
Section 2: Advances in medicine

Unit 1 explains that a cardinal aspect of the *philosophes'* belief in reason was their veneration for the scientific method of observation and experiment as the key to the truth about nature (humankind and the universe). The scientific method means the acquisition of '*empirical* knowledge: that is, knowledge or opinion grounded in experience' (Unit 1, p.17). Advances in medicine were a classic example of this. New discoveries and techniques in medicine and surgery not only demonstrated the success of the scientific method, but also made human beings happier, through the relief of pain and suffering (as in lithotomy, the operation for the removal of bladder stones) or by the prevention of disease (as in inoculation against smallpox).

Inoculation against smallpox was one of the greatest advances of the age in preventive medicine, as Christopher Lawrence explains. The article 'Inoculation' in the *Encyclopédie*, written by the Swiss physician Théodor Tronchin (whose patients included Voltaire), was extremely long, but the procedure itself was simple and effective. In France, however, inoculation was considered controversial, and it was prohibited by the Roman Catholic Church. (King Louis XV was to die of smallpox in 1774.) Hence the immense appeal of inoculation to the *philosophes*: it was proof that, whatever the Church might say, the scientific method worked and was a boon to humanity.

INOCULATION (surgery, medicine, morality, politics), the noun synonymous with *insertion*, is the prevailing term to designate the operation by which one artificially communicates smallpox for the purpose of preventing the danger and the ravages of that illness when contracted naturally ...

Even if all France were to be persuaded of the importance and usefulness of this practice, it could not be introduced in our country without the government's approval and assistance. And will the government ever resolve to encourage it without the most conclusive evidence in such matters? It is therefore incumbent on the faculties of theology and medicine, the academies, the heads of the magistracy, and men of letters to banish the scruples fomented by ignorance and to make the people feel that its own interest, Christian charity, the good of the state, and the conservation of mankind are involved in the establishment of *inoculation*. When a question of public welfare arises, the duty of the thinking part of the nation is to enlighten those individuals susceptible of understanding and to drag along by the weight of authority that mob of people not affected by evidence of any kind.

(Gendzier, 1967, pp.149–50)

The most famous of all eighteenth-century surgical operations was lithotomy. The operation is explained by Christopher Lawrence and in the caption to Figure V1.2.

References on video to: Samuel Pepys (1633–1703), Secretary to the Navy and famous diarist, was successfully 'cut for the stone' in 1658 and regularly celebrated the anniversary of the operation; Benjamin Franklin (1706–90), American scientist, inventor, statesman and signatory of the Declaration of Independence (1776).

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- EXERCISE**
- 1 Why was inoculation not officially permitted in France at the time of writing?
 - 2 What message is Tronchin trying to convey in the second paragraph of the extract above? Briefly list his main points.

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- DISCUSSION**
- 1 Inoculation was forbidden by the Catholic Church as interference with the will of God. This disapproval was expressed by the faculty of theology at the Sorbonne (University of Paris).
 - 2 (i) Inoculation does not have the government's approval in France.
(ii) The government will not encourage inoculation without proof that it works.



Figure V1.2 Lithotomy operation (cutting for the stone), from the article 'Surgery' in the Encyclopédie, 1763, facsimile edn, New York, Dover Publications.

This is one of a sequence of plates showing the techniques involved in the operation for the removal of bladder stones. The operation itself was not new. Samuel Pepys underwent it a century earlier in 1658. Lithotomy figures very large in the plates in the Encyclopédie.

In this plate the surgeon is making an incision in the bladder, preparatory to the insertion of a pair of forceps used to crush and remove the stone. No anaesthetics were used, and the surgeon was working entirely by touch – he could not see what his instruments were doing. In his left hand the surgeon is holding an instrument known as a 'sound'. It was used to make physical contact with the stone and to give the surgeon the feel of its precise location. On the left side of the plate, an assistant's hand is compressing the patient's abdomen. After the operation, wounds were not stitched up: internal organs could not be reached. This in turn made it essential for the surgeon to be as quick as he could: his incisions needed to be as small and neat as possible. To perform the operation in 30 seconds was a formidable feat of dexterity – even if it was the longest 30 seconds in the fully conscious, unanaesthetized patient's life.

The illustration adopts the convention of showing no blood in order clearly to present the essentials of the operation – the whole purpose of the plates. In practice, the patient would be bleeding copiously – an additional difficulty for the surgeon and hazard for the patient. Today's viewer will probably regard the operation as gruesome and primitive. Its inclusion in the Encyclopédie, however, was intended to bring out the latest advances in the life-saving art of surgery.

(iii) It is the duty of France's institutions of learning (including the faculty of theology) and its educated men to promote the cause of inoculation.

(iv) In general, it is for the educated movers of opinion to counter ignorance and spread enlightenment in society.
