Tobacco or health 1602: an Elizabethan doctor speaks

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Abstract

A few years before the death of Queen Elizabeth I, a booklet entitled Work for Chimny-Sweepers or A Warning for Tabacconists [sic], was published. Written by a doctor who called himself Philar-etes, it was the first publication to present the health risks of tobacco use. Using continuum content analysis, which follows each of Philar-etes’s main messages over the subsequent four centuries, this paper sets his publication in the historical context of the medical and social frame of reference in which it was produced, and charts the development of each theme in later scientific research. In the setting of contemporary Tudor medical theory, based on ‘the humours’, Philar-etes discussed many of the health risks that later research has proven to be true. In common with many early attempts at health education, the principles of Philar-etes’s approach appear to be what were later to be called the Health Belief Model and the KAP formula. By providing information about serious personal health risks and, thus, increasing the readers’ knowledge, he hoped to change their attitude and consequently their behaviour. Overshadowed by King James I’s much less scientific Counterblaste to Tobacco, Philar-etes’s publication deserves more credit than it has been given.

Introduction

Late in the reign of Queen Elizabeth I, a treatise against tobacco, entitled Work for Chimny-Sweepers or A Warning for Tabacconists [sic], was published in London (Philar-etes, 1602). Although the date on the publication is 1602, it was entered as A Caveat for Tabaccho in the Stationers’ Register on 25 June 1601 (Arber, 1876). Its author gave himself the name of Philar-etes. The original booklet is in the British Library (St Pancras Reading Rooms 1038.i.40), but it was republished in facsimile form by the Shakespeare Association (Shakespeare Association, 1936). It was perhaps the first publication to present the health risks of tobacco use, both in medicine and for leisure smoking, but it has been completely overshadowed by the much less scientific Counterblaste to Tobacco by King James I of England which appeared in 1604. For these reasons, this qualitative study was carried out (1) to recover this apparently little-known piece of health education history, setting it in its historical content, and (2) to review subsequent scientific research on tobacco showing how its outcomes support or differ from Philar-etes’s conclusions based on Tudor medicine.

Methods

This qualitative text-based research study starts from an ontological standpoint, i.e. that such documents are meaningful constituents of their social world, combined with an epistemological belief that such documents can provide evidence of these ontological elements (Mason, 1996). Moreover, there are no living witnesses of the time and, as far as the
author is aware, the document has not been subjected to any other such detailed analysis. The conceptual framework of the study was derived from Scott’s (Scott, 1990) interpretation of the ‘hermeneutic circle’. The researcher entered the circle at the point of her own frame of reference, and moved round to reach and attempt to understand the frame of reference of Philaretes who produced the text. The method used was continuum content analysis. Content analysis of Philaretes’s text identified the main health education messages and their emphasis. These were then used as the horizontal axis of a matrix; the vertical axis being time in centuries. Literature searches of published tobacco research and the changing medical and social environment enabled a time continuum to be built up in the framework for each health education issue.

Findings

The front cover of Work for Chimny-Sweepers states that it was ‘Imprinted at London by T. Este [East], for Thomas Bushell, and are to be sould at the great North dore of Powles, 1602’. At this remove, it is difficult to assess the importance of the publication, but it is certainly well written, beautifully printed and sold in a very public place, i.e. the entrance to the old St Paul’s, which was a very different place in the early 17th Century before the building of the present cathedral. Shakespeare in Richard III says of Falstaff, ‘This oly rascall is knowne as well as Poules’. The old St Paul’s area, described in the Oxford English Dictionary (Little et al., 1933) as being ‘formerly a resort for loungers and gossips’, was also a centre of tobacco sales (Salgado, 1977). For example, ‘Moll Cutpurse’ in The Roaring Girl (Middleton and Dekker, 1608), who smoked a pipe and was a connoisseur of good tobacco, had her haunts in that area.

The word ‘Tabacconists’ in this publication refers to anyone who uses, or advocates the use of, tobacco, not to tobacconists in the present day sense of the word, and notes on the cover of this 48-page booklet indicate its message to these intended readers:

Describing the pernicious use of Tobacco, no lesse pleasant then profitable for all sorts to reade. Fumus patria, Igne alieno Luculentier. As much as to say, Better be chokt [choked] with English hemp, then poisoned with Indian Tabacco.

We assume the author was referring to being hanged with English hempen rope rather than smoking marijuana!

References to Work for Chimny-Sweepers in recent literature suggest that few people have taken the trouble to read the book. It has been dismissed as the first of scores of pamphlets denouncing the use of tobacco for non-medical purposes (Inglis, 1975), which is not strictly accurate, because Philaretes covers contemporary medical usage of tobacco as a ‘simple’ or herbal treatment for various diseases, although he did not approve of it. Inglis also rates the publication thus: ‘as the composer of the prototypical broadside, Philaretes could be cited as deserving of some small niche in the history of drugs’. Other web-based authors, who seem to have read only the title, state that Philaretes proposes that the illness of chimney-sweepers is caused by soot and that tobacco might have similar effects (Borio, 1997; Teacher Timeline, 1998–2003). I have been unable to locate any such statement in the book. Philaretes deserves more than this. His treatise is uneven in style and content, ranging from calm, well-reasoned statements supported by as much evidence as was available from contemporary sources, to wild polemical diatribes and outbursts about the devil and his followers! It must be borne in mind when reading the book that Philaretes was a trail-blazer in publicizing the harmful effects of tobacco, without the benefits of modern research to support his statements. As he states at one point in the treatise, Galen in his first book of Hippocrates Aphorismes ‘sheweth that the art of Phisicke standeth on two legges, Reason and Experience: Whereof if either bee wanting, the whole art is lame and maimed’. Philaretes has tried to base his statements on these two premises, but at that time, medical theory and practice and cultural beliefs, coupled with the newness of tobacco use, coloured his interpretation, and limited both the reason and experience areas.
So who was Philaretes? He was almost certainly a doctor, a very well-educated and probably prestigious one, who treated the nobility. He says at one point ‘I remember that being called once to the cure of an honorable Earle now departed this life,...’ and he was clearly in the confidence of this Earl, as we shall see later. Statements based on other people’s work which are made in the book are always referenced in the margin, suggesting that Philaretes was not only familiar with writing scientific publications, but also well read in the medical literature including Hippocrates, Galen and numerous other respected authors. He must also have been wealthy, influential or both to be able to produce such a high-class booklet via a publisher and well known enough to feel the need to write under a pseudonym. The name Philaretus is associated with a chapter in a Latin medical reference book, translated from Greek (1567) and it is tempting to speculate on some possible link, but there is absolutely no evidence to support it. He was probably no longer young when he wrote *Work for Chimney-Sweepers*. The work has the didactic quality of pronouncements made by an ‘elder statesman’, coupled with tendency to repetitiveness and going off at tangents when an interesting anecdote or observation strikes him. He also acknowledged that ‘in undertaking this vaine discourse...I shall draw unto myself no small hatred’, but he was self-assured enough to do it in the face of criticism. As for a sense of humour, I am not sure. He probably felt too strongly about the subject to treat it lightly, but perhaps a few lines in the introductory poem reveal a less serious side.

Another teares my guiltlesse paper booke, Hiding them in his bigge flops pocket nooke, And at some publicke shew in all mens sight, With them hee kindles his Tabacco Pipe, They burne for Heretiques, (O foule Impietye,) Cause they blasphemed Tabaccos Dietie. [Another tears my guiltless paper book, hiding the bits in his flapped pocket nook and, at some public show in all men’s sight, with them he kindles his tobacco pipe. They burn as heretics (oh foul impiety), ‘cause they blasphemed tobacco’s deity.]

Some authors believe a clue to his identity lies in the initials J. H. at the end of this poem and the name John Hind has been suggested. Perhaps they are right, but it seems odd to have concealed his identity under a pseudonym and then provided such a clue to it. There is just a possibility that these initials were those of Sir John Harington (1561–1612), Queen Elizabeth’s godson, who was a poet and writer on contentious issues (Routh and Holmes, 1990). His poetry was very popular in those days, although much of it is now considered to be of only fair to middling quality. It is tempting to speculate that the poem, but probably not the text of the booklet, might be attributable to him. Whoever Philaretes was, his work provides us with a cameo insight into medicine in the late Elizabethan period, the contemporary religious climate in which it had to operate and against which it must be viewed. In this situation, perhaps the most amazing thing about Philaretes’s treatise is how many of the effects he states have later been scientifically proven to be true.

The date at which tobacco was introduced into England is not precisely determined. In 1492, Columbus observed its use in America and noted it in his *Journal* (Brooks, 1952). Perhaps he brought some back with him to Europe. It probably reached England with Sir John Hawkins, who described its use in Florida in 1565, or perhaps one of his crew brought it to England in that year (Howes, 1631). At first it was seen as a medicinal plant and in 1573, William Harrison recorded that tobacco is ‘gretlie taken up and used in England against Rewmes [colds and catarrh] and other diseases’ (Furnivall, 1877). The medical uses of tobacco did not always involve smoking, but often the external application of the leaves or extracts of them (Monardes, 1596). However, some courtiers, including Sir Walter Raleigh, appear to have taken up the behaviour of ‘drinking’ tobacco, as pipe smoking was then called (Hariot, 1588). In his preface, Philaretes confirms this by the statement:

...in these our daies many excellent Phisitions and men of singuler learning and practise, together with many gentlemen and some of great
accompt, doe by their daily use and custome in drinking of tobacco, give great credit and authority to the same. [...]nowadays many excellent doctors, well-educated men and noblemen provide strong support for tobacco by smoking it daily themselves."

He emphasizes that he is disagreeing with many authoritative writers, including Monardes, but he takes as his example, Aristotle, who sometimes disagreed with Plato and Galen who sometimes refuted Hippocrates. And so, Philaretes sets out to refute those who swear by tobacco for both medicinal and leisure use.

Following the preface is a poem, more reminiscent of William McGonagall than Shakespeare. Its nine verses take up 2 pages of the book and it is, therefore, too long to quote in full here. One verse (the eighth) will suffice as an example of its style and theme.

Pittie it is that smoking vanitie,  
Is England's most esteemed curtesie  
Oft have I heard it as an ould saide sawe,  
The strong digesting hungrie Camells mawe  
Brooks stinging nettles and the vilest weeds,  
That stinking dunghils in rank plentie feeds  
But t'is a toye to mocke and Ape in deed  
That English men should love a stranger weed.

Philaretes then goes on to discuss eight reasons why he disagrees with the use of tobacco and I shall summaries these including Philaretes's comments wherever they seem to be particularly appropriate.

(1) First, that in their use and custome, no methode or order is observed. Diversitie and distinction of persons, tymes, seasons considered, no varietie of accidents and diseases pondered. [No control is applied in the medicinal use of tobacco.]

When it was first brought to Europe tobacco was considered to be a panacea and was consequently prescribed for everyone for every health problem with no concern for measured or appropriate doses (Stewart, 1967). Philaretes makes the point:

...it cannot be justly inferred here of, that Tabacco simply taken without respect of times, persons, sexe, age, temperament and disease, any waies [in any way] to be either profitable or else commendable.

He adds:

And truely as no one kinde of diet can fit all sorts of bodies: So no one kinde of remedie can be aptly applied to all maladies, no more then one shooe can wel serve all men's feete...And yet these Tabacco favorits [those who support the medicinal use of tobacco] hold no disease so incurable but that in some measure it receiveth either cure or ease by this Tabacco.

In the present day, nobody would even consider administering unmeasured prescriptions under any circumstances and it seems likely that the same rules would have applied in 16th Century medicine. Tobacco alone seemed to be exempt from such rules and Philaretes's concern about the uncontrolled use of such a powerful poison was more than justified. The use of tobacco as a medicine, administered in various forms, continued until the 19th Century and caused the death of many patients. During that time, there is little evidence of instructions for its controlled or specific use (Mullett, 1940; Silvette et al., 1958). One of Philaretes’s most interesting observations relates to the exacerbation of some diseases by the use of tobacco:

But I assure you many diseases being of themselves and their owne nature, light and easie cure, may by the untimely use of this same [tobacco], become altogether incurable. [Many minor diseases can become incurable when treated with tobacco.]

He provides examples which include ‘appilations [blockages] of the lungs’. For example, using tobacco smoking as a means of killing bacteria in infectious diseases or nasal catarrh, not only risked making the illness itself worse (Anonymous, 1889, 1913), but also, if used over a long period, could cause chronic bronchitis, emphysema or even lung cancer (Royal College of Physicians, 1983).

(2) Secondly, for that it is in qualitie and complexion more hot and drye then may be
conveniently used dayly of any man: much less of the hot and cholericque constitution. [Tobacco is too hot and dry a medicine to be used daily by anyone, especially by people of a choleric nature.]

The theme of the humours is strong in this section but, in spite of these long out-dated medical theories, Philaretes makes several points which are still relevant to tobacco smoking today. First, he emphasizes its harmfulness to ‘youth and such as grow’ because the:

naturall heat in youth by the immoderate use of this fierie fume, could soone turne unto a heat unnaturall and thereby be occasion of infinite maladies. [Tobacco use is especially harmful to young people because they have a natural warmth. The additional heat of tobacco would raise their temperature to dangerous levels thus causing many diseases.]

Right conclusion, wrong reason! Both active and passive smoking are particularly harmful to children and youth (Royal College of Physicians, 1992). In this section, he also discusses the connection between body weight and smoking:

...that no small part of our nourishment is drawne away by the untimely use of this Tabacco, may manifestly appear by those men, who before the use thereof were grosse and soggy, but after they have acquainted themselves with this kinde of practice, they become leane and sclender. [The fact that men who were fat become thin when they take up regular tobacco smoking is evidence that tobacco takes away much of the food value in the diet.]

He then speculates that they might consequently ‘fall into Consumptions’. The attitude to body weight in 1602, when weight loss presaged disease, was clearly the reverse of that in 2004, when weight loss and low body weight are generally considered to be desirable. Recent research has proven Philaretes’s statements to be true, by finding an inverse relationship between smoking and body weight (Grunberg, 1990), and there is no doubt that the threat of weight gain now deters many people, especially women, from quitting smoking (Jacobson, 1986). Philaretes talks of addiction, and also of passive smoking, and illustrates them with one of his lengthy anecdotes, which relates to the visit to his patient, the Earl, mentioned earlier:

...amongst other learned and expert Phisitions, there hapnd one to be called...the very morning he came unto his Honors presence, he had (according to his accustomed wont) taken his mornings draft of Tabacco, with the fume thereof he so perfumed his Lordships bedchamber in such sort, as that the Earle being mervaylous anoyed therwith, told me after the departure of the former Phisition, that from thence foorth hee had rather lose the benefit of that mans counsel in Phisicke, than endure such a horrible a fume againe. This good D. [the smoking doctor] being demaunded of other Phisitions (whereof two were hir Maiesties) then present, what reason he had for this his custome; answered that he would not but for 100 pounds he had used this fume at first, for thereby he found great ease for his cold rheumatick and stomacke. But now said he, I would that I could so easely leave it, condicionallie I had given 300 pounds more, for I finde myself hart sick that day, till I have tasted thereof. [...] among other learned and expert doctors, one was called...who had smoked his pipe that morning as usual, and the smell of smoke he brought into the bedroom greatly upset the Earl, so much that he said, after the doctor had left, that he would rather lose his medical services than endure such a dreadful smell again. When the other doctors (two of whom were Her Majestys) asked D. why he smoked he said he found it greatly eased his rheumatism and stomach, but he would give £100 never to have started and £300 more to be able to quit as easily as he had begun. However, he found himself craving each day until he had his first smoke.]

Both nicotine addiction (US Surgeon General, 1988) and the problems of passive smoking (US Surgeon General, 1986; Wald et al., 1991) are now well-proven effects of tobacco smoking. As in
1602, nicotine addiction is one of the greatest problems encountered by smokers who want to stop smoking (Foulds, 1996) and much modern research has concentrated on developing nicotine replacement therapies (Silagy et al., 1994). Passive smoking has also formed the focus of much research in recent years, relating not only to the unpleasantness of breathing other people’s smoke, but also to the harmful contents of tobacco smoke (Royal College of Physicians, 1977) and the health risks to others, especially to children (Poswillo and Alberman, 1992), other members of the family (Hirayama, 1984), and colleagues in the workplace and in other public areas. The evidence from these studies and reviews has led to the development of smoke-free areas in restaurants, cinemas, public transport, smoke-free schools and workplaces, sometimes by legislation (Raw et al., 1990). If the ‘honorable Earle’ were still alive, he would doubtless be delighted by this progress and a strong supporter of the action being taken!

(3) Thirdly, for that it is experimented and tried to be a most strong and violent purge.

This is a relatively short section and concentrates mainly on the contemporary medical use of tobacco administered internally as a purgative. He mentions again the practice of steeping one tobacco leaf in white wine overnight, which ‘doth procure strong and extreme vomits’ In another long anecdote he talks of a scholar in Bath who was reported to have ‘most miserably ended his life’ by daily use of tobacco which acted as a violent purge. It is not clear if it was smoked or steeped leaves which caused this death, but the message in this section was clearly intended for contemporary medicine and, it is hoped, has no relevance to today’s usage of tobacco.

(4) Fourthly, for that it withereth and drieth up natural moisture in our bodies, therby causing sterilitie and barrennesse: in which respect it seemeth an enemie to the continuance and propagation of mankind.

Although Philaretes was again basing his views on the humours, 20th Century research has shown that cigarette smoking is associated with cotinine in semen and reduced sperm density and motility (Vine et al., 1991; Davis, 1991) and reduced fecundity in women (Baird, 1992), and smoking by the mother (Butler et al., 1972) and her partner (Rubin et al., 1986) is linked to reduced birth weight, stillbirths and miscarriages. Philaretes was right, although the reasoning behind his conclusions was flawed in that he assumed the tobacco, which was hot and dry in nature, dried the natural moisture in the ‘seed’, which would result in reduced fertility. However, in the light of contemporary medical knowledge and theory in 1602, he is not to be blamed for this. He says, ‘And for certaine proofe that Tabacco dryeth up the sperme and seed of man, I heare by faithfull relation of such as have much used it’. There is an old rhyme, which is reported by Vaughan (Vaughan, 1612), ‘Tobacco that outlandish weed, Doth spend the braine and spoile the seed, It dulls the spright [spirit], it dims the sight, It robs a woman of her right’. So Philaretes was not alone in his belief at that time.

(5) Fiftly, for that it decayeth and dissipateth naturall heat, that kindly warmeth in us, and thereby is the cause of crudities and rewmes, occasions of infinit maladies.

Basing his reasoning on the hot and drying nature of tobacco, he discusses hardening of the arteries and wrinkling of the skin of smokers, both of which have been subjects of research in the 20th Century and have been found to be true (Wald et al., 1973; Kadunce et al., 1991). Once again, Philaretes goes off on one of his poetic anecdotal flights of fancy and expresses himself in parables about dry ground at the end of summer being unable to absorb rain and the floods which can result. The dry ground represents, he says, the firm and solid parts which in
old people are too dry and hard to absorb water ‘that alimentall humour which Nature dooth daily send to them for their sustenance and reliefe’. He compares this state in old people to that of heavy smokers:

In like case the firme and sollide parts of mans body, being over drie and hardned by the long and continuall use of Tabacco, do with more difficultie receive and imbybe into them the alimentall humiditie before specified. [Similarly the firm and solid parts of man’s body, being dry and hardened by the long and continual use of tobacco, become resistant to this absorption of water.]

(6) Sixtly, for that this herb or rather weed, seemeth not voide of venome and poison, and thereby seemeth an enemie to the lyfe of man. [Sixthly, this herb, or rather weed, seems to contain venom and poison and therefore seems to be a hazard to human life.]

How right he was! There are over 4000 chemicals present in tobacco smoke, many of them poisonous (US Environmental Protection Agency, 1993). Nicotine, the deadly poisonous alkaloid, was not isolated from tobacco until 1828 (Posselt and Reimann, 1828), but its effects were clear to Philaretes in 1602. Addiction is obviously a major issue with him and, for this reason, it is worthwhile following him into another of his parables. He describes the addictive nature of tobacco in terms of the venom of a scorpion:

...which neuer receiveth cure but from the Scorpion it selfe, bruised and annointed on the place stung. In like case the venemous impression left in the stomacke by Tabacco, receiveth no ease by any thing else whatsoever, but by Tabacco onely, eftsoone reiterated and refumed. This onely difference seemeth to be betweene these two poysons. That the venome of the Scorpion hath his perfect and absolute cure from the Scorpion it selfe, but that of Tabacco hath only a certaine ease and paliation for a time by the fume of Tabacco received; but after perfect and absolute cure, this Tabacco by it selfe a thousand times refumed or reiterated, admitteth none. [...which can only be cured by the application of crushed scorpion to the sting. Similarly the poisonous effect of tobacco on the stomach can only be eased by tobacco itself, smoked frequently again and again. The only difference between the two poisons seems to be that the venom of the scorpion is completely cured by the scorpion itself, but that of tobacco is only eased or palliated for a time by tobacco, and never cured by it.]

He also talks about smoke inhalation, implying, as we now know, that smoke is most harmful when drawn down into the lungs (Doll and Peto, 1976):

Fewe or none do take it downe their throates, and such as let it pass down...swallow it in so small quantitie, as that no great detriment can happen to them thereby. But if happily [haply] any, more audacious than circumspect, shall let downe any large quantitie thereof, then shal you evidently perceive in him, most of those accidents before specified.

The ‘accidents’ are a long list of ills, including vomiting, cramps, loss of feeling or sight, giddiness, faintness and even untimely death, but Philaretes is particularly puzzled by the narcotic effect, wondering why it is so similar to that of Opium and Henbane which were considered, in contemporary medicine, to be extremely cold, whilst tobacco was considered to be hot and dry.

Almost three centuries before Darwin and Lamarck were shocking the 19th Century public with their evolutionary theories, and Mendel opened up the field of genetics, Philaretes was pondering these issues. Why had the ‘Indians’ in the New World, who had made wide and constant use of tobacco over centuries, not been poisoned by it? Were they genetically different in some way from the English (Survival of the Fittest?) or had they adapted to tobacco over a long period of use (Adaptation?). He comes to no conclusion, but it seems amazing that he asks the question:

To this may be answered, that the oddes and diversitie of their bodies and humours from ours,
may alter much the case. Or else, that long
custome and familiar use of this Tabacco from
their infancie, hath confirmed their bodies, to
suffer and endure the same without hurt or
offence: for custome altereth nature.

Modern research has shown that there are, indeed,
variations in reactions to tobacco smoke (Hopkin
et al., 1981) and arguments about a possible genetic
basis for these differences are still continuing (Hall
et al., 2002). Philaretes was way ahead of his time
in this debate.

(7) Seaventhly, for that the first author and finder
hereof was the Divell, and the first practi-
tioners of the same were the Divells Priests,
and therefore not to be used of us Christians.
[Seventhly because the instigator and discoverer of tobacco was the Devil, and its first
users were the Devil’s priests, it should not be
used by us Christians.]

This reason is the most alien to us in modern times,
but it must be viewed in the light of the period
when it was written. It was a time of exploration:
the world was opening up. New lands were con-
stantly being discovered and reports of their
populations, previously unknown and completely
unfamiliar to the English, were brought back.
Columbus had found tobacco in use in the New
World, for a wide variety of purposes, some of
them associated with the rituals of medicine men, who
used the snuffing or smoking of tobacco as a sacred
narcotic to induce a state of trance (Schleiffer,
1973) and to summon spirits (Dickson, 1954). For
these reasons, the Church at that time was com-
pletely opposed to tobacco use. For example, in
Lima, Peru, in 1583, a provincial synod adopted
a rule which forbade priests from using tobacco in
any form, even as a medicine, before celebrating
Mass (Dickson, 1954). Unknown peoples in un-
known lands, performing rituals which appeared to
be masterminded by priests of a different religion,
were bound to be deeply suspect and might easily,
therefore, be seen as the work of the devil.
Moreover, in Britain, witchcraft was increasingly
suspected and feared, and in a relatively short time
fanaticism to root it out would grow to epic pro-
portions. It seems strange to us at this remove, but
in the religious climate and changing world of the
early 17th Century, the apparently fanatical state-
ments made by Philaretes in this context are at least
understandable, although not acceptable, to us.

(8) Last of all, because it is a great augmentor of all
sorts of melancholie in our bodies, a humor fit
to prepare our bodies to receave the prestiga-
tions and hellish illusions and impressions of
the Divell himselfe: in so much that many
Phisitions and learned men doe hold this
humour to be the verie seate of the Divell in
bodies possessed. [Finally, because it is a great
augmentor of melancholy in our bodies, which
is a humour fit to prepare our bodies to receive
the sorcery, hellish illusions and impressions of
the devil himself: therefore many doctors and
learned men consider this humour to be the
very seat of the devil in bodies possessed.]

Philaretes really had got the bit between his teeth by
this point, although understanding much of what
he says depends on familiarity with the humours in
medicine. The theme is that tobacco smoking
causes melancholy, but he has one or two other
observations to make, the first concerning ‘thick-
ening’ of the blood.

But Tabacco wasteth and absumeth the liquid
and thin part of our blood, and therfore Tobacco
may justly be said to thicken the same. [But
tobacco reduces and wastes away the liquid part
of our blood and therefore it may justifiably be
said to thicken the blood.]

We now know that smoking does, in fact, thicken
the blood (Kannel et al., 1987).

He also addresses the effect of tobacco on the
brain. The circulation of the blood had not yet been
elucidated, but he provides the contemporary view
of oral absorption. The smoke ‘riseth and steemeth
up to the braine by the roofe and palate of the
mouth’. When it reaches the brain, he says:

This darke and smoakie fume, pearcing the
cavities and ventricles of the braine...do breed
Knowing, as we now do, that low doses of nicotine to the brain can increase and sharpen concentration, and high doses produce relaxation (Benowitz, 1990), Philaretes’s discussion is particularly revealing. Aristotle said that melancholy helps to sharpen the wits and understanding, and considered melancholy people to be the wisest. But, says Philaretes, the kind of melancholy referred to by Aristotle is natural and not the kind produced by tobacco smoke. So much for the low doses. As for the high, relaxing and stress-reducing doses, he also described their effects in terms of the humours, concluding that ‘The increase whereof in our bodies, breedeth dulnesse, sottishnesse, and blockishnesse. [The increase of these humours in our bodies leads to dullness, stupidity and obtuseness.]’.

Finally, he considered the nature of the material taken in from tobacco smoke:

And if any man be so farre blinded with Tabacco, that he will not admit for true, that the vapor or fume thereof ascending to the braine, is darke and swart of colour, and of qualitie excessiue drie; let him but cast his eyes on the smoake issuing forth of the nostrils of the Tabaconists, or the smoakie tincture left in the Tabacco Pipe after the receit thereof, and he shall easily reclaime his error. [If anyone is so blinkered by tobacco that he will not accept that the smoke rising from it to the brain is black in colour and very dry, he should look at the smoke from smokers’ nostrils or the black deposit left in the tobacco pipe and he will change his mind.]

And doubtless, he said, it leaves the same deposit in our brains and its cavities. In the lungs, Philaretes!

**Discussion**

Philaretes’s booklet is likely to be one of the first health education publications focusing on the health risks of tobacco. Not only did he lack the modern research evidence for the health risks of tobacco use and had only the contemporary medical theory of the humours on which to base his discussion, he presumably also lacked any psychological theory of health education and behaviour change. Consequently he did what so many well-meaning health educators have done since and based his approach on information giving and individual choice. In doing so he provides us with one of the earliest examples of the use of what was later called the Health Belief Model (Becker, 1984) and the KAP formula (Tones and Tilford, 1994). The former model envisages the individual weighing up the seriousness and personal nature of the diseases together with the losses and gains of making a particular behaviour choice and the KAP formula, or Medical Model (was Philaretes the first doctor to use it?), assumes that this choice will be guided by knowledge of these diseases (K), derived from information, leading to changed attitude (A) and practice (P). Even now, many people new to health education still base health education programmes on these principles. In fact, they are rarely effective, except when the information is new. The decrease in men’s smoking prevalence in England following the first report on smoking by the Royal College of Physicians in 1962 is an example of this effect. We have no statistical evidence of a decrease in smoking prevalence following Philaretes’s publication, but it seems unlikely to have had any widespread or major effect. At that time it is likely that most copies of the booklet would have remained in London, so the readership would be within a very limited area, and the tide of tobacco use which was sweeping in at that time was moving in the opposite direction to that proposed by Philaretes and a few others. The main process with regard to tobacco at the end of
the 16th Century was that of adoption, not rejection. Application of Rogers and Shoemaker’s diffusion of innovation theory (Rogers and Shoemaker, 1971) would probably show that acquisition of smoking had moved quickly from the innovators and early adopters, and into the early majority at the time Philaretes was writing.

Philaretes was by no means always right and much of what he says makes the modern reader squirm, but within the medical knowledge of his time, he produced a reasoned and well-researched booklet, which represents one of the early attempts at health education. He would be pleased, but not surprised, that so many of his statements have been later supported by scientific evidence. But he would be amazed and deeply disappointed that, 400 years later, in spite of scientific evidence, his efforts and those of many others after him, armed with scientific proof of the harm caused by tobacco, smoking is now causing 3 million deaths a year worldwide and annual mortality from this cause will rise to 10 million worldwide by about 2030 if present trends continue (Peto et al., 1996).

Poor Philaretes. We’ll leave the last word with him.
See if thou canst with arguments refraine,
The smokiehors of each wit-worne braine,
Then will I never looke for greater gaine,
Nor ever think my labouer lost in vaine.

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Received on January 12, 2004; accepted on April 12, 2004