other manifestations now recognizable as unstable angina, acute coronary insufficiency, myocardial infarction and death due to coronary heart disease. Its various presentations have pathological features in common making it probable that any risk factor relevant to one clinical variant would be similarly relevant to others. A number of large-scale studies have shown this to be the case. As examples, the Framingham study demonstrated a reduction in frequency of coronary heart disease between male cohorts enrolled in either 1950 or 1970, free of cardiovascular disease at baseline and followed for ten years. The incidence of angina pectoris and other clinical manifestations all lessened to about the same extent (Table I.1).[28] In a meta-analysis, Jesse A Berlin and Graham A Colditz found that the increase in relative risk of coronary heart disease associated with physical inactivity was about the same for cardiac deaths, angina pectoris and all clinical manifestations when considered

[27] Samuel Black, *Clinical and pathological reports*, Newry, Alexander Wilkinson, 1819, p. 31.

[28] Pamela A Sytkowski, William B Kannel and Ralph B D'Agostino, 'Changes in risk factors and the decline in mortality from cardiovascular disease. The Framingham Heart Study', *N Engl J Med*, 1990, **322**: 1635–41, pp. 1637–8.

Table I.2
Physical inactivity and risk of coronary heart disease

Manifestation	Relative Risk*	Confidence Limits
CHD	1.8	0.9–3.3
CHD Death	1.7	1.3–2.2
Angina Pectoris	2.2	1.3–3.9

* Physically active subjects: RR = 1.0.

Source: Jesse A Berlin and Graham A Colditz, 'A meta-analysis of physical activity in the prevention of coronary heart disease', *Am J Epidemiol*, 1990, **132**: 612–28, p. 623. (By permission of Oxford University Press.)

together (Table I.2).[29] The Whitehall II study of British government personnel included patients with new onset angina, prolonged chest pain suggestive of acute coronary insufficiency, proven myocardial infarction and any other coronary event as end points. They found, *inter alia*, that "the classic coronary risk factors were related to all four outcomes".[30] The Seven Countries study results showed that "except in the Netherlands the distribution of the several manifestations of the disease was similar in the several regions in the study" and "[f]or all diagnoses of coronary heart disease ... the same cohorts provided the extremes of incidence rates".[31]

This book is not directed solely to cardiologists but also to the general medical community and allied health professionals. The work gives the view of a clinical cardiologist enquiring into fields that include, amongst other disciplines, medical, general and economic history, sociology and demography, history of agriculture and current food chemistry. It is hoped therefore that it will interest persons working in any of these fields as well as the general reader. The text has been designed to be read independently of the tables which are inserted in order to provide supporting data for readers with a special interest in any particular topic. I trust that anyone properly concerned with women's rights will forgive the not infrequent use of masculine nouns and pronouns without accompanying feminine equivalents. This has been done, although only in part, for reasons of style. More importantly, the greater incidence of angina pectoris among men as compared to women seems to have been much more marked in the late eighteenth century than is now the case. Enquiry into possible reasons for its late eighteenth-century emergence can therefore legitimately include studies confined to men. The incidence of coronary heart disease is hardly something for which equality of the sexes is to be sought, even by the most ardent of feminists.

[29] Jesse A Berlin and Graham A Colditz, 'A meta-analysis of physical activity in the prevention of coronary heart disease', *Am J Epidemiol*, 1990, **132**: 612–28, p. 622.

[30] Hans Bosma *et al.*, 'Low job control and risk of coronary heart disease in Whitehall II (prospective cohort) study', *Br Med J*, 1997, **314**: 558–65, p. 563.

[31] Ancel Keys, *Seven countries: a multivariate analysis of death and coronary heart disease*, Cambridge, MA, and London, Harvard University Press, 1980, p. 319.