Medical Developments and Religious Belief with Special Reference to Europe in the 18th and 19th Centuries

Thesis

How to cite:

For guidance on citations see FAQs.

© 1977 The Author

https://creativecommons.org/licenses/by-nc-nd/4.0/

Version: Version of Record

Link(s) to article on publisher’s website:
http://dx.doi.org/doi:10.21954/ou.ro.0000dea3

Copyright and Moral Rights for the articles on this site are retained by the individual authors and/or other copyright owners. For more information on Open Research Online’s data policy on reuse of materials please consult the policies page.

oro.open.ac.uk
MEDICAL DEVELOPMENTS and RELIGIOUS BELIEF

with special reference to Europe

in the 18th and 19th centuries

by

Alfred Derek Farr, BA(Lond) FIMLS

A study in the HISTORY of SCIENCE and TECHNOLOGY

submitted for the degree of

Doctor of Philosophy

at the Open University

June 1977
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE OF CONTENTS</td>
<td>i</td>
</tr>
<tr>
<td>LIST OF ILLUSTRATIONS</td>
<td>v</td>
</tr>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>vi</td>
</tr>
<tr>
<td>PREFACE</td>
<td>viii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>ix</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td></td>
</tr>
<tr>
<td><strong>PART I - THE PROBLEM OF DISEASE - Immunisation</strong></td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>5</td>
</tr>
<tr>
<td>1.1 Some religious attitudes to disease in the 18th and 19th centuries</td>
<td>6</td>
</tr>
<tr>
<td>2. VARIOLATION</td>
<td>22</td>
</tr>
<tr>
<td>2.1 Variolation in Europe</td>
<td>22</td>
</tr>
<tr>
<td>2.1.1 Introduction of variolation</td>
<td>22</td>
</tr>
<tr>
<td>2.1.2 Variolation after 1740</td>
<td>25</td>
</tr>
<tr>
<td>2.1.3 Decline of variolation</td>
<td>27</td>
</tr>
<tr>
<td>2.2 Religious views in the 1720's</td>
<td>28</td>
</tr>
<tr>
<td>2.2.1 In England</td>
<td>28</td>
</tr>
<tr>
<td>2.2.2 In America</td>
<td>45</td>
</tr>
<tr>
<td>2.3 Religious views after 1740</td>
<td>51</td>
</tr>
<tr>
<td>2.3.1 In England</td>
<td>51</td>
</tr>
<tr>
<td>2.3.2 In Scotland</td>
<td>65</td>
</tr>
<tr>
<td>2.3.3 In France</td>
<td>78</td>
</tr>
<tr>
<td>3. VACCINATION</td>
<td>99</td>
</tr>
<tr>
<td>3.1 Introduction and spread of vaccination</td>
<td>99</td>
</tr>
<tr>
<td>3.2 Religious responses</td>
<td>105</td>
</tr>
<tr>
<td>3.2.1 Vaccination in Britain</td>
<td>105</td>
</tr>
<tr>
<td>3.2.2 Vaccination elsewhere</td>
<td>110</td>
</tr>
<tr>
<td>3.3 The issue of compulsion</td>
<td>115</td>
</tr>
</tbody>
</table>
ii.

4. SMALLPOX AND IMMUNISATION - 1670 to 1900 134

5. SOME GENERAL CONCLUSIONS .. .. 138
   5.1 Theological views .. .. 138
   5.2 The views of the people .. 141

PART II - THE PROBLEM OF PAIN - Anaesthesia 147

1. INTRODUCTION .. .. .. .. .. 148
   1.1 Mid 19th century views on the medical uses of pain .. .. .. 150

2. INHALATION ANAESTHESIA .. .. .. 155
   2.1 The introduction of inhalation anaesthesia 155
   2.1.1 Anaesthesia in obstetrics .. 159
   2.2 Initial opposition to anaesthesia .. 164
   2.2.1 Medical objections .. .. 166
   2.2.2 Moral objections .. .. 177

3. RELIGIOUS OPPOSITION TO ANAESTHESIA .. 194
   3.1 The source of religious objections .. 198
   3.1.1 Secondary to other objections .. 207
   3.1.2 Objections made privately .. 212
   3.1.3 Arising primarily within the minds of those who refuted them .. 220
   3.2 Answers to the religious objections .. 225
   3.2.1 J.Y. Simpson's defence .. .. 226
   3.2.2 Protheroe Smith's defence .. 240
   3.2.3 Miscellaneous writings .. .. 245
   3.3 The principal participant - J.Y.Simpson 252

4. THE CONFLICT OVER ANAESTHESIA .. .. 279
PART III - THE VALUATION OF FETAL LIFE - Induced abortion and the caesarian operation.

1. INTRODUCTION ......................................................... 287

2. THE VIEWS OF THE MEDICAL PROFESSION ....................... 292

  2.1 Reasons for undeliverable pregnancies .................... 292
      2.1.1 Induced abortion ........................................ 293
      2.1.2 The caesarian operation .............................. 300
      2.1.3 Embryotomy ............................................. 306
      2.1.4 Inaction ................................................ 308

  2.2 Relative valuation of fetal and maternal life ........... 310

3. THE VIEWS OF THE CHURCH ............................................. 326

  3.1 The historical views of the Roman Catholic church .......... 327
  3.2 The desire for baptism ......................................... 332
  3.3 Difficulties over post-mortem caesarian operations ........ 340
  3.4 Two exceptional cases - ectopic gestation and uterine cancer 345
  3.5 Clarification of the Church's view on induced abortion .... 349

4. CONFLICTING INTERESTS OF MEDICINE AND RELIGION .......... 358

  4.1 The 19th century position ................................... 358
      4.1.1 In France .............................................. 358
      4.1.2 In Britain ............................................. 363
      4.1.3 Ectopic Pregnancy ..................................... 369

  4.2 Problems of interpretation .................................. 371
      4.2.1 Induced abortion ....................................... 372
      4.2.2 Post-mortem caesarian operations .................... 381
      4.2.3 Embryotomy versus ante-mortem caesarian operations 386
      4.2.4 Religious attitudes of the medical profession ...... 397

5. THE RESOLUTION OF THE SITUATION .............................. 409

6. CONCLUSIONS ........................................................ 414
PART IV - AN ASSESSMENT

1. SUMMARY
   1.1 Immunisation, and disease
   1.2 Anaesthesia, and pain
   1.3 Induced abortion, caesarian operations, and the value of fetal life

2. SOME CONCLUSIONS

3. SUGGESTIONS FOR FURTHER STUDY

APPENDICES

BIBLIOGRAPHY
LIST OF ILLUSTRATIONS

Fig. 1.1 Map of Scotland, by counties

(a) History of opposition to inoculation in 18th century
(b) High incidence of support at the disruption, 1843.
(c) Low incidence of Papism, 1755.

Fig. 1.2 Map of Scotland, by counties

(a) Areas not affected by factors in Fig.1.1.
(b) Counties in which inoculation was supported, 1791-9.

Fig. 1.3 Title page of Edward Jenner's Inquiry

Fig. 1.4 Genealogy of Edward Jenner

Fig. 1.5 Rowley's 'Cow-poxed, ox-faced boy'

Fig. 1.6 Anti-Vaccination postal propaganda sticker

Fig. 1.7 Smallpox deaths, related to total deaths and total population - London 1661-1901

Fig. 2.1 Pre-anaesthetic amputation, 1646

Fig. 2.2 James Young Simpson, 1848. (By courtesy of the Wellcome Trustees)

Fig. 2.3 A view of the life of J.Y. Simpson, 1811-70

Fig. 3.1 Fetal presentation at delivery

Fig. 3.2 Destructive operations upon the fetus

Fig. 3.3 Baptismal syringe

Fig. 3.4 Graph showing improving mortality of the ante-mortem caesarian operation.
ACKNOWLEDGMENTS

It is a pleasure to acknowledge the helpful — and kindly — supervision of Dr C.A. Russell, who has kept my feet from wandering too far from the paths of academic righteousness, and has taught me some of the essential art of self-criticism.

I am particularly indebted to several librarians and their staffs, not only for providing access to their collections, but for their trouble — often considerable — in tracing obscure and rare items. The principal collections which I have consulted are those of:

The British Library (Reference, Newspaper, and Manuscript Collections);
The Wellcome Institute of the History of Medicine;
The Evangelical Library;
The Catholic Central Library;
Blairs College (Aberdeen);
The National Library of Scotland (Reference and Manuscript Collections);
The Royal Colleges of Surgeons of England and of Edinburgh;
The Universities of London, Glasgow, Edinburgh and Aberdeen.

To the staffs of all of these libraries, and others mentioned in the chapter end-notes, I am happy to express my very great thanks.

I have been particularly helped in Aberdeen by Miss E. Macmillan of the University Medical School, and Miss Jennifer Bevan of King's College, in which two libraries much of the research for
this thesis was undertaken. These two ladies have suffered my continuous importunings with an efficiency and good humour which is beyond praise.

The portrait of J.Y. Simpson (Fig. 2.2) is from a lithograph in the Wellcome Institute, and is reproduced by courtesy of the Wellcome Trustees.

Finally, my thanks are due to my family, whose lives have been almost totally disrupted for the last 4½ years by my self-immurement, during most evenings and week-ends, with books and Bach as the only tolerated company.
This thesis consists of an Introduction and four Parts. The references and notes are numbered in a separate sequence for each Part, and are collected as end-notes at the conclusion of each chapter. A list of all sources consulted is given in the Bibliography and, where a particular edition of any work is indicated, this is the one which has been used.

Within each Part the Tables and Figures are numbered in a separate sequence, prefaced by the Part number. (Thus in Part III, Figure 2 is numbered Fig.3.2, etc.).

Abbreviations used for books of the Bible are those listed at the front of the Revised Standard Version. The titles of some periodicals have been abbreviated in the chapter end-notes and references: these titles are given in full in the Bibliography, together with the place of publication.

References to sources, the titles of which are in French or Latin, have been translated by the present author unless the reference includes the name of a translator.
ABSTRACT

It has frequently been suggested that, historically, science and religion react together in a state of conflict. Three areas of medical development have been studied to determine the nature of such conflict in this field where, in particular, its existence has been alleged.

The introduction into Europe of inoculation for smallpox, about 1720, seems to have been met by religious objections from some hyper-Calvinist sources - particularly in Scotland - but this opposition had almost disappeared by the 19th century, and it did not recur on the introduction of cowpox vaccination by Jenner in 1798.

Obstetric anaesthesia is commonly said to have stimulated massive religious opposition when it was introduced in 1847. Evidence of such opposition in contemporary sources has proved to be virtually non-existent, however, and it appears that this 'conflict' is a myth, based upon a defence prepared by James Young Simpson of Edinburgh against an attack which never materialized.

The value given to the life of unborn children was a source of genuine conflict between the medical profession - which regarded the fetus as disposable - and the Roman Catholic church - which regarded all life as valuable, even that of the unborn. Debates occurred over induced abortion, embryotomy, and the caesarian operation - a means of saving the child which the catholic church
supported, but surgeons regarded as unacceptably dangerous for the mother. These differences continued until well into the present century.

It is concluded that, while occasional specific disputes have occurred, there is no evidence of any general 'warfare' between medicine and religion, and that such a conflict is merely an historiographical artifact based upon past failures to study the historical evidence sufficiently closely.
INTRODUCTION
INTRODUCTION

In the history of science and technology almost any study of science and religious belief will need to take account of the apparent conflicts which seem to exist between them. This 'warfare model' for the relationship between science and religion was expounded with especial fervour in the early days of the modern historiography of science - for example, during the half-century 1875-1925 at least three books were devoted to the subject, each making the assumption (even in its title) that a state of conflict was the natural framework within which the two areas of human experience co-existed(1).

In one area of science in particular is the existence of a conflict with religion widely held to apply, even in the present day - that of medicine. For how long medicine has been a science may be argued. For many centuries medicine was undoubtedly an art, practised empirically, and the deliberate introduction of science into medicine has only become widespread in the 20th century, while even to-day some areas of medicine (for example, psychiatry) fall more within the definition of an experimental than a cognitive science. In order to restrain the present study within reasonable bounds, however, it has been confined to scientific and technological developments in physical medicine, and has not been concerned with aspects of mental health, nor with faith healing.

As science and technology began to spread slowly into the medical field during the 18th and 19th centuries, so did these developments apparently lead to specific areas of conflict with
religious belief. In particular, conflicts appear to have arisen over

(i) the role of disease,
(ii) the role of pain,
and (iii) the value given to fetal life.

The first two were ostensibly results of the direct impact of new technologies in medicine - immunisation and anaesthesia - while the third seems to have been the result of surgical procedures made possible by other technologies (for example, antisepsis, blood transfusion, anaesthesia, radiography, etc.).

Whether conflicts over these issues did arise in fact and, if they did, whether they did so for particular reasons or as a result of the general relationship between science and religion, is the subject of this thesis.

The three areas mentioned above were chosen for study because

(i) they are those in which the existence of an alleged conflict is the most notorious,
(ii) they are representative of three fundamental areas of both medical and religious interest,
and (iii) they represent areas in which, with one exception, the disputes have been concluded for a sufficient period of time to enable a historical perspective of the situation to be obtained.

The exception referred to above - that of the value of fetal life in the context of induced abortion - is an area of very bitter conflict which, upon medical grounds, was almost entirely
resolved by the 1920's but which has opened up again in the second half of the century. The current conflict is more concerned with socio-economic reasons for terminating fetal life than with physical risks to maternal life (which underlay the procedure prior to the 1920's), and thus represents a conflict between religious belief and social mores, rather than with medical science. This particular debate still continues to-day.

The one outstanding example of conflict between medical science and religious belief which has been omitted from the present study is that over blood transfusion - a procedure rejected upon theological grounds by the sect of Jehovah's Witnesses, but imposed upon them in many western countries by the medical profession with the support of the judiciary. This dispute arose in the 1940's and, like that over induced abortion, still continues to-day. While possibly of too recent occurrence to permit of adequate historical perspective, the philosophy of this conflict has already been studied by the present author in a book published in 1972(2).

It is not suggested that the conflicts alleged to have arisen between medicine and religion have been restricted to the subjects, places, and periods studied here. In a hitherto little studied area such as this, however, it was necessary to identify a circumscribed field for study. As science has been primarily the product of western (Christian) civilization, and modern scientific medicine has been a product broadly of the period from the 18th century onwards, the present study was arbitrarily restricted to three particular areas of alleged conflict, and mainly to Europe in the 18th and 19th centuries. As will be indicated in the conclusion, there remain many aspects of this problem still to be explored.
NOTES AND REFERENCES

1. Draper, J.W. *History of the Conflict between Religion and Science*
   London: King (1875);

   White, A.D. *A History of the Warfare of Science with Theology*
   London: Macmillan (1896);

   Simpson, J.Y. *Landmarks in the Struggle Between Science and Religion*

   (N.B. The author of the last-named book, James Young Simpson
   (1873-1934), was Professor of Natural Science at New
   College, Edinburgh and his father was nephew of James
   Young Simpson (1811-70), the discoverer of chloroform,
   who is studied in depth in Part II of this Thesis.)

PART I

THE PROBLEM OF DISEASE

- Immunisation
1. INTRODUCTION

Of all areas of medical science and technology, immunology is perhaps that which is to-day expanding and developing at the greatest rate, the subject having grown from observations originally made in connection with smallpox. In the east a form of immunity had long been sought by attempting the deliberate infection of healthy subjects with a mild form of smallpox, using pustular material from existing patients. This practice stemmed from observations that someone who had once had smallpox could not contract the disease again, and so might be spared a severe - possibly fatal - attack as a result of casual infection. This belief came to Europe in 1713 (although there is some evidence that crude forms of inoculation had been practised indigenously before that(2)) and through the 18th century it spread rapidly(3), despite some objections.

In 1798 Edward Jenner, a country doctor from Gloucestershire, published a paper suggesting that inoculation with material from cowpox might be equally effective as, and less dangerous than, smallpox inoculation (see Section 3.1). After some slight initial opposition, and despite lack of adequate evidence of the truth of these assertions, the efforts of Jenner and a few of his friends, resulted in the procedure of cowpox inoculation (or vaccination as it came to be called) becoming widespread in Europe, the East, and in North America. Vaccination was not generally popular and it was found necessary in many countries to legislate for its compulsory performance. This element of compulsion itself attracted much opposition in Britain, and opposition to vaccination became inextricably confused with opposition to compulsion.
1.1 SOME RELIGIOUS ATTITUDES TO DISEASE IN THE 18th AND 19th CENTURIES

As Part I of this study is concerned with religious attitudes to certain attempts at preventing disease, it is necessary first to consider some religious attitudes towards disease itself.

That disease and suffering were 'chastisements' sent by God as a reward for sin, and a means of bringing men to repentance, was a view of great antiquity. The book of Job - possibly dating from about the 4th century B.C. - was written as a study of man's protest against this concept, but even within it the speeches of Elihu (4) underline God's use of sickness for this purpose (5). No less did New Testament theology stress this point.

'For whom the Lord loveth he chasteneth, and scourgeth every son whom he receiveth.... Now no chastening for the present seemeth to be joyous, but grievous: nevertheless afterward it yieldeth the peaceable fruit of righteousness unto them which are exercised thereby'.

(Heb. 12 6 : 11)

The unknown author of this passage (6) has been, perhaps, the most widely quoted source for Christian belief in the disciplinary importance of sickness, although St. Paul's comment that 'if we be dead with him, we shall also live with him: If we suffer, we shall also reign with him' (2 Tim. 2, 11-12a) has also been used as sanction for this attitude.

Notwithstanding this tradition, the healing of the sick was not regarded as an interference in God's will in the early church. Apart from the many examples of Christ's own healing ministry, the gift of healing given to the apostles (e.g. Acts, 3, 1-11), and the example
of St. Luke, 'the beloved physician' (Col. 4, 14) himself, there is ample reason to believe that the church generally regarded healing of the sick as a good and pious activity. The attitude of the mediaeval church to healing may well be encapsulated in Thomas à Kempis' *Imitation of Christ*, in which it was said:

>'Many good things canst thou do whilst thou art in health; but when thou art sick, I see not what thou art able to do. Few by sickness grow better; as also they who wander much on pilgrimage, seldom thereby become holy'.

By the 18th century, however, the role of disease was being seen in a different light.

In the early western church an ancient Canon had ordered the priest, after praying for the sick person, to exhort him 'to bear his scourging patiently; to believe it is designed for his purifying and amendment'. The Roman Ritual, in the *Ordo ad Visitandum Infirmum*, contained an exhortation to receive 'with patience and humility the bodily illnesses which are sent by God; for if these are accepted humbly and without complaint, your spirit will receive the greatest reward and blessing'. This version, contained in the *Manuale ad usum Sarum*, dates from about the year 1200.

During the Reformation in England, the view that illness was a manifestation of God's judgment persisted in the *Book of Common Prayer* in the exhortations contained in 'The Order for the Visitation of the Sick'. This order, based upon that in the Sarum Manual, was translated and adapted for inclusion in the first prayer book of Edward VI (which came into legal use on Whit Sunday, 9 June, 1549) and contained more lengthy exhortations than had the Sarum Manual.
The first exhortation, which spelled out the Church of England's teaching as it was still received in the 18th century, conveyed the spirit of the earlier exhortations, but in a form based firmly upon scripture (10). It said:

'Whatsoever your sickness is, know you certainly, that it is God's visitation. And for what cause soever this sickness is sent unto you; whether it be to try your patience for the example of others ... or else it be sent unto you to correct and amend in you whatsoever doth offend the eyes of your heavenly Father; know you certainly, that if you truly repent you of your sins, and bear your sickness patiently, trusting in God's mercy ... it shall turn to your profit, and help you forward in the right way that leadeth unto everlasting life. Take therefore in good part the chastisement of the Lord' (11).

An additional exhortation was also included in the 1549 book (which might, however, be omitted 'if the person visited bee very sicke'). This referred to the Epistle to the Hebrews (12, 6-10) in a way markedly similar to an earlier exhortation in a mediaeval M.S., De Visitacione Infirmorum, of an unknown (but early) date, which is now in the library of St. John's College, Oxford (12). This exhortation, in the vernacular, was part of the old Sarum use and stated: 'if thou love God, thou louest that He doith, and He skorgeth the, and therfor thou shalt gladli suffre it'.

The second exhortation of 1549 also quoted (inter alia) the 2nd Epistle to Timothy (2 Tim 2,11,12), as well as a passage in St. Paul's epistle to the Romans which likened Christians to
'heirs of God, and joint-heirs with Christ; if so be that we suffer with him, that we may be also glorified together, for ... the sufferings of this present time are not worthy to be compared with the glory which shall be revealed in us'

(Rom. 8. 17-18).

Like the first exhortation, the second was also soundly based on the authority of the scriptures (13).

The spelling used in the two exhortations in the book of 1549 changed with the successive prayer books of 1552, 1604 and 1662(14) but, apart from the adoption of the 1611 translation of the Bible (the Authorized Version) for the quotations in the 1662 Prayer Book, the wording has remained constant from 1549 until the present day(15).

The other religious view of sickness current in the eighteenth century - that no-one but God alone had the right to inflict disease - rested upon different ground. That God could (and did) 'smite' his people with disease was well attested in the scriptures (e.g. 2 Chron. 21, 18; Deut. 29, 22, 28, 22.; Is. 3, 17; Zech. 14, 12. etc.), but the Christian churches were not agreed upon whether He alone had this power and this right. On the contrary, the scriptural attribution of illness to the work of Satan (e.g. Lk. 13, 16) could be taken to imply that the undoing of such evil work - by whatever means - would be a godly act. Only upon the view of God as sovereign - prominent in Calvinist theology (16), but much less so in Roman Catholic and later Anglican teaching - could authority for God's solitary right to inflict disease be based.
For the Christian, the infliction of disease (like the occurrence of history) may be of two types - that which God himself produces (e.g. 2 Chron. 21, 18) and that which He merely permits (e.g. Job, 2, 6-7). It can also be argued that disease is either God's 'chastisement' for sin in general, or that a specific sickness is the punishment for a specific sin. The Church of England teaching, as expressed in the Book of Common Prayer (and based upon the old Roman Ritual) clearly inclined to the view of disease as being specifically produced by God as 'chastisement' for the individual's own sins; and it was this prayer-book view which had authority within the Anglican church in the 18th century.

The two views, that for man to inflict disease was to trespass upon God's sovereignty (and was therefore impious presumption), and that man should willingly accept God's chastisement, were the basis of virtually all religious opposition to inoculation and vaccination. They could be countered, however, by scriptural exhortations to save life (e.g. 1 Kings 1, 12; Lk. 6, 9) and (explicitly) to heal the sick (e.g. Mt. 10, 8., Lk. 9, 2). It is not surprising that many people were confused over the issue (17). A balanced view of the problem was put in a sermon preached in 1805 to a country congregation, and it is worth quoting as an example of one contemporary Church of England cleric's view:
Some persons think that "it is wicked to bring diseases upon ourselves". Most sincerely do I wish that every one really thought so from principle: we should not then have so many instances of persons dying from diseases brought upon themselves, by excess in drinking, and in eating, - by debauchery of various kinds, - by over-fatigue, and loss of rest, - by want of cleanliness, - by sloth, and various other means. God has commanded us to preserve life; and since a disease is abroad in the earth, which almost all persons are likely to take at some, and that any, period of their lives, and when, by undergoing this in the mildest form, and at the most favourable time, we can make it a means of preserving life, surely it must be agreeable to God's will to undergo it?

Nearly allied to this objection is another, that "as diseases come from God, to attempt to prevent them is fighting against him". It is most true that diseases do come from God, but so likewise do medicines and healing. Disease is the punishment of sin, but charity to the sick - "I was sick and ye visited me" (Matt. xxv. 36) is the command of Christ, and will itself atone, through Christ, for sin. Have we not seen that Christ himself healed? ... Is not the use of medicine itself sometimes the bringing in one disease to cure another? and is not medicine often taken to prevent disease before hand? Is it worse to inoculate than to bleed? or to have recourse to so violent a remedy as to take off a limb, when to keep it would destroy life? (18) Is it to "fight" more "against God" to inoculate, than to shelter ourselves in houses and to put on cloaths as a defence against the inclemencies of the weather? Let us not "fight against God" - but we "fight against God" in our sins, and in destroying life, NOT when we preserve it. (19)

In Scotland, no less than in England, the old view of disease as a divine infliction weighed heavily upon many people. It is possible that, as the Scottish reformation had been more spiritually thoroughgoing
than that in England, the Calvinist influence had given people a clearer view of the sovereignty of God and, thus, a greater awareness of sin and its consequences. In any case, as late as 1795 the minister of the Parish of Auldearn in Nairnshire could note that

'...the people are in general averse to inoculation, from the general gloominess of their faith, which teaches them, that all diseases which afflict the human frame are instances of the Divine interposition, for the punishment of sin; any interference, therefore, on their part, they deem an usurpation of the prerogative of the Almighty.'

The teachings of Calvin were considerable, and not always easy to understand - the more so as many of his followers have tended to take certain aspects of Calvinism to extreme lengths not sanctioned by Calvin himself. In Scotland Calvinism was largely shaped by John Knox (1505-72), who was not a man renowned for his moderation, and the doctrine and discipline of the Church of Scotland were always strict.

Insofar as it can be (over)simplified and encapsulated in a single sentence, it might be said that Calvinism proceeds from one basic tenet - the complete sovereignty of God - and teaches the absolute predestination of every individual.

Calvin's teaching upon both these points was very clear. 'God is deemed omnipotent ... because, governing heaven and earth by his providence, he so over-rules all things that nothing happens without his counsel.' And further,
'we are to understand that it is he only who with wisdom, goodness and power rules the whole course and order of nature; who is the author of both rain and drought, hail and other storms, as also of serenity; who fertilizes the earth of his beneficence, or again renders it sterile by withdrawing his hand; from him also both health and disease proceed; to whose power finally all things are subject and at whose nod they obey.'(23).

That in his omnipotence God pre-destined the fate of all mankind, individually, was also a clear and fundamental point of Calvin's teaching. Of this he said:

'Before the first man was created, God in his eternal counsel had determined what he willed to be done with the whole human race'.

He had even determined that Adam should fall from the unimpaired condition of his nature, and by his defection should involve all his posterity in sentence of eternal death.'(24).

And that Calvin's God was not only an absolute sovereign, but also a stern and righteous judge was equally clear: 'Since man is naturally ... deprived and destitute in himself of all the light of God, and of all righteousness, we acknowledge that by himself he can only expect the wrath and malediction of God.'(25).

The Calvinism which was taught in Scotland was essentially that found in the Westminster Confession, which had been approved by the General Assembly in 1647 as 'the publick and avowed Confession of the Church of Scotland'. Chapter 6, para. vi of this confession made it explicit that
'Every sin, both original and actual, being a transgression of the righteous law of God, and contrary thereunto, doth, in its own nature, bring guilt upon the sinner, whereby he is bound over to the wrath of God, and curse of the law, and so made subject to death, with all miseries spiritual, temporal, and eternal' (26).

This teaching had been agreed by the General Assembly of the Church on 3 February 1645, and approved and established by Act of the Scottish Parliament at Edinburgh three days later (27). As had the Book of Common Prayer of the Church of England, so did The Directory for the Publick Worship of God in Scotland, refer, 'Concerning Visitation of the Sick', to 'the duty of the minister' who,

'may, from the consideration of the present sickness, instruct him out of scripture, that diseases come not by chance, or by distempers of body only, but by the wise and orderly guidance of the good hand of God to every particular person smitten by them. And that, whether it be laid upon him out of displeasure for sin, for his correction and amendment, or for trial and exercises of his graces, or for other special and excellent ends, all his sufferings shall turn to his profit, and work together for his good, if he sincerely labour to make a sanctified use of God's visitation, neither despising his chastening, nor waxing weary of his correction' (28).

The influence of the Scottish clergy over their congregations had been especially marked during the seventeenth century and it was asserted in the middle of the nineteenth century that in the past they had uniformly taught
'the anger of the Almighty. In every thing, His power was displayed, not by increasing the happiness of men, nor by adding to their comforts, but by hurting and vexing them in all possible ways'\(^{(29)}\).

This was almost certainly an exaggeration but it cannot be doubted that, at least in the seventeenth and early eighteenth centuries, Scottish Calvinism was a sombre faith which particularly stressed the sinfulness of man, the majesty of God, and the inevitability of His retribution. Calvinist theology could easily encompass the belief that reliance upon man, rather than upon God, to protect from smallpox was itself a sinful rejection of God's sovereignty, and worthy of 'chastisement'. In a country where religious beliefs were strongly held it was likely that convictions on such matters would be deep, and might well become part of the philosophy of everyday life, passed from each generation to the next.
1. The two procedures which form the basis of this unit are readily confused. The terminology used to distinguish them is:

Variolation (or Inoculation): Introduction of human smallpox material, either directly from a smallpox pustule or after drying onto a lancet or similar instrument.

Vaccination: Introduction of cowpox material, either directly from a pustule on a cow, or from a cowpox pustule on a human intermediary, and either as pustular material or after drying onto a suitable instrument.

In each case the material is introduced just below the surface of the skin by a process of 'scarification' with a sharp instrument.

2. e.g. Williams, P. Letters to Dr. Samuel Brady (1722-3).


3. Despite the support of Paracelsus (1493-1541) for the old Germanic folk tradition that 'like cures like' there is no evidence that the observation that one attack of smallpox generally gave protection against future attacks was originally received as an extension of Paracelsian medicine. It has recently been observed that English medical practitioners of the 17th century were prepared to accept new remedies on their own merits, even if Paracelsian in nature, while disregarding the underlying mystic philosophy (Debus, A.G. The English Paracelsians. London: Oldbourne, 1965, p.80), and it is possible that remnants of this attitude pre-disposed some of their 18th century successors to consider inoculation as worth a trial. The difficulty of
administering a carefully measured minimal dose of smallpox would have militated against the acceptance of inoculation as truly Paracelsian medicine, but the procedure was nevertheless in sympathy with some of the practical concepts of Paracelsianism.

4. These speeches - Chapters 32-7 - are generally regarded as a later addition to the original, by another hand. They were certainly incorporated in the book by the end of the 2nd century B.C., however.

5. e.g. Job, 33 (New English Bible translation)

19. Or again, man learns his lesson on a bed of pain, tormented by a ceaseless ague in his bones;

22. his soul draws near to the pit, his life to the ministers of death.

26. If he entreats God to show him favour, to let him see his face and shout for joy;

27. if he declares before all men, 'I have sinned, turned right into wrong and thought nothing of it';

28. then he saves himself from going down to the pit, he lives and sees the light.

6. Although attributed to St. Paul in the King James translation of the Bible, and accepted as such since the 2nd century by the eastern churches, the Epistle to the Hebrews is now regarded in the west as being of unknown authorship, almost certainly not Pauline.

7. Thomas à Kempis (c.1380-1471) Of the Imitation of Christ.


10. The sources traceable in the first exhortation are:

Deut. 4, 39; 32, 39-40; Job 12, 9-10; 5, 6; Ps. 42, 11; 102, 23; Jas. 1, 2-4; 2 Cor. 4, 17-18; 1 Pet. 1, 6-7.9; Ps. 39, 11; 89, 30.32-33; Rev. 3, 19; Job 34, 31-32; Micah 7, 9; 1 John, 2, 1-2; Ps. 16, 8; Heb. 12, 10-11; Jas. 1, 12.


13. The sources traceable in the second exhortation are:

Prov. 3, 11; Heb. 12, 6-10; Rom. 15, 4; 2 Tim. 3, 16; Ps. 110, 49-50. 111; 1 Sam. 3, 18; Phil. 1, 24; 2 Cor. 12, 9-10; 1 Pet. 4, 19; 2 Thes. 2, 16; Heb. 5, 8-9, 12, 2; 2 Cor. 13, 4; John 14, 6; 2 Tim. 2, 11-12; Rom.8,11.18. Col. 3, 3-4; Rev. 7, 14-15; Ps. 40, 1; Lam. 3, 25-26; 1 Tim. 6, 12; Heb. 3, 14; Acts 17, 21; 10, 34; Hagg. 1, 5; Lam. 3, 40; Ps. 32, 3.5; 1 John 1, 9; 1 Cor. 11, 32; Heb. 10, 27; Rev. 6, 15-16; 2 Cor. 13, 3; Ps.139, 23-24.

14. e.g. 1549: 'Wherefore, whatsoever your sickenes is, knowe you certaynly, that it is Gods visitacion'.

1662: 'Wherefore, whatsoever your sickness is, know you certainly, that it is God's visitation'.

15. The exhortations were omitted, however, from both the American (1928) and the Scottish (1929) Episcopal Churches' Prayer Books.

16. e.g. Calvin, J. *The Catechism of the Church of Geneva.* (1545). In Reid, J.K.S. (Trans.) *Calvin: Theological Treatises.* London: SCM (1954). p.93. (God) 'has all things under his power and hand; so that he governs the world by his will, and rules all creatures as seems to him good'.

17. e.g. Blackmore, R. *A Treatise upon the Small-Pox.* Part 2. 'A Dissertation upon the Modern Practice of Inoculation' London: Clark (1723), p.84. 'Multitudes looked upon the Practice as inconsistent with the Christian Religion, that forbids its Followers to tempt Providence, and run into unwarrantable Hazards; and many more thought it a prudent and discreet Part to stand by as Spectators and Observers, to see if this method could be justified, and settled by a sufficient Number of successfull Tryals, before they would make the Experiment in their own Families, and venture upon such a nice and unknown Method, till they had received this just Satisfaction. '

18. 'Our Saviour himself has told us, "If thy right eye offend thee, pluck it out and cast it from thee..." (The author's footnote. A reference to Mt. 5, 29)


21. An example of this strictness, as late as 1831, was the trial of the Revd. John McLeod Campbell, the minister of Rhu, for heresy. He was accused of teaching that Christ died for all mankind, and not merely for those predestined for salvation. Found guilty by the presbytery, the verdict was confirmed by the synod and the General Assembly and Campbell was deposed from the ministry. Details of the case are given in Burleigh, J.H.S. A Church History of Scotland. London: O.U.P. (1960), pp.331-2.


2. **VARIOLATION**

Variolation, or inoculation, consisted of the removal of pustular 'matter' from patients suffering from small-pox in a mild form and the transfer of this material to a healthy recipient. The aim was always to induce an attack of smallpox — hopefully mild — in a patient whose general good health would enable him to recover, and with minimal suffering.

2.1 **VARIOLATION IN EUROPE**

2.1.1. **Introduction of Variolation**

Variolation was introduced into Europe via Turkey. In the early part of the 18th century there was a serious epidemic of smallpox at Constantinople which was observed by Dr Emanuel Timoni (d.1718), a graduate of both Padua and Oxford and a Fellow of the Royal Society in London. Timoni wrote a letter, dated December 1713, in which he described in great detail his personal observations of the practice of inoculation. This was communicated to the Royal Society in 1714 and in 1717 it was published in Volume 29 of *Philosophical Transactions* (30).

Although Timoni was the first European physician to write about the 'eastern' practice of inoculation he was not the first to work with it. The Venetian consul at Smyrna, Dr Giacomo Pylarini, M.D. (1659-1718) had also been in Constantinople and in 1701 had inoculated three children there. Pylarini published his researches on the subject in Venice in 1715 and this report was reprinted in London in *Philosophical Transactions* in 1716 (31). By at least one modern
commentator Pylarini has been 'accrued with the "medical"
discovery of variolation, and is thus the first immunologist'\(^{(32)}\).

Comparatively little note appears to have been taken at the
time of the work of Timoni and Pylarini, despite the publications
in \textit{Philosophical Transactions}. Why these papers did not stimulate
further investigation must remain a mystery, beyond the suggestion
(made in 1730) that until 1721 the procedure had been regarded as
'Virtuoso-Amusements'\(^{(33)}\). In that latter year, however, interest
was aroused in the practical possibilities of inoculation by the
crusading zeal of an outstanding English lady of high society, the
wife of a politician and erstwhile diplomat, Lady Mary Wortley
Montagu. Lady Montagu had her son inoculated in Constantinople by
a British embassy surgeon, Charles Maitland\(^{(34)}\). On her return to
Britain her young daughter was inoculated, also by Maitland, and
Lady Mary used her influence with Caroline, Princess of Wales, to
initiate a series of trials of inoculation in London\(^{(35)}\). Maitland
subsequently went to Hanover to inoculate the King's grandson and
the royal patronage caused inoculation to become popular, especially
in London society.

Writing in 1885 William White, a bitter and eloquent
opponent of vaccination, said

'it is part of the legend that the introduction of inoculation
was fanatically resisted by physicians, clergy, and mob;
but the resistance was neither fanatical nor extensive, and
is chiefly the invention of the romancing biographers'\(^{(36)}\).

As a critique of the early years of inoculation in Britain this is a
reasonably accurate assessment. Inoculation was introduced,
flourished, suffered some criticism, lost popularity (due to its apparent lack of safety) and faded into obscurity, all within a period of some seven years. It was then practically abandoned in Britain for the next twenty years. The reasons for this rapid decline in popularity of the new practice were almost entirely connected with the bad publicity attracted by the occasional deaths of inoculation subjects. Outside Britain the introduction of inoculation in Europe was spasmodic and generally long delayed. Occasional instances of inoculation being practised in France and Germany seem to have occurred, but these were isolated cases.

The only European country in which inoculation was practised and given official credence was the electorate of Hanover, where Maitland had been sent by King George I in 1724 to inoculate his grandson, Prince Frederick Lewis, later Prince of Wales (37). This inoculation was successful (38) and was followed by a short period of local popularity for the procedure.

In France, although inoculation was not widely practised it was discussed and in 1723 there arose the interesting situation of the Sorbonne being in favour of experimenting, and the École de Médecine declaring against it. The Sorbonne's attitude was established after a debate in 1723 at which Dr de la Coste, who had followed the progress of the subject in England, reported that the English court favoured the procedure. It was the decision of the Dean and nine doctors that experiments might be made without seriously interfering with Divine Providence. Inoculation was regarded as essentially an English innovation, however, and shortly
after this an anonymous pamphlet appeared — Raisons de doute contre l'inoculation — in which 'la méthode anglaise' was strongly criticised. This pamphlet was apparently the work of the Dean of the Faculté de médecine, Phil. Hecquet (1661-1731), and at a meeting in the École de Medicine on 30 December 1723 the procedure was condemned. It was to be a further 20 years before inoculation was again tried in France, coincident with the revival of the practice in Britain.

2.1.2. Variolation after 1740

In the 1740's there was a renewal of interest in inoculation, with many practitioners using 'secondary' pustular material, taken from previously inoculated patients. Without being aware of what they were doing, those who used such 'matter' were using virus attenuated by passage, and modern knowledge has confirmed that an attenuated virus is capable of conferring immunity, while causing only a mild attack of the disease. This practice of inoculating so as to cause minimal effects — few pustules and little feeling of indisposition — grew in popularity. Apart from practitioners in England, Angelo Gatti in Paris also attempted inoculation with an attenuated virus, although with little success. The smallpox induced by Gatti was so attenuated that it is doubtful whether his patients ever underwent the disease at all, and consequently his inoculations were seen not to protect against future attacks. This result was, of course, the consequence of excessive attenuation. In Gatti's case it had the fortunate effect that, following discussion of his failure by the Faculty of Medicine, and outbreak of smallpox in Paris in 1763, the French government prohibited the practice of inoculation in Paris.
This prevented further experiment to determine whether inoculation could be made both effective as a protective, and mild in its effects on the patient.

probably the greatest increase in the practice of inoculation in the second half of the eighteenth century can be attributed to the work of Daniel Sutton, the son of a doctor (but himself unqualified) who set up in business as an inoculator with his brother Robert at Ingatestone (Essex) in 1763. Sutton's method was a combination of the use of secondary 'matter' and the 'cooling regimen' of treatment for smallpox, originally proposed a century earlier by Thomas Sydenham (41), together with the administration of various pills and powders (42).

the essence of what became universally known as the 'Suttonian' practice of inoculation was, however, the bestowal upon the patient of the mildest possible attack of inoculated smallpox, with the minimum of pustules. Sutton's aims were in complete accord with, and apparently preceded, the work of Gatti (40), but he had substantially more success than the Frenchman, having allegedly inoculated 13,792 persons and his assistants another 6000 in the three years 1764-1766, all without a single death.

Following the revival of inoculation about 1743 many inoculators built up large practices. As a small indication of the rate of growth of inoculation Table 1.1, taken from the annual report of the London Smallpox and Inoculation Hospitals for 1868, shows the numbers inoculated in one charity institution during the first twenty or so years of the revival period.
<table>
<thead>
<tr>
<th>Period</th>
<th>Inoculations</th>
<th>Period</th>
<th>Inoculations</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1746-Oct. 1749</td>
<td>17</td>
<td>1758)</td>
<td>446</td>
</tr>
<tr>
<td>Oct. 1750-Oct. 1751</td>
<td>85</td>
<td>1760</td>
<td>372</td>
</tr>
<tr>
<td>1752</td>
<td>112</td>
<td>1761</td>
<td>429</td>
</tr>
<tr>
<td>1753</td>
<td>129</td>
<td>1762</td>
<td>496</td>
</tr>
<tr>
<td>1754</td>
<td>135</td>
<td>1763</td>
<td>439</td>
</tr>
<tr>
<td>1755</td>
<td>217</td>
<td>1764</td>
<td>383</td>
</tr>
<tr>
<td>1756</td>
<td>281</td>
<td>1765</td>
<td>394</td>
</tr>
<tr>
<td>1757</td>
<td>247</td>
<td>1766</td>
<td>633</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1767</td>
<td>653</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1768</td>
<td>1084</td>
</tr>
</tbody>
</table>

Numbers inoculated at the Smallpox Charity Hospital, London, 1746-1768. (43)

Figures such as these, taken together with reports of individual practitioners, whose inoculation cases ran into several hundreds, show that, within the 25 years from 1743 to 1768, inoculation reached levels of popularity far in excess of those which it had attained during the 1720's.

2.1.3. The decline of variolation

By the end of the eighteenth century inoculation for smallpox was relatively widespread and without any serious opposition from either the medical profession or the institutional churches. The
turn of the century, however, was to see the apogee of inoculation, for it was in 1798 that the use of cowpox matter was proposed by Jenner and the spread of this practice (see Section 3.1) rapidly displaced the use of smallpox matter, which was regarded by the medical profession as being both less effective and more dangerous in its results, than the new vaccine. It is not intended to anticipate the study of cowpox vaccination here, but merely to record briefly the demise of smallpox inoculation in Britain in the 42 years following Jenner's first publication on the subject.

Initially both smallpox inoculation and cowpox vaccination were practised side by side, medical practitioners being left to inoculate their middle class patients' children 'with either kind of pock', it being noted that 'the upper classes who read, and see a variety of practitioners, judge for themselves' (45) which material should be used. Initially the medical profession used either type of matter indifferently, there being no distinction either in difficulty or remuneration (46) between them. The poorer classes expressed a clear preference for the old inoculation with smallpox matter - perhaps because 'they had only lately taken to it' (47) - whereas it was amongst the educated classes that cowpox most quickly took hold. Creighton has also suggested that another reason for the predilection for smallpox inoculation among the lower social classes was 'that a good deal of inoculation was done by amateurs of their own class - blacksmiths, farriers, tradesmen and women' (48). As late as 1825 one practitioner - a Dr Robert Ferguson - was even advocating two simultaneous inoculations in each patient; the cowpox vaccine was
intended to neutralize the contagiousness of the smallpox inoculation, which was itself to be the protective agent against future infection \(^{(49)}\). Notwithstanding the favour generally shown to the old practice, it was rapidly ousted in favour with the medical profession at large, and with those in civil authority. For the purposes of this study it is merely sufficient to note at this point that at the London Smallpox Hospital, for example, inoculation with smallpox matter ceased, in favour of cowpox vaccination, in May 1808 for out-patients and June 1822 for in-patients, and that by 1840 attitudes had so hardened against inoculation that it was made illegal \(^{(50)}\). This legislation was not extended to Scotland until 1863 \(^{(51)}\).

The legislation forbidding inoculation with smallpox (rather than cowpox) matter was the direct result of pressures from within the medical profession, and had no relation to any religious views. It was solely the competing claim of cowpox vaccination which ousted smallpox inoculation.

2.2. RELIGIOUS VIEWS IN THE 1720'S

The introduction of variolation was met by opposition on a number of grounds, including the religious.

2.2.1. In England

The religious case against inoculation was expounded fully in a sermon preached in London on 8 July, 1722, by the Rev. Edmund Massey, M.A., at St. Andrew's Church, Holborn \(^{(52)}\). Massey took as
his text Job 2, 7: 'So went Satan forth from the Presence of the Lord, and smote Job with sore Boils, from the sole of his foot unto his crown', and he directed his attention to two matters - the role of disease, and the 'unlawful' nature of inoculation.

It was Massey's contention that the affliction with which Satan smote Job was akin to smallpox, and that the giving of it was 'by some such way as that of Inoculation'. Pointing out that God had 'communicated several Parts of his Sovereignty to the Sons of Men' Massey nevertheless believed that 'there are several Branches of Authority, which he has reserved to himself, in displaying of which, he acts upon Prerogative, and without human Intervention'. Amongst these latter, Massey instanced 'the Infliction of Diseases, which I will attempt to prove are utterly unlawful to be inflicted, by any who profess themselves Christians'. He did not indicate, however, why he saw this particular 'Branch of Authority' as one which God had 'reserved to himself'. In his only direct reference to the Book of Common Prayer, Massey averred that diseases 'are sent amongst Mankind' for two main reasons - 'Either for the Trial of our Faith or for the Punishment of our Sins'. This latter was, however, a viewpoint specifically excluded in the book of Job, from which he had selected his text. However, Massey went further and suggested that 'Diseases are not only judicially inflicted for past Offences, but graciously also design'd to prevent future'. Somewhat cynically he suggested that 'some are made Honest for fear of Prison; Others continue chaste for fear of Infection;... no doubt several are Religious, more out of fear of going to Hell than anything else. So that we see the worst of Evils have their Use'. Again, this view agreed with the first
exhortation in the Book of Common Prayer, which said that sickness may be sent 'for the example of others'.

Massey summarised his arguments on disease as a punishment from God, thus:

'Should all Restraints of this Sort be taken away, were there no fear of Punishment in this Life, nor belief of any in the next; should Iniquity and Reputation be join'd together, and Health be Handmaid to Uncleaness; we may conjecture from present Disorders how mightily they would encrease, and irremovably be established; so that we have good Reason to bless and praise Almighty God for the wholesome Severities ordained for Offenders, without which, the World would be a much more uncomfortable Place to live in than it is at present.'(56).

These repeated references to disease as God's judgment and punishment were distinctly Calvinist in tone.

It was concerning the 'unlawful' nature of inoculation, however, that Massey waxed most eloquent, calling that 'a Diabolical Operation, which usurps an Authority founded neither in the Laws of Nature or Religion, which tends in this Case to anticipate and banish Providence out of the World, and promotes the encrease of Vice and Immorality.'(57). The suggestion that the infliction of disease may be a function of Divine Providence was, of course, entirely scriptural, but that it was a function which man may not assume, even if for reasons expected to be beneficial, was an expression of a hyper-Calvinist view of the sovereignty of God. It was Massey's implication that inoculation was presumption, in that it suggested that man was
self-sufficient without God, and was thus challenging God's sovereignty. Upon this assumption, that the infliction of disease by man was sinful, Massey invoked the words of St. Paul (Rom. 3, 8.) -

'Now the Apostle forbids us to do Evil, tho' Good should come of it, upon Pain of Damnation, which absolutely prohibits all unjustifiable Arts and Practices, be the Event never so beneficial and desirable' (58).

Massey also pointed out that 'A Natural or Physical Power does not always infer a Moral one: That is to say, a Man cannot lawfully do every Thing that is in his Power to do' (58). The message was plainly that, even if inoculation did protect against smallpox, the 'good' end of protection could not lawfully be obtained by the 'sinful' means of inflicting disease, if this was to challenge God's sovereignty over man.

Inoculation was also believed by Massey to transgress the sixth commandment,

'For it is always to be supposed, that a Law which forbids a great Evil, forbids also every Thing that has a Tendency thereto. For which Reason, the very next chapter forbids all voluntary and causeless Wounding, Mutilation, &c.'.

The fact that inoculation was not 'causeless' wounding was ignored, however, and Massey continued:

'These Things go often farther than they are designed, even to the taking away of Life: When this happens, they are to be considered, as no other than a Breach of the Commandment: And it is but reasonable to imagine, that when God forbade to take away Life, He forbade also the Commission of any Violence,
whereby Loss of Life might probably ensue. Tho' the 
Homicide be casual, yet if the Cause of it be criminal, 
surely it will be no Excuse.\(^{(59)}\).

The force of this argument lay in the suggestion that 'Loss 
of Life might probably ensue'. Massey knew that such loss might 
possibly ensue following inoculation, but there could have been no 
grounds for him expecting this to be 'probable'. This word, like 
others in the paragraph, (e.g. 'Violence', 'Homicide') appears to have 
been used by Massey for its emotive, rather than its logical, effect.

Finally, returning to the concept of God as sovereign, 
Massey saw inoculation as a

tempting of the Lord our God when Men rely too much upon 
themselves and put their Trust in one another, without 
calling upon God for his Assistance, or praying to him 
to guide and direct them ... And it is but just in 
Almighty God, when we presume too far, to punish our 
Rashness, when we misplace our confidence to visit for 
our Idolatry.\(^{(60)}\).

The tenor of Massey's argument was that diseases were sent 
by God, and that for man deliberately to transmit them was both sinful 
and presumptuous. In his reliance upon the exhortations in the Book 
of Common Prayer - themselves firmly based upon the scriptures (see 
Section 1.1) - and his stress upon the sovereignty of God, who, he 
believed, might alone inflict disease, Massey seems to have been 
showing an inclination towards Calvinist theology.

Calvinism had been a strong influence in the Church of England 
a century previously and, although it had suffered an eclipse, it still
persisted well into the 18th century (61). Massey had been educated at Trinity College, Cambridge, and in that university Calvinism had been particularly influential. That Massey had generally low church sympathies is indicated by the title of another of his sermons published in London in 1725 - *The Strait Gate made Impassable, by the abuse of riches, titles, and places of public trust.*

Little is known of Massey's character (62) but what little there is suggests an extreme individualist. The son of a London clockmaker Massey was born *circa* 1690 and attended Christ's Hospital, from where he was sent to Trinity College in 1707/8, shortly after being found guilty of the theft of some books from the library of Sion College. While at Cambridge Massey was in trouble again with the committee of almoners at Christ's Hospital for exceeding his financial allowance. After graduating B.A. in 1712 and M.A. in 1715 Massey was elected to the living of Colne Engaine in Essex, but did not take up residence and lived in London, where he appeared as a 'lecturer'. The living of Colne Engaine was in the patronage of Christ's Hospital and Massey was summoned before the court twice to account for his non-residence, which was contrary to the oath and bond which he had entered into. Having eventually taken up residence some time around 1724 Massey subsequently had further disputes with the court over financial matters until 1756. He died *circa* 1765.

By his language Massey showed an innate opposition to inoculation - whatever his reasons - and the use of phrases such as 'Diabolical Operation' (63), 'voluntary and causeless Wounding, Mutilation, &c.' (64), and references to inoculators and inoculated as atheists, scoffers, heathens, and unbelievers (65) would seem to be calculated appeals to emotion rather than to reason.
Massey's pamphlet undoubtedly had some popularity, but it did not necessarily reflect the opinions of other Anglican clergy. If Massey's views were, indeed, based upon a Calvinist theology, then this is consistent with the relative decline of these opinions within the Church of England by this time. It is, therefore, surprising to note the hearsay evidence of Sir John Vanbrugh, the soldier, dramatist, herald, and architect (1664-1726) in a letter written to Lord Carlisle in 1724, that opposition to inoculation seemed to be confined to clergy of the High Church. Although there is no direct evidence of any clergyman other than Massey expressing such opinions in the 1720's, Vanbrugh's statement might indicate the existence of other unpublished views expressed elsewhere. A closer look at Vanbrugh's life, character and reputation, however, throws doubt upon the reliability of his statement. Vanbrugh, a leading Whig, was a noted sceptic concerning religion and he especially disliked clergymen, whom he frequently satirised. Coming from a puritanical emigré Flemish family Vanbrugh delighted in taunting the high church clergy (as in his play The Provok'd Wife, in which a drunken knight dresses up in clerical clothes and mouths foul oaths and improper suggestions). In 1704 the Bishop of Gloucester had attacked Vanbrugh in the House of Lords, for his 'lewd' comedies, and demanded that he be punished, while approaches had been made through the Archbishop of Canterbury to the Queen (Anne) as titular head of the Church of England, on similar grounds. During 1713 and 1714 Vanbrugh's fortunes had suffered a sharp decline as the high-church Tories wielded political power and, together with his patron the Duke of Marlborough, he suffered disgrace and dismissal from office and, for a time, feared imprisonment. In a letter written on 2 April 1713
Vanbrugh had blamed his downfall on 'some High Church Members of Parliament' and declared that 'I believe I cou'd have prevented it, if I wou'd have made my Submission to those High-Church Blockheads, but that I wou'd on no terms do' (67). Vanbrugh's dislike of the clergy in general, and the high church in particular, is patent and in such a context his cynical comment to Lord Carlisle, an old friend and fellow Whig (66), probably should not be given too great weight. Vanbrugh was not only anti-clerical and a notable Whig, he was also an innovator (68) who might, thus, be expected to support new ideas and schemes such as inoculation. Taken together these characteristics represent almost a vested interest.

Massey's views did not go unopposed, however. In the same year as his pamphlet there appeared, in reply, an anonymous Letter to the Reverend Mr Massey, Occasioned by his Late Wonderful Sermon against Inoculation (69) in which Massey was criticised for his 'Unchristian' and 'Ignorant' attitude towards inoculation. The author of this pamphlet made some very penetrating criticisms of Massey's sermon and - somewhat drily - commented that 'if the Patrons of a new Experiment must be exclam'd against as "diabolical Sorcerers, hellish Venesici, and Enemies of Mankind" , I know not who will endeavour to improve the Art of Healing, or study to render our Health more lasting, and our Lives more happy' (70).

The unknown author made a strong stand against Massey's sermon on the grounds of its internal inconsistencies, but his primary concern was to point out Massey's errors in theology. A hint of the credence given to Massey's ideas by ordinary folk is found in the author's comment that:
'Abundance of People have, by their Teachers, been made stupid enough to believe, that though Inoculation should uncontestably appear to be a safe Preservative against all the Danger usual in the Small-Pox, and consequently very beneficial to Mankind; that yet it is a Practice contrary to the Principles of Religion, and therefore ought to be the Abhorrence of every godly Soul. So little are they acquainted with the Nature of a truly Divine Religion, which never can discourage any Practice conducive to the Good of Mankind.'

Using Massey's sermon as a base the author then digressed to mount a general attack upon the clergy. He noted that 'since the Usurpations of the Priests upon the Rights of Mankind have been so very numerous and prejudicial, we can't oppose any such Attempts of that Nature, with too warm a Zeal, or too firm a Resolution'.

In this attack one may discern the pride of the medical profession outraged at an attack on its practice from another sphere of professional life. The use of the word 'Priests', together with the general tone of anti-clericalism, suggests an anti-Anglican or anti-papist attitude which, if the pamphlet has been correctly attributed to Charles Maitland, would be in conformity with the latter's Scottish presbyterian background.

The crux of the arguments in the anonymous letter is perhaps to be found condensed in a single paragraph.

'The Scripture indeed, not being designed to instruct us in Physick, does not expressly command it (inoculation); but its general Precepts, as we have Opportunity, to do good unto all Men, not only justify but recommend it to us. And Mr. Massey will vouch it, has not one Syllable to discountenance it.'
Finally, Massey was taken to task as incompetent in his own field of theology\(^{(73)}\), insufficiently conversant with the Bible\(^{(74)}\), and comparable in attitude to 'The Pharisees of Old'\(^{(75)}\).

It is a matter for surprise that so few modern commentators have noted this pamphlet\(^{(76)}\).

The pamphlet 'battle' started by Massey continued when Charles Maitland issued a vindication\(^{(77)}\) of his own pamphlet on inoculation. This vindication was concerned primarily with medical criticisms of inoculation, but also took issue with Massey\(^{(78)}\). What little is known about Charles Maitland does not include any indication that he had ever received any particular training in theology; nevertheless, his attack upon the Rev. Edmund Massey's sermon was both penetrating and effective. After agreeing that

> "if Inoculating the Small Pox be an unlawful Action, it cannot be justify'd by the Good which may ensue from it'',

Maitland seized upon the fact

> 'that it is unlawful, must be prov'd, either by some natural or positive Law: That this Reverend Gentleman has brought no such Proof, either from natural or reveal'd Religion, will appear plain upon a very short Review of his Discourse'\(^{(79)}\).

Maitland suggested that Massey had indicated

> 'there was some positive Command in the Gospel against it (i.e. inoculation); but he has brought none, which, by the most forc'd Construction, can prove Inoculation to be prohibited by the Christian Dispensation'\(^{(79)}\).
Maitland also turned Massey's own text against him saying that if, as Massey averred, 'Job had the Small Pox by Inoculation from the Devil' then it was also true 'that the disease was of a favourable Sort; that he recover'd of them, and never had them again'(80) - in other words, if there was an inoculation then it had been successful.

An apparent fallacy in Massey's reasoning was also pointed out - that it was impossible to select from scripture a general prohibition and apply it to one aspect of the healing art selectively. If such selective prohibitions were to prove valid then all attempts at healing - all medicine and surgery - must be equally prohibited. The point was one later developed at length by James Young Simpson in 1847 (see Part II) but Maitland missed the point that it was not healing to which Massey had objected, but the deliberate infliction of a disease - whatever the motive.

Massey did not accept these arguments and, on 6 October 1722, he wrote A Letter to Mr Maitland, in vindication of the sermon against Inoculation(78). This Vindication was perhaps the least positive of all published contributions to the inoculation debate during the 1720's, almost the whole 25 pages consisting of a series of quibbles on semantics, and this particular pamphlet 'battle' ended with Maitland's publication of the second edition of his 'Account'(77) in 1723. In a contemptuously short 'Postscript' he said:

'As to what the Reverend Mr Massey has said in Defence of his Sermon; I appeal to the unprejudic'd Reader, Whether he has answer'd what I have publish'd: Or brought any new Argument to prove, That Inflicting Diseases, is, in itself, an unlawful Action'(81).
Massey did not reply further.

One other study of inoculation in the 1720's which took exception to the practice on religious grounds, was a (hitherto unnoticed) tract published anonymously in 1722 entitled *The New Practice of Inoculating the Small-Pox Consider'd, And an Humble Application* (sic) to the Approaching Parliament for the Regulation of that Dangerous Experiment* (82). The unknown author had clearly read some of the other contemporary literature on the subject, as is evidenced by occasional references to points made by other writers* (83), and equally clearly, he was not a member of the medical profession. Internal evidence suggests that the author was not Edmund Massey, for both the style and approach are quite different from his, and the general tenor of the pamphlet is legalistic. The overt aims of this pamphlet were to point out the lack of control over physicians and surgeons* (84) and to appeal for statutory control over those professions* (85), with a particular appeal to (the predominantly Whig) Parliament to control the practice of inoculation* (86). In covering these points, however, the author made very frequent allusions to religion as providing laws more binding than any produced by man and as applying to prevent men from undertaking inoculation* (87).

The author's views on the role of disease were clearly expressed:

'Sickness and Diseases are the Aversions of Nature; they are a Part of the great Sentence of Mortality, past upon Mankind at the Fall of Adam: For they are a Part of Death, and have in them a Tendency to the Grave, in the very Nature of the Thing. When Diseases attack us, they are our Afflictions, and wise and good Men esteem them as Afflictions sent by the immediate Hand
of God in Judgement, or in Punishment, for our Offences against Heaven: How we can presume to use any Art to bring Diseases upon our Selves, on Presumption of our Ability to Cure them, is, what I confess I do not understand'.

Turning more specifically to the question of the cure of diseases the author said:

'If it be true, as Christians undoubtedly believe, that every Cure is wrought by God's Blessing on the Medicine, which may be apply'd; then no Medicine ought to be used, no Application, no Method of Cure, but such as God's Blessing may be asked, and expected upon: But what Blessing can we ask, upon a wilful bringing a Disease upon our selves, before Heaven thought fit to inflict it?'.

That he was a realist, however, is shown by the author's somewhat dry comment -

'I much question whether the Advocates for the Operation will give a due Weight to allow for the Consideration of its being Criminal in the Sight of God, and an Affront to the Wisdom of Heaven, and an Invasion of his Sovereignty: We live in a Day, when these Things are too much laught at, and look'd upon as ridiculous; and when to object from such Principles, is counted Enthusiastick, and consequently not worth Notice'.

As with Massey's sermon, the references to God's sovereignty here suggests a Calvinist emphasis.

The high sentiments expressed in many places in this anonymous work are somewhat negated by a final paragraph which showed the author's possible motives as being less than altruistic. Noting that, if the practice were to spread, he had at least pointed out the
objections, he concluded that if tragedy ensued from inoculation, 'I am free of the Guilt, and can have no Blame for the Consequence'\(^{(91)}\).

Despite this final disclaimer the tract impresses with its sincerity and, unlike Massey's sermon, it was constructive in that positive proposals for the regulation of the new practice were put forward. It is also notable for the serious (and constructive) concern expressed over the ethics of experimentation on human subjects - a concern more realistic than most to appear for another 250 years. It is a pity that the author remains unidentified.

In support of inoculation, a most interesting study of The Case of receiving the Small-Pox by Inoculation Impartially considered, and especially in a Religious View\(^{(92)}\) was written in 1725. This manuscript was produced by the Rev. David Some of Market Harborough (d. 1737), who 'had once been strongly prejudiced against Inoculation, but Reasoning and Observation inclined him to alter his Opinion',\(^{(93)}\).

The essay was handed to Some's friend and colleague, the Rev. Dr. P. Doddridge, D.D.,\(^{(94)}\) who subsequently published it in 1750, at the beginning of the second era of popularity of inoculation. Very little is known of David Some, except that he was a nonconformist minister who approached his task 'with a great deal of perspicuity and moderation'\(^{(95)}\).

If his words may be taken at face value Some was unusual in that he considered inoculation entirely on its merits, and without regard to the views and prejudices of others\(^{(96)}\). As most writers on inoculation during the eighteenth century were avowedly partisan - whether on grounds of medicine, religion, or 'reason' - Some's profession of impartiality makes his essay of particular value as an objective early eighteenth century Christian opinion of inoculation.
Some's essay contained some penetrating and shrewd comments. His basic position, as a Christian, was stated to be that 'Every good Christian should in the first place fix his thoughts upon the Divine Protection, and labour to engage that. This is the best security in the world' (97). However, Some was no passive fatalist: he observed that

'To boast of our courage, and to talk confidently of our trust in God, while we omit the proper means of escaping the dangers which surround us, is not faith, but unwarrantable presumption' (97).

In saying this Some explicitly rejected the doctrine of absolute predestination, and this theme was elaborated at a later point in his essay, when he reached the further conclusion that to oppose inoculation was conduct unbecoming 'either Christians or men' (98).

In considering whether inoculation could be considered 'lawful' in a religious sense Some (like Massey (99)) admitted the principle of non occident - that one may not use evil means to obtain a good end (100) - but, in contrast to Massey, denied that the practice of inoculation was in fact sinful, particularly in the sense that bringing 'a distemper upon our selves' was 'thereby usurping the sacred prerogative of God, who kills and makes alive, who wounds and heals, as he pleases' (101). Here again was the rejection of strict Calvinist doctrines. Using the contemporary belief that smallpox was a 'ferment' of the blood, and therefore the 'seeds' of the disease were already within everyone, Some objected that, far from bringing
'a Distemper' upon one, inoculation 'cures us of one, the Seeds of which we have already in us', (102) - so that the allegation of inflicting 'Distempers' would be irrelevant in any case.

Some also considered the objection which cited the sixth commandment (103) and pointed out that 'it is granted by all, that the Precepts required, the Use of all lawful Means for the Preservation of Life', (104) - and amongst such means he clearly included inoculation.

Some said that

'GOD has required us to have a tender Regard to our Lives; and those who disobey him herein, are guilty of a Degree of Self-Murther, and will never be acquitted of that Guilt by the Secret Determinations of Heaven concerning them', (105).

Some's message was clearly that God only helps those who help themselves.

Nor did the Rev. Edmund Massey's views escape pointed criticism by Some (106). He said:

'Those who resign themselves to the Conduct of learned Divines of any Sort, to follow them with an implicite Faith, will often experience the Truth of the Proverb, "If the Blind lead the Blind, they will both fall into the Ditch", (107), -

a typical nonconformist view of Anglican (or Catholic) clergy. He continued - commenting on Massey's assertion that inoculation came from the Devil -

'The Scripture assures us, "that the Devil was a Murtherer from the beginning;" and I can scarcely believe, that he has so changed his Nature, as to contrive Methods for the Preservation of our Lives. A Practice so beneficial to Mankind, might rather seem to have a heavenly Original, and to descend from him "who came, not to destroy Men's Lives, but to save them"', (108).
Some's essay contained, in addition to his religious arguments, a number of comments supporting the practicability of the procedure from a common-sense point of view (109) and even a most ingenious attempt at assessing the expediency of inoculation in relation to its risk, which Doddridge (in a footnote) reduced to an arithmetical formula (110). His final conclusion was to 'think upon the whole, those who are for Inoculation in all Cases are as much in the wrong, as those who will allow of it in none. It is good, or evil, as Men's Circumstances are,'(111).

The sermon of Edmund Massey and the essay of David Some are of some importance as, during the period of the initial introduction into Britain of inoculation, they are the only two clerical writers on this aspect of the subject whose views can be traced. That there were apparently only two voices raised publicly against inoculation on religious grounds, and at least two - maybe three - voices immediately defending it (see (69)) suggests that, in England, this aspect was neither as widespread nor as serious as has often been averred (112).

2.2.2. In America

Elsewhere than Europe, it was only in the British colony of America, in Boston, that inoculation received any widespread attention during the 1720's. In 1721 smallpox was brought to Boston from Barbados by the English ship 'Sea-horse' and, for the sixth time in a century, Boston suffered an epidemic of smallpox. More than a half of the population (then about 11,000) were said to have contracted the disease (113).
The Rev. Cotton Mather, a Congregational minister, had first seen references to inoculation in the east in some copies of *Philosophical Transactions* which he had been loaned by Dr William Douglass, a Scots physician who was the doyen of the medical fraternity in Boston. Mather, impressed by the reports of Timoni and Pylarini, wrote to a number of local physicians exhorting them to try the experiment. Of these physicians only Dr Zabdiel Baylston responded. Douglass apparently took exception to a minister of religion using his books to promote a medical cause and bitterly opposed the introduction of inoculation. In this he was apparently backed by most of his colleagues.

This medical opposition to inoculation was not uncongenial to many lay persons, whose fear of smallpox — whether 'natural' or inoculated — was intense, so that factions quickly developed — a conflict which has been studied in depth by Fitz.

The reasons for the ministers' support for inoculation were first spelled out in a letter to the Boston *Gazette* of 27-31 July 1721. Signed by six ministers, the letter sought to defend the character of Boylston against the smears of his colleagues, and also defended inoculation on religious grounds.

The suggestion had apparently been made:

'Whether the trusting more the extra groundless Machinations of Men, than our Preserver in the ordinary course of Nature, may be consistent with that Devotion and Subjection we owe to the All-wise Providence of God Almighty'.

While accepting the contention that 'trusting in Men or Means more than in God' was both profane and impious, the ministers regarded
inoculation as 'a means of preserving a Multitude of lives' to be accepted 'with all thankfulness and joy as the gracious Discovery of a Kind Providence to Mankind for that end' (117). Their argument was summed up thus:

'In a word, Do we not in the use of all means depend on God's blessing? and live by that alone?'

They saw no more of the hand of man in inoculation than in any other medical procedure and believed all medicine to be

'consistent with a humble Trust in our Great preserver, and a due Subjection to His All-wise Providence' (117).

This letter, signed by six ministers, was a modification of a draft originally written by the Rev. Benjamin Colman (one of the signatories) and from the original draft (118) it appears that the ministers were moved solely by motives of seeking the common good, and that the discord which had arisen was certainly not of their seeking.

Some four months later the views of the two most famous of the Boston ministers, Cotton Mather and his father, Increase Mather, were set out in a folio sheet dated 20 November 1721.

Cotton Mather, in his Sentiments on the Small Pox Inoculated saw the practice as

'A most Successful, and Allowable Method of preventing Death, and many other grievous Miseries, by the Small Pox, (which) is not only Lawful but a Duty, to be used by those who apprehend their Lives immediately endanger'd by the terrible Distemper' (119).
He argued that, so far from it being wrong for a man to make himself ill in order eventually to 'preserve his Life and Health', it was his duty to do so and to 'give Thanks to GOD for teaching him, how to make himself Sick, in a way that will save his Life'. The sixth commandment was also brought into Cotton Mather's discourse, although in a sense completely opposed to that used in England by the Rev. Edmund Massey. Mather suggested that

"a People will do well, not to be too hasty in Resolves, that should forbid their Neighbours, to do what God has made their Duty for the Preservation of their Lives in this Method; lest they do in Effect forbid Obedience to the Sixth Commandment,"(119).

It is interesting to note the differences between the approach to inoculation of the ministers in Boston, and that of Edmund Massey in England. Whereas Massey saw disease as God's visitation upon sinners, neither to be gainsaid nor inflicted by man, the Mathers and Colman saw disease as a plague, to be avoided as a positive duty to God if this was at all possible. The reasoning of the two parties concerning the sixth commandment is also interesting. Whereas Edmund Massey used the commandment as an injunction against inoculation, lest anyone should die as a result(121), the Americans used it as an injunction against failing to inoculate, for the same reason. The point illustrates nicely both the ease with which scripture may be quoted to serve alternative and opposing ends, and also the dilemma in eighteenth century medicine, wherein either action or inaction could prove equally fatal in a given situation.

Cotton Mather was a man well known for his outspoken views and his language tended to be extravagant. Nevertheless some idea
of the temper of public opinion in Boston may be obtained from his
diary for 1721\(^{(122)}\). Writing of inoculation on 16 July he said

'The Destroyer, (i.e. the Devil) being enraged at the
proposal of any Thing, that may rescue the Lives of
our poor People from him, has taken a strange Possession
of the People on this Occasion. They rave, rail, they
blaspheme; they talk not only like Ideots but also like
Franticks, And not only the Physician who began the
Experiment but I also am an Object of their Fury; their
furious Obloquies and Invectives'.

On 27 July he wrote that a Satanic fury raged and the town was still
'possessed with the Devil'; and, on 24 August,

'The Town has become almost an Hell upon Earth, a City
full of Lies, and Murders, and Blasphemies, as far as
Wishes and Speeches can render it so; Satan seems to
take a strange Possession of it in the epidemic Rage,
against that notable and powerful and Successful way of
saving the Lives of People from the Dangers of the Small-Pox'.

Despite the temper of public opinion recorded by Cotton
Mather, inoculation continued apace. In December 1721 the Rev.
Benjamin Colman reported visiting those who had been inoculated and
seeing that

'they found ease and sweetness and lay praising GOD on
their Beds or rather sat up in their Chairs doing so ...
They were as discreet and religious a number of People,
and Persons of as good sense and understanding, and of
as much caution and fear as their Nei*bors, who made these
Experiments; and they did it with meekness and humility,
patience and silence, and many prayers, under much
provocation from too many'\(^{(123)}\).
By the spring of 1722, when the epidemic ceased, 280 persons had been inoculated, with a mortality of six — i.e. 2.14%, compared with the mortality rate of 14 - 17% amongst those who had caught 'natural' smallpox during the same period (124).

The widespread public fear of inoculation in New England was undoubtedly greater than that expressed in Britain and Fitz (124) has shown in detail the course of official action in Boston during 1721-22, which included legislation aimed at preventing inoculation. The end of the epidemic in Boston, in the summer of 1722, also saw the end of inoculation in New England for several years. Inoculation was cautiously practised during the epidemic of 1729-30, after which there was no serious smallpox epidemic in Boston until 1752 so that in New England, as in Britain, the practice of inoculation was not undertaken throughout most of the second quarter of the 18th century.

To what extent the general opposition to inoculation in America was spontaneous, and to what extent it reflected personal antagonisms between Dr Douglass (as doyen of the Boston physicians) and Dr Zabdiel Boylston, may be questioned. Fear of spread of the disease was undoubtedly a major factor in the situation but there was clearly little love lost between the well educated and irascible Douglass and the lowly, unpopular, and perhaps impetuous Boylston. The situation has all the hallmarks of a dispute between factions. That a group of ministers became involved in the dispute apparently bore less relevance to the existence of any religious objections than to opposition made for other reasons to a practice which they saw as desirable on humanitarian grounds.
2.3 RELIGIOUS VIEWS AFTER 1740

Inoculation was largely in abeyance in Britain between 1728 and 1743. When the practice was revived in the 1740's, however, evidence of religious concern re-appeared, although in England such opposition again seemed to come from a very small area within the established church.

2.3.1. In England

The first evidence of concern was the publication in 1750 of the late Rev. David Some's pamphlet in support of inoculation 'especially in a Religious View' (125). It is of some interest that this pamphlet was published by Some's close friend and colleague, the Rev. Philip Doddridge, D.D. (1702-1751). Doddridge was a notable nonconformist divine, and tutor at one of the most successful of the dissenting academies. Although he described himself as 'in all the most important points a Calvinist' (126), Doddridge had been educated by a man whom he described approvingly as one who 'encourages the greatest freedom of inquiry' and did 'not follow the doctrines or phrases of any particular party; but is sometimes a Calvinist, sometimes an Arminian, and sometimes a Baxterian, as truth and evidence determine him' (127). Doddridge's own dissension was mainly due to his objections to conformity to an (earthly) ecclesiastical hierarchy and throughout his life he was an apostle of moderation and no enemy of the established church (129). Early in his career he had refused calls to minister to two congregations because one was 'a very rigid sort of people' (130) and the other exhibited too much 'high orthodoxy' in their Calvinism (131). Doddridge's own view of disease was that through it 'the mind is often disabled from using its faculties' (132). He also
believed that predestination did not mean that some men were condemned 'without any regard at all to their temper and behaviour' but that 'though their ruin should in fact happen, yet they themselves should be the authors of it, and the blame lie as entirely upon themselves, as if it had not been so much as foreknown' (133). Implicit in this was the belief that men may take steps to protect themselves from misfortune and, although Doddridge saw God as omnipotent (i.e. 'no effect can be assigned so great, but he is able to produce it' (134)) he did not assert that man may not also reproduce that effect.

Doddridge had a mind wide open to advances of science and technology (e.g. his course of lectures at the Academy at Northampton included Geography, Geometry, Algebra, Trigonometry, Mechanics, Hydrostatics, Optics, Pneumatics, Astronomy, Anatomy, and 'cestial Mechanics', as well as the usual classical and theological subjects (135); he was also a man of profound compassion and love for all his fellow men, as is abundantly clear from his correspondence (136). It is not surprising that such a man saw inoculation as a blessing to be used, and not as an encroachment upon God's sovereignty which must, therefore, be rejected. In his foreword to Some's pamphlet (137), however, Doddridge noted that 'The chief Objections which prevail against the Practice are, so far as I can learn, of a religious Nature' (138). That this allegation was not without foundation is shown by at least one response to the appearance of the pamphlet.

The pamphlet was noticed in the Gentleman's Magazine for December 1750 (139) and, in the same magazine, an anonymous contributor
later disagreed with Some (140). This writer suggested that

"Providence knows best for what wise purposes he has made the human frame subject, at all ages of life, to so grievous, nauseous, and fatal a malady as the small-pox really is, and he has not left it wholly in human power to preserve from it, or bring safely thro' it, but permits it to ravage in a shocking manner, thereby giving instances of his own power, and the weakness of our frame, as well as baffling the skill of the most eminent of the faculty. Perhaps this distemper, amongst other purposes, is sent as a severe memento of mortality, and a close and seasonable check to that pride and overfondness with which a beautiful face is too apt to inspire the giddy owner; and also to teach the boasted sons of science humility and reverence" (141).

This rebuttal of Some's views is interesting as a very fatalistic form of predestinarianism which saw all medicine and science powerless before Divine Providence, and therefore pointless. The author also rejoiced to see human pride of appearance mortified by the ravages of an (admittedly) 'grievous, nauseous, and fatal a malady'. The God of this writer was, thus, apparently, a particularly jealous and chastening God, and the writer appears as a man of high principle, but small compassion. There was, in this article, more than occasional echo of the Rev. Edmund Massey's comments of thirty years previously (142), together with the same failure to take account of the scriptural exhortations to preserve life and to heal the sick.

At least one prelate of the established church spoke out plainly in favour of inoculation, however. On 5 March 1742 Isaac Maddox, Lord Bishop of Worcester, preached a sermon at the parish
church of St. Andrew, Holburn (143), taking as his text Isaiah 58, 7 ('And that thou bring the Poor that are cast out, to thy House'). Maddox was primarily appealing for funds for the hospital — especially for its extension to provide more beds for sufferers from small-pox — but the first part of the sermon was an approbation of the practice of inoculation. The arguments were entirely based upon past experience, the hope of success, and some (rather dubious) statistics. The sermon contained no theological matter, other than a passing comment to 'Religious Difficulties (if any still remain concerning a Practice, that has preserv'd so many Lives, and prevented the heaviest Grief in so many Families)' (144). Although it had reached its seventh edition by 1755 this sermon cannot be said to have contributed any theological weight to the inoculation debate, but it was subsequently quoted as evidence of ecclesiastical approbation of the practice.

The year before Maddox's sermon there had appeared a pamphlet specifically referring to inoculation in the context of 'Divine resignation'. This pamphlet — Discourse against inoculating the small-pox with a parallel between the scripture notion of Divine Resignation and the modern practice of inoculation, has disappeared almost without trace (145) but its author, the Rev. Theodore Delafaye (146), was soon to play a role in the inoculation controversy which closely paralleled that of Edmund Massey in the early seventeen twenties.

Delafaye was Rector of the united parishes of St. Mildred's and All Saints in the city of Canterbury, and on 3 and 24 June 1753 he preached a sermon entitled Inoculation an indefensible Practice, which was later published as a pamphlet (147). Delafaye's language
was verbose and his reasoning not always easy to follow. Taking as his text part of Romans, 3, 8 - 'Let us do Evil, that Good may come'\(^{(148)}\) - Delafaye argued from the premise that mankind was most led astray by 'love of ourselves' and that inoculation was an example of this.

The tenor of Delafaye's religious arguments was that it behove mankind to accept 'with the profoundest humility' all that God sent - to 'freely resign themselves, and \textbf{all} their Concerns, to his \textit{certain} and his \textbf{better} Care'\(^{(149)}\). Inoculation was seen by Delafaye as an example of man 'running greedily into ways plainly \textit{unnatural}' in an attempt to thwart God's will and to rely upon his own, rather than God's protection. As with Edmund Massey 31 years previously, so did Delafaye appeal thus to the sovereignty of God as reason for not interfering in His infliction of disease. Although Delafaye's objections appeared to be based upon that 'Divine Resignation' which had been referred to in his earlier pamphlet\(^{(145)}\), no reason was given for selecting inoculation for his strictures rather than amputation, or any other aspect of the practice of either surgery or medicine.

In terms of logic Delafaye could not understand how the Almighty could be 'so fickle and uncertain, so ready to do and undo, as to make the \textit{same} Thing capable of proving an Instrument both of Death and Life' and deemed it 'little less than an \textit{impious} Mockery to call that which \textit{directly} tends to \textit{infect} and \textit{destroy} a Means appointed by the Deity for the \textit{Security} of man's life'\(^{(150)}\). The empirical fact that one attack of smallpox could in fact protect
against future attacks was so well attested by 30 to 40 years of experience in three continents that by 1753 it was mere sophistry to argue that this was not so, because God could not be so perverse as to ordain it thus.

Of more practical concern was Delafaye's awareness of the risk of spreading smallpox amongst the uninfected by means of general inoculation. The more that inoculation was practised within a community the more widespread the natural disease became as a result of contact between the inoculated (while they were still infectious) and the unprotected. Delafaye referred to such spread of infection as 'a fact of general Notoriety' leading to damage to trade and commerce, with consequent difficulties and hardship to many families, and also the loss of many lives 'to the utter Ruin of more than one innocent Sufferer'.

In the latter part of his sermon Delafaye tended to move away from arguments linked to religious belief, towards a more general air of bewilderment in which contemporary medical views on the nature of disease were used to illustrate the futility of inoculation. The only original argument raised against inoculation was that the (alternative) perpetual risk of casual infection with a mortal disease might lead at least some people to live virtuous and temperate lives, in an attempt to escape 'the Malignity of this Distemper'. This argument was, incidentally, a tacit acceptance that inoculation could be effective - in contrast to his original profession of disbelief of this.
Delafaye's views were, perhaps, best summed up in his description of inoculation as a sordid Mechanism to endeavour to secure the Possession of our bodily Enjoyments thro' an Expedient, which, when unsuccessful, sullies the Soul with the Stain of Presumption and Blood guiltiness; and when prosperous, not only deprives the Sinner of one of those salutory Means of Grace, Providence designs for his Correction or Improvement, but, what is worse still, necessarily tends, as to corrupt the Mind with notions of Self-Sufficiency and Independence, and strengthen in it that Disregard to Futurity which this invention seems to owe its Rise to.

Here again was the view of God as sovereign which recurred in Delafaye's views on inoculation. The core of Delafaye's message was 'that it is by no Means prudent to fear what may kill the Body, but rather to fear him who is able to destroy both Soul and Body in hell.'

Theodore Delafaye (1704-1772) was the son of James Delafaye of Utrecht in the Calvinist Netherlands, and he had been educated at Merton College, Oxford - at that time the only Whig college in a predominantly Tory university. With such a background it might be supposed that Delafaye would tend to the low church and this view is reinforced by the subject matter of two sermons which he preached at Queensborough in Kent in 1745, and a pamphlet which he published in 1767. The sermons - both published as pamphlets - appeared at the time when England was threatened by the presence of the Young Pretender in Edinburgh. With the battle of Prestonpans won the Jacobites were clearly poised for an invasion of England, and Massey's sermons were in support of the Whig government, and opposed
to the catholic threat. The 1767 pamphlet very clearly demonstrated Delafaye's anti-Papist views in its title: *A Distinct and Compleat View of the Revelation of St. John the Divine, Evidencing in the clearest manner ... the rise and progress of Papal tyranny ... together with the certain, total, and not far distant destruction, Rome and its whole antichristian system are ... doomed to undergo* (159). In view of the great deal in common between the High Anglicans and the Roman Catholics it seems most improbable that such views could come, within the Church of England, from any but a low churchman.

Delafaye had come to his first incumbency late in life (aged 39), recently married and having until then led the life of a humble curate. As late as 1725-6 the Canterbury area had suffered a severe outbreak of smallpox (160) and Delafaye cannot have been expressing a popular viewpoint in that city in averring that a possible preventive of the disease was contrary to the Christian religion, and should thus be eschewed. Like Massey, Delafaye does not seem to have been averse to controversy. From the internal evidence of his writings he appears a pedant and a man disposed, like Shakespeare's Hotspur, to 'cavil on the ninth part of a hair'.

Not surprisingly Delafaye's sermon stimulated a response, and this appeared in the form of *A Letter to the Rev. Mr. Delafaye, in Answer to his Sermon lately publish'd, Intitled, Inoculation an Indefensible Practice* - published by N. Bolaine, a surgeon (also of Canterbury), and dated 25 October 1753 (161). As was a common custom of the times the author placed a quotation on the title page of his pamphlet and Bolaine's choice, from Dryden's *Absalom and Achitophel*, proclaimed his attitude to Delafaye - 'Stiff in Opinion, always in the Wrong' (162).
Immediately, Bolaine accused Delafaye of 'Arguments weak and inconclusive, and yourself a pregnant Instance of the Prejudice, complained of in your first Paragraph'; and he then proceeded bitterly to attack DeJafaye, personally, throughout his pamphlet. Within the first three pages of the 'Letter' Delafaye was accused of 'spleenetic and unwarrantable' treatment of the medical profession; of being 'under Terrors lest Inoculation should prevail, and deprive you of the Pleasure of strutting so frequently in the pompous Honours of a Funeral'; and of exhibiting 'such presumptive Arrogance and Self-Importance' as 'Never ... did any Man enter on a Subject with'. He also noted Delafaye's laborious style of expression, commenting that 'In many Parts indeed of your Discourse, to come at your Meaning without a Spirit of Divination is not easy'.

Comparatively little of Bolaine's criticism was directed to the 'religious' part of Delafaye's sermon (so far as that could be separately identified) but the points made in this area were shrewd, if not original. Admitting God's position as 'Creator and Governor of the World', and man's duty to 'resign ourselves, with all Humility, to his certain and better Care', Bolaine pointed out that, taken to its logical conclusion, this was not so much an argument against inoculation as against 'all Medicines in general'.

The consistency of Delafaye's theology did not escape criticism, but Bolaine was mainly concerned with Delafaye's incursions into the realms of medicine and surgery. Even laying aside the inaccuracy of Delafaye's medical comments, Bolaine failed
to see their relevance, saying:

"we will, for Argument's sake, grant, that this Method may prove ineffectual, and that the same Person may, after its failure, have the Disease in the natural Way. Yet, what will all this prove against Inoculation? Has this Person the Natural Distemper in a greater or worse Degree, because he has been before Inoculated?" (163)

It was a shrewd criticism which, at one blow, demolished all of the practical objections which had been raised against the efficiency of inoculation - for no-one had yet suggested that variolation exacerbated later attacks, even if it failed to prevent them. The charge that inoculation led to a spreading of the contagion was also well countered, Bolaine 'not contending for Inoculation under a careless Management. Such Measures ought to be taken, and generally may be pursued, as will hinder the spreading of the Contagion' (165). Failure by some individuals to observe reasonable care was not a valid excuse for rejecting the procedure as intrinsically unsafe to the community at large. Perhaps, however, Bolaine's greatest service was in clearly highlighting the non-religious nature of the greater part of Delafaye's sermon.

Delafaye was not disposed to accept Bolaine's criticisms and, in due course, his reply appeared - at very considerable length (166). Delafaye clearly considered himself misunderstood and, at one point in his 'Vindication', complained that

"if the uselessness of inoculation, and the consequent impossibility of its being a providential grant, do not appear from these particulars demonstrively clear, I despair from ever proving any point to the conviction of any one's understanding" (167).
It is doubtful whether Delafaye's point was made 'demonstratively clear', either from his original sermon (which did, however, achieve a second edition) or his vindication of it, for he had a trick of writing at vast length while actually conveying little. The Vindication ran to 195 pages of print and made no new point, nor did it clarify any of the original points. What tended to undermine the credibility of Delafaye's profession was that by far the greatest part of his Vindication was devoted not to religious, but to medical arguments, and objections based upon appeals to common sense or logic.

Although the Vindication was Delafaye's last published word upon the subject it was not the end of the debate, as Bolaine subsequently published his Remarks upon the Vindication (168), which again were mainly concerned with Delafaye's medical views — although the latter was also taken to task for his verbosity and his 'reviling of others'.

Bolaine did, however, raise two interesting new religious points at this stage. While agreeing that diseases 'are the bitter Fruits of, and Judgements in the Hands of the Almighty upon human Presumption' (169), he felt that

'In the midst of Judgement he hath remembered Mercy ... and appointed Means frequently to escape, if not the Touch, at least the Destruction'

of diseases such as smallpox. The concept of God 'acting at once in compliance both with his Justice and Mercy' (169) was at variance with strict Calvinist teaching (170) and was one which Delafaye had not considered. Similarly Bolaine thought that:
The general Success of Inoculation, as of other Physical Endeavours, should teach us Gratitude to the Almighty, and its not being always successful, a Dependence on him, and that it is to be entered on, like them, in the Way of Duty, with Resignation and Prayer^{171}.

The exchange of views aired in the pamphlets of Delafaye and Bolaine probably tell us less about the subject under discussion than about those discussing it — and it may be noted that neither writer made any allusion to any others who supported the view that inoculation was reprehensible for religious reasons.

The essential difference between Delafaye and the medical profession was succinctly stated in 1754 by one who signed himself “Philalethes”. This physician said,

"it is plain, I think, our Antagonist cares only for the Souls of Men, and is altogether regardless of their Bodies. On no other Principle, than this, can we possibly explain what is said in Regard to the preventive Methods used under Inoculation, which, we are told, can be of no Manner of Service to Persons already prepared for the worst, i.e. for Death, by irregular conduct^{172}. No sooner has he, good Man! prepared them for it, but he is willing to consign them over to a happy Eternity. Our Business is of a different Nature, and Duty calls upon us to endeavour to render Men, comfortable to themselves here; useful to their Families, and Friends; and beneficial, as long as may be, in the Communities to which they belong^{173}.

It is of interest to note that this physician also regarded Delafaye, on the evidence of his own writings, as ‘an absolute Pre-destinarian’
to whom 'all medicinal Expedients, as well as Inoculation, must be entirely useless' (174) - a view consistent with an assessment of someone holding hyper-Calvinist views.

Of some interest - although of no significance as indicating independent views on the subject - was a sermon preached at Ingatestone, in Essex, on 12 October 1766 by the Rev. Robert Houlton, M.A. It was entitled The Practice of Inoculation justified (175). Houlton was chaplain to the Earl of Ilchester and, more significantly, 'officiating Clergyman' at the Suttons' institution at Ingatestone, at which smallpox inoculation received so great a boost from 1763 on (see Section 2.1.2).

Houlton's sermon, in its published form, also contained two 'PRAYERS used at Mr. SUTTON's', one for the recovery of 'Patients under Inoculation' and one for the 'Recovery of Patients from Inoculation' (176). Houlton took as his text some words from John, 11, 4 - This sickness is not unto death' - referring to the story of Lazarus, whom Jesus raised from the dead. Houlton pointed out that the verse continued by asserting that Lazarus' 'sickness' was 'for the glory of GOD, that the Son of GOD might be glorified thereby'. It was in this sense that he applied his text to inoculation.

Not surprisingly Houlton assumed, throughout his sermon, the actual success and safety of inoculation, as demonstrated by the results claimed by the Suttons (177). He averred that

'THIS sickness, as caused by Inoculation, is not unto death; that is, not worthy of divine vengeance or punishment; because it violates no command of GOD, and is not included under any sin that he has forbidden' (178).
What is particularly interesting about Houlton's sermon is the clear indication that religious opposition to inoculation was still to be found in England at this time. It is true that Houlton referred to 'the mere opinions, and obstinate prejudices of an ignorant few' (179) as forming that opposition, but he also spoke more considerately of 'the scruples of the conscientious' (180). Houlton answered from scripture the criticism that it was a sin to take God's prerogative of dispensing sickness and health (181) and also took notice of two passages from St. Paul (which, he said, had been used against inoculation) and answered these in like terms (182).

Much of Houlton's argument can be summed up in two of his sentences:

"In a word, to those, whose objections are built on obstinate and unreasonable prejudices, and groundless scruples of conscience, should the same question be put, which our blessed SAVIOUR proposed to the JEWS who condemned him for healing on the Sabbath-day; is it lawful to do good, to save life or to destroy it?" (183).

"In a word, let us not meanly and cowardly submit to death when we have disarmed him of his sting, and obtained this victory over the grave." (184).

Notwithstanding Houlton's references to 'our present antagonists' (185), these objectors to inoculation appear to have been not very vocal, for in England no further religious attacks upon inoculation have come to light from subsequent to this period. It is interesting to note, however, that John Wesley (1703-91) - the founder of Methodism, and one who was not wholly in sympathy with
the more extreme aspects of Calvinism (186), wrote to Miss Hannah Ball on 19 December 1774: 'I do not see any valid objection against inoculation either from prudence or religion' (187), thus making clear the lack of opposition to the practice amongst those non-Calvinist churchmen who were neither Arminian nor hyper-Calvinist in outlook. It is a pity that the works of George Whitefield (1714-1770)—Wesley's one time colleague and the founder of the Calvinistic Methodists—contain no reference to the subject of inoculation (188), as this may well have helped to clarify the situation.

2.3.2. In Scotland

In Scotland, with its Calvinist traditions of the supreme sovereignty of God and the supreme authority of the scriptures, resistance might have been expected to the introduction of inoculation and, in contrast to England, there is indeed clear evidence of widespread opposition to inoculation surviving at least until the end of the 18th century.

Writing in 1765 about inoculation in Scotland Alexander Monro (189), describing the slow spread of the practice in that country, noted that

'The first and most general prejudice against inoculation, was its being deemed a tempting of God's providence, and therefore a heinous crime; for it was creating a disease by which children's lives might be in danger' (190).

An interesting light was cast upon the distribution of these views, however, by Monro's comment that:
'The greater number of the gentry, and most of the medical gentlemen, see the ... neglecting what they think proper means, in the strongest light, and have their children inoculated; but ... the tempting of Providence, weighs more among many of the populace, who will not allow the small pox to be artificially implanted'\(^{(191)}\).

That it was the ordinary people who found religious objections to inoculation — and that by the end of the century these objections were not universal, nor were they by that time generally supported by the ministers of the kirk — was well shown in *The Statistical Account of Scotland*, published in Edinburgh in 21 volumes between 1791 and 1799\(^{(192)}\). This exhaustive account was compiled from the reports of the parish ministers of the established (presbyterian) Church of Scotland, and covered all 865 parishes throughout the country.

The reports were in reply to a questionnaire which (inter alia) specifically asked for details of the 'distempers' prevalent in each parish\(^{(193)}\). The *Statistical Account* is a unique source of information concerning the prevalence of religious views of a whole country towards inoculation in the eighteenth century, and for this reason a study of all the reports has been made for this thesis.

The first point of note is that of the 865 reports only 212 (24%) made any reference at all to inoculation. Of these, the numbers expressing views in favour of, or opposed to, the practice were as shown in Table 1.2. It should be noted, however, that in many of the parishes from which no opinion on inoculation was expressed it was reported that smallpox was either 'not prevalent', or was almost entirely absent, so that the question of inoculation would hardly have arisen.
TABLE 1.2 Reactions to Inoculation expressed in The Statistical Account of Scotland, 1791-1799.

<table>
<thead>
<tr>
<th>PARISHES</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Opposition to Inoculation</td>
<td>60</td>
<td>6.9</td>
</tr>
<tr>
<td>Previous Opposition, now changing to Approval</td>
<td>70</td>
<td>8.1</td>
</tr>
<tr>
<td>Predominant Support for Inoculation</td>
<td>82</td>
<td>9.5</td>
</tr>
<tr>
<td>No views expressed</td>
<td>653</td>
<td>75.5</td>
</tr>
<tr>
<td><strong>TOTALS:</strong></td>
<td>865</td>
<td>100.0</td>
</tr>
</tbody>
</table>

It is particularly notable that these figures represent the attitudes of the majority of the ordinary people in each parish, and not necessarily those of the ministers who made the reports. In fact, of the 60 reports indicating opposition to inoculation, 26 contained positive expressions of the minister's personal support for the practice, and not one of the 865 reports included any positive indication of opposition to inoculation on the part of any minister. Thus it appears that by the end of the 18th century in less than 7% of the parishes of the country was inoculation totally opposed by the ordinary people. This is contrary even to some contemporary opinion, for the minister of Kilwinning (Ayrshire) averred that 'these illiberal and groundless prejudices are not peculiar to this parish; in every other country parish in Scotland, the great bulk of the people think and act pretty much in the same way.' (194).

The reasons for not accepting inoculation were twofold:

(i) Most objections were made on religious grounds.

These were well expressed by the minister of Dron (Perthshire) as 'A superstitious dread of acting contrary to the will of heaven,
by introducing disease into the human frame, not inflicted by the immediate hand of Providence\(^{(195)}\). The minister of Auldearn (Nairnshire) was even more blunt and specific, noting that

"the people are in general averse to inoculation, from the general gloominess of their faith, which teaches them, that all diseases which afflict the human frame are instances of the Divine interposition, for the punishment of sin; any interference, therefore, on their part, they deem an usurpation of the prerogative of the Almighty"\(^{(196)}\).

Such views were, of course, in conformity with the Calvinist teaching of the sovereignty of God.

In Tough (Aberdeenshire)

"so violent were the prejudices of the people, that, it is said, some of them declared, if the inoculated children had died, they would have considered it as a just dispensation of Providence"\(^{(197)}\).

These prejudices had, apparently, been widespread at one time but were becoming much less common by the 1790's.

In Leuchars (Fifeshire), for example, the minister noted that

"Some years ago, the people in this parish professed a religious scruple against innoculating (sic) their children. They are now come to look upon it as a religious duty to adopt the practice; and not a few of them, when a lancet loaded with matter was procured for them, innoculated (sic) their own children"\(^{(198)}\).
(ii) Other considerations than religion also applied, for it was noted that inoculation was not practised as widely as it might be, from reasons of expense (199).

At Towie (Aberdeenshire)

'The minister ... recommended from the pulpit a general inoculation throughout the parish, and as an encouragement to the poorer sort, added that no fees to the surgeon would be expected from them who could not afford the expense. In consequence of which, all the children, and young people, some of them 20 years of age and upwards, who had not formerly had the small-pox, were inoculated at once (200).

One surprising sidelight on 18th century medical practice is found in the report from Banff, in a footnote in which it was reported that

'A surgeon in the north, presuming that self-interest has a stronger hold on man than superstition, has lately opened a policy of insurance for the small-pox! If a subscriber gives him two guineas for inoculating his child, the surgeon, in the event of the child's death, pays ten guineas to the parent. For every guinea subscribed, four guineas; for one half guinea, two guineas; and for a crown, one guinea (201).

Apart from the insurance concept these figures are also of interest regarding the contemporary cost of inoculation. At this time, in nearby Aberdeen, a labourer earned only 10d (4p) a day, while a skilled carpenter or mason earned 1s.6d. (7½p) a day and a female servant's wages for a half-year were £1.10s. (£1.50). With beef at 4d. (1½p) per lb.
and cheese at 5s. (25p.) a stone, few ordinary people would have had even 'a crown' (5s. = 25p.) available to pay the surgeon. For this reason, as well as that of the relatively few medical practitioners available in many country areas, not a few ministers practised inoculation themselves gratis, and one minister even suggested that divinity students should be instructed 'in the art' of inoculation as part of their training.

The assertion by Monro, in 1765, that inoculation was practised by 'the gentry' but rejected by 'the populace' appears to have still held true in the 1790's. The minister of Dron's reference in the Statistical Account ... to that 'which deters the weak but well-meaning peasant, from adopting the practice of inoculation' is typical of many indications that it was 'the common people (who were) not reconciled to it'. The minister of Aberdour (Fife) was explicit that inoculation was frequent amongst the upper class, but not among the common people (due to the expense).

The geographical distribution of Scottish views on inoculation is particularly interesting, and from it one may reach some tentative conclusions concerning their origin. Those parishes in which views on the subject were expressed were mostly to be found in the counties of the south-west and extreme north of Scotland (especially Kirkcudbright, Ayrshire, Argyll, Sutherland and Shetland). By the 1790's, opposition to inoculation was still found in a belt running roughly from Ayrshire in the south-west, north-eastwards to the Forth estuary, and also in the north-east and extreme north of Scotland. (Fig. 1.1a).
VOLUME CONTAINS CLEAR OVERLAYS

OVERLAYS HAVE BEEN SCANNED SEPERATELY AND THEN AGAIN OVER THE RELEVANT PAGE
Fig 1.1a. Counties with history of opposition to inoculation. 18th

Fig 1.1b. Counties with high participation at the disruption. 1843

Fig 1.1c. Counties with less than 10 'Papists' resident. 1755
Fig 1.1a. Counties with history of opposition to inoculation. 18th

Fig 1.1b. Counties with high participation at the disruption. 1843

Fig 1.1c. Counties with less than 10 'Papists' resident. 1755
Of some significance is the complete absence of opposition to inoculation, on religious grounds, by the Scottish clergy at the end of the 18th century. This suggests that such opposition as was still found was very much a matter of ordinary people's personal religious beliefs. These were mostly derived, of course, from the teachings of the Calvinist Church of Scotland since the days of Knox, but it seems likely that, between the faith being taught in the 1790's and that handed down by tradition since the reformation, there may well have been a substantial gap in the emphasis given to the role of disease as God's 'chastisement' upon man. That there was a considerable modification in the emphasis of Scottish Calvinism during the 18th century - and particularly in connection with the doctrine of absolute predestination - is certain.

During the 18th century the ministers of the Church of Scotland became divided into two 'parties' and from roughly 1760 to 1810 the 'Moderates' held sway. Moderatism was partly concerned with the problems of patronage in an established church but the moderates were generally more concerned with science, philosophy, and culture than with ecclesiastical doctrine and discipline, and in their teaching they emphasized morality more than doctrine. One prominent 20th century commentator has referred, indeed, to the teaching of the Moderate Party as 'almost Deistic'. The moderates did not, however, carry the bulk of the laity with them.

In opposition to the moderates there arose a so-called 'Evangelical' Party, which retained the old Calvinist standards of doctrine in pure - and sometimes extreme - form. It was this
party which grew rapidly during the early 19th century and which led to the disruption of 1843, when the Free Church of Scotland was formed in protest at the policies of the moderates. Moreover, while moderatism was mainly a movement amongst the clergy, the 'Evangelical' movement attracted the laity also, to a considerable extent.

Thus, if the geographical distribution of those parish ministers who seceded in 1843 is plotted, to show those areas in which more than the national average proportion of ministers 'came out', one would expect to identify the areas in which the stricter Calvinist tenets were held. Such a map (Figure 1.1b) shows that these areas were mainly in a belt around the Forth-Clyde valleys and in the far north.

If the view is valid that opposition to inoculation was related to a strict interpretation of the Calvinist teachings of the sovereignty of God and absolute predestination, then the similarities between Figures 1.1a and 1.1b are of potential significance. In this case it might be supposed that the distribution of religious opposition to inoculation would also match the distribution of other religious persuasions.

Following the abortive rising of 1745-6 Episcopalianism was almost entirely suppressed in Scotland and many Catholic Jacobites suffered by proscription. A census taken in 1755 by the Rev. Alexander Webster, D.D. (1707-1784) - one of the earliest European census taken since the days of the Roman Empire - gave for each parish in Scotland the separate numbers of Papists and Protestants (210), so that the geographical distribution of the Papists at this time can
be plotted (Figure 1.1c). From this map it may be seen that very few Papists were to be found in the south and the extreme north - areas in which, thus, it may be implied that there was an almost entirely Calvinist population.

If the maps in Figures 1.1a, 1.1b and 1.1c are compared it will be seen that the areas in which the strict 'Evangelical' standards of doctrine and discipline held sway, those in which there was little or no 'Papism', and those in which inoculation was generally opposed, largely coincide. From these data a further map may then be produced, indicating those areas not affected by any of these factors (Figure 1.2a).

From the Statistical Account it is possible to identify a number of counties in Scotland in which, by the 1790's, inoculation was predominantly supported by the majority of the people, as well as by their ministers. A map drawn to show these areas (Figure 1.2b) will be seen to bear a close similarity to that in Figure 1.2a, suggesting that a positive relationship existed between religious views and attitudes to inoculation, which practice was supported in Scotland except in those areas where there was a predominance of 'Evangelical' minded ministers and a paucity of 'high' church views. Only in the counties of Berwick, Dunbarton and Shetland (where inoculation was supported, but there were no 'Papists' resident) and Banff (where both, the religious factors and views on inoculation, were equally balanced) do the two maps (Figures 1.2a and 1.2b) not coincide.
Fig 1. 2
Fig 1.2 b. Counties showing support for inoculation, 1790-8

Fig 1.2 a. Counties not affected by factors in Figs 1.1a, b, c. 1785-1843
Fig 1.2 b. Counties showing support for inoculation, 1790-8

Fig 1.2 a. Counties not affected by factors in Fig's 1-1a, b, c, 1785-1843
Many other factors must be taken into account in interpreting these maps - especially the statistical significance of small sample sizes, the effect of other (numerically small) denominational groups, the after effects of the 1745 rising, and the 90 year period which covered the collection of the three sets of data. It is submitted, however, that the similarities noted in Figures 1.2a and 1.2b tend to support the hypothesis that opposition to inoculation was related to the strict Calvinism which, in Scotland, was effectively the only alternative to 'Papism' throughout much of the 18th century.

It might be argued that a survey made almost entirely amongst ministers of the Church of Scotland (and with the support of its General Assembly) would produce a denominationally biased view of religious attitudes towards the subject under consideration. In fact two of the reports in the Statistical Account did refer to prejudices against inoculation being found chiefly 'amongst the Seceders' (211). In his Analysis of the Statistical Account of Scotland, however, Sinclair pointed out that of a population of nearly 2,093,500 in 1821 (212) the distribution of religious persuasions in Scotland was as shown in Table 1.3 (213). The penal laws suppressing Episcopalianism were repealed in 1792 and this denomination was, therefore, much increased over the figures which had prevailed in 1790.
**TABLE 1.3**

<table>
<thead>
<tr>
<th>宗教信仰</th>
<th>人数</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The established Presbyterian Church</td>
<td>1,569,900</td>
</tr>
<tr>
<td>2. Seceders of various descriptions, but all Presbyterian</td>
<td>326,000</td>
</tr>
<tr>
<td><strong>TOTAL PRESBYTERIANS</strong></td>
<td><strong>1,895,900</strong></td>
</tr>
<tr>
<td>3. Baptists, Bereans, Glassites and other separatists</td>
<td>90,000</td>
</tr>
<tr>
<td>4. Roman Catholics</td>
<td>50,000</td>
</tr>
<tr>
<td>5. Episcopalians</td>
<td>45,000</td>
</tr>
<tr>
<td>6. Methodists</td>
<td>15,000</td>
</tr>
<tr>
<td>7. Quakers, etc.</td>
<td>600</td>
</tr>
<tr>
<td><strong>TOTAL POPULATION</strong></td>
<td><strong>2,093,500</strong></td>
</tr>
</tbody>
</table>

从这些数字可以计算出，当时大约有91%的苏格兰人口是加尔文主义教会的成员，而75%实际上都是苏格兰国教的成员。很难说在《统计账册》30年前报告的数字与当时整体状况不相符合，尽管当时法律允许其他少数信仰。在18世纪末，中道主义已经达到了其顶峰。在这种...

在18世纪末，中道主义已经达到了其顶峰。在其内部长老会的牧师们。在这样的情况下...
climate of increased social concern it is not surprising to find that in the 1790's many ministers of the Kirk actively supported inoculation - a scientific development designed to alleviate human suffering. Thus many ministers no longer saw the sovereignty of God\(^{(214)}\) compromised by inoculation although, as moderatism was essentially a movement amongst the clergy, they did not always carry their congregations with them in this view.

The overall picture given in *The Statistical Account* is that religious opposition to inoculation in Scotland had once been widespread, but by the 1790's this opposition was disappearing. Such opposition as did remain was found almost entirely (1) in areas with a tradition of strict Calvinism and (2) amongst the poorer sections of the community, where it sometimes had as much (if not more) to do with expense as with religious belief. One conclusion is certain. In a country where papacy was barely existent, episcopacy was proscribed, and over 9/10 of the population were Calvinists, religious opposition to inoculation could not be attributed to any high church views - and in Scotland such opposition had been widespread.

While it is submitted that a correlation existed between Calvinism and opposition to inoculation in Scotland, it is less certain that the relationship was necessarily one of direct cause and effect. Whereas the traditional Calvinist stresses upon God's sovereignty and upon absolute predestination were consistent with opposition to inoculation, they were not the only possible causes of it.
The widespread poverty of many common people has already been referred to as a reason for abstention from inoculation. A further reason may well lie in the Scottish character and traditions. The ancient clan system bred a feeling of loyalty to the clan and its chief which far outstripped that offered to central government. Together with the traditional independence of the Scottish character this led to a situation in which any central authority had difficulty in imposing its will in Scotland.

It is very possible that these factors had much to do both with the ready acceptance of the Calvinist reformation in religion and the general opposition to inoculation in Scotland: both shows of independence against a remote central authority - the church of Rome in the one case and the corporate attitude of the British medical profession in the other.

The clan system was broken with the failure of the 1745-6 rising and it is possibly significant that it was after that time that Scottish Calvinism drifted towards moderatism, and Scottish opposition to inoculation melted away, as the country came under the sway of central authorities which were, for the first time, free of the constraining influence of the independent clan chiefs. Thus it is possible that the clan system and the Scottish character had together pre-disposed the country both to Calvinism, and to the anti-inoculation views which might otherwise seem to issue from it.

It is equally possible that the simultaneous existence of the two factors, in Scotland alone of European countries, was coincidental; but the contemporary view that 'the people are in general averse to inoculation, from the general gloominess of their faith' would seem to belie this.
2.3.3. In France

In France inoculation had not been well received for political reasons (see Section 2.1.2) and in April 1754 M. de la Condamine, a scientist and explorer (who was not medically qualified) had espoused its cause and given a discourse on its advantages before a public meeting of the Academy of Sciences in Paris. La Condamine's views appear to have leaned heavily upon some of the pamphlets which had appeared in England in favour of inoculation and, although he said little new or original, his views are interesting as representing the Roman Catholic viewpoint.

"La Condamine referred approvingly to the sermon by Bishop Maddox of Worcester and argued that

'The authority of a bishop of the church of England, ought, in the present case to lose nothing of its weight with catholic divines; and the less so, as the doctrine of absolute predestination, which though adopted by few, is still retained in the articles of that church, is much fitter than the catholic tenets to furnish specious arguments against the practice of inoculation.'

From this it appears that objections to inoculation were not held on religious grounds by the Roman Catholic church, but were seen (by at least one of its members) as being specific to predestinarian - i.e. Calvinist based - theology. It was La Condamine's belief that objections to inoculation on the ground that this was a 'usurpation' of God's right was 'the objection of fatalists and rigid Predestinarians', and that if the Church of England could refute such
arguments then the Roman Catholic church must be much more able to
do so. La Condamine may well have been referring here to the
objections of Massey (see Section 2.2.1) and Delafaye (Section 2.3.1),
each of whom had tended to predestinarian views. It is probable,
however, that he over-estimated the authority of an Anglican bishop
(compared with that of a Catholic divine) to pronounce theological
dogma which represented the views of the whole of his church.

La Condamine's 'religious' views on inoculation may be
summarised in his assertion that those who maintained the principle
that it usurped God's right

'must, if they act consistently, prohibit preservatives in
general, and all remedies which tend to lessen the
malignancy of any distemper'.

This view of predestinarianism was un-original, however, and had no
relevance to strengthening the case for inoculation in catholic France.
In a further discourse before the Academy four years later La
Condamine's religious approach had developed. He then claimed that,
as we only hold our lives on loan from God ('notre vie est un dépôt'),
we are obliged to preserve them by all prudent means - and if
inoculation should be the most efficacious means of saving life then
it must, therefore, be permitted by divine law. The view is
interesting as typical of Roman Catholic theology and it is, therefore,
one which was neither widely propounded, nor gained currency, in
Britain.
30. Timonius, E. 'An Account, or History, of the Procuring the SMALL POX by Incision, or Inoculation; as it has for some time been practised at Constantinople'. Philosophical Transactions (1717) 29, 72-82.


Despite his prominence as the first British inoculator, Maitland does not appear in any standard biographical work. The only extant study of Maitland's life appears to be a short paper in the Aberdeen University Review, 17 (1929-30) pp.212-222, subsequently reprinted as a pamphlet: Bullock, J.M. A Pioneer of Inoculation - Charles Maitland. Aberdeen: University Press (1930). The author of this paper, John Malcolm Bullock, was a student of local history and geography and his interest in Maitland was primarily as a notable native of Aberdeenshire.


37. Maitland clearly gave satisfaction, for he was paid £1000 from the Privy Purse as his fee. British Library. Add. M.S.34327.f.7.

39. The position in France has been summarised (inter alia) by White, W. (Op.cit) p.35.


41. Sydenham, T. Medical Observations concerning the History and the Cure of Acute Diseases (1676). In The Works of Thomas Sydenham. Translated from the Latin edition ... by R.G. Latham. London: Sydenham Society. (1848-50). Vol.1. Sect. III. Chap. 2. p.138. Para 42. 'The moment that undoubted signs of smallpox have shown themselves, I forbid the patient wine, meat, and the open air... Hot regimen I forbid altogether. I forbid also all such cordials as are used by some under the rash notion of propelling the pustules towards the skin before the fourth day, or the proper one for the eruption.'

42. Sutton thus followed an unusual line of treatment, combining both the neo-Paracelsian concept that smallpox might prevent subsequent smallpox, and the Galenical concept that a fever was best treated by cooling. It may be doubted, however, whether such philosophical considerations entered into the Suttons' calculations. Daniel Sutton was known as an empiric and his methods were purely empirical - chosen because they appeared to work in practice.


44. Frewen reported 350 cases in 1749, (Frewen, T. The Practice and Theory of Inoculation, with an account of its success. London, 1749) and Creighton (Op.cit. Vol.2. p.498) cited Sutton's 13,792 cases, along with 6,000 by his assistants, between 1764-6. He also cited (p.504) two other London
practitioners - Ranby (1200 cases up to 1754) and Middleton (800 cases in 1754). In Scotland Monro reported 5554 inoculations up to 1765, mostly after 1752 (Monro, A. *An Account of the Inoculation of Small Pox in Scotland.* Edinburgh: Drummond, 1765. pp.5, 27-9).


46. In 1821 a medical practitioner at Chichester was charging 'half-a-crown or a crown for each' inoculation in the old style, of pauper children (Creighton, C. *Op.cit.* p.591) - much the same level of fee charged to the working classes a quarter of a century earlier by a practitioner inoculating in the north of Scotland (Sinclair, J. *Op.cit.* Vol.20, p.349n).


48. Ibid.

49. Ferguson, R. *A Letter to Sir Henry Halford, proposing a method of Inoculating the Smallpox, which deprives it of all its Danger, but preserves all its Power of Preventing a Second Attack.* London (1825).

50. Act 3 & 4 Vict., c 29. sec 8 (1840).

51. Act 26 & 27 Vict., c 108. sec 24 (1863)

52. Massey, E. *A Sermon against the Dangerous and Sinful Practice of Inoculation.* London: Meadows (1722.a)

53. Ibid. pp.6-7.

"The Silence of Scripture hath given Interpreters occasion of guessing at the Distemper, which the Devil here inflicted upon Job. But among them all, it appears not certainly what it was. I will therefore desire to give an Opinion, equally
I think true, with any that hath yet been taken notice of:
It is this, That the Devil by some venomous Infusion into
the body of Job, might raise his Blood to such a Ferment,
as threw out a Confluence of inflammatory Pustules all over
him, from Head to Foot: That is, his Distemper might be
what is now incident to most Men and perhaps conveyed to him
by some such way as that of Inoculation.

I do not at present see what can be advanced to
invalidate this Supposition, which I look upon to be as
tenable as any that is extant about this Matter; having
this additional Advantage that the Scene of Action lies in
those parts of the World, whence this Practice is confessedly
derived.⁴

54. Ibid. p.13
55. Ibid. p.11
56. Ibid. p.12
57. Ibid. p.15
58. Ibid. p.16
59. Ibid. p.20
60. Ibid. p.22

61. e.g. George Whitefield (1714-70), an Anglican priest who was,
with the Wesleys, a founder of the Methodist movement, held
strong Calvinist views and established (circa 1741) the

For further biographical details of Massey I am indebted to
C.R.H. Cooper, Keeper of Manuscripts at the Guildhall Library,
who has kindly abstracted these from the records of Christ's
Hospital, which are deposited there.

64. Ibid. p.20. Whatever else it may have been, any 'wounding' involved in inoculation was not 'causeless', as Massey accused. There was a very real 'cause', whether or not one approved of it, and whether or not it was, in reality, effective.

65. Ibid. p.29


(An enquiry concerning smallpox inoculation) '... sent to the Sorbonne, whose wisdom and piety do not think fit to allow of it. I don't hear of any of our clergy but High Church who are of opinion with them'.


68. e.g. He was the first to stage Italian opera in England; he built London's third theatre, in the not yet fashionable Haymarket; and at Woodstock he built Blenheim Palace, the largest private dwelling house in the country.


Although published anonymously (the author concluding with the comment that his letter to Massey 'must suffer all the Disadvantages of being the anonymous Offspring of one who heartily wishes you more Understanding and less Assurance' (p.31)), this pamphlet is attributed to Charles Maitland in the British Library's Catalogue of Printed Books.

70. Ibid. p.7
'You must excuse the Freedom of this plain Truth, that as bad Physician as you are, without doubt you are a still worse Divine'.

'But I must now take occasion of exhorting you to be more conversant with your Bible; and inform you that there are more Instances of the Infliction of Diseases upon Men, besides those on the Egyptians and Gehazi, which you tell us are the only ones you are, as yet, acquainted with'.

The only recent instance is a paper by Halsband, R. (New Light on Lady Mary Wortley Montagu's Contribution to Inoculation. J. Hist. Med. 8. 1953. pp.390-405) which refers to it as 'an anonymous, witty pamphlet which refuted the theological arguments and chided the clergyman for his unchristian acerbity toward his opponents' (p.399).

Maitland, C. Mr Maitland's Account of Inoculating the Small Pox Vindicated, from Dr Wa&staffe's Misrepresentations of that Practice; with some Remarks on Mr Massey's Sermon. London: Peele. 2nd Edn. (1722).

Maitland's Vindication also appears to have gone unnoticed by some commentators. Halsband, for example, states that 'Maitland, who had published his account early that year (1722) now issued a second edition to defend himself from Massey's vituperation' (Halsband, R. Op.cit. p.399. See also Halsband, R. The Life of Lady Mary Wortley Montagu. Oxford: O.U.P. 1956. p.110). In fact, Maitland's 2nd edition of his Account (Op.cit) contained only a single
sentence, on the last page, referring (slightly) to Massey's own later Vindication (Massey, E. A Letter to Mr Maitland, in vindication of the sermon against Inoculation. London: Meadows. 1722.b)


80. Ibid. p.44


82. Anon. The new practice of inoculating the Small-Pox consider'd, and an humble appliaction (sic) to the approaching Parliament for the regulation of that dangerous experiment. London (1722).

83. e.g. pp.34-6 refer to points made by Massey, I. in A Short and Plain Account of Inoculation, with some Remarks on the main Arguments made Use of to recommend that Practice, by Mr Maitland and others. London: Meadows (1722). p.17.


85. Ibid. p.6

86. Ibid. p.37

This suggestion was followed by eight numbered paragraphs which amounted to a draft for the body of a Bill, restricting the use and extent of inoculation. Paragraph 8 (p.39) is particularly interesting as a very advanced view of medical ethics in respect of patients' consent to experimental procedures, and foreshadows procedures which even to-day are relatively new. It is worth quoting in full:

'That no Operation for the Inoculating the Small-Pox on any Person whatsoever shall be perform'd, but in the Presence, and by, and with the Assistance of two known Practising Surgeons at least, and one Licensed Physician, who shall all have Power to inform themselves upon Oath, or otherwise, of the due Consent of all Persons requir'd by this Act'.

87. e.g. *Ibid.* pp.8-9

88. *Ibid.* p.18

89. *Ibid.* p.23


92. Some, D. *The Case of receiving the Small-Pox by Inoculation, Impartially considered, and especially in a Religious View.* London: Buckland (1750).


100. Some, D. *(Op.cit)* p.18a


105. Ibid. p.35

106. Despite his disclaimer that he had 'read very little upon the Argument' (p.43a), Some was clearly familiar with Massey's sermon, as is evidenced by his reference to the latter's arguments here (pp.37-8) and elsewhere throughout his essay, Massey is nowhere mentioned by name or referred to directly, however.


108. Ibid. (Quotations from John, 8, 44 and Lk. 9, 56)


110. Ibid. pp.29-30.

'\text{The Ratio of the Expediency of Inoculation, for the Preservation of Life, in any given Case, is to the Ratio of the Expediency of omitting it, as the Compound Ratio of the Hazard of having the Distemper in a natural Way, and the Ratio of the Danger of dying by it, is to the Ratio of the Danger of dying by Inoculation.}'

111. Ibid. p.43.b

112. Two 19th century commentators have referred to widespread religious opposition to inoculation in England. Of these, one (Draper, J.W. History of the Conflict Between Religion and Science. London: King. 1875. p.318) gives no source for his allegation, and the other (White, A.D. A History of the Warfare of Science with Theology in Christendom. London: Macmillan. 1896. Vol.2. p.58n) gives references which refer to vaccination rather than inoculation, and to specific defences of it by the clergy, rather than attacks.


    Quoted in Boylston, C. Some Account of what is said of
    Inoculating or Transplanting the Small Pox by the Learned
    Dr Emanuel Timonius, and Jacobus Pylarinus. Boston (1721).

116. Fitz, R.H. 'Zabdiel Boylston, Inoculator, and the epidemic of
    smallpox in Boston in 1721'. Bull. Johns Hopkins Hosp. 22
    (1911). pp.315-27.


    Original (dated 25 July 1721) is in possession of Boston
    Medical Library.

119. Mather, C. Sentiments on the Small Pox Inoculated.
    Boston: Edwards (1721).


121. Ibid.

122. Mather, C. M.S. diary in possession of Massachusetts

123. Colman, B. Some Observations on the New Method of Receiving
    the Small-Pox by Ingrafting or Inoculating. Boston (1721).


129/
129. Ibid. (passim). Also, in a letter to William Dale Farr, FRSE (d. 1809), dated 21 August 1747. 'I entirely disapprove of every thing that looks like constraint in Religion and have a very high Esteem & Affection for Several both of Clergy & Laity, of the Established Church'. (British Library Add. M.S. 37060. f. 10.b.)


132. Doddridge, P. A Course of Lectures on the Principal Subjects in Pneumatology, Ethics, and Divinity. London (1763) p. 9


134. Ibid. p. 69.


Doddridge was writing in November 1750 and was presumably reacting to a renewed round of religious objections to inoculation rather than to that which had raged between 1722 and 1725, and which had abated with the drop in popularity which the practice suffered thereafter. This is particularly interesting in view of the lack of other evidence of renewed religious objections prior to 1750.

139. p. 531.

140. Anon. 'Remarks on Dr Some's case of receiving the Small-pox by inoculation, impartially considered'. Gent. Mag. 22 (1752) pp. 255-6.

Although anonymous, this article bears a number of similarities, both in style and content, to the pamphlet and the published
sermon of the Rev. Theodore Delafaye, both of which have yet to be considered but which appeared within the same two-year period as the items in the Gentleman's Magazine. It is possible, as a matter of conjecture, that he was also the author of the article referred to above.

141. Ibid.


143. Maddox, I. A Sermon Preached before his grace John Duke of Marlborough, President, the Vice-Presidents and Governors of the Hospital for the Small-Pox, and for Inoculation, at the Parish-Church of St Andrew Holburn, on Thursday, March 5, 1752. London: Woodfall (1752).

144. Ibid. p.5.

145. Delafaye, T. Discourse against inoculating the small-pox with a parallel between the scripture notion of Divine Resignation and the modern practice of inoculation. London (1751).

This pamphlet was referred to in an Appendix supplied to enquirers for reprints of an article published in the March 1913 issue of the Bulletin of the Johns Hopkins Hospital, by A.C. Klebs. ('The Historic Evolution of Variolation. Bull. Johns Hopkins Hosp. 24. (1913) pp.69-83). The appendix, "A Bibliography of Variolation", did not appear in the original article, and the reference to Delafaye's pamphlet appeared on p.12. Recent enquiries have failed to trace any known location of this pamphlet in the United Kingdom, while the librarian of the Johns Hopkins University Institute of the History of Medicine (Doris Thibodeau) has searched the entire smallpox collection of her library without success, nor has she been able to trace any other location in the United States. For the present, this pamphlet must be regarded as not available for study and, as Klebs made neither
quotation nor direct reference to it in his article, its contents must remain a mystery, beyond the indication given by the title. This latter would suggest a line of thought not dis-similar to that taken by the anonymous critic of Some's pamphlet in the Gentleman's Magazine of 1752 (140), and the latter may indeed have been using the missing pamphlet as his guide.

146. The name is generally spelled 'Delafaye' although Klebs, in his 'Bibliography of Variolation' (Op. cit) used the spelling 'de La Faye'. There is no known authority for this variation.

For the biographical information concerning Delafaye, see Alumni Oxonienses. Oxford: Park (1888-92).

For further information, and for details of the political background of Oxford during his time there, I am indebted to Miss A.M. Oakley, archivist of the Cathedral Archives and Library at Canterbury, and to R. Highfield, Esq. of Merton College, respectively.


148. The full verse of Rom. 3, 8 reads: 'And not rather, (as we be slanderously reported, and as some affirm that we say,) Let us do evil, that good may come? whose damnation is just'. Taken out of context Delafaye's words are misleading. It was not until the last paragraph of his pamphlet that Delafrye explained 'Do no Evil, no not tho' Good should come of it is the plain Maxim of the Text'.

149. Ibid. p. 7

150. Ibid. pp. 9-10.

151. Ibid. p. 13.
152. Ibid. p.20

'the Differences observable in the Disease, and consequently the Dangers which in the natural Way we are exposed to, are chiefly owing to the almost infinite Variety of constitutional Habits in various Individuals; to the Temperature of the Seasons and their Changes; and to many Accidents which befal the Body between the Time of catching the Infection and the Appearance of the Disease. But will any Person undertake to prove, that our Inoculators are capable of fencing against all, or any, of these Inconveniences?'


154. Ibid. p.17.

155. Ibid. p.31.

156. Delafaye held the curacy of Queensborough from May 1743 until his death, retaining it in plurality with St. Mildred's and All Saints, Canterbury, following his institution as Rector of those parishes in January 1745.

157. Delafaye, T. Obedience to Governors stated and enforced. London: Roberts (1767). Preached on 29 September; and The Proper Conduct of the Subject under the Present Troubles explain'd at large, and recommended. London: Roberts (1767). Preached on 13 October.

158. The Jacobites actually marched south on 31 October and, by 4 December had reached Derby. By this time the Bank of England was paying out only in sixpences and the King (George II) was poised to flee to Hanover.

159. London (1767).

160. Jurin, J. Account of the Success of Inoculating the Smallpox. (Annual Report for 1726). London (1726), p.17. This outbreak covered the Dover-Canterbury area and lasted from September 1725 to December 1726. There was a total of 531 cases, with 61 deaths.


'A man so various that he seem'd to be
Not one, but all mankind's epitome.
Stiff in opinions, always in the wrong;
Was everything by starts, and nothing long:
But, in the course of one revolving moon,
Was chemist, fiddler, statesman, and buffoon.'


164. e.g. Ibid. pp.30-1.

165. Ibid. p.27


167. Ibid. p.31.


169. Ibid. p.6.


174. Ibid. p.x.

175. Houlton, R. *The Practice of Inoculation justified.*
Chelmsford: Hassall. 2nd Edn. (1766).

176. Ibid. p.34. See Appendix I.

177. Ibid. e.g. p.4.a. 'As for the natural or verbal sense of the test, the success of the practice, at least of the present, principal practice of Inoculation, so fully demonstrates it, that it almost amounts to a self-evident truth. Arguments, therefore, on this head, are useless and unnecessary; experimental proof is the best of arguments.'

178. Ibid. p.4.b.

179. Ibid. p.12.

180. Ibid. e.g. p.4.

181. Ibid. p.11.


'be careful for nothing, but in every thing, by prayer and supplication, let your requests be made known unto GOD'...

(vide Phil. 4, 6)

'our blessed SAVIOUR enjoined men ... not to be so solicitous about the things of this life, as to make them forget ... the salvation of their souls ... and therefore Inoculation ... may always be embraced ... in order to preserve life to the glory of GOD, and good of mankind'.

also pp.15-16.

'let him that standeth take heed lest he fall'....

(vide 1. Cor. 10, 12)

'We enjoy, at present, the most perfect health, but as the small-pox, when received by natural infection is generally attended with dreadful circumstances, and great danger to life ... let us though we think we stand, take heed lest we fall by this fatal sickness: the sad effects of which, we cannot more prudently and securely guard against, than by embracing Inoculation'.
183. Ibid. p.19.

184. Ibid. p.33.

185. Ibid. p.22.

186. e.g. On 11 August 1782 he wrote to William Sagar, 'nothing can more effectually stop the work of God than the breaking in of Calvinism'. (Wesley, J. The Letters of John Wesley, A.M. Ed. Telford, F. London: Epworth, 1931. Vol.7, p.136).


189. Monro, A. (Op.cit). This was Alexander Monro (secundus) MD, FRS, FRCP (1733-1817), Professor of Medicine and of Anatomy in the University of Edinburgh – one of the best known and most influential figures in 18th century medicine in Scotland.

190. Ibid. p.5.

191. Ibid. p.6.


193. This information appeared under a wide variety of headings in the Statistical Account, and reference to inoculation is found under 'Climate', 'Diseases', 'Population', 'General Comments' and – only occasionally – 'Inoculation'.

194. Ibid. Vol. 11, p.145.

195. Ibid. Vol. 9, p.469n.


197. Ibid. Vol. 8, pp.266-7.

199. Ibid. e.g. Vol. 4, p.154, Arddach (Nairnshire); p.335, Aberdour (Fife): Vol.11, p.624, Callander (Perthshire); Vol.12, p.320, Jura and Colonsay (Argyleshire); Vol.13, p.150, Strathdon (Aberdeenshire); Vol.20, p.282, Tingwall (Shetland).


201. Ibid. Vol. 20, p.349n. N.B. One guinea = £1.05.


203. Ibid. e.g. Vol.7. Kirkgunzeon (Kirkcudbrightshire) p.191.


206. Ibid. Vol. 4, p.335.

207. This map, and that in Figure 1.2, are from Sinclair, J. Analysis of the Statistical Account of Scotland. Edinburgh: Constable (1825). Vol.1, Frontis. The data upon which the overlays are based is that in Sinclair, J. The Statistical Account of Scotland (Op.cit) and the relevant details are listed in Appendix II.


212. The population of Scotland was approximately 2,093,500 in 1821. In 1795, in the middle of the period surveyed in The Statistical Account (*Op.cit.*) it had been nearly 1,526,500, having risen from approximately 1,265,400 in 1755 (Vol.19, pp.620-1).


3. **VACCINATION.**

Vaccination consisted of a procedure very similar to that of variolation, only employing pustular 'matter' taken either from animals or humans suffering from a disease known as cowpox. The precise identity of this disease is to-day uncertain (222), but in the eighteenth and early nineteenth centuries it was known in certain areas as a bovine disorder transmissible to men and giving rise to a pustular eruption resembling that of smallpox, but rarely proving fatal. It was the belief of certain country folk that an attack of cowpox conferred protection against subsequent attacks of smallpox which led to the use of cowpox 'matter' as an alternative to inoculation with the pustular 'matter' of smallpox itself.

The introduction of cowpox vaccination resulted in a wholesale conversion of the medical profession in favour of this alternative to inoculation but there was considerable public resistance to the change, and to subsequent legislation making vaccination compulsory.

3.1 **INTRODUCTION AND SPREAD OF VACCINATION**

A number of folk-tales exist to the effect that vaccination with cowpox had been known in country districts for many years (223). The reputation of cowpox as a protective against smallpox seems to have been localised in certain parts of Britain only, however, and the first authenticated instance of deliberate inoculation with cowpox material appears to be that of a Dorsetshire farmer, Benjamin Jesty,
who inoculated his wife and two sons with cowpox 'matter' in 1774. The incident, although not publicised at the time, was thoroughly investigated by the conductors of the Original Vaccine Pock Institution in London, in 1805, and authenticated by them beyond reasonable doubt (224).

Despite such early uses of cowpox 'matter' for inoculation it is to Dr Edward Jenner, FRS, MD (1749-1823), a country practitioner of Berkeley in Gloucestershire, that the introduction of the practice is generally attributed (225). Jenner apparently heard of the old tradition that an attack of cowpox protected from subsequent smallpox while a teenage apprentice in Sodbury during the 1760's, as a result of a casual remark made by a patient. It was not until 1796, however, that Jenner made any experiments to verify the tradition - although he subsequently claimed to have been conducting his inquiry into the subject since about 1776 (226). The reason for the long delay between his alleged first awareness of the connection, and the experiments to prove or disprove it, have been widely debated and are not relevant to this study. Jenner's character was possibly less attractive than that shown in Baron's biography (225), and his written comments upon his own actions and motives can probably be taken at less than face value (227).

Jenner's original paper on cowpox inoculation did contain a number of substantial defects. In particular, the evidence for the effectiveness of cowpox as a preventive of smallpox was very insubstantial. Also, Jenner expressed the belief that cowpox was no more than smallpox of the cow. At the time of the introduction of cowpox
inoculation Thomas Denman, a leading London physician, could write that 'Before the publication of Dr. Jenner's Treatise, the Cowpox was unknown, even by name, to the generality of physicians in the kingdom' (228), and the disease has, indeed, been difficult to identify with certainty even to-day (222). In the title of his treatise (229), however, Jenner referred to cowpox expressly as Variolae Vaccinae - i.e. smallpox of the cow (Figure 1.3). He did not use this term anywhere else in the text, nor did he indicate that this descriptive name was one of his own invention, as was the case. The name was used freely, however, in Jenner's second essay on the subject, published a year later (230), and the implicit identification of cowpox with smallpox certainly had an effect in persuading many people that the new practice was based upon the old inoculation with human smallpox, (generally regarded as immunologically successful) (231) while at the same time avoiding the undoubted risks of human smallpox.

In fact it was many years later before the efficacy of vaccination as a protective against smallpox was adequately demonstrated. The early experiences of vaccination were much bedevilled, both by the production of impure 'matter', consisting (at least partly) of human smallpox, and by the practice of vaccinating patients in hospitals where they came into close contact with cases of 'natural' smallpox. The patients often contracted this disease before being vaccinated, so that the subsequent attack of smallpox suggested failure of vaccination. Neither was the differential diagnosis of cowpox and smallpox easy to a profession who had largely never heard of the former before Jenner's paper (e.g. 228), far less seen the pustules said by
AN

INQUIRY

INTO

THE CAUSES AND EFFECTS

OF

THE VARIOLÆ VACCINÆ,

A DISEASE

DISCOVERED IN SOME OF THE WESTERN COUNTIES OF ENGLAND,

PARTICULARLY

GLOUCESTERSHIRE,

AND KNOWN BY THE NAME OF

THE COW POX.

BY EDWARD JENNER, M. D. F.R.S. &c.

QUID NOBIS CERTIUS IPSIS
SENSIBUS ESSE POTEST, QUO VERA AC FALSA NOTEMUS.

LUcretius.

London:

PRINTED, FOR THE AUTHOR,

BY SAMPSON LOW, NO. 7, BERWICK STREET, SOHO:

AND SOLD BY LAW, AVE-MARIA LANE; AND MURRAY AND HIGHLEY, FLEET STREET

1798.
Jenner to be peculiar to it (232). The cause of vaccination was not helped by Jenner's own insistence that cowpox was itself a disease transmitted to cows by farm workers, from the heels of horses suffering from a disease called 'grease', (233) — a view supported only by the most circumstantial evidence and accepted by almost no other practitioner at the time, or since. Despite these complications, vaccination 'caught on' with the medical profession very quickly and spread with such rapidity that a separate study might well be made of the reasons for a new and untried practice becoming so nearly universal so quickly amongst a profession noted for its extreme conservatism and resistance to change. The situation was, perhaps, best summarised in 1895 by Hutton in a published letter to the Home Secretary (H.H. Asquith). He said:

'Other circumstances, besides the fact that a medical man, who was a Fellow of the Royal Society (234), had announced the discovery that cow-pox was "small-pox of the cow", were favourable to the acceptance of vaccination. To many who had long advocated and practised the older form of inoculation it came as a welcome relief. The risks of that practice were already pretty generally recognised; but, such is the tyranny that custom has, and that not least in the medical world, that it was impossible for the practice to be dropped, except by the substitution of some other practice, which could be recommended as an improvement. And, if Jenner's account of vaccination were correct, it was undoubtedly an improvement; for the disease communicated was ordinarily less severe, while the risk of infection was nil. And, as there was at the time a decline in the prevalence of small-pox, it was natural to attribute this to vaccination' (235).

In 1802 Jenner petitioned the House of Commons for 'such remuneration as to their wisdom shall seem meet', in recognition of his 'discovery'
of vaccination. After investigation by a committee of the House\(^{(236)}\), an award of £10,000 was made, followed in 1807 by a further grant of £20,000 - financial rewards which, in to-day's terms, were substantially more valuable than a Nobel prize. Apart from the money, the approbation shown to Jenner - and to vaccination - by these votes undoubtedly gave very great impetus to the new form of inoculation with cowpox 'matter' and, thereafter, little opposition to vaccination was expressed by the medical profession or by the educated classes.

In view of the tacit government support shown by the grants to Jenner in 1802 and 1807, it is surprising that Britain was so late amongst those European countries introducing legislation on smallpox, to make vaccination compulsory. Austria, Denmark, Sweden, and many of the German states (all Catholic or Lutheran) had all passed legislation to this effect before an Act of Parliament in 1853\(^{(237)}\) made provision for every child (whose health permitted) to be vaccinated within three (or, in the case of orphanages, four) months of birth under penalty of a fine not exceeding £1 (Sect.9).

A further Act of 1861\(^{(238)}\) empowered Poor Law Boards to appoint persons to prosecute those who failed to comply with the 1853 Act and, in 1867 yet another Act\(^{(239)}\) introduced the possibility of continuing prosecution over a period of years for the same offence, so that parents with conscientious (or other) objections to vaccination could be subjected to repeated fines throughout the first 14 years of each of their children's lives. In practice most of those proceeded against were poor people who, being unable (or sometimes unwilling)
to pay the fines, were subsequently imprisoned. The attitude of
the medical profession to this legislation was well summed up in an
anonymous article in the British Medical Journal in 1896, which said
that 'The public must be protected against itself, even against the
consequences of its own ignorance and folly. In particular, the
little children must be protected against follies with which they
have no concern' (240). This argument almost exactly foreshadowed
that which was to be made half a century later concerning the
conscientious objection of members of the religious sect of Jehovah's
Witnesses to the practice of blood transfusion (241).

In the early days opposition to vaccination was not wide-
spread, nor was it expressed very vocally or very cogently, and
evidence of it is restricted to a very few sources (242). It was
several years later that the opposition strengthened. There was a
widespread dislike of cowpox vaccination amongst ordinary people,
however, who saw it as imparting 'bestial' diseases to young children.
This dislike was manifested more by a refusal to undergo vaccination
than by any overt act, and it was largely to overcome this passive
resistance that the legislation of 1853 made vaccination compulsory.
It was mainly to this element of compulsion that opposition was
subsequently directed.

By the end of the nineteenth century vaccination had thus
become virtually universal and had achieved the status of legal
compulsion. Objections to the practice, throughout the century,
were directed both to vaccination itself, and to the compulsion.
3.2 RELIGIOUS RESPONSES

Like inoculation, vaccination was susceptible to the criticism that the deliberate imposition of disease was interfering with what could be viewed as the sole, and undelegated, concern of Divine Providence. However, by the time that vaccination was introduced in 1798 the Church of England was less inclined to Calvinist theology than it had been at the time of the Reformation. At the same time the English free churches, through the Dissenting Academies, had already established a reputation of sympathy for the expansion of science and technology, and there was no difficulty in finding scriptural justification for healing the sick. In such a climate there proved to be little religious opposition to vaccination - which was effectively an extension of inoculation in what it sought to achieve.

3.2.1 Vaccination in Britain

As, during the 18th century, inoculation with smallpox 'matter' had been widely undertaken by people in all walks of life - whether or not medically qualified - so, in turn, it was not surprising to find clergymen undertaking vaccination with cowpox 'matter' - a practice to which at least one physician strongly objected (243). In November 1799, little more than a year after the publication of Jenner's 'Inquiry', the Rev. W. Finch, Minister of St. Helen's, Lanc's, vaccinated an eight month old child, using material
supplied to him by another clergyman. Four months later he claimed to have vaccinated 714 "subjects" in all. Jenner's own nephew, the Rev. G.C. Jenner of Berkeley, Gloucestershire, stated in evidence to a House of Commons' committee of enquiry in 1802 that he had vaccinated 3,000 people with cowpox.

In Edinburgh, too, the new practice appeared to commend itself to at least some public opinion, and the Edinburgh Advertiser saw the old year out on Hogmanay, 1802, with the pious hope that "The efficacy of this important discovery, being now ascertained beyond a question from all quarters, we have no doubt that the CLERGY, of all denominations, with their usual benevolence, and attention to whatever promotes the interest and welfare of Humanity, will, with energy, recommend to their Parishioners, the adoption of this great discovery."

Vaccination was soon being proclaimed from the pulpits as a blessing given to mankind by God, the first such sermon being preached in Dudley in 1802 by the Rev. Dr. Luke Booker, who acknowledged "the prejudices which still adhere to the minds of some persons, against the salutary remedy under consideration." The predestinarian 'prejudice' that vaccination was 'presumption' upon God's prerogative to send diseases was answered by the suggestion that it must be 'equally wicked and presumptuous to guard against the effects of an hurricane, a thunder-storm, or an earthquake, when God thinks proper to send them. - But it is not presumptuous to avail ourselves of the discoveries of the wise.' In support of his argument Booker quoted the scriptures - "to him that knoweth to do good, and doeth it not, to him it is sin" (James 4, 17).
At least one clergyman (the Rev. James Plumptre of Cambridge) used the occasion 'to connect the Practice of Medicine with Religion, and to set forth the just Wrath and Power, and more particularly the Infinite Goodness, of our Almighty Father' (250). Plumptre's text was very apposite - 'And he stood between the dead and the living, and the plague was stayed' (Numbers 41, 48).

So enthusiastic were some at the concept of 'connecting the practice of medicine with religion' that the great Dr. Erasmus Darwin (grandfather of the evolutionist) wrote to Jenner on 24 February 1802 suggesting 'that in a little time it may occur that the christening and vaccination of children may always be performed on the same day' (251). It was a suggestion that was not taken up, despite the generally favourable climate of religious opinion regarding vaccination. However, the Royal Jennerian Society for the Extermination of the Small Pox (founded 1803) did publish An Address to be presented by Clergymen, at the Baptism of Children, exhorting parents to have their children vaccinated (252). It is not known how widely this was ever used.

The Church of England took up cowpox vaccination with almost as much universal enthusiasm as did the medical profession, with it receiving near-universal approbation from the clergy and - at first - no hint of opposition.

One of the very few all-out attacks on vaccination came in 1805 from a medical practitioner, Dr. William Rowley, M.D., physician and 'Public Lecturer on the Theory and Practice of Medicine'. He saw cowpox as being far from the mild and harmless disorder described by Jenner, and by most of the medical profession. Rowley's tract -
Cow-Pox Inoculation no security against Small-Pox Infection (253) - described the side effects of the disease as Cow-Pox Mange; Cow-Pox Evil, or Abscess; Cow-Pox Ulcers; and Cow-Pox Mortification.

Rowley's main attack was on the lines that 'Small-Pox is a disease conveyed by inoculation from man to man, successfully; Cowpox the filthy disease of beasts, therefore dissimilar' (254), and his tract did contain a shrewd criticism of the contemporary belief that one vaccination protected against subsequent smallpox for life (255).

Part of Rowley's attack on vaccination was directed to its religious implications. The tenor of his argument was that 'The Small Pox is a visitation from God; but the Cow Pox is produced by presumptuous man: the former was what heaven ordained, the latter is, perhaps, a daring violation of our holy religion' (256). In explanation of this latter suggestion, Rowley produced an entirely novel interpretation of the scriptural injunction in Exodus, 22, 19; 'It is God's command, that man shall not lie with any manner of beast - not contaminate the form of the Creator with the brute creation' (257).

The concept of 'horrid disgust, from reflecting on the nasty or filthy origin of Cow-pox infection' (258) was one which was still current in the later years of the nineteenth century, and which caused many to oppose the compulsory element in vaccination legislation. No-one other than Rowley, however, ever related this to the concept of lying with beasts which, to the Christian, was unquestionably a sin. That the institutional churches had not questioned the propriety of vaccination at the time Rowley wrote (1805) is indicated by his plea:
'Whether vaccination be agreeable to the will and ordinances of God, is a question worthy of the consideration of the contemplative and learned ministers of the gospel of Jesus Christ; whether it be impious and profane to wrest out of the hand of the Almighty the divine dispensations of Providence'.

If there had been any such considerations of vaccination by the clergy, Rowley could hardly have omitted mention of them. As it was, Rowley averred that if any should die of smallpox, believing themselves safe as a result of vaccination, this would be 'heinous in the sight of God', and the vaccinators 'amenable, not only to society, but to heaven itself'. The 'vehement advocates' of vaccination were 'seriously admonished to repent in time, and to appeal to Heaven for mercy'. That Rowley's personal religious allegiance was to the Church of England is indicated by his suggestion that vaccinators 'should certainly repeat our confession in the beginning of the Prayer Book, followed by a quotation from the form of confession used at morning and evening prayer in the Book of Common Prayer.

In March 1805, shortly after the publication of his tract, Rowley was 'summoned to another, and more awful, tribunal than that of Man'. His death might have seen the end of his views but for a pamphlet which was already with the printer, in which Rowley's own words were taken and turned against him by being re-set in the context of an imagined conversation between a country clergyman, a London physician, and 'a town surgeon'. Blair's Vaccine Contest has become a minor classic of early pro-vaccination propaganda, probably less for what it said than for the way in which it said it.
Blair was a surgeon, and this may partly account for his antipathy towards Rowley, a physician. Rowley's 'religious' comments were criticised by Blair as being blasphemous, and so unrealistic as to be not worthy of serious refutation. Rowley was certainly the 'odd man out' in the early vaccination debate. Whatever doubts his medical colleagues may have felt about vaccination, the concept of 'Cow-Pox Mange', etc. did not gain any sympathy at all, as these 'diseases' patently did not exist. Similarly, although citing a Church of England form of confession, Rowley had not reflected that church's views and he received no support from the clergy of that, or any other, church.

It may be worth noting at this point that Edward Jenner himself came of an exceptionally church-connected family (See Figure 1.4); his father, maternal grandfather, two brothers, a brother-in-law, and two nephews were all Church of England clergymen. Jenner was married to a wife who led a particularly 'devout and holy life' and himself spent much time meditating on his discovery - and 'these reflections always ended in devout acknowledgments to that Being from whom this and all other mercies flow'. No teaching of the established church ever caused any doubt in the minds of any member of this large and orthodoxly pious family, many of whom actively practised the vaccination which Edward Jenner had 'discovered'.

3.2.2 Vaccination elsewhere

Even more than in Britain was vaccination welcomed abroad, its assimilation being mostly rapid and straightforward. In America vaccination commenced in 1800 and, following the example of President
Fig. 1.4
Genealogy of Dr Edward Jenner, MD, FRS, of Berkeley, Glos.
Jefferson in having members of his own family vaccinated in 1801, the practice spread widely. In Europe the new practice was demonstrated in Vienna in 1799 and soon spread into Spain, Italy and France. In the latter country the Emperor Napoleon was especially impressed with Jenner's work and ordered the vaccination of all soldiers who had not had smallpox. In at least one part of the Napoleonic hegemony the Roman Catholic church was found playing its part in propagating the cowpox gospel. In Milan a Dr. Sacco was appointed Director of Vaccination to the Cisalpine Republic and

'Strong measures were adopted; proclamations were read from every pulpit; vaccination was practised in every church; and the clergy gave such effectual aid, that the Professor and his associates in three years vaccinated 70,000 persons, and extinguished smallpox in Lombardy' (267).

In Russia the Czar took a great interest in vaccination, which was soon practised throughout the empire. As in other countries, institutional religion was on the side of the vaccinators - even a Lama amongst the 'Mantchu Tartars' being cited as 'one of your most zealous inoculators' (268). In May 1811 the Czar (Alexander I) signed a ukase (order) aimed at achieving vaccination of every man, woman and child in the empire. The clergy were all ordered 'to cooperate with the beneficent views of the Emperor in destroying the prejudices which exist among the people against the inoculation of the cow-pox, or as it is now called in Russia the pock of surety', and the committees of vaccination which were set up in every region and district each had 'the most distinguished clergyman' as a member ex officio (268). Further, 'the practice and the art of vaccination'
was to be introduced into the curricula of all seminaries, so that students would be competent in it before leaving. Notwithstanding the mighty power of the Czar religious beliefs in Russia did cause at least a small obstacle to the spread of vaccination. Sir Alexander Crichton reported to Jenner that

'There is a power greater than sovereignty, namely, the conscience or religious opinions of men, and in one or two of the distant governments there exists a peculiar religious sect, belonging to the Greek church, who esteem it a damnable crime to encourage the propagation of any disease, or to employ any doctors, or to swallow any medicines under the visitations of God ... They have no priesthood, but attempts have been made to gain those of the community who have most influence with them, but all to no purpose.'

This example is of particular interest as it is the only reported case in the first half of the 19th century of total intransigence in the face of vaccination, due entirely to religious belief. It is also interesting to note that here, as in Britain later in the century, it was solely the religious views of common people which were opposed to vaccination - in this case to all medication - and that the institutional churches were not responsible for the opposition.

One more country where the clergy took a leading part in the dissemination of vaccination was Lutheran Sweden, where the practice commenced in 1801. Sweden was one of the first countries to make smallpox vaccination compulsory, in 1816.
was said to have been made a condition of admission to school, and was placed by the (Lutheran) clergy on a level with baptism and confirmation<sup>(270)</sup>, while the clergy and church officers were exceptionally active in vaccinating<sup>(271)</sup>.

Throughout continental Europe, without exception, it appears that the institutional churches supported vaccination to the hilt. No single example has come to light of any opposition to the practice from clergymen of any denomination. Apart from the further reaches of Russia, neither is there any evidence of popular opposition to vaccination on religious grounds although, as in Britain, the expression of emotional prejudice was, perhaps, another matter. One alleged incident in North America does call for comment, however. In his *History of the Warfare of Science with Theology in Christendom*, published in 1896, A.D. White reported that during an epidemic of smallpox in Montreal in 1885 the Roman Catholic population, supported by their clergy, resisted vaccination and were the cause of disturbances in the city over this<sup>(272)</sup>. Study of contemporary newspaper reports throws a different light upon the situation. At that time there were deep racial tensions between the English (Protestant) and French (Catholic) populations of Montreal, brought to a head by a sentence of death passed upon Louis Riel, the leader of a revolt by some half-breeds, who had the entire sympathy of the French-Canadians<sup>(273)</sup>. The attempt by the authorities to introduce compulsory vaccination was seen by the French Canadians as yet another irritant originating from the English, and riots ensued. The report appearing in *The Scotsman* of Wednesday 30 Sept. 1885 gives perhaps the clearest account.
'On Monday the local officials ordered compulsory vaccination upon all residents in the district. This decree irritated the French citizens who determined to resist. A mob collected last night ... they indulged in pistol-firing, and shouting "Down with the English" and "Kill the vaccinators" ... One house was set on fire, and placards on the walls relating to compulsory vaccination were torn down. Following this, several of the vaccinating stations were completely demolished' (274).

The following day The Times announced that

'The whole of the French-Canadian population is reported to be dis-affected, its sympathy with Riel aiding in fomenting this feeling, which is assuming the aspect of race antagonism. Meanwhile the number of deaths from smallpox increases' (275).

In fact, on 28 September there had been 56 deaths from smallpox, and 4,000 cases of the disease in the city (276). The smallpox epidemic continued until early December, when The Times reported that 'The strained race relations are believed to be moderating throughout Canada, and an era of better feeling is anticipated' (277). It thus appears that what White saw as Roman Catholic opposition to compulsory vaccination was essentially French-Canadian opposition to English legislation, compulsion being the cause of violence rather than vaccination, which chanced to be the object of objectionable legislation at a time of abnormally strained race relations. That the French population were mostly Roman Catholic, and the English mainly Protestant, apparently caused White (with his belief in the necessity of 'Warfare of Science with Theology') to see this incident as a further example of conflict between religion and science.
3.3 THE ISSUE OF COMPULSION

Despite widespread support for vaccination, both from the medical profession and the clergy, it was found necessary to legislate for compulsory vaccination in many countries, in order to achieve the spread of protection deemed necessary for the elimination of smallpox. As early as 1800 Jenner himself had expressed the belief that vaccination provided

'an antidote that is capable of extirpating from the earth a disease which is every hour devouring its victims; a disease that has ever been considered as the severest scourge of the human race'\(^{(278)}\).

Yet the common people, who seemingly stood to gain so much from the elimination of this 'scourge' of smallpox, were apparently loath to undergo cowpox inoculation.

The reasons for the popular dislike of cowpox vaccination were complex, but among them two stand out particularly.

Jenner's original paper was published with only a minimum of corroborative detail, yet he claimed that cowpox rendered those who underwent it 'for ever after secure from the infection of the Small Pox'\(^{(279)}\), and only four years later cowpox vaccination had been accepted by Parliament as being an absolute preventive of subsequent smallpox.

Contemporary observers could not help noticing that, whereas permanent protection was claimed by the vaccinators, cases of smallpox following vaccination did occur not infrequently, and the vaccination
itself did apparently cause smallpox in some cases. The explanations of these phenomena - contaminated vaccine, mistaken differential diagnoses, and the innate non-permanence of immunity without re-vaccination - took over a century to become clear. To the contemporary view it was evident merely that the new vaccination all too often failed to prevent smallpox\(^{280}\). Few people cared for Jenner's explanation that there was a false, or spurious, cowpox which could be mistaken for the real thing\(^{281}\), or for the insistence of the medical profession that it was for everyone's own good that they should be vaccinated\(^{282}\). To the common mind vaccination was simply ineffective - or even dangerous - and very many people either preferred the old inoculation with smallpox (e.g. 280), or simply took their chance and eschewed inoculation with either kind of pox.

The second reason for popular dislike of vaccination lay with the name 'cowpox'. There was a general revulsion for the concept of deliberately infecting children with 'bestial' diseases. Rowley's Cow-Pox Inoculation no Security against Small-Pox Infection had been illustrated with a drawing of a 'cow-poxed ox-faced boy'\(^{283}\) (Fig.1.5) and Rowley had asserted that

"Various beastly diseases common to cattle have appeared among the human species, since the introduction of Cow Pox ... enormous hideous swelling in the face resembling the countenance of an ox, with the eyes distorted, and eyelids forced out of their true situation,"\(^{284}\).

Although Rowley was a lone voice amongst the medical profession he was describing what many common people were only too ready to accept as the truth. The credulity of the masses at the beginning of the nine-
Cow Poxed, Or facet Boy.

Fig 1.5
teenth century was considerable and to many of them the fear of smallpox was no greater than the fear of 'bestial' diseases such as those described by Rowley. Rowley wrote in 1805, only 69 years after the repeal of the last British legislation making witchcraft a capital offence, and the period of little more than a single life-span which separated the execution of witches from the use of cowpox as a protection against smallpox had done little to rid people's minds of superstition, and mistrust of the unknown.

Even financial inducements to parents to have their children inoculated had no more than a trifling effect in attracting patients, once the initial novelty had worn off. In the year ending 31 March 1843, out of 527,325 children born in England and Wales, only 183,000 (i.e. 34.7%) were vaccinated. It was against this background that, in 1853, the Vaccination (Extension) Act made vaccination of all children in England and Wales compulsory, within three months of birth.

Although for more than half a century there had been considerable passive opposition to vaccination on the part of individuals, it was not until the passing of the Act of 1853 that this opposition became active. Once the law imposed sanctions upon those refusing vaccination of their children attitudes were bound to harden, and it was not until 1898 that the law permitted abstention from infant vaccination on grounds of conscientious objection.

Until 1855 there was no coherent statement of the case against vaccination. The first comprehensive 'indictment' of vaccination was a letter written to Sir Benjamin Hall (President of
the Board of Health) by John Gibbs (1811-1875), a hydropathic therapist, and dated 30 June 1855.

Gibbs' comments on the offending of religious conscience by compulsory vaccination are important, for they represent one of the few explicit references to this in anti-compulsory vaccination literature.

'Thousands object to vaccination on religious grounds ... Religious liberty means something more than the establishment of what we hold to be truth; it implies even the tolerance of what we may condemn and pity as error, and in that consists its essence.'(290).

Apart from the general reference to religious liberty, the reference by Gibbs to 'thousands' objecting is noteworthy. Gibbs quoted 'a registrar' as saying 'parents frequently refuse to have their children vaccinated, as they say they will suffer the Lord to work his will, and that vaccination is bringing sickness upon their children' (290).

Here again were the predestinarian arguments which had been heard over a century previously, still live, despite the recent attitudes of the institutional churches in favour of vaccination. Gibbs went on to produce a new line of argument.

'The laws of God are fixed; in them there is ever visible a design, and a means adapted to the end. Doubtless, if it were his will that corruption should be infused into the human circulation, He would have gifted his creature with the needful instinct and the corresponding organ. Food is taken into the stomach through the mouth, air into the lungs through the nostrils; but there is no orifice prepared by Divine wisdom for the insertion of the vaccine virus. The
newborn babe breathes and sucks instinctively, in obedience to natural laws, without any knowledge of them. The vaccine virus - the baneful discovery of man's perverted reason - is introduced into the system in defiance of natural laws, and every such violation brings its punishment.(291).

This argument was not one which was ever widely taken up, however.

Perhaps the two most important points to be noted from Gibbs' religious comments are:

(i) by the middle of the nineteenth century the anti-inoculation 'prejudices' of a century previously were still being applied by some of the common people,

and (ii) in so doing there were many of them apparently of an opinion widely divergent from that of the clergy, and the institutional churches which they represented.

Perhaps this latter situation reflected the fact that, throughout much of the nineteenth century, the established Churches (of England and Scotland) were under siege. The approximately tenfold increase in non-conformist allegiances amongst English church-goers in the first half of the century, the disruptive influence of the pro-Roman Catholic Oxford movement, the unsettling effects of the appearance of rationalistic Biblical criticism, and the disruption in Scotland, all tended to undermine the authority of the established churches prior to the 19th century the undisputed religious voices of the majority of the population.
The undermining of the churches' dominance both produced and led to divergences of opinion on many matters between the clergy and the common people, and it was mainly the common people who subsequently both deserted the established church and eschewed vaccination. It is possible that some of the overt opposition to compulsory vaccination in the latter half of the century may thus have been the open expression of what had hitherto been covert, now released by (i) freedom from the established church's teaching and (ii) the pressures of legal compulsion for men to act in breach of their individual consciences. Most of the subsequent anti-vaccination campaign made scant reference to religious motives, however.

John Gibbs' cousin, Richard Butler Gibbs (b.1822) was another early opponent of vaccination, and he it was in 1866 who formed the first society devoted to the overthrow of compulsory vaccination.

Other organisations were formed with the same aims, and two of these used printed slogans which allow further insight into their views. Upon one envelope used by the Anti-Compulsory Vaccination and Mutual Protection Society for Great Britain and Ireland (founded in 1873) was a printed label, bearing a message addressed 'To Parents and Guardians', which adjured them to 'Remember that you are chargeable at the bar of the Most High with having, through base and groundless fear for the present, submitted your children to the risk of abominable diseases in after life'. The threat was, however, secondary to the warning that 'you never know what seed of rottenness you have sown in the blood of your offspring, to spring up in future years' (Fig.1.6).
TO PARENTS AND GUARDIANS.

"Parents and guardians of little children, refuse vaccination and co-vaccination at all costs. God in heaven and posterity on earth will bless you. Remember that if you submit to this accursed thing you never know what seed of rottenness you have sown in the blood of your offspring, to spring up in future years. Remember that you are chargeable at the bar of the Most High with having, through base and groundless fear for the present, submitted your children to the horrors of abominable diseases in after life. And also remember that you are Britons, and are weakening your country by being vaccinated.

REMEMBER, AND RESIST."

For a full exposure of the Vaccination delusion, its impotence for good, its enormous capacity for evil; read the Vaccination Tracts, edited by

Dr. J. J. GARTH WILKINSON and W. YOUNG.

Specimen free for Six stamps of the publisher.

WILLIAM YOUNG, 8, Neill Terrace, Harrow Road, London, W.

January, 1878.

Fig 1.6
The National Anti-Compulsory Vaccination League used an imprint which read:

'Smallpox is a process of cleansing, Vaccination is a process of corruption and death. One comes from God, a remedy for wrong, the other is a wrong to deceive and yet plunder. The deceiver of parents and the slayer of infants is the vaccinating doctor - his stock in trade is filth and a lancet' (294).

Despite the use of the name of God, both of these societies appear to have relied primarily on the emotive concept of cowpox as 'filth', 'corruption', and 'rottenness'.

The London Society for the Abolition of Compulsory Vaccination - formed in 1880 - was more clearly directed against the 'Compulsory' concept, and its aims (295) were:

1. The Abolition of Compulsory Vaccination
2. The Diffusion of Knowledge concerning Vaccination
3. The Maintenance of an Office in London for the Publication of Literature relating to Vaccination, and as a Centre of Action and Information.

This Society - like many others - made no appeal at all to religious motivation for opposing vaccination and was almost entirely anti-compulsion in emphasis. As late as 1925 a pamphlet (296) published by the National Anti-Vaccination League (297), in a full review of the subject, past and present, made no reference or appeal to any religious reasons for opposing vaccination.
A number of periodicals were published - both by individuals and by societies - intended to disseminate anti-vaccination views. Many of these had short or chequered lives, being sometimes combined with other publications as a means of maintaining viability.

Possibly the best known anti-vaccination literature was a series of 14 Vaccination Tracts published between 1877 and 1879 (See Appendix IV). These tracts consisted mainly of reprints of pamphlets, letters, newspaper reports, etc., condemning various aspects either of vaccination or of compulsion, and only two of the fourteen tracts touched on religious arguments.

Tract No. 6 contained reports of brief writings by two Church of England clergymen opposed to vaccination, and a particularly interesting sermon by the Rev. Peter Dean, minister of Walsall Unitarian Free Church, which had been preached on 2 July 1876. Dean's religious views on vaccination were given in his answer to the question 'Is compulsory vaccination in accordance with the laws of God?'. His answer was:

'If it is, it is every man's duty to obey this statute of men, not because it is the law, but because it is right. If it is not, it is every man's duty to resist it, not because it is the law, but because it is wrong. And if it is wrong (though the law), it is tyranny and persecution to enforce it. ... Now, can you tell me of any laws of God more certain than these - that disease is always opposed to health; that corruption is always opposed to soundness? ... Hence, if the law said plainly - "You shall disease your healthy child, you shall corrupt your sound child," people would see the monstrosity of the whole thing.'
Citing Jenner's Inquiry, Deans averred that

'vaccination is the filthy, festering matter of a horse's heel which has become diseased through standing in the filth of a stable, applied first to disease a cow, and then from the cow applied to disease and corrupt a healthy child! ... Upon this postulate that it is opposed to God's law to disease healthy children, and to corrupt sound ones, and that to vaccinate them is to disease them, is to corrupt them, I take my stand.'

The belief that cowpox was transmitted via the horse had been disproved many years previously, however.

Deans was possibly more articulate than many other anti-vaccinators and the statement of his religious grounds for opposing both vaccination, and the 1853 Act which made it compulsory, is one of the more coherent to be found in the anti-vaccination literature of the second half of the nineteenth century. The Unitarian church, of which Deans was a minister, was well supported by former Presbyterians who had moved away from Calvinism, and it is significant that Deans' religious objections to vaccination were not based upon the view that this was a usurpation of the Divine prerogative, or of God's sovereignty.

The last of the Vaccination Tracts was the longest of the series, and contained very little in the way of 'Religious', but a great deal of 'Political' argument. The original material in this tract was written by a physician, Dr. Garth Wilkinson, who had become opposed to vaccination and, towards the end of the pamphlet, he wrote on 'The union of Christendom against the evils of Christendom'.
In this section was contained an impassioned plea on religious grounds which, perhaps, summarises the developed late 19th century view of vaccination as opposed to religion. Christian and Jew were shown to be susceptible alike to 'blood-pollution' by vaccination, which was described bluntly as 'unguided and unprincipled heathenism'. Wilkinson quoted the gospel, 'Cast not your pearls before swine' (Mt. 7, 6), saying 'our little children are our pearls; and swine are to be appeased by no offering' (303). He made a strong appeal for even 'one church or chapel or synagogue resolute in God's name against vaccination'. The making of this appeal strongly suggests that by 1878 all of the institutional churches in England were still maintaining their official support for compulsory vaccination, regardless of whether they were established or free, and despite opposition to the practice on the part of many individuals.

One exception to this latter generalisation was found in the religious body known as the Peculiar People (now known as the Union of Evangelical Churches). The members of this persuasion believed that healing came only as a result of prayer and the laying on of hands, and some of them considered that recourse to orthodox medicine was 'sinful. In this belief many members of the sect refused to submit to vaccination and until 1898 they were consequently in frequent conflict with the law. For example, in 1872 one couple were charged with having caused the death of two of their children, who had died from smallpox, by refusing to provide medical aid. They were found 'guilty of neglecting to procure medical advice' but,
in view of their 'innocent and exemplary character', discharged by the trial judge (304). The Peculiar People were never a numerous sect but during the 19th century they appear to have been unique in Britain as an institutional church opposed to compulsory vaccination; the only known parallels are the case of the Russian sect referred to in Section 3.2.2 and the Christian Science church, which was not established in Britain until 1897, just prior to the relief of conscientious objection to vaccination by the 1898 Vaccination Act (305). In this case too, opposition was not expressed to vaccination per se, so much as to the general concept of orthodox medical practice.

Despite the occasional appearance of religious arguments against vaccination such as those cited above, the anti-vaccination movement in the latter half of the 19th century was largely built upon the emotive response to 'filthy' and 'bestial' diseases being transmitted to young children, and a resistance to the concept of compulsory vaccination regardless of the individual's grounds for wishing to eschew the practice.
NOTES AND REFERENCES

222. e.g. Swain, R.H.A. and Dodds, T.C. *Clinical Virology.* Edinburgh: Livingstone (1967), p.110. "The vaccinia virus is a laboratory virus; it does not occur naturally in a wild form. It has been propagated since the end of the eighteenth century in the skin of man and of laboratory animals to provide the vaccine needed for the protection of humanity from the ravages of smallpox. The origin of the virus is obscure. It may be a mutant derived from the cowpox virus of Edward Jenner's early vaccine, or it may equally well have had its origin in the smallpox virus which very possibly contaminated the seed virus of that day'. The question of the identity of Jenner's cowpox has been studied in a recently published book in which it is concluded that, for most of his work, Jenner was using attenuated smallpox virus. Razzell, P. (1977) *Edward Jenner's cowpox vaccine: the history of medical myth.* Sussex: Caliban.


227. A hostile review of Jenner's life and work which is a credible contrast to that of Baron (225) is White's *Story of a Great Delusion* (Op.cit), in which Jenner's motivation, abilities and character are all criticized.

229. Jenner, E. *An Inquiry into the Causes and Effects of the Variolae Vaccinae, a Disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cow Pox.* London (1798).


231. The disease was subsequently referred to in France as 'petite vérole des vaches' - smallpox of cows; in Germany as 'Kuhblatten' - cow smallpox; and in Italy as 'vajulo vaccino' - vaccinal (i.e. cow) smallpox.


234. Jenner had been elected FRS in 1788 on the strength of a paper (published in *Phil. Trans.* 78, 1788, p.219) on the Natural History of the Cuckoo. He had also purchased the degree of M.D. from the University of St. Andrews in 1792.


236. House of Commons. *Report from the Committee on Dr Jenner's Petition respecting his Discovery of Vaccine Inoculation.* London (1802).

237. Act 16 & 17 Vict. c.100 (1853). This legislation did not extend to Scotland or Ireland, where vaccination was not made compulsory until 1863 (Acts 26 & 27 Vict. cap. 108. Sec.8, and 26 & 27 Vict. cap.52. Secs. 1 and 8, respectively).

238. Act 24 & 25 Vict. c.59 (1861).

239. Act 30 & 31 Vict. c.84 (1867).

241. The present author has published a study of this latter subject, which includes a number of specific cases of forcible transfusion of adults against the patients' wishes, as well as removal of children from their parents' care, as a result of court orders. Farr, A.D. God, Blood and Society. Aberdeen: Impulse (1972).


He did not mention any religious opposition. One notable tract in opposition to vaccination was written by a physician, Dr Benjamin Mosely, M.D., who complained 'In the year 1798 the COW POX Inoculation Mania seized the people of England en masse. It broke out, in the month of April, - like a symptomatic eruption of Nature; the planet Mercury - the delusive author of "vain and fond imaginations", being then in the zodiacal sign of the Bull. It increased as the days lengthened; and at Midsummer large societies, of the medical profession which was first attacked, were distempered to an intolerable degree' (Moseley, B. A Treatise on the Lues Bovilla; or Cow Pox. London. 1804, p.1).


'I have been informed, that some of these gentlemen have not only preached, but have practised Cow Pox Inoculation. I hope this is not true. Our College gives no encouragement to any of its members to meddle with the affairs of the Church; and may reasonably expect, that no member of the Church will interfere with the affairs of the medical profession.'


248. Ibid. p.9.

249. Ibid.

250. Plumptre, J. *The Plague stayed: a scriptural view of pestilence... particularly of the small-pox...* in a sermon Preached before the University of Cambridge on SUNDAY, February the 24th, 1805. Cambridge (1805a), p.v.


253. Rowley, W. *Cow-Pox Inoculation no security against Small-Pox Infection*. To which are added, the modes of treating the beastly new diseases produced from Cow-Pox, explained by two coloured copper-plate engravings: as Cow-Pox Mange, Cow-Pox Evil or Abscess, Cow-Pox Ulcers, Cow-Pox Mortification, &c. With the author's certain, experienced, and successful mode of Inoculation for the Small-Pox, which now becomes necessary from Cow-Pox failure, &c. London: Barfield (1805).

254. Ibid. p.ix.

255. Ibid. p.13.

256. Ibid. p. 8.

257. Ibid. p. 8.n

258. Ibid. p. 9

259. Ibid. p.35.

260. Ibid. p.63.
261. Ibid. p. 63-4 nn.


'We have erred and strayed from thy ways like lost sheep.
We have followed too much the devices and desires of our own hearts. We have offended against thy holy laws.
We have left undone those things which we ought to have done; And we have done those things which we ought not to have done; And there is no health in us.'

(Note: Rowley’s punctuation differed slightly from that of the Prayer Book, used above.)


264. The genealogy in Figure 1.4 has been constructed from information to be found in Baron, J. (Op.cit).


266. Ibid. Vol.1, p.140.

267. Moore, J. The History and Practice of Vaccination.
London: Callow (1817), p.263.


269. In the latter part of the 18th century 1 in 7 of all deaths in Sweden was attributed to smallpox (White, W. Op.cit. p.408).

270. Ibid. p.411.
271. In the Archbishopric of Upsala, from 1804 to the end of 1810 there were 33,298 persons vaccinated, of whom 7025 (21%) were operated upon by the clergy, 20,000 (60%) by church officers, and only 6,273 (19%) by medical men and others. (Ibid. p.412)

272. White, A.D. A History of the Warfare of Science with Theology in Christendom. London: Macmillan (1896). Vol.2, pp.60-1. In support of his statement White quoted (inter alia) a correspondence in the New York Evening Post during September-October 1885. It has not been possible to trace any file of this newspaper for 1885, either in Britain or abroad.

273. The fund for Riel's defence was organised jointly by the French Canadians and some Irishmen.

274. The Scotsman (1885) 30 Sept. p.9b.

275. The Times (1885) 1 Oct. p.3f.

276. Ibid. 30 Sept. p.5e.

277. Ibid. 4 Dec. p.5c.


280. e.g. Anon. 'Small-pox again inoculated in London'. Edin.med.surg.J. 1,(1805), p.507. 'The many late failures of supposed cow-pock to prevent the smallpox has excited in some parts so much clamour among the lower orders of people, that they insist upon being inoculated for the smallpox at some of the public institutions.'


285. The last trial for witchcraft in England was in 1712 and the last execution in Scotland in 1722.

286. e.g. In Norwich, commencing in 1812, the Board of Guardians had offered a premium of half-a-crown (12½p) to parents for each child vaccinated. Despite an annual birth rate of 1000 - 1200 the number of premiums actually paid was:

<table>
<thead>
<tr>
<th>Year</th>
<th>Premiums Paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>1812</td>
<td>1066</td>
</tr>
<tr>
<td>1813</td>
<td>511</td>
</tr>
<tr>
<td>1814</td>
<td>47</td>
</tr>
<tr>
<td>1815</td>
<td>11</td>
</tr>
<tr>
<td>1816</td>
<td>348</td>
</tr>
<tr>
<td>1817</td>
<td>49</td>
</tr>
<tr>
<td>1818</td>
<td>64</td>
</tr>
</tbody>
</table>

(Cross, J.G. A History of the Variolous Epidemic which occurred in Norwich in the year 1819. London, 1820)


288. 16 & 17 Vict. cap 100 (1853).

289. 61 & 62 Vict. cap 49 (1898).


291. Ibid. p.49.

292. A study of this propaganda has recently appeared in a philatelic magazine, and this contains a number of helpful illustrations. (Vandervelde, V.D. 'British Anti-Vaccination Propaganda'. Postal History International. 1974. October. pp.376-80.)
293. Ibid. p 377
294. Ibid.
297. During the last few years of the century nearly all the
   anti-vaccination societies amalgamated, to form the
   National Anti-Vaccination League. This organisation
   still operates to-day, having widened its aims and
   changed its name (in 1972) to The Howey Foundation.
298. For example, an independent journal, The Anti-Vaccinator,
   founded in 1869 as a penny journal ran for 18 weeks.
   In 1870 it was joined with The Co-operator until 1871,
   when it resumed its old title. In 1872 the original
   title was again used for a new fortnightly publication
   which continued for another year.
299. The Vaccination Laws a Scandal to Public Honesty and
   2nd Edn. (1879).
300. Ibid. pp.14, 15.
301. The Religious Nature and Political Necessity of the
   (1878).
   No.4 N.S. (1872), p.50.
The pattern of smallpox epidemiology during the 18th and 19th centuries, and the reactions of the medical profession to inoculation and vaccination during this period, are of interest in helping to explain some of the public reaction to the two practices.

Statistics did not exist as a science until the latter half of the nineteenth century, consequently very few series of figures exist to demonstrate the epidemiology of smallpox between the 17th and 20th centuries. A useful run of figures does exist for London, however, in the Bills of Mortality and - later - the figures of the Registrar General which give the deaths from smallpox, and the total deaths, from 1661 to 1890. These figures are susceptible of criticism on many grounds, but they are the only ones available and they do help to illustrate the overall trend during this period, especially if collated as totals for each decade and illustrated graphically. From Figure 1.7 it can be seen that deaths from smallpox never constituted an exceptionally high proportion of all deaths - they varied from 3½% to 10% - despite many assertions that the disease 'carried off' large numbers of the population: also, regardless of total population figures, the proportion of all deaths attributed to smallpox and the total number of deaths due to smallpox followed a similar pattern over a period of nearly 200 years. This pattern shows a gradual increase, with a peak in the middle of the 18th century, followed by a gradual decline which was well established before the population of London
Fig. 1.7 Smallpox deaths related to total deaths and total population – London 1661 – 1901
began to increase markedly in the 19th century. It may further be seen that the increase was not notably retarded by the introduction of variolation, nor was the decline either started or hastened by the introduction of vaccination, or by its being rendered compulsory. These figures were available to the medical profession during the period concerned and it was often noted, indeed, by the anti-compulsory vaccination faction during the latter part of the nineteenth century that smallpox deaths had started to fall before Jenner introduced vaccination, so that it was difficult to make a case for vaccination solely from the Bills of Mortality.

Whether variolation caused an increase in smallpox due to the increased reservoir of infection in the community which it entailed appears doubtful from Figure 1.7, although it is equally doubtful whether the levelling off of the mortality curve can be attributed to immunity conferred by the practice, rather than to a cyclic incidence of the disease. Both possibilities have been canvassed at various times. The decline in smallpox mortality may initially have had as much to do with improved sanitary and housing conditions as with vaccination, as has been commonly averred by many anti-vaccinationists (308). The importance of the development of sanitation and public health during the nineteenth century has recently been stressed in this context by Ross (309) who did, however, tend to confuse the anti-vaccination and the anti-compulsion elements in the second half of the century (310). However, even the great 19th century statistician and sanitary reformer, Dr William Farr, said that
A healthy sanitary condition as to food, drink, and cleanliness of person, house, and city, stands first in importance; after it, but subordinately, come quarantine, vaccination, and other preventives, as means of subduing mortality.

Thus, it may be seen that contemporary medical enthusiasm for both variolation and vaccination had little statistical basis. Although apparent protection of individuals may have been demonstrated from time to time the results of either procedure, in terms of reduced overall mortality in the population, did not justify the (sometimes extravagant) enthusiasm with which they were adopted. Medical opinion was determined (as was usual for the times) on a subjective basis only: that support for immunisation has since been shown to have been a right instinct is not relevant to the situation as it existed at the time. The lack of statistical support for variolation - and, more particularly, vaccination - was readily picked upon by opponents of the practice and used as a powerful weapon in the armamentarium assembled against practitioners of either form of inoculation.

Opposition existed to both variolation and vaccination, but in neither case was it simple. People objected to inoculation 'with either kind of pox' for a variety of reasons: it did not protect against subsequent smallpox; it was itself sometimes fatal - or painful, or unpleasant; variolation spread smallpox into areas where the 'natural' disease was otherwise rare; vaccination involved infection with 'filthy' and 'bestial' diseases; and the element of legal compulsion in vaccination attracted its own opposition. In each case there was also an element of religious opposition.
306. These figures are quoted by Creighton, C. (Op. cit), passim.


308. e.g. Tebb, W.S. A Century of Vaccination and what it teaches. London: Swann Sonnenschein (1898). p.400. 'Those who have followed the facts ... concerning the insanitary condition of London in previous centuries can have come to no other conclusion than that this was the chief cause of the large small-pox and typhus death-rates. What else could be expected with the narrow streets, courts, and alleys; the imperfectly constructed houses with little or no curtilage; the almost total absence of external ventilation, the exclusion of light and air by the operation of the window tax, the dense overcrowding, the almost constant inhaling of putrid excrement, the loathsome effluvia from the intra-mural burial-grounds, the limited water supply - these, added to the filthy personal and domestic hygiene, cannot have failed to have influenced the spread and mortality from these diseases.'


310. Ibid. e.g. pp.83-6.

5. SOME GENERAL CONCLUSIONS

As with the medical procedures involved, the religious attitudes towards immunisation against smallpox fall into two distinct periods, relating approximately to the 18th and 19th centuries respectively. During the eighteenth century inoculation with smallpox 'matter' aroused a certain amount of opposition upon religious grounds, while in the 19th century vaccination with cowpox appears to have received nearly unanimous support from the institutional churches, religious opposition being confined almost exclusively to the aspect of legal compulsion. Superficially this change in attitude may appear to be due to a 'conversion' of the clergy in favour of immunisation - a view which either pre-supposes that religious opposition was originally due to prejudice, or ignorance of the facts concerning inoculation, or assumes that it was due to an actual improvement in safety and effectiveness brought about by the change from variolation to vaccination.

5.1. THEOLOGICAL VIEWS

One mid-nineteenth-century explanation for the apparent 'conversion' of the clergy in favour of immunisation was that

'they became influenced by the ridicule to which their superstition exposed them, and which produced more effect than any argument could have done' (312).

This suggestion - which was applied expressly to the Scottish clergy of the 18th century - is much too facile. The evidence
is abundant that, in Scotland, many of the ordinary people, so far from ridicule the ministers for opposition to inoculation, were themselves generally unwilling or reluctant to accept the teaching of those ministers that inoculation was not only acceptable to God, but that it was for their own good (313). It seems clear - especially from the evidence from Scotland (quoted in Section 2.3.2) - that widespread religious opposition to inoculation did exist during the 18th century, and presumably this had an identifiable theological cause. From the fact that such opposition had been common in Scotland, much less so in England, and apparently non-existent in Roman Catholic countries, one is led to suspect that the casus belli was an article of faith related to protestant, and possibly Calvinist, theology.

Although predestination has always been a cardinal point of Calvinism, some hyper-Calvinists took this to the extreme point of denying the free-will of man, and of virtually dismissing the concept of human responsibility. To such men, as diseases were God's visitation, for man to introduce them (for whatever cause) was an interference both with God's sovereignty and the pre-destined fate of the individual. It is submitted that it was in views such as these that the religious opposition to inoculation was rooted. That anti-inoculation views were not a general non-conformist or low Anglican attitude is apparent from the support given to the practice by such men as Philip Doddridge, David Some, and John Wesley (none of whom embraced hyper-Calvinism), while in Europe inoculation was apparently welcomed in the Lutheran states of Sweden and Germany.
During the 19th century, when variolation was replaced by vaccination, virtually no opposition to the latter practice was expressed on religious grounds. From this period a short survey made of 47 periodicals, together with another 35 secondary sources (commentaries, medical histories, and biographies relevant to the subject and period) has revealed only five references to alleged 'religious' opposition to vaccination (314) - all in secondary sources. It is notable that of these -

- two (315) quoted Dr Rowley's views (based upon the belief that vaccination was akin to man lying with beasts (316)) as their sole authority;
- two (317) made general statements that the clergy resisted the practice, and cited no authority for this;
- the other author (318) as his main source misquoted Baron's Life of Edward Jenner (319) - which actually made no reference at all to religious opposition to vaccination - and gave the Montreal riots of 1885 (see Section 3.2.2) as his other 'proof'.

This dearth of evidence of religious opposition to vaccination in the 19th century, while not necessarily indicating an absence of religious objections amongst either clergy or laity, at least suggests that such opposition was neither very frequently, nor very openly, expressed. This would be consistent with the virtual disappearance of overt Calvinist views within the Church of
England by the 19th century, and the increase in concern for social problems (under the influence of Moderatism) in Scotland, both by the time when vaccination was first introduced and was gaining general acceptance.

5.2 THE VIEWS OF THE PEOPLE

To what extent was the conflict over immunisation one between the interests of religion and science? It seems clear from the evidence that two distinct basic attitudes towards the practices of variolation and vaccination existed:

(i) Amongst many ordinary people the old belief that disease was the Visitation of God held firm sway into the nineteenth century, to the extent that attempts to prevent it were seen as impious and improper. This attitude does not seem to have extended at all widely to the treatment of disease once it had manifested itself, however.

(ii) By contrast, the institutional churches generally saw the prevention of disease as a proper Christian duty, in which man utilised that which God had revealed to him in order to prevent suffering and death - the attitude summed up by St James, 'to him that knoweth to do good, and doeth it not, to him it is sin' (Jas. 4, 17).

The problem arose when the prevention of disease was to be achieved - paradoxically - by the infliction of disease, which could be seen as trespassing upon God's prerogative; and the
institutional churches were not wholly successful in convincing ordinary people that vaccination was not thus 'an impious mockery' of God.

A further factor which can not be ignored is that medical assistance was often beyond the financial (and sometimes the physical) reach of many poor people (320), whereas sickness was always with them. The frequent exhortations of the clergy in sickness, reminding them of the Divine uses of disease, must have been a regular event in the lives of most poor people and it is noticeable that few objections to inoculation were heard amongst the better off (321), whose ability to obtain - and pay for - medical aid left them less exposed to regular 'Visitation of the Sick'.

One more possible explanation of the common reluctance to seek protection against future smallpox arose from the observations of Dr Robert Watt of Glasgow, who showed that in that city the reduction in the number of deaths attributed to smallpox over a period of 30 years was balanced by an increase in deaths from other fevers, so that the overall death rate remained virtually the same (322). Watt's figures are summarized in Table 1.4.

<table>
<thead>
<tr>
<th>Decade</th>
<th>DEATHS</th>
<th></th>
<th></th>
<th>TOTAL All ages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Smallpox</td>
<td>Measles</td>
<td>Whooping Cough</td>
<td></td>
</tr>
<tr>
<td>1783 - 1792</td>
<td>3466</td>
<td>211</td>
<td>854</td>
<td>17,607</td>
</tr>
<tr>
<td>1793 - 1802</td>
<td>2894</td>
<td>398</td>
<td>914</td>
<td>16,685</td>
</tr>
<tr>
<td>1803 - 1812</td>
<td>1013</td>
<td>1655</td>
<td>1151</td>
<td>20,175</td>
</tr>
</tbody>
</table>
Watt also showed that most smallpox deaths occurred amongst children under 2 years of age. These figures were reasonably well known at the time and drew forth the comment from Dr William Woolcombe, M.D. (1773 - 1822) of Plymouth that

"Since disease is one of the appointed checks to excessive population, and the plan of Providence in the creation of human life, requires the termination of the existence of one third of its creatures, before they have attained the age of two years, it may be doubted whether the annihilation of so efficient an instrument as Smallpox, can be admitted without the substitution of some other equally destructive malady." (323).

The assumption that the mortality rates observed in Glasgow reflected a Divine plan to destroy one third of all children reveals a degree of fatalism which went beyond the usual religious views of the chastening uses of disease, and even beyond the hyper-Calvinist doctrine of absolute pre-destination. That a degree of general fatalism - not necessarily theologically based - entered into the opposition to inoculation of either kind of pox is possible, therefore, but there is no evidence that it was ever a significant factor. Most of the popular opposition to immunisation appears to have been of a quiet and passive nature - mere refusal to seek inoculation or vaccination - and historiographically the dispute between religion and medicine in this area has come to the fore only as a result of two factors:

(i) The very vocal opposition to inoculation which was expressed by two Church of England clerics - the Revs. Edmund Massey and Theodore Delafaye.
That the views expressed by Massey and Delafaye touched a chord of sympathy with many ordinary people does not at first appear obvious, however, for each of the debates was conducted at an intellectual and social level above that which contained most of the anti-inoculation feeling (324).

(ii) The imposition of vaccination by statute upon a population which was either hostile, or at best apathetic, brought into the open - and hardened - attitudes which, although widespread, had hitherto been mostly private and passive. The compulsory vaccination legislation was a tactical mistake on the part of the pro-vaccination faction for whereas - given time - the British proletarian can nearly always be led, he will rarely allow himself to be driven.

The medical profession already possessed the active co-operation of the majority of the clergy, and very probably could have eventually achieved nearly universal vaccination without recourse to the law. Had this been the case the religious opposition to immunisation would have received little subsequent attention, for most of this has been attracted by the (largely irrelevant) publicity given to the anti-compulsory-vaccination movement. This movement was entirely a phenomenon of the latter half of the nineteenth century and touched only peripherally on the religious issues, being mainly concerned with other objections to vaccination and to the concept of compulsion.
That a conflict existed between religious belief and this particular development in medicine is certain. That it necessarily existed is less so. The teaching that disease is God's chastisement of man is common to all Christian churches, but it is only part of the Christian story. The teaching that man has duties to heal the sick and to save life, and to accept those discoveries which God has revealed to him to be used for the good of mankind, represent another part. The concept of all men being individually pre-destined for eternal salvation or damnation, and of God's absolute sovereignty being challenged by the deliberate infliction of disease, were peculiarly relevant to Calvinist theology, and constituted the only widely expressed scriptural grounds for religious opposition to immunisation.
NOTES AND REFERENCES


314. See Appendix V for the items studied.


322. Watt, R. An Inquiry into the Relative Mortality of the Principal Diseases of Children, and the numbers who have died under Ten Years of Age in Glasgow during the last Thirty Years. Glasgow (1813).


324. Delafaye's sermon did achieve a second edition, however.
PART II

THE PROBLEM OF PAIN

- Anaesthesia
Fig 2.1 Pre-anaesthetic operation. From Hildanus, C. F. *Opera quae extant omnia*. (1646). Beyer: Frankfurt. p809.
1. INTRODUCTION

'Suffering so great as I underwent cannot be expressed in words, and thus fortunately cannot be recalled. The particular pangs are now forgotten; but the black whirlwind of emotion, the horror of great darkness, and the sense of desertion by God and man, bordering close upon despair, which swept through my mind and overwhelmed my heart, I can never forget, however gladly I would do so.'\(^{(1)}\).

Thus wrote a Dr G. Wilson who, in the early years of the nineteenth century had himself undergone an amputation, before the days of modern anaesthetics.

It is indeed difficult for anyone living in western Europe in the second half of the twentieth century to appreciate the unspeakable agonies of non-anaesthetic surgery which, until only 150 years ago, were commonplace (e.g. Figure 2.1). Perhaps the nearest one may come to an understanding of the situation is the very moving letter quoted above, which was written to James Young Simpson of Edinburgh, one of the pioneers of modern anaesthesia. The author reported how

'I still recall with unwelcome vividness the spreading out of the instruments; the twisting of the tourniquet; the first incision; the fingering of the sawed bone; the sponge pressed on the flap; the tying of the blood-vessels; the stitching of the skin; and the bloody dismembered limb lying on the floor.'\(^{(2)}\).
It is difficult to-day to appreciate that anyone might seek to suppress the spread of anaesthesia - yet the letter quoted above was written specifically to provide ammunition against such attempts.

In order to press home his case Dr Wilson spelled out in detail the situation in which he had himself suffered, like so many before him.

"Before the days of anaesthetics, a patient preparing for an operation was like a condemned criminal preparing for execution. He counted the days till the appointed day came. He counted the hours of that day till the appointed hour came. He listened for the echo on the street of the surgeon's carriage. He watched for his pull at the door-bell; for his foot on the stair; for his step in the room; for the production of his dreaded instruments; for his few grave words, and his last preparations before beginning. And then he surrendered his liberty, and revolting at the necessity, submitted to be held or bound, and helplessly gave himself up to the cruel knife. The excitement, disquiet, and exhaustion thus occasioned, could not but greatly aggravate the evil effects of the operation, which fell upon a physical form predisposed to magnify, not to repel, its severity. To make a patient incognisant of the surgeon's proceedings, and unable to recall the details of an operation, is assuredly to save him from much present and much future self-torture, and to give to him thereby a much greater likelihood of recovery."

Although there was some slight initial opposition to the introduction of anaesthesia into surgery, the debate appears to have been virtually confined to the field of obstetrics, and it was only there that religious arguments were adduced for the purpose.
The apparent conflict between religious belief and the introduction of anaesthesia was further circumscribed in that it occurred only during the period of the first use of inhalation anaesthesia - that is for a short period in the middle of the nineteenth century - and it was primarily a phenomenon observed in Scotland. The debate also appears to have centred upon one man, the eminent and charismatic professor of midwifery at Edinburgh from 1839 to 1870, James Young Simpson.

Simpson was appointed to the chair of midwifery in 1839 at the age of 28. In 1847 he was the first to use ether as an anaesthetic in midwifery and, later in the same year, he introduced chloroform as a general anaesthetic for both surgery and obstetrics. He was a man of firm religious conviction and probably the most influential British obstetrician of the 19th century.

1.1 MID 19th CENTURY VIEWS ON THE MEDICAL USES OF PAIN

Although pain is generally regarded to-day as an undesirable sensation, this has not always been so. Nineteenth century medical and surgical practice often utilized pain, and individual responses to it, as aids to diagnosis in a manner which is not well appreciated in the twentieth century. Attitudes to pain and suffering - especially in an era when these could not be alleviated as they can to-day - were fundamentally different from our own and relevant, therefore, to any study of the introduction of a procedure designed to alleviate or abrogate it.
It was sometimes alleged that the prevention of pain in surgical operations was not only unnecessary but might even be improper, as pain played an important role in controlling treatment. Reporting a fatality which had occurred following etherization of a lithotomy case early in 1847 a Colchester surgeon, Mr Nunn, commented:

"Pain is doubtless our great safeguard under ordinary circumstances; but for it we should be hourly falling into danger; and I am inclined to believe that pain should be considered as a healthy indication, and an essential concomitant with surgical operations, and that it is amply compensated by the effects it produces on the system as the natural incentive to reparative action."(5)

Less than two months later the same journal carried a report of the proceedings of the South London Medical Society in which a Di Gull, in the course of a paper 'On the Effects of Ether on the different Classes of Animals', raised the question 'Is it useful to abolish pain during a surgical operation?'. In the debate which followed, Mr Bransby Cooper (a prominent surgeon) remarked that 'pain was a premonitory condition, no doubt fitting parts the subject of lesions to reparatory action, and therefore he should feel averse to the prevention of it."(6)

Even in Edinburgh, stronghold of anaesthsia in both surgery and midwifery, a remote voice was heard in critical vein. Dr James Pickford of Brighton wrote to the Edinburgh Medical and Surgical Journal in 1847 that:
Pain during operations is, in the majority of cases, even desirable; its prevention or annihilation is, for the most part, hazardous to the patient. In the lying-in chamber nothing is more true than this: pain is the mother's safety, its absence her destruction.\(^{(7)}\)

The arguments for the 'necessity' and 'desirability' of pain were answered publicly by James Young Simpson, in one of his more sarcastic utterances. In an article in the September 1847 issue of the *Monthly Journal of Medical Science* Simpson noted how

'The human agony and torture following the surgeon's knife have hitherto been borne with and submitted to, merely because, while they seemed absolutely necessary for the preservation of health and life, they were considered at the same time absolutely unavoidable ... A new era, however, arrives in chirurgical science, and a measure is, at last, brought to light, through the influence of which surgeons may perform operations, and patients submit to them, even when of prolonged nature, without the necessity of pain. It is found that the excruciating tortures and writhings, and shrieks of patients on the operating table, may be saved; and yet the required operations be as well and perfectly executed as before. Scarcely, however, is this glad and glorious discovery announced and acted upon, than another new, and, if possible, still stranger discovery, is broached and anxiously promulgated; namely, that in cutting the living flesh of man, the surgeon's knife does not, after all, produce any very remarkable or very important amount of pain, and that immunity from this pain during operations would be, perhaps, an evil rather than a good to humanity - a calamity rather than a blessing\(^{(8)}\).'

In this reply to seriously intentioned criticisms based upon medical criteria - however misunderstood - Simpson produced merely
sarcasm and a hint that his opponents were concerned with morality, rather than with medicine. It did indeed become difficult to disentangle these differing approaches to anaesthesia, but it is interesting to note here the apparent unfamiliarity of the concept of pain as desirable rather than otherwise.

In this paper Simpson relied upon polemic rather than logic to make his point. He noted that

'Mankind are perfectly agreed, that the cutting and mutilation of the living human body is painful, however loudly surgeons may preach to the contrary ... If we find then, as we do now, a few men entertaining and expressing opinions on these points so very different from the general ideas and general experience of mankind, these opinions can scarcely be looked upon as aught else than indications of a strange degree of eccentricity of thought upon one special subject'.

Such expressions, while they might have been readily understood by the general reader, did little to help the acceptance of Simpson's own more scientific comments by his medical colleagues.

2. Ibid. p.799.

3. Ibid. pp.800-01.

4. e.g. the difficulties experienced by Wells - see Section 2.1. See also Section 2.2.


2. INHALATION ANAESTHESIA

The general history of anaesthesia has been written frequently (9), but certain aspects of this will be summarised here.

2.1 THE INTRODUCTION OF INHALATION ANAESTHESIA

The idea of inducing insensibility in order to diminish pain was not new in the nineteenth century. Many ancient references exist to the use of Indian Hemp (Cannabis sativa, var Indica) and Mandragora (Atropa mandragora). The uses of the latter were recognised during the 1st century A.D., being mentioned inter alia by Apuleius (10) and Dioscorides (11). Nor were the means of inducing anaesthesia forgotten when Rome fell, for in the thirteenth century Theodoric described a preparation containing opium and mandragora, to be used to anaesthetise patients awaiting surgery and which had also been used by his father, Hugo of Lucca, at the end of the twelfth century (12).

The longstanding tradition of surgical anaesthesia was referred to in the seventeenth century by Middleton, in his tragedy Women, beware Women (13) but from about this time the ancient lore appears to have been forgotten, until an observation made by Humphry Davy in 1800 led to the development of anaesthesia by the inhalation of gases. During the course of a series of venturesome inhalation experiments Davy reported of nitrous oxide that

"The power of the immediate operation of the gas in removing intense physical pain, I had a very good opportunity of ascertaining. In cutting one of the unlucky teeth called dentes sapientiae, I experienced an extensive inflammation
of the gum, accompanied with great pain, which equally destroyed the power of repose and of consistent action. On the day when the inflammation was most troublesome, I breathed three large doses of nitrous oxide. The pain always diminished after the first four or five inspirations; the thrilling came on as usual, and uneasiness was for a few minutes, swallowed up in pleasure. As the former state of mind returned, the state of organ returned with it; and I once imagined that the pain was more severe after the experiment than before.

Davy recognised the value of his discovery and suggested 'As nitrous oxide in its extensive operation appears capable of destroying physical pain, it may probably be used with great advantage during surgical operations in which no great effusion of blood takes place.'

Davy's discovery, although so plainly reported, was subjected to complete neglect by the medical profession for most of the succeeding 46 years. The properties of 'laughing gas' were widely appreciated by 'society' however, and nitrous oxide became 'a plaything for the delectation of the curious, while men and women shrieked and groaned in agony under the surgeon's knife, and the art of surgery was robbed of half its usefulness and hindered in its development for want of a trustworthy means of abolishing pain.'

Parties of young people spent evenings inhaling the gas from bladders, and experiencing the state of excitability which typifies the early stages of inhalation anaesthesia. It was soon observed that similar effects were obtainable with the vapour of ether which, being a liquid, was more conveniently handled, and 'ether frolics' became a regular aspect of the social round.
Apparently the first attempt to achieve inhalation anaesthesia for surgical purposes was made in 1842 by W.E. Clarke of Rochester, U.S.A., who administered ether to a young lady during extraction of a tooth\(^{(19)}\). Despite its apparent success the experiment was not followed up. Later in 1842 however Dr. C.W. Long, a medical practitioner of Georgia, administered 'sulphuric' ether\(^{(20)}\) for the removal of a small encysted tumour\(^{(21)}\). During the ensuing four years Long used ether as a surgical anaesthetic four or five times but he neither reported its use until 1849, nor did he attempt to influence others to use the technique.

Also in the 1840's Horace Wells, a dentist from Hartford, Conn., had had one of his own teeth extracted under the influence of nitrous oxide and, convinced of the value of this anaesthetic, used it himself in about 15 dental cases before demonstrating it at the Massachusetts General Hospital in 1845\(^{(22)}\). Wells was allowed only a single case for demonstration and due to the bag of gas being removed too soon, this experiment was only partially successful.

In 1846, W.T.G. Morton, a former pupil of Wells, who had witnessed the rejection of Wells' claim the year previously, successfully used ether as an anaesthetic for a dental extraction and, on 16 October, administered it at the Massachusetts General Hospital to a patient being operated upon by Dr J.C. Warren, for the excision of a tumour of the neck.

'To the surprise of Dr Warren, and the other gentlemen present, the patient did not shrink or cry out, but during the insulation of the veins he began to move his limbs and utter extraordinary expressions, and those movements
seemed to indicate the existence of pain, but after he had recovered his faculties he said that he had experienced none, but only a sensation like that of scraping the part with a blunt instrument, and he ever afterward continued to say that he had not felt any pain.\(^{(23)}\)

The success of this case led to ether being used in other cases and it soon became a commonplace in Boston and elsewhere\(^{(24)}\), despite Morton's attempt to patent his discovery under the name 'Letheon'\(^{(25)}\). Some areas continued to resist the innovation, a fact apparently connected with the rivalry which existed between Boston and other American cities and which was felt by the medical profession of that time in much the same way that successes on the football field lead to differences of opinion between the citizens of different cities to-day. Nevertheless, the use of ether spread rapidly, both in the United States and across the Atlantic.

The first operation in Britain using ether anaesthesia took place in Scotland on 19 December 1846 in Dumfries, from whence came a young ship's surgeon, William Fraser, who carried news of the discovery to his colleagues at the Dumfries Infirmary. The details of the operation are uncertain but within 48 hours of the news of the discovery reaching Britain a young surgeon, William Scott, administered the anaesthetic and performed the operation\(^{(26)}\).

Of greater prominence was the second ether operation performed in Britain, two days after that in Dumfries. The mail ship which had brought Fraser home to Scotland also carried a letter from Dr Bigelow of Boston (who had witnessed Morton and Warren's first ether operation) addressed to Dr Boott, an American physician
in London. An inhalation apparatus was devised which Boott persuaded the great surgeon Robert Liston to use for a major operation - a thigh amputation - on 21 December 1846, at University College Hospital, London (27). News of the operation spread rapidly and many other operations using ether were performed in rapid succession (28). The use of ether was carried to Edinburgh by James Young Simpson who was the first to apply the new technique to midwifery, on 19 January 1847 (29).

2.1.1 Anaesthesia in Obstetrics

This extension of general anaesthesia to the realm of obstetrics is particularly important for the present study and will accordingly be followed in greater detail.

In his first paper on the subject J.Y. Simpson noted that 'Abundant evidence has of late been adduced, and is daily accumulating, in proof of the inhalation of sulphuric ether being capable, in the generality of individuals, of producing a more or less perfect degree of insensibility to the pains of the most severe surgical operations. But whilst this agent has been used extensively, and by numerous hands, in the practice of surgery, I am not aware that any one has hitherto ventured to test its applicability to the practice of midwifery' (30).

As this was written only six months after Morton's first public demonstration of ether as an anaesthetic, Simpson's final remark is not surprising; yet the need for some relief of the degree of pain experienced during parturition was implicit even in the text book
written by Charles Meigs, subsequently one of the major opponents of the use of anaesthesia in obstetrics. Meigs said of the 'painful sensations' of a woman in the last part of labour that they were so great 'as to be absolutely indescribable and comparable to no other pain'\(^{(31)}\). This view was nowhere seriously rejected.

The employment of any general anaesthetic during labour involved a number of problems over and above any which might apply to general surgery. In particular it was necessary to determine the effects of ether, both upon the continuance of uterine contractions (necessary to complete delivery) and upon the fetus - a second recipient of the anaesthetic agent, whose reaction to it may differ from that of the mother.

Simpson first employed ether in midwifery on 19 January 1847. The patient's first pregnancy had terminated in a craniotomy and in her second pregnancy, after she had been in fruitless labour for nearly twelve hours, Simpson administered ether before performing a difficult forceps delivery in which he noted that 'extreme exertion was required in order to extract the head'. The child unfortunately succumbed but the mother later claimed that 'she was quite unconscious of pain during the whole period of the turning and extracting of the infant, or indeed from the first minute or two after she first commenced to breathe the ether. The inhalation was discontinued towards the latter part of the operation, and her first recollections on awaking were "hearing", but not "feeling", the head of the infant "jerk" from her (to use her own expressions), and subsequently she became more roused by the noise caused in the preparation of a bath for the child. She quickly regained full consciousness, and talked with gratitude and wonderment of her delivery, and her insensibility to the pains of it.'\(^{(29)}\).
Simpson rapidly followed up this case with two others requiring forceps deliveries and from these cases deduced that 'As far as they go, the preceding cases point out one important result:— in all of them, the uterine contractions continued as regular in their occurrence and duration after the state of anaesthesia had been induced, as before the inhalation was begun'.

Thus far, that which Simpson was doing was merely an extension of the application of anaesthesia to surgery — that is, alleviation of pain induced artificially by instrumental manipulations performed to correct an abnormal situation. Simpson's next move was potentially more contentious — the alleviation of the normal pains of labour when no artificial aids to delivery were needed or employed.

On the evening of 13 February (1847) ether was employed in two cases, both multigravidae, in which no surgery or manipulations were indicated. Both patients had a labour of normal length, terminating in a delivery lasting about twelve or fifteen minutes. The first patient subsequently told Simpson 'she could only look back with regret to the apparently unnecessary suffering she had endured in the birth of her former infants': the second patient, 'a lady of a timid temperament, and very apprehensive about the result of her present confinement' reported that she had 'wakened out of a dream, and unexpectedly found her child born'.

Simpson posed himself the question 'will the state of etherization ever come to be generally employed with the simple object of assuaging the pains of natural parturition? Or (as the problem has not infrequently been put to me), should we be "justified" in
using it for such a purpose? (32). After reviewing the great extent of suffering attributable to labour pains Simpson concluded

"that the question will require to be quite changed in its character. For, instead of determining in relation to it whether we shall be "justified" in using this agent under the circumstances named, it will become, on the other hand, necessary to determine whether on any grounds, moral or medical, a professional man could deem himself "justified" in withholding, and not using any such safe means, as we at present presuppose this to be (to relieve) what Velpeau describes as "those piercing cries, that agitation so lively, those excessive efforts, those inexpressible agonies, and those pains apparently intolerable" (33), which accompany the termination of natural parturition in the human mother (32).

Simpson's own practice was made clear some months later when he wrote of ether,

"that since for the first time directing the attention of the medical profession to its great use and importance in natural and morbid parturition, I have employed it, with few rare exceptions, in every case of labour that I have attended; and with the most delightful results. And I have no doubt whatever, that some years hence the practice will be general. Obstetricians may oppose it, but I believe our patients themselves will force the use of it upon the profession. I have never had the pleasure of watching over a series of better and more rapid recoveries; nor once witnessed any disagreeable result follow to either mother or child; whilst I have now seen an immense amount of maternal pain and agony saved by its employment. And I most conscientiously believe that the proud mission of the physician is distinctly twofold - namely, to alleviate human suffering, as well as preserve human life" (34).
Here Simpson was at his most prophetic, and in the same paper he made his own contribution towards achieving his ideal by introducing 'A New Anaesthetic Agent, more efficient than Sulphuric Ether' - Chloroform.

Simpson's discovery, like that of Humphry Davy concerning nitrous oxide, was made as a result of a series of brave - even foolhardy - personal experiments on the inhalation of a number of likely vapours, and he claimed for chloroform that it was more economical than ether, more long-acting, less disagreeable in odour and more portable. Surprisingly, Simpson only noted in passing one very great advantage of chloroform over ether - that it was not flammable. Apart from minor surgery Simpson had already employed the new anaesthetic in midwifery, in the second pregnancy of a woman who had suffered a previous embryotomy following prolonged labour. The woman was anaesthetised after three-and-a-half hours of labour and delivered some twenty-five minutes later. She 'awoke' having 'enjoyed a very comfortable sleep, and indeed required it as she was so tired, but would now be more able for the work before her': when her child was brought to her 'it was a matter of no small difficulty to convince the astonished mother that the labour was entirely over, and that the child presented to her was really her own living baby.' Simpson soon followed up these papers with reports of other obstetric cases in which chloroform proved successful, but he also chided his colleagues outside Scotland, noting:
'I am told that the London physicians, with two or three exceptions only, have never yet employed ether-inhalation in their midwifery practice. Three weeks ago, I was informed, in a letter from Professor Montgomery, of Dublin, that he believed that in that city, up to that date, it had not been used in a single case of labour'\(^{(39)}\).

Chloroform rapidly displaced ether in Britain, however, until a number of fatalities led to further experiments to improve the means of anaesthesia, which in turn led to the eventual re-introduction of nitrous oxide. The spread of inhalation anaesthesia in Britain, while widely welcomed, was nevertheless the subject of much opposition (considered in section 2.2), but this had been successfully combated by the time these later improvements were effected.

2.2 INITIALOPPOSITION TO ANAESTHESIA

Although opposition to the introduction of anaesthesia came from many sources the defence was handled mainly by one man - Prof. James Young Simpson of Edinburgh. Simpson was a man of quite exceptional genius who, besides possessing a very considerable talent as a scientific and humane medical practitioner, was also a noted anthropologist, a classical scholar, an historian, a prolific and forceful author, and a man of incredible energy\(^{(40)}\). The combination was formidable and, almost single-handed, Simpson used his many-faceted talents effectively to silence the critics of anaesthesia on all fronts. He was never defeated in any written debate upon the propriety of anaesthesia and his last piece of professional writing was a lengthy essay in its defence\(^{(41)}\).
From the first use of ether, opposition was expressed to the concept of anaesthesia and, in a paper published in the *Monthly Journal of Medical Sciences* in September 1847\(^{(42)}\), Simpson suggested that the same arguments were repeatedly adduced to obstruct the spread of any new practice in medicine - arguments based upon 'Mere opinions and Prejudices'.

Simpson claimed that the forms of opposition used against anaesthesia were

> 'the same by which many of the happiest and greatest improvements in our profession have each in turn been assailed at their first promulgation. From time to time in the march of medicine and other allied sciences, some earnest and expanded mind conceives and elaborates a great and novel thought, destined in its practical application to ameliorate the condition and promote the happiness of mankind. But hitherto, almost as often as the human intellect has been thus permitted to obtain a new light, or strike out a new discovery, human prejudices and passions have instantly sprung up to deny its truth, or doubt its utility, and this its first advances are never welcomed as the approach of a friend to humanity and science, but contested and battled as if it were the attack of an enemy'\(^{(43)}\).

Specifically did Simpson refer to the fact that

> 'not only in their leading principles and spirit, but in most even of their minute details, identically the same arguments that forty or fifty years ago were urged against the propriety and safety of vaccination, or a hundred years ago against small-pox inoculation, have, within the last few months, been again involved and used against the employment of etherisation'\(^{(44)}\).
Simpson was a proponent of vaccination — in common with almost the whole of his profession by that time (45) — and he regarded it as a procedure proven by experience. His conclusion was:

"the moral is obvious — that while minds anxious to promote new and probable inquiries should not be intimidated and deterred from their pursuit by such prejudgements on the part of others, those who are, on the contrary, anxious to suppress them, should not venture to base their opposition upon mere impressions and mere opinions only. The ultimate decision upon such investigations ever comes to be founded, not upon pre-conceived beliefs or hasty deductions, but upon the careful examination and evidence of a sufficient body of accurate and well-ascertained facts" (44).

How then was the opposition to anaesthesia actually expressed?

2.2.1 Medical Objections

In Britain the first word of caution to be raised against undue enthusiasm for anaesthesia was a letter in the Lancet of 6 February 1847 from a Dr Wintle of Oxford, who offered

"a few words of caution to the profession on the all-engrossing subject — narcotism by ether. It is devoutly to be hoped that an agent so undoubtedly valuable in suspending sensation, and lessening the sufferings of the afflicted, may not be brought into disrepute and consigned to oblivion by its incautious and injudicious use; and my object in these brief remarks is to state that I have known great cerebral derangement produced in a highly talented and intellectual individual, by too freely inhaling ether ... his mind was so impaired that it was necessary to place him under permanent restraint" (46).
The same journal, reporting a meeting of the Medical Society of London on 15 February 1847, cited a further five cases of indisposition attributed to ether inhalation prior to surgery (47) and, a month later, reported in full the proceedings of a Coroner's Inquest into the first British 'Fatal Operation under the Influence of Ether' (48). The writing was clearly on the wall and the possible dangers of the new procedure came rapidly to be recognized.

The clear advantages of anaesthesia in general surgery were so great that medical objections to the employment of ether and (later) chloroform for surgery centred around the twin dicta that anaesthesia was not always certain (at least in its early years) and not always safe. As major surgery was never contemplated at this time except, in cases where the life of the patient was at risk in any event, these objections were not insuperable. Indeed, Simpson soon produced statistics to demonstrate that surgery under anaesthesia was markedly safer than without it, so that the slight risk to occasional individuals was more than outbalanced by the overall improvement in mortality rates. As statistics, Simpson's figures are susceptible of considerable criticism, and they were indeed heavily criticized by his opponents when they were first published. Nevertheless the data Simpson collected were impressive (49).

Although not a general surgeon himself, Simpson picked on 'hospital amputation of the thigh, leg, arm, and forearm' as being operations 'everywhere performed in almost the same manner, for the same causes, under the same circumstances, and on the same class of subject'. There already existed statistics for the mortality of
these operations without anaesthesia, and Simpson circulated a questionnaire to a number of hospitals, requesting data for cases which had been performed under ether anaesthesia. Replies were received from 49 hospitals covering 302 cases and the results, as included in Simpson's Table VIII, were summarised thus:

Table 2.1

Mortality of Amputation of the Thigh, Leg, and Arm

<table>
<thead>
<tr>
<th>Reporter</th>
<th>No. of Cases</th>
<th>No. of Deaths</th>
<th>Percentage of Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without anaesthetic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parisian Hospitals</td>
<td>484</td>
<td>273</td>
<td>57%</td>
</tr>
<tr>
<td>Glasgow Hospital</td>
<td>242</td>
<td>97</td>
<td>40%</td>
</tr>
<tr>
<td>General Collection</td>
<td>1369</td>
<td>487</td>
<td>35%</td>
</tr>
<tr>
<td>British Hospitals (Simpson)</td>
<td>618</td>
<td>183</td>
<td>29%</td>
</tr>
<tr>
<td>Upon Patients in an Etherised State</td>
<td>302</td>
<td>71</td>
<td>23%</td>
</tr>
</tbody>
</table>

Despite all the imperfections of this study as a piece of statistical analysis, it clearly indicated one thing which had not hitherto been proven. Ether anaesthesia did not make major surgery more hazardous than it otherwise was; and there were grounds for hope that it actually made it safer. As was pointed out, however, the amputation of limbs and the delivery of babies were two very different procedures indeed, - and the principal objections to anaesthesia were concerned with midwifery.

Simpson had first introduced ether into this field in January 1847 and within a month the procedure was being publicly criticized. At a sitting of the Academy of Medicine of Paris, Baron
Paul Dubois spoke 'On the Inhalation of Ether applied to cases of Midwifery' (50). Dubois only gave serious consideration to etherization for obstetric surgery, commenting that

'It in another and less scientific world than ours, it has even been thought that ether might be efficient in suspending the physiological pains which accompany natural parturition. This opinion, however correct its principle may have proved to be, must still be taxed with exaggeration'.

Dubois believed that ether tended to 'momentarily suspend the natural pains of labour' while not tending to 'suspend uterine contraction when the latter is decidedly set in and takes place at short intervals'.

In summary Dubois suggested that

'the very nature of things will tend to render very uncommon the adhibition of ether in cases of midwifery ... My profound feeling on the subject is, that inhalation of ether in midwifery should be restrained to a very limited number of cases, the nature of which ulterior experience will better allow us to determine' (50).

Dubois' cautious, semi-hostile, views set the tone for much later criticism of the use of anaesthesia in obstetrics, especially in England and in the United States of America.

James Young Simpson was a man of forceful personality, and as such he made many enemies as well as disciples. As medical relations between Scotland and England were, at best, rather strained throughout much of the nineteenth century (51), it was not surprising that Simpson's advocacy of obstetric anaesthesia north of the border provoked hostility from practitioners in the south.
Thomas Radford, a Manchester practitioner, was the first obstetrician of prominence in England to voice support for Dubois, as against Simpson. In April 1847 Radford came out firmly against obstetric anaesthesia, saying

'if we cannot altogether subdue parturient pain, and as labour is a natural process, and as we cannot disprove that its attendant pains are not for good, and further, as we know the great dangers which frequently happen both immediately and remotely, I think it the wiser and safer course to endeavour to check a rash attempt to adopt a practice which is attended with so much risk' (i.e. 'inhala­tion of ether during labour')(52).

A strong personal attack upon Simpson and his views came later in the same year from Robert Barnes, a distinguished London obstetrician (53). Barnes criticised the statistics used by Simpson to 'prove' the safety of general anaesthesia and said that personally he did

'not condemn, prima facie, the use of ether or chloroform in midwifery, but (he said) I must first be convinced, by other arguments than Dr. Simpson has urged, that it is desirable, and that it is safe to use them'.

Barnes' invective became patent in his final paragraph:

'The question is not to be decided by the warm persuasions of "zealous missionaries" of the female sex; by wanton abuse of medical practitioners; by inconclusive arguments reared on a few imperfect and doubtful facts, and those facts wrestled from their legitimate applications; by false analogy, bad arithmetic, and statistics run wild; however conclusive they may be to the judgement, and agreeable to the taste, of the Edinburgh professor of midwifery' (54).
Barnes' article was redolent of conservatism, prejudice and reaction, yet his criticism of Simpson's statistics was not without point for, while the relevance of these statistics to general surgery was clear enough, the especial problems of anaesthesia in parturition — maintenance of uterine contractions, and effects upon the fetus as well as the mother — were sufficiently distinct to make a simple translation of surgical data to midwifery at the least questionable.

While Simpson himself did not reply to Barnes another Edinburgh practitioner, Dr James Moffat, did so on his behalf. Criticising Barnes for his assertion that 'parturient pains' were 'useful', Moffat suggested that

'Surely Dr Barnes can teach his pupils much more certain means of making out such matters of diagnosis by the use of their fingers, than by insisting upon the patients continuing to shriek in order that he and his pupils may make it out by the use of their ears'.

Barnes was also criticised in this paper for failing to distinguish between the muscular contractions of labour and the sensation of pain which these induced. Moffat concluded by echoing Simpson himself in noting that

'Dr Barnes and others ... in recompence to Dr Simpson, abuse and villify him for his discovery, and for his efforts to extend the knowledge of it and its application. Such, alas! has ever been the fate and the reception in the first instance, of almost everything new and great in practical medicine.'
An altogether more reasonable attack upon Simpson's position came from Dublin where W.F. Montgomery, the Professor of Midwifery to the King and Queen's College of Physicians in Ireland spoke from experience, having actually employed chloroform in midwifery himself. Montgomery contended that

'while I object, and most strongly and solemnly, to the indiscriminate administration of chloroform in natural labour, I fully acknowledge its value and utility in general in obstetric operations ... and also in some peculiar circumstances of natural labour, independent of any operation. Thus, I would give it in a case where the pain greatly exceeded its usual amount, and became intolerably severe. I would also use it in those cases occasionally to be met with in practice, in which a severe nervous pain is superadded to the ordinary pain of labour.'

It was the use of anaesthetics to allay 'the ordinary pain of labour' which was to be the greatest point of contention.

As late as 1860 a chemist of repute could say of chloroform - a relatively new and untried, and therefore potentially dangerous, substance - 'that it ought to be brought into requisition only in very few instances. Its effect upon unborn generations cannot be anticipated, and (he thought that) for accoucheurs and dentists to give chloroform in simple cases, even at the earnest solicitations of patients, is most reprehensible.'

Nor were there lacking those who entered the fray merely as collectors of every case in which there was disapprobation of anaesthetics. For example, Dr G.T. Gream, 'One of the medical
officers of the Queen Charlotte's lying-in hospital' in London, included in a lengthy pamphlet on the subject quotations from many sources, of which a typical piece of 'evidence' was: 'I am told by a correspondent, that, - "The Rev. Mr -- , a clergyman, nearly lost his son in using it (chloroform) before the extraction of a tooth; they despaired for some time of resuscitating him" (58).

Such third-hand 'evidence' of alleged problems in dental anaesthesia, used to support a case on 'The Misapplication of Anaesthesia in Childbirth', may appear of doubtful validity to-day, but pamphlets such as Gream's appeared under reputable imprints and received wide circulation: their effect was not negligible amongst the medical profession. Perhaps the most serious objections to anaesthesia in obstetrics came from the United States of America, however, where Professor Meigs - a man of great professional authority and possessing a charisma comparable to Simpson's own - took a firm stand against obstetric anaesthesia per se and, in particular, against Simpson's views upon it.

Charles Delucina Meigs had held the chair of obstetrics at the Jefferson Medical College in Philadelphia since 1843. Meigs came of a family steeped in the tradition of controversy (59) and is known to history mainly for his stand against obstetric anaesthesia and for his dispute with Oliver Wendell Holmes about the contagious nature of child-bed fever. It is difficult in places to disentangle the medical and the moral attitudes in Meigs' writing on obstetric anaesthesia, and some overlap is unavoidable in considering them.
Meigs was an advocate of what is to-day called 'natural childbirth', and he saw little place for chemical interference with an essentially natural function. Perhaps Meigs' views are most concisely summarised in a sentence contained in a letter written by him in 1848. He said: 'I have no doubt of some physiological and therefore needful and useful connection of the pain and the powers of parturition, the inconveniences of which are really less considerable than has by some been supposed'. In a letter written two months earlier Meigs had given a more extended view of his attitude, saying

'I have always regarded a labor-pain as a most desirable, salutary, and conservative manifestation of life-force. I have found that women, provided they were sustained by cheering counsel and promises, and carefully freed from the distressing element of terror, could in general be made to endure, without great complaint, those labor-pains which the friends of anaesthesia desire so earnestly to abolish and nullify for all the fair daughters of Eve... If I could believe that chloroformal insensibility is sleep indeed, the most considerable of my objections would vanish. Chloroform is not a soporific; and I see in the anaesthesia it superinduces a state of the nervous system in no wise differing from the anaesthetic results of alcoholic potations, save on the suddenness and transitiveness of its influence'.

Meigs commented:

'should I exhibit the remedy for pain to a thousand patients in labor, merely to prevent the physiological pain, and for no other motive - and if I should in consequence destroy only one of them, I should feel disposed to clothe me in
sackcloth, and cast ashes on my head for the remainder of my days. What sufficient motive have I to risk the life or the death of one in a thousand, in a questionable attempt to abrogate one of the general health conditions of man? (62).

Meigs then explained his more positive views:

'If I were amputating a limb, or extirpating a tumor, I should see all the steps of my incisions, ligations, &c. But if I apply my forceps in a right occipito-posterior position ... no man can absolutely know the precise degree of inclination his patient will give to the plane of her superior strait, while in pain; an inclination to be modified by every movement of her body and limbs. Under such absolute uncertainty, the best guide of the accoucheur is the reply of the patient to his interrogatory, "Does it hurt you?". The patient's reply, "Yes", or "No", is worth a thousand dogmas and precepts, as to planes and axes, and curves of Carus. I cannot therefore deem myself justified in casting away my safest and most trustworthy diagnosis, for the questionable equivalent of ten minutes exemption from a pain, which, even in this case, is a physiological pain.' (62).

In his own textbook of obstetrics Meigs later expanded some of his views on the extent of labour pains, calculating that

'the average duration of labor is four hours, and I have shown... that the number of labor pains is about fifty; and that they last each about thirty seconds, so that the parturient woman really suffers from labor-pains about twenty-five minutes and no more - and these twenty-five minutes are distributed among the four hours of a labor of mean duration. ... I contend, that it is to an exaggerated notion of the nature of labor-pains we owe the too-frequent use of ether in our art; for if
the mean of labor-pain be only twenty-five minutes in all, there can be no necessity in the average of cases for its exhibition. I should find the objection to it less and the inducement greater, were the twenty-five minutes of pain to be always twenty-five consecutive minutes. When they are distributed through two hundred and forty minutes, or four hours, I look upon the exhibition as unnecessary and uncalled for.(63).

To summarise, Meigs regarded labour pains as a natural physiological function of little consequence, and obstetric anaesthesia as possibly dangerous and of no more effect than alcohol.

Whereas Meigs spoke for one section of medical opinion, an alternative viewpoint was widely held and this was put by J.Y. Simpson in a letter to Meigs, written in 1848 and subsequently published in 1853.

Of Meigs' contention that the patient's sensation of pain was a useful guide to the application of obstetric forceps Simpson said

'I think every man who ventures to use the forceps, in any midwifery case, ought to know the anatomy of the parts implicated, a thousandfold better than you here presuppose'.

He also pointed out that

'Before interfering instrumentally with the forceps, the labour has generally been allowed to endure for twenty or thirty long hours. After a poor patient has undergone such a protracted ordeal of pain and suffering, her mind is not, I fear, in general in a very fit state to guide the operator by her sensations or directions.'(64).
In pointing out that labour pains could be extremely dangerous if protracted, Simpson quoted 'the Dublin Hospital' as reporting that

'de maternal mortality was fifty-fold greater among the women that were above thirty-six hours ill, than among those who were only two hours in labour; one in every six of the former dying in childbed, and only one out of every three hundred and twenty of the latter'.

The case hung upon one's view of the significance and severity of labour pains and, in this, Meigs and Simpson were in fundamental disagreement.

To summarise - medical opposition to inhalation anaesthesia in obstetrics was primarily related to a belief that pain in childbirth was a valuable diagnostic aid, which was too trivial and transient to be worth alleviating. Fears were also expressed, however, about the safety of chloroform as a new, and possibly dangerous, medicament.

2.2.2 Moral objections

A number of objections to obstetric anaesthesia were made upon 'moral' grounds and they are frequently confused with religious objections. It is important to note, however, that almost all 'moral' comments came from the same authors who produced medically based criticisms of anaesthesia, and appeared consistently as additions to those arguments. Analogies with drunkenness, references to the freeing of sexual inhibitions under anaesthesia, and chauvinistic appeals to men's views on how they would like their own wives to behave, formed the bases of the 'moral' approach.
Such arguments were emotive and clearly designed to appeal to the more pious and conventional members of society in a different manner than would abstruse technical discussions upon uterine function and the uses of pain to the surgeon — yet the same authors often spoke of both aspects of the subject within the same breath. As an example of this approach Meigs, in his textbook of obstetrics, inserted amongst his discussions on the physiology of labour pains the comment that:

'I cannot avoid the feeling of astonishment which seizes upon me when I read the details of cases of midwifery that have been treated during the long profound Drunkenness of etherization. To be insensible from whiskey, and gin, and brandy, and wine, and beer, and ether, and chloroform, is to be what in the world is called Dead-drunk. No reasoning — no argumentation is strong enough to point out the millionth part of a split hair's difference between them — except that the volatility of one of the agents, or its diffusibility as a stimulant narcotic, enables it sooner to produce its intoxicating effect, which is sooner recovered from in one case than in any other of the use of an intoxicating drug,'(67).

To his professional colleagues in the middle of the 19th century such analogies, coming from a man of the eminence of Meigs, might well have had the appearance of dogma.
'interrcourse'. He also reported that he

'was in a house in which were employed many girls. The employer said, "Some of the girls have had operations done on the teeth after inhaling chloroform; and they now get small bottles of it, and, when not at work, they drop some on their handkerchief, and breathe it with much pleasure to themselves, and amusement to others" '(70).

Such abuse of drugs for purposes of mere pleasure was condemned by Channing who saw, as Meigs did not, the distinction between anaesthesia and drunkenness. He noted that 'A man or a woman may drink intoxicating liquors with present impunity. The effects they produce approach slowly, and are known by what precedes them. They are rarely directly fatal ... With ether, and with chloroform, it is no such thing' (71).

More shrewdly, Channing saw the fallacy of condemning the medical use of anaesthetics because of their possible abuse by an ignorant public.

'Let it, then, be distinctly understood (he said) that the popular, unprofessional use of ether and chloroform is both immoral and injurious; that it is highly dangerous, and may produce death! But is not the temptation to such use of etherization, and the readiness with which it has been yielded to, a valid objection to its medicinal employment? Is not the argument from abuse sound against use, in this connection? I say, no. What important article of the materia medica would remain to profession or to public, if such an argument were for a moment admitted? Ether and chloroform are among the most important of these articles... Their medicinal uses must not be jeopardized by the untoward, which occasionally, but most rarely, follows their professional use. The evil, the deaths, which come of their wanton and wholly unprincipled employment, should not for a moment disturb the public or the professional confidence' (71).
Meanwhile, in Victorian England, the arguments from morality were more openly emotive. Early in 1847 Dubois (of Paris) had recorded a case in which a nineteen year old girl in her second pregnancy had confessed to having erotic dreams involving coitus with her husband, while under the influence of ether during parturition. A month later Dr Tyler Smith, during the course of a paper in the Lancet in which he took a critical line concerning the use of anaesthesia in obstetrics, seized upon Dubois' case to support his own medical objections to etherization.

Referring to the possibility of sexual excitement being induced by ether Smith said:

'I may venture to say, that to the women of this country the bare possibility of having feelings of such a kind excited and manifested in outward uncontrolled actions, would be more shocking even to anticipate, than the endurance of the last extremity of physical pain ... It was, however, reserved for the phenomena of etherization to show that, as regards sexual emotion, the human female may possibly exchange the pangs of travail for the sensations of coitus, and so approach to the level of the brute creation.'

Smith's theory of the phenomenon was simple:

'May it not be, that in woman the physical pain neutralizes the sexual emotion, which would otherwise, probably, be present, but which would tend very much to alter our estimation of the modesty and retiredness proper to the sex, and which are never more prominent or more admirable than on these occasions? If this be so, women would scarcely part with pain, hard as their sufferings may be to bear; chastity of feeling, and, above all, emotional self-control, at a time when women are receiving such assistance as the accoucheur can render, are of far more importance than insensibility to pain.'
It is worth noting that it was during this era that views on what was and was not 'ladylike' were so circumscribed that a book entitled *Advice to a Wife* suggested that a young wife's pleasures should be limited to include 'a flower-garden, botany, archery, croquet, bowls'; and the severe comment was made: 'Let me in this place enter my strong protest against a young wife dancing, more especially if she be enceinte'. The same (medical) author also produced the aphorism: 'Pure blood and pure mind are, in marriage, far above either riches or rank, or any other earthly possession whatever!' (74). The Victorian mores for married women were - superficially - extremely strict, although there is considerable evidence that society at large was little more 'moral' in the nineteenth century than it has proved to be in the twentieth (75).

Another medical writer with strong views upon the moral proprieties was Gream, of Queen Charlotte's hospital in London. Gream agreed with the views held by Meigs concerning the essential similarity between drunkenness and anaesthetisation (76). It was concerning the incidence of 'improper' and 'lascivious' dreams during the anaesthetised state that Gream waxed most eloquent, however. Like Tyler Smith, Gream believed that 'it may be observed that a person under the partial influence of ether or chloroform-vapour, will dream of any part of the body that at the moment is irritated ... thus, if the sexual organs are the parts operated upon, this will be a cause of sexual dreams, as will also the presence of the foetal head in the pelvis' (77).
Gream then considered the view that

'these dreams only occur in prostitutes; a fact not at all true, but, if it were so, it would, I think, be a stronger reason still for abstaining from the use of ether in less depraved women; for if a prostitute, who may be supposed to be callous to sexual excitement, becomes thus influenced by ether inhalation, how much more likely are those to be so, whose desires have not been deadened by prostitution; and how revolting to contemplate is the idea - that any young and chaste woman should be so influenced, as to bring her to a condition debauched even to the extent of a prostitute!' (78).

Having already stated that the premise was 'not at all true', Gream's development of this argument appears to have had no purpose, unless it was to fan further the flames of emotion against obstetric anaesthesia.

A rather dry retort to this aspect of the argument was that of De Quincey, that 'Mr Gream forgets that the women of this Country are virtuous, are pure minded and are by no means to be compared to Parisian courtesans' (79). Gream, in support of his contentions, had cited every single source which he could find; even to the extent of quoting different reports of some cases as though they were separate instances.

It may be felt that Gream's moralizing was not without point, however, for he did indicate a problem which, given the existence of even transient erotic feelings in semi-conscious female patients, could prove extremely embarrassing to the male practitioner.
There have been two instances (Gream reported) in which the sexual excitement caused female patients to aver that improper liberties had been taken with them during etherization; both were unfounded in fact, but they nevertheless prove the especial tendency towards this excitement, and call for strict care in administering so dangerous a remedy (80).

To this day, foolhardy indeed is the male medical practitioner who attends a female patient un-chaperoned — especially if she be anaesthetized, and especially if she be an obstetric or gynaecological case.

Gream somewhat spoiled the effect of his whole argument on morality, however, when he admitted that anaesthetics were not alone in causing abnormal behaviour during and after pregnancy.

'The most chaste and amiable women have been known, when suffering from puerperal mania, to swear and to use indecent language, such as, it might be supposed, they never could in any time of life have heard before from others (81).

If, as Gream contended, it were true that

'It is no matter whether the patient suffers from delirium, the effect of spirituous drinks, of chloroform, or of puerperal mania, — her reason is impaired at the same moment that the uterine functions are disturbed, and obscene exclamations, the result of lascivious dreams, are the consequence (81),

then his whole argument against anaesthetics upon the grounds of morality must fall. If the behaviour found objectionable by Gream could not be specifically attributed to the use of anaesthetics, then it could not be used to mount a specific attack against anaesthesia.
Gream was a medical officer at one of the great London teaching hospitals and therefore (presumably) a man of some reasonable intelligence. Such a palpable illogicality could scarcely have passed unnoticed by a man interested only in medical science, and it seems not unreasonable to infer that Gream used the moral argument, fragile though it was, to add 'artistic verisimilitude to an otherwise bald and unconvincing narrative' (82) - the 'medical' arguments against anaesthesia which comprised the remaining three-quarters of his pamphlet.

That at least some of Gream's contemporaries were not taken in by his writing is shown by the reference of De Quincey to it as 'the very crude and disjointed, angry and malicious little work of Mr G.T. Gream: a Philippic in which the arguments bear the same relation to the sneers and dogmatic assertions as Sir John Falstaff's bread did to his Sack. A work so constituted it is difficult to pass under review; in as much as the salient points which can be animadverted upon are precisely those in which it is most deficient' (83).


   Note: This is the only English translation of the rare Greek original, which only existed in manuscript (in the library of Magdalen College) until the 1933 edition.


   HIPPOLITO ...

   'I'll imitate the pities of old Surgeons
   To this lost limb, who ere they show their art,
   Cast one asleep, then cut the diseas'd part.'


15. Ibid. p.556.


20. The material used for anaesthesia is di-ethyl-ether, \((\text{C}_2\text{H}_5\text{O})_2\). Many nineteenth century papers refer to this as 'sulphuric ether', from the contemporary method of preparation from sulphuric acid.


24. e.g. Warren, J.M. Inhalation of Ether. Pamphlet. No publisher given, and undated. ? 1847 (Dr. Warren was the surgeon who performed the first ether operation in collaboration with Morton). This pamphlet details 19 cases in which he operated on etherized patients and gives Warren's version of the history of the introduction of ether. A copy is bound into a volume titled Tracts in the library of Aberdeen University. Shelf mark KCX.61089. Warr.


28. Robinson, J. A Treatise on the Inhalation of the Vapour of Ether for the prevention of pain in Surgical Operations. London: Webster (1847). Robinson was one of those involved with Liston in the first English operation under ether anaesthesia and this pamphlet collates a large number of subsequent ether operations all over Britain during the ensuing year.

Also see the Lancet (1847), i. A series of reports from all over Britain of operations performed under the influence of ether anaesthesia during the 6 months following its introduction. pp.54, 77, 104, 132, 158, 184, 210, 237, 342, 367, 499, 549, 639, etc.


30. Ibid.


32. Simpson, J.Y. (1847a). (Op.cit). These two final paragraphs of the original paper were omitted from the reprinted pamphlet version of the paper.


35. This paper appeared, with some variations, in a number of places. The title quoted here was that used in the *Lancet* (1847) ii. pp.549-50, dated 20 November. The original announcement was made on 10 November at a meeting of the Medico-Chirurgical Society of Edinburgh. Apart from several editions of the pamphlet (Op.cit) the report also appeared in the *London Medical Gazette* (1847) 5 N.S. pp.934-7, dated 22 November, and the *Medical Times* (1847-8), 17, 90.


43. Ibid. p.149.

44. Ibid. pp.152-3.

45. See Part I of this thesis.

46. Wintle, F.T. 'Etherization'. (Correspondence) Lancet (1847) i, pp.162-3.


50. Dubois, P. Reported by Campbell, C. 'On the inhalation of ether applied to cases of midwifery'. Lancet (1847) i, pp.246-9.

51. This situation appears to have been largely due to three factors related to medical qualifications.

(i) The existence of both English and Scottish colleges, of physicians and of surgeons. The colleges of each country acted in rivalry to, and refused to accept the qualifications of, the other.
(ii) The willingness of the four Scottish Universities - and especially that of St. Andrews - to award their degrees of M.D. with minimal examination and without residence. The resulting flow of English practitioners individually into Scotland, virtually to purchase the prestigious M.D., antagonised the English Royal Colleges and Universities, as well as the numerous practitioners who had neither the wherewithal nor the contacts to benefit from this arrangement.

(iii) Women, who were unable to qualify in England, sometimes received training in Scottish University medical schools, which was denied to them in England. The English medical profession generally resented this.

The situation was only slowly resolved with the reluctant acceptance of women as medical practitioners, the founding of further English Universities in provincial centres of population, and the establishment of a General Medical Council to regulate entry to the profession for the whole United Kingdom.

52. Radford, T. 'A few remarks on the inhalation of ether during labour'. *Lancet* (1847) i, pp. 384-5. Radford was the foremost advocate of the caesarian operation in his day. See Part III of this Thesis.


54. Ibid. p. 678.


59. A number of Meigs' uncles had been prominent in the American revolutionary war and his father had resigned from the chair of Mathematics and Natural Philosophy at Yale, and the position of President of the University of Georgia, both as a result of controversies over moral and political issues. (Dexter, F.B. Biographical Sketches of the Graduates of Yale College, with Annals of the College History. Vol.4, (1907). New York: Holt, p.43; also Kingsley, W.L. Yale College — A Sketch of its History, Vol.1 (1879), New York: Holt, p.109).


62. Ibid. p.359.

63. Ibid. pp.350-1.


65. Ibid. (Works) pp.133-4. The original source of Simpson's figures is not known. His arguments are open to serious criticism, however. Not only do labours of 2 hrs or less constitute only a very small minority of all cases, but a number of extraneous factors enter into the determination of duration of labour — e.g. parity, age, general health, physical build. Simpson's comparison was invalid as it was not between like and like.
66. The word 'moral' is used here in the sense in which it was used in the contemporary writings cited in this section. This use appears to be based upon two understandings of the word which are defined in The Shorter Oxford English Dictionary as (respectively) 'Of actions: Subject to the moral law' - the 'moral law' being further defined as 'the body of requirements in conformity to which virtuous action consists' - and 'Of persons, etc.: Virtuous with regard to sexual conduct'. The latter usage is specifically dated in the Dictionary as of 19th century origin.


68. Channing was the younger brother of William Ellery Channing, a famous Congregationalist minister, and powerful preacher, who became known as 'The Apostle of Unitarianism'. Walter Channing himself was also a Unitarian, but he was more widely known for the practical nature of his concern for his fellow men - it was said of him that, in answer to an inquirer at his door, he said that he was not the Dr. Channing who preached, but the one who practised. He was a prominent supporter of the anti-slavery movement, the temperance movement, the peace movement, and of efforts to prevent pauperism. Such a man was naturally attracted to the concept of relief of pain, and sympathetic to attempts to achieve this.

69. Channing's arguments were concerned with 'abuse' in the sense of usage of a potentially dangerous substance for trivial or unjustified reasons rather than the general sense of anaesthesia being an abuse of scientific discovery and knowledge, as was implicit, for example, in Meigs' comments on the value of pain. (Op.cit. p.359. See also Refs. 5, 6 and 7 in Chapter 1 of this Part).

71. Ibid. p.155.


73. Smith, W.T. 'The Inhalation of Ether in Obstetric Practice'. 
Lancet (1847), i, pp.321-3.

74. Chavasse, P.H. Advice to a Wife. 11th Edn. London: Churchill 
(1875). pp.67, 68, 91.

75. e.g. see Chesney, K. Anti-Society: an account of the Victorian 


77. Ibid. p.34.

78. Ibid. p.35.

79. De Quincey, F.J. On the Religious Objections to the use of 
Chloroform in Obstetric Medicine. M.D. graduation thesis, 
University of Edinburgh (1849). M.S. in Edinburgh University 
Library. 85 pp. 4to. p.47.

This thesis was cited by Simpson, A.R. in 'The Jubilee of 
Papers. pp.17-18. It has not been referred to since and on 
recent enquiry Edinburgh University Library claimed to have 
no knowledge of it. A search instigated at the request of 
the present author uncovered the thesis, which was uncatalogued, 
in 1975. A further copy was at one time in the library of 
J.Y. Simpson, but it cannot be found in the collection of his 
books, which is now in the possession of the Royal College of 
Physicians, Edinburgh.


81. Ibid. p.43.

82. Gilbert, W.S. The Mikado. Act II.

3. RELIGIOUS OPPOSITION TO ANAESTHESIA

In addition to the medical and moral arguments, opposition to anaesthesia was also raised upon religious grounds. To trace the source of religious objections to anaesthesia, however, it is necessary to go primarily to the principal refutations of such objections. The reason for this seeming paradox is that, despite widespread references by twentieth century commentators to the religious attack upon anaesthesia (especially in obstetrics) evidence of such an attack in contemporary writings is singularly sparse.

The first hint of religious criticism of anaesthesia - and it was no more than a hint - came during October and November of 1847. Mr Parke, a surgeon of Liverpool, visited Edinburgh during the October and 'had several conversations with Professor Simpson' about the use of anaesthetics, during which he learned with surprise that 'he advocated most strongly, its use, not as the exception, but as the rule, in midwifery cases - in cases of ordinary labour.' (84) It so happened that Parke, a member of the Liverpool Medical Institution, was asked by their secretary (on 14 November) to provide a paper for the meeting of 25 November, and he offered to read one 'On the Moral Propriety of Medical Men recommending the inhalation of Aëther in other than Extraordinary Cases' (85), stating that 'it was on moral grounds alone I should treat it, and that by some it might be viewed as belonging to the Divine more than the Medical man.' (84).
Simpson heard of the impending paper and, in a post-script to a letter addressed to Mr Waldie of Liverpool on 14 November, he indicated that he had a good idea of Parke's line of thought. The p.s. is worth quoting in toto:

'By the bye, Imlach tells me Dr P. is to enlighten your medical society about the 'morality' of the practice (of inhalation anaesthesia). I have a great itching to run up and pound him. When is the meeting? The true moral question is, "Is a practitioner justified by any principles of humanity in not using it?" I believe every operation without it is just a piece of the most deliberate and cold-blooded cruelty. He will be at the primary curse, no doubt. But the word translated 'sorrow' is truly 'labour', 'toil'; and in the very next verse the very same word means this: Adam was to eat of the ground with "sorrow". That does not mean physical pain, and it was cursed to bear "thorns and thistles", which we pull up without dreaming that it is a sin. God promises repeatedly to take off the two curses on women and on the ground, if the Israelites kept their covenant. See Deut. vii. 13, etc. etc. See also Isaiah xxviii. 23; extirpation of the "thorns and thistles" of the first curse said to come from God. Besides, Christ in dying "surely hath borne our griefs and carried our sorrows", and removed "the curse of the law, being made a curse for us". His mission was to introduce mercy, not sacrifice. Go up and refute him if I don't come."

Duns later commented of this letter of Simpson's that, 'Though not named in after discussions, it was evidently the cause of many of his statements,' and it can be seen, indeed, that Simpson's later pamphlet on this subject was essentially an expansion of the points made to Waldie. It is important to note, however, that in
this letter Simpson was refuting allegations which had not yet been made (unless in private conversation a month earlier) and which, in his paper of 25 November, Parke did not in fact make publicly.

At the meeting of the Liverpool Medical Institute Parke read his paper to an audience of only 25 colleagues and the minute book made no reference at all to any religious element in his argument (88), so that when Simpson's pamphlet Answer to the Religious Objections advanced against the employment of Anaesthetic Agents in Midwifery and Surgery (89) was published a month later, the 'religious objections' to which he referred can not have been those raised (publicly) by Parke.

Parke's paper was eventually published as part of a pamphlet which also contained his 'more matured and now more developed objections to the use of this drug' (84) - a year later, in October 1848, by when the 'religious' debate over anaesthesia was apparently virtually over (90).

From the text of Parke's paper it can be seen that, while two sentences of criticism on p. 6 were directed to a religious objection (and that being one which Simpson had not mentioned in his letter to Waldie) much greater stress was laid on objections to inhalation anaesthesia on grounds of morality, wounded professional dignity, and a fear of consequences. The additional comments in Parke's pamphlet, published nearly a year after his talk, by contrast, were almost entirely of a religious nature. For the most part these later points were attempts to refute the arguments in Simpson's pamphlet, but three of Parke's propositions were original.
With a sense of fine semantic distinction Parke noted that "God's words are, "in sorrow thou shalt BRING FORTH". Very well, and does she not bring forth, notwithstanding the help of man in alleviating, in deep - in affectingly deep sorrow? But the Dr. (Simpson) aims at much more than alleviation (which the Almighty never forbids) he aims at obliterating, annulling, removing pain! *(91)*

Although he described this as 'a difference affecting both mind and body' Parke did not explain how a difference in the degree of removal of pain might distinguish between a right action and a wrong one.

Parke's reasons for objecting to anaesthesia on religious grounds appeared to be based, at least partly, upon the formal demands of institutional Christianity. He said:

'With regard to what has been thought concerning the absolute SAFETY of this strange drug (chloroform), and of our being able, at a moment, to recover a patient from all its effects, I must frankly say, that I neither believe the one nor the other, and minutes - valuable minutes, MAY often be lost before the person can duly attend to religious consolations, or receive religious rites' *(92)*

That Parke's personal religious philosophy included the concept of pain as not merely ordained by God, but as actually constituting one of His blessings, is made clear by a statement towards the end of pamphlet. 'You do not really bless a woman by removing the pains of labour - her true blessing flows from
lifting up her heart to God, and asking for humility and strength to bear them. Over and over again, have I seen such faith rewarded, with far more comfort than chloroform could give.\(^{(93)}\).

Unfortunately it has not been possible to trace any further information about Parke's religious beliefs than appears in his paper, quoted above.

Apart from Parke's paper and pamphlet - each of which had a very restricted circulation - the two major original works on the subject were also both pamphlets. In December 1847 James Young Simpson published his *Answer to the Religious Objections advanced against the employment of Anaesthetic Agents in Midwifery and Surgery*\(^{(89)}\) and in 1848 Dr Protheroe Smith of London published his *Scriptural Authority for the Mitigation of the Pains of Labour*\(^{(94)}\). Most subsequent writings on the religious objections to anaesthesia referred back to the first of these.

3.1 THE SOURCE OF RELIGIOUS OBJECTIONS

It has been widely held by modern commentators that the greatest opposition to the introduction of obstetric anaesthesia came from religious sources. Later reference to these 'religious objections' was first made in 1873 by Duns, in his biography of Simpson, in which he lavished greater concern on the religious aspects of Simpson's life than any other. Duns failed to quote any specific source of religious objections, however, other than Simpson's own pamphlet\(^{(89)}\) - although he did claim that Simpson subsequently received 'Numerous communications from patients' thanking
him for setting their minds at ease on the matter (95): however, at least one of the ladies quoted by Duns averred that, prior to reading his pamphlet, she would not have had such objections herself in any case.

Simpson's own daughter Eve, writing 23 years later, repeated the story - again without any precise reference (96). Eve Blantyre Simpson was born in 1856, eight years after the 'religious' debate, and she was aged only 14 when her father died, so that she could have had no personal knowledge of the affair.

Also writing in 1896 A.D. White, in his History of the Warfare of Science with Theology in Christendom (97), claimed that 'From pulpit after pulpit Simpson's use of chloroform was denounced as impious and contrary to Holy Writ; texts were cited abundantly, the ordinary declaration being that to use chloroform was "to avoid one part of the primeval curse on woman" '. However, White's only cited source was also Duns and, surprisingly, he did not even mention Simpson's own pamphlet on the subject.

White also referred to hostility to obstetric anaesthesia as having 'flowed from an ancient and time-honoured belief in Scotland'. In support of this he cited the case of Eufame Macalyane, a high-born lady, who, White alleged, had been burned alive in Edinburgh in 1591 for having sought relief from pain at the birth of her two sons. In fact, as examination of the transcript of the trial (98) shows, the lady had been charged with a total of 28 counts including High Treason, murder of her father-in-law, attempted
murder of her husband, and witchcraft, and upon most of these she had been found guilty. One of the counts (Item 18) was indeed concerned with seeking analgesia in childbirth from one Anny Sampsoune, 'ane notorious Wich', and appears more significant as evidence that she had consorted with known witches than for any other reason.

Far from being an innocent victim of religious prejudice Eufame Macalyane was apparently an exceptionally stupid and unpleasant woman, who suffered for her folly without any attempt to deny, or repent of, her many crimes. Nevertheless White's suggestion that herein lay an early example of prejudice against obstetric anaesthesia has been repeated since as 'evidence' for such objections. For example, the case was resurrected uncritically by Haggard in 1929 (99), Fulop-Miller in 1938 (100), Robinson in 1946 (101) and Prescott in 1964 (102). This latter writer also claimed that 'It was the religious faction that set up the greatest opposition to anaesthesia, particularly for its use in childbirth', and similar general statements have been made by a number of other commentators, none of whom have supported their allegations with any reference to contemporary evidence. A selection of these references is given in Table 2.2.

Allowing for the fact that some of these commentators have fictionalised their material beyond reasonable historical bounds (e.g. 113, 117), while others were avowedly writing for a 'popular' market (e.g. 105, 116, 124, 130) there remain sufficient serious references to religious objections, made by distinguished authors, for the allegation to have achieved historical credence.
<table>
<thead>
<tr>
<th>Date</th>
<th>Author</th>
<th>Qualifications</th>
<th>Ref.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1873</td>
<td>Duns, J.</td>
<td>DD, FRSE, FSA (Scot.)</td>
<td>103</td>
<td>Simpson's friend and first biographer.</td>
</tr>
<tr>
<td>1875</td>
<td>Draper, J.W.</td>
<td>MD, LLD.</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>1896</td>
<td>Simpson, E.B.</td>
<td>LLD, LHD, PhD.</td>
<td>105</td>
<td>J.Y. Simpson's daughter.</td>
</tr>
<tr>
<td>1896</td>
<td>White, A.D.</td>
<td>MD, MB, CM.</td>
<td>106</td>
<td>Prof. of History, Cornell Univ.</td>
</tr>
<tr>
<td>1897</td>
<td>Gordon, H.L.</td>
<td>MD, DSc, LL.D.</td>
<td>107</td>
<td>A biography of J.Y. Simpson.</td>
</tr>
<tr>
<td>1898</td>
<td>Simpson, A.R.</td>
<td></td>
<td>108</td>
<td>J.Y. Simpson's nephew, Prof. of Midwifery,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Edinburgh Univ.</td>
</tr>
<tr>
<td>1926</td>
<td>Browne, J.C.</td>
<td>MD, LLD, FRS.</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>1929</td>
<td>Haggard, H.W.</td>
<td>MD.</td>
<td>111</td>
<td>Assoc. Prof. of Applied Physiology, Yale Univ.</td>
</tr>
<tr>
<td>1936</td>
<td>Comrie, J.D.</td>
<td>MD, FRCPE, FSA.</td>
<td>112</td>
<td>Lecturer, Hist. of Med. Edinburgh Univ.</td>
</tr>
<tr>
<td>1938</td>
<td>Miller, R.F.</td>
<td></td>
<td>113</td>
<td>Highly fictionalised account.</td>
</tr>
<tr>
<td>1939</td>
<td>Claye, A.M.</td>
<td>MD, FRCS, FRCOG.</td>
<td>114</td>
<td>Reference Librarian, Mayo Clinic.</td>
</tr>
<tr>
<td>1945</td>
<td>Hayward, J.A.</td>
<td>MD, FRCS.</td>
<td>116</td>
<td></td>
</tr>
<tr>
<td>1946</td>
<td>Bankoff, G.</td>
<td>MD, FRCS.</td>
<td>117</td>
<td>Highly fictionalised account.</td>
</tr>
<tr>
<td>1946</td>
<td>Robinson, V.</td>
<td>MD.</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>1947</td>
<td>Duncum, B.</td>
<td>DPhil.</td>
<td>119</td>
<td></td>
</tr>
<tr>
<td>1957</td>
<td>Hutton, K.</td>
<td></td>
<td>123</td>
<td></td>
</tr>
<tr>
<td>1961</td>
<td>Calder, R.</td>
<td>MA.</td>
<td>124</td>
<td>Prof. International Relations, Edinburgh, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>well known science writer.</td>
</tr>
<tr>
<td></td>
<td>Underwood, E.A.</td>
<td>MA, BSc, MD, DPH, FRIC.</td>
<td></td>
<td>Director, Wellcome Hist 'Med.' Museum.</td>
</tr>
<tr>
<td>1964</td>
<td>Prescott, F.</td>
<td>PhD, MSc, MRCP, MRCS.</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>1964</td>
<td>Moore, D.C.</td>
<td>MD.</td>
<td>127</td>
<td></td>
</tr>
<tr>
<td>1965</td>
<td>Inglis, B.</td>
<td>PhD.</td>
<td>128</td>
<td></td>
</tr>
<tr>
<td>1968</td>
<td>Lloyd, W.E.B.</td>
<td>MA, MRCS, LRCP, DPM.</td>
<td>129</td>
<td></td>
</tr>
<tr>
<td>1968</td>
<td>Margotta, R.</td>
<td></td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>1969</td>
<td>Shepherd, J.A.</td>
<td>MD, MCh, FRCS.</td>
<td>131</td>
<td>Italian medical historian.</td>
</tr>
</tbody>
</table>

Table 2.2

Some secondary sources alleging the existence of religious objections to obstetric anaesthesia
In order to seek verification of allegations of 'religious' objection to obstetric anaesthesia, a detailed study has been made of 83 contemporary newspapers and periodicals of British and north American origin (Appendix VI), as well as the Acts of the General Assembly of the Church of Scotland (including abridgements of the Proceedings) and the Acts and Proceedings of the General Assembly of the Free Church of Scotland. The material studied excluded points raised as secondary by medical writers (which are considered separately), and extended from October 1846 to December 1849.

The dates selected for the search commence with the date of the first use of anaesthesia in surgery by Morton, and extend to a period 24 months after the publication by Simpson of his pamphlet, *Answer to the Religious Objections...*; i.e. until 18 months after Simpson claimed that 'religious' opposition to chloroform had 'ceased among us' (134). During this latter 24 month period there was also published the only other major work on these lines, the pamphlet by Protheroe Smith of London, *Scriptural Authority for the Mitigation of the Pains of Labour* (94).

As a result of this search, which extended to every issue of each of the sources noted, for the period given, only seven references to religion in connection with anaesthesia have come to light: all of these were reviews (four of them specifically concerned with Simpson's pamphlet) and none was critical of the procedure.

(i)  In the Edinburgh Evening Courand of 30 January 1847 the report on p.3 of Simpson's first use of anaesthesia in obstetrics
was headed 'The Primeval Curse Alleviated'. The actual report was short and otherwise strictly factual.

(ii) The Edinburgh Weekly Journal of 22 December 1847 carried on p. 4 a review of four of Simpson's pamphlets on the subject of anaesthesia and this review, referring to the pamphlet Answers to the Religious Objections ..., spoke of these objections as having been brought by 'some weak but over-zealous persons' who were exhibiting 'fanatical scruples and superstitious phantasies'.

(iii) In MacPhail's Edinburgh Ecclesiastical Journal, there appeared a review of two of Simpson's pamphlets. In the comments on Answer to the Religious Objections ... the reviewer, while disagreeing with Simpson's theological reasoning, was in firm sympathy with his aim. The review referred to 'those pseudo-religious objections to the use of Chloroform in both midwifery and surgery, but chiefly in the former, by which Dr. Simpson has obviously been annoyed and embarassed', and continued,

'No doubt, we might have anticipated them also, since they are by no means new in principle; though we confess that, in our unreflecting simplicity, we allow nothing to maudlin purism - nothing to bigotry, prejudice and ignorance. These have always stood in the way of both science and sound Christianity; and if they will not retire into their native shades before the light of reason, - why, they must even content themselves with being walked over. Like the venerable Chalmers, we can see "no theological part pertaining" to the question connected with the use of Chloroform.'

The review ended - 'we do not argue with Dr. Simpson; and earnestly we wish him God speed in his benevolent efforts to redeem poor humanity from its prevailing, and often very sad distresses'.
(iv) Another review appeared on p.3 of the Free Church of Scotland newspaper The Witness, on 29 December 1847. This referred to Simpson's 'very admirable pamphlet ... which we would fain induce our readers carefully to peruse'. The reviewer noted that Simpson, apparently 'assailed in the enlightened practice of his profession by theologic objections' had taken up in defence 'a position in the theologic field so well chosen and so skilfully fortified, that his opponents, whether clerical or lay, will scarcely venture to contest with him the lines'. That the existence of 'theologic objections' came as a surprise to the reviewer is clear: he said

'We held, until we had-seen the pamphlet of Dr Simpson, in a positive, but not at all an antagonistic form, that the grand business, - the really only important work of man in this lower world, - is simply to escape from that curse, in all its terrible breadth, which, ever since the fall, rests upon the species.'

The reviewer then adopted a more positive attitude and asserted that

'the belief being now, as we learn from Dr Simpson's pamphlet, directly assailed, and the opposite belief maintained, that it is our duty not to alleviate or remove physical suffering, though alleviation and removal be in our power, simply because the suffering forms a part of the curse, - our belief assumes of necessity a controversial and belligerent form; and we assert, that man's duty with regard to the curse in all its breadth, is resistance, not acquiescence, - escape, not passive submission'.

The review ended with the expressed hope that 'The peculiar views which Dr Simpson combats will, we trust, effect no lodgement in the ecclesiastical body to which we belong'.
The importance of these two latter reviews is that they are the only references traceable to the subject in theological periodicals (see Appendix VI), and that the reviewers were both apparently surprised to hear of such objections, which they seem to have first learned of from Simpson himself.

(v) In a more popular vein another anonymous commentator, writing in the weekly Athenaeum of 19 February 1848 also expressed surprise at 'religious' objections to anaesthesia and noted that

"So formidable has this opposition been in some quarters, that Dr. Simpson has thought it necessary to write an "Answer to the religious objections advanced against the employment of anaesthetic agents in midwifery and surgery". We can hardly suppose that any of our readers are the subjects of such morbid objections to the reception of so beneficient a gift at the hands of a kind Providence'.

The unknown writer said

"It would be in vain, we suppose, to hope that an unmixed good would be introduced into this wicked world without at least some show of opposition ... We scarcely know which to be most surprised at in this fanatical opposition - the presumption which hastily interprets the curse, or the absurdity which supposes that a curse of God could be contravened."

The notes on 'religious objections' occupied only about one-eighth of an article devoted to a general review of 'Chloroform as an anaesthetic agent', and recommended Simpson's pamphlet as a complete refutation of such objections.
(vi) In America a review of Channing's *Treatise on Etherization in Childbirth* appeared in the *North American Review* during 1849 and, *inter alia*, commented briefly (and sympathetically) on Channing's support for Simpson's position, while suggesting that the idea that obstetric anaesthesia might be irreligious proceeds from a very narrow view of the subject, which, if carried out, becomes absurd. Has not the same great Being, who pronounced the curse, the power to present to mankind the means of alleviating it; or has he ceased to preside over human affairs? (138).

(vii) The final item — a general review article on anaesthesia in *North British Review* (139) is referred to below.

The Scottish newspapers studied, referred to in Appendix VI, contained (*inter alia*) very detailed reports of meetings of both the established church and free church synods and assemblies. It would thus seem reasonably certain that, at least until a year after Simpson wrote his reply to the religious objections to anaesthesia, no such objections had in fact been made publicly at any church gathering of importance in Scotland, in any of a wide range of theological publications of various denominational sympathies, nor in any of a large number of British or North American reviews and other periodicals.

If, then, no public attack upon anaesthesia was mounted on religious grounds from within the institutional churches, it remains to be discovered from whence any such attack did come — or indeed whether one did actually occur. There are three *prima facie* possibilities:
(1) The attack was made by medical critics, using religious arguments to bolster their attacks upon other grounds;

(2) the attack was made privately by a few individuals;

(3) there was little or no real attack, other than that anticipated by Simpson and Protheroe Smith, who needed to argue the matter out in order to satisfy their own consciences.

A fourth possibility, that the apparent conflict between religion and science at this point was a historiographical artifact arising from one or more of the other factors, which was in itself insignificant, is examined separately in Section 4.

3.1.1 Secondary to other objections

Although religious objections to obstetric anaesthesia did arise in the course of medical writings upon the subject, there are very few examples of this other than the paper and pamphlet by Parke of Liverpool; and in at least one case the opposition can be seen to be more imagined than real. Apart from Parke only three medical authors appear to have become involved in the religious arguments.

G.T. Gream, whose pamphlet on The Misapplication of Anaesthesia in Childbirth has been alluded to, referred to some religious objections to obstetric anaesthesia, although he did so with surprising brevity amongst his moral and medical criticisms.

Commenting upon Simpson's pamphlet, Answer to the Religious Objections...
Gream merely said 'there is much that I own I think ought not to have been written; and as a whole, I am of opinion it does not contain one single argument to prove that there is authority for allaying the pains of labour'. Gream continued:

'But let it be granted that there is full authority for annulling the pains of labour, - let it be allowed that no objection is to be found to the entire prevention of the sufferings incidental to parturition; I will still maintain that not one expression can be found in Holy Scripture, permitting the induction of intoxication in order to allay these pains' (141).

With this Gream proceeded to make his case that anaesthesia and intoxication were synonymous, and 'justly esteemed a crime by the laws of God and Man' (142).

However, Gream had missed the point of Simpson's argument, for the latter had not sought to prove that Scripture positively authorised the relief of suffering in labour (the reality of which suffering Gream tacitly conceded), but that nowhere did Scripture forbid it. The difference, while possibly subtle, is important, for Gream thus introduced the religious argument into a context in which it was not relevant, merely to illustrate a case built upon other grounds.

CHARLES MEIGS, Simpson's great medical opponent on the subject of obstetric anaesthesia, was quite reticent upon the religious arguments, saying merely:
"I have by no means said what I am inclined to say as to the doubtful nature of any process, that the physician sets up, to contravene the operation of those natural and physiological forces that the Divinity has ordained us to enjoy or suffer."

W.F. Montgomery, of Dublin, was perhaps the one of his medical opponents whom Simpson believed to be most strongly opposed to him on the religious issue — yet Montgomery vehemently denied any connection with religious objections to anaesthetics, and opposed Simpson only upon what he referred to as the 'indiscriminate' use of anaesthetics during labour.

In his Answer to the Religious Objections ... Simpson had said

'I am informed that, in another medical school, my conduct in introducing and advocating the superinduction of anaesthesia in labour has been publicly denounced ex cathedra as an attempt to contravene the arrangements and decrees of Providence, hence reprehensible and heretical in its character, and anxiously to be avoided and eschewed by all properly principled students and practitioners.'

This sentence apparently referred to Prof. Montgomery, who took grave exception to it. In a hitherto unpublished letter to Simpson, dated 27 December 1848, Montgomery fully refuted the allegation. This refutation is worth quoting in extenso.

Referring to two letters which Simpson had apparently received and sent to Montgomery for comment, the latter said:
"with regard to that from Dublin I can only say that your correspondent in telling you that I asserted that "pain had no effect on the mother" informed you as incorrectly as your other "Dublin man" who reported my opinion on the "religious objections" - on which subject you say you were induced to write your "Answer" by being informed that I was publicly advocating these so called "Religious objections" and that I had denounced you ex cathedra as acting in an unchristian way in advocating the abrogation of pain in labour by anaesthesia - and that the only ground you had for thinking that I did so was hearing it "very casually from a Dublin Man" I really feel astonished that you, who must know as well as any one, how constantly what a lecturer says is misunderstood or misrepresented, could thus admit on mere hearsay evidence a position to which you attached sufficient importance to induce you to take the trouble of writing a formal reply to arguments which never were made use of by me - I never advocated or countenanced either in public or in private the so called "Religious objections" to anaesthesia in labour, but invariably rejected that objection and many and many a time have had the trouble of shewing patients the utter untenable-ness of such an objection - as is perfectly well known to every one here".

That Montgomery took such trouble to dissociate himself from the 'Religious objections', while maintaining certain medical objections to obstetric anaesthesia, suggests that he was probably speaking the truth. Montgomery put his views on this issue, formally and publicly, in a paper published in The Dublin Quarterly Journal of Medical Science early in 1849 in which he said: 'I attach no value to what are called the "religious objections" to the use of this remedy; but, at the same time, I am very far from approving of some of the arguments which have been used against those who entertain such objections'. 
Montgomery did criticise Simpson, however, for the use of the two texts on the title page of his pamphlet which were said to be (respectively) taken out of context and a non sequitur: he also said of Simpson's suggestion that the removal of Adam's rib was the first surgical operation with anaesthesia: 'A cause which requires such assistance as this, one would suppose, must be in great need of support.'

In more positive vein Montgomery said:

'I believe, and am convinced, that in adding pain and suffering to human parturition there was, on the Almighty's part, not alone wisdom, but, as in all His other providences towards us, goodness and mercy also ... I feel persuaded that all other pain, and sickness, and suffering, are equally ordained of God, as the pain of labour; and nobody, I believe, doubts that man is permitted to use all safe and proper means for their relief. Nay, he is endowed by his Maker with the special attributes of mind and reason, by which he may, in addition to many other noble privileges conferred upon him, judge and discriminate, and determine on the fitness or unfitness of each remedial agent, and use or reject them accordingly. And the medical practitioner is called upon by every law, divine and human, to exert his utmost endeavours to relieve pain and disease, by whatever remedies he believes to be most suitable and efficacious, but at the same time safe in their present use, and not likely to be indirectly or ultimately injurious to the system.'

In expressing these views Montgomery, while not himself holding to the religious objections to obstetric anaesthesia, yet defended the right of others to hold them - and at the same time offered a way out of the impasse which neither dismissed religion
as an irrelevance in medicine, nor sought to resolve a medical problem on scriptural grounds. By the time that Montgomery wrote this passage it was claimed by Simpson that religious objections were rarely heard (134): had he written a year earlier it is possible that his temperate words would have had an effect in quietening such medical opposition upon allegedly religious grounds as did occur.

It must be concluded that whereas religious objections were used by medical opponents of anaesthesia, this was infrequent. It may be more significant to note the readiness with which Simpson assumed such behaviour on the part of colleagues apparently innocent of the charge.

3.1.2. Objections made privately

Evidence that criticism of the practice of alleviating pain in labour was made privately is sparse, but suggestive. James Young Simpson was in the habit of retaining not only most of the correspondence received by him, but also copies of many of the letters which he wrote himself. The collection was stored haphazardly and the letters, 'thousands in number, were put up in bundles, without respect to date or subject, and stowed away ... Sir James often thrust two or three notes into one envelope, and, not unfrequently, very interesting and important letters found a place with others containing only very commonplace details'. Thus wrote Simpson's first biographer, the Rev. Prof. Duns, a contemporary and close friend of Simpson and his family (151).
Duns himself delved into those papers, as have other biographers since, while Myrtle Simpson (a relative by marriage to one of Sir James' descendants) collected a number of letters from the Simpson family during the writing of her own biography of James Simpson (152), and these have been added to the original papers (153). A few of Simpson's papers are held by the National Library of Scotland but the great bulk of the collection are in the library of the Royal College of Surgeons of Edinburgh where, until very recently, they have lain unsorted in a great chest (154). As the collection has only just been catalogued (April 1977) it has been necessary to rely almost entirely upon Simpson's own published comments for information on his private correspondence on the religious objections to obstetric anaesthesia. Only two of these published comments are apposite.

In his Answer to the Religious Objections ... in 1847 Simpson wrote:

'Along with many of my professional brethren in Scotland, and perhaps elsewhere, I have, during the last few months, often heard patients and others strongly object to the superinduction of anaesthesia in labour, by the inhalation of Ether or Chloroform, on the assumed ground, that an immunity from pain during parturition was contrary to religion and the express commands of Scripture. Not a few medical men have, I know, joined in this same objection, and have refused to relieve their patients from the agonies of childbirth, on the allegation that they believed that their employment of suitable anaesthetic means for such a purpose would be unscriptural and irreligious.' (155).
In a letter to Dr Protheroe Smith of London, published by the latter as an appendix to his own pamphlet on the subject, Simpson said in 1848:

"Here, in Edinburgh, I never now meet with any objections on this point, for the religious, like the other forms of opposition to chloroform, have ceased among us. But in Edinburgh matters were very different at first. I found many patients with strong religious scruples on the propriety of the practice. Some consulted their clergymen. One day, on meeting the Rev. Dr H--, he stopped me to say that he was just returning from absolving a patient's conscience on the subject, for she had taken chloroform during labour, and so avoided suffering, but she had felt unhappy ever since, under the idea that she had done something very wrong and sinful. A few among the clergy themselves, for a time, joined in the cry against the new practice. I have just looked up a letter which a clergyman wrote to a medical friend, in which he declares that chloroform is (I quote his own words) "a decoy of Satan, apparently offering itself to bless woman: but, in the end," he continues, "it will harden society, and rob God of the deep earnest cries which arise in time of trouble for help," (156).

A number of points in these two quotations call for comment but it is perhaps helpful first to summarise some relevant dates.

1846 16 Oct. First operation under anaesthesia (Morton)
  19 Dec. First British operation under anaesthesia (Scott)
1847 19 Jan. First use of anaesthesia in obstetrics (Simpson)
  9 Nov. First use of chloroform in obstetrics (Simpson)
  25 Nov. Parke's address to the Liverpool Medical Institution.
  Dec. Pamphlet: Answer to the Religious Objections...(Simpson)
1848 28 June Pamphlet: Scriptural Authority...(Smith)
  July Letter to Protheroe Smith (Simpson)
  Oct. Pamphlet: Reasons for not using chloroform...(Parke)
It will be noted that from the time of the first use of ether in obstetrics, to the date of Simpson's pamphlet, was a period of only eleven months, and that this pamphlet was published only one month after the introduction of chloroform. Seven months after the publication of his pamphlet Simpson wrote to Protheroe Smith that 'Here, in Edinburgh, I never now meet with any objections on this point, for the religious, like the other forms of opposition to chloroform, have ceased among us.' On this evidence the whole religious argument thus appears to have occupied less than 18 months. In his pamphlet Simpson referred specifically to objections to 'the inhalation of Ether or Chloroform' and, as this latter substance had then been employed for only one month, it could not have been a major factor in the debate.

It will further be noted that Simpson's comments, both in 1847 and 1848, referred primarily to objections raised by patients themselves and by their medical attendants. Only 'A few among the clergy themselves' were said to have expressed religious doubts.

This latter point is strengthened by an aside in the pamphlet Answer to the Religious Objections ... in which Simpson referred to an exchange between his friend Professor Miller (Professor of Surgery in the University of Edinburgh) and the Rev. Dr Chalmers (Moderator of the Free Church of Scotland and a former Moderator of the established Kirk). Simpson said,
my friend Professor Miller informs me, that when reluctantly consenting to write the elaborate article on Etherization, which he afterwards penned for the North British Review (No. for May 1847), he stated to the late Dr Chalmers, who solicited him to undertake the task, that if he "wrote the medical Dr Chalmers should himself write the theological part". Dr Chalmers at once professed that he did not see any theological part pertaining to it. Mr Miller then explained to him, that some had been urging objections against the use of ether in midwifery on the ground of its so far improperly enabling woman to avoid one part of the primeval curse. At last when Mr Miller was enabled to convince him that he was in earnest in saying that such ground had been taken, Dr Chalmers thought quietly for a minute or two, and then added, that if some "small theologians" really took such an improper view of the subject, he would certainly advise Mr Miller not to "heed them" in his article. Dr Chalmers' mind was not one that could take up or harbour the extraordinary idea, that, under the Christian dispensation, the God of Mercy should wish for, and delight in, the sacrifice of women's screams and sufferings in childbirth' (157).

That such an eminent divine as Chalmers (158) regarded this issue as one for 'small theologians' makes it clear that support for anti-anaesthetic views cannot have had much currency amongst ministers of the church, whatever the outlook of some laymen - a view which coincided with that of the American theologian Noyes (159).

That some lay persons should have questioned the propriety of the new procedure is not surprising, but from the passages quoted above it is clear that at least some ministers - including the
very learned - were prepared to defend anaesthesia as being in no way contrary to Christian teaching. This was a situation in many ways analagous to that which existed over vaccination. Nevertheless it is clear that in the case of anaesthesia a few ministers did uphold the view that the new practice was unacceptable in the eyes of God. The allegation quoted by Simpson to Protheroe Smith that chloroform was 'a decoy of Satan' which would 'rob God of the deep earnest cries which arise in time of trouble for help' would seem to be exceptional however for, apart from a subsequent remark by Parke (160) no other comment of this type has come to light. The suggestion that pain and suffering were pleasing to God was one which was not accepted by ministers and theologians generally in the 1840's.

A more typical response appears to have been that of the Rev. Thomas Boodle of Virginia Water in Surrey. Writing to Professor Simpson after reading his pamphlet Answer to the Religious Objections... Boodle said that

'upon a first and hasty perusal it has so far relieved my mind from the serious objections I had entertained that I am very anxious for farther information and particulars in respect to the safety and expediency of its adoption in midwifery as a means of mitigating the pangs of labour' (161).

Here was a mind readily set at rest upon the religious issue by Simpson's explanation, and worried only about the medical implications.

Simpson later wrote to Protheroe Smith that, following publication of his own pamphlet he had
'received a variety of written and verbal communications from some of the best theologians and most esteemed clergymen here and elsewhere, and of all churches - Presbyterian, Independent, Episcopalian, etc. - approving of the views which I had taken. I have letters of the same kind from some men of high rank in your church; and a note in approval was brought to me, emanating from one of your most exalted and most esteemed episcopal dignitaries.'

Perhaps Simpson was more aware of the real reason for some individual doubts about obstetric anaesthesia than he was prepared publicly to admit, for in the original draft of his letter to Protheroe Smith he had written that

'all religious opposition to chloroform has entirely ceased among us, if we except an occasional remark on the point from some caustic old maid whose prospects of using chloroform are for ever passed, or a sneer from some antiquated lady who grieves and grudges that her daughters should not suffer as their mother was obliged to suffer before them.'

This passage was omitted from the final letter and one can well see why a successful obstetrician, moving in high social circles, might feel that discretion was likely to be preferable upon such a point. The fact that Simpson wrote such a comment at all shows, however, that he was aware of other reasons for some private objections to anaesthesia.

Whether 'all religious opposition to chloroform' had in fact 'ceased among us', as Simpson claimed in July 1848, is not clear.
A number of commentators have suggested that such opposition ceased with the use of chloroform by Queen Victoria at the birth of Prince Leopold on 7 April 1853. Evidence for the existence of religious opposition to anaesthesia after 1848 is almost entirely limited to such secondary sources, but there is no doubt that the Queen did receive chloroform in 1853 and approved of its use. Writing in her diary on 22 April 1853, of Prince Leopold's birth, the Queen said 'Dr Snow administered that blessing chloroform and the effect was soothing, quieting and delightful beyond measure'.

For the period between 1848 and 1853 only a single reference to the subject has been discovered, in a letter written on 15 June 1852 by the Rev. Charles Kingsley to Lord -. As it is possibly the sole contemporary suggestion that these views may have existed after 1848, it is quoted here in full. Kingsley said:

'Let me thank you most cordially for your hint about chloroform. As for "forbidden ground", can there be forbidden ground between husband and husband; or between two human beings who wish to diminish by one atom the amount of human suffering? .... It is a real delight to my faith, as well as to my pity, to know that that suffering of childbirth can be avoided. It is the one thing which I hate and curse, as the deepest paradox and puzzle upon earth; but when it is proved to me that man can "by obeying nature, conquer her", in that also I am content.... The popular superstition that it is the consequence of the fall I cannot but smile at - seeing it is contradicted by the plain words of the text which is quoted to prove it - "I will greatly multiply thy sorrow and thy conception".... It being yet a puzzle to me, as a Cambridge man, how the multiplication of 0 can produce a number .0 x A used to = 0, did it not?.'
This letter is a difficult source, for the text is incomplete and unclear, and the letter to which it is a reply is missing. It is possible to interpret Kingsley as thanking his correspondent for factual information about anaesthesia while gently ridiculing the 'popular superstition' that labour pains were a 'consequence of the fall', no direct comment being made on the propriety or otherwise of their alleviation. Equally, one may interpret him as indicating the existence of a 'popular superstition' which rejected chloroform as a means of diminishing 'that suffering of childbirth' to which he referred. If this was the case the further question then arises - what did Kingsley mean by 'popular'. Certainly the evidence referred to above (167) indicates that anti-anaesthetic views on religious grounds had never been commonly referred to publicly.

It is not clear, therefore, whether Kingsley was or was not hinting that 'popular superstition' was opposed to the alleviation of suffering in parturition, but if he did mean that such feelings existed in 1852, then this is the latest example of such a view so far discovered. In any case, as no contemporary evidence has so far emerged for religious opposition to anaesthesia after this date, the birth of Prince Leopold, at the very latest, seems to have marked the effective cessation of religious opposition to obstetric anaesthesia.

3.1.3 Arising primarily within the minds of those who refuted them

If one accepts that the institutional churches raised no objections to obstetric anaesthesia, and that very little in this line came from the medical profession, it may be questioned to what extent the attention given to religious objections arose from a mis-judgment
of the situation in the minds of Simpson and of Smith. With this possibility in mind the following hypothesis is submitted for consideration.

Simpson's attitude to anaesthesia - and especially obstetric anaesthesia - was one of keen enthusiasm, as was evident from all of his writings on the subject. He was the first to employ ether in obstetrics, and he discovered the anaesthetic properties of chloroform, which he also applied to obstetrics. Simpson was deeply involved in the defence of obstetric anaesthesia - almost obsessively so indeed (168) - and he mounted his defence with equal enthusiasm and skill against all the medical, moral, and religious objections, both real and imagined, which were raised.

Protheroe Smith - the second defender of the religious propriety of anaesthesia - was the first to use anaesthetics in midwifery in England (169), on 28 March 1847. In reporting this case, along with two others, Smith considered briefly whether the abolition of pain, 'spinal reflex action', etc. could be safely accomplished by the use of ether, and if it was 'justifiable on Christian principles? as I have frequently been asked' (170).

The appearance of such a question in this paper is a little surprising in view of the timetable of the use of obstetric anaesthesia to that date. Simpson's first use of ether in midwifery had been on 19 January 1847. In the ensuing three months only one other worker (Dubois) reported experience with obstetric anaesthesia prior to Smith's paper. The timetable is given in Table 2.3.
Table 2.3
Cases of Obstetric Anaesthesia published to May 1847

<table>
<thead>
<tr>
<th>Published</th>
<th>Worker</th>
<th>Country</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Instrumental</td>
</tr>
<tr>
<td>February</td>
<td>Simpson</td>
<td>Scotland</td>
<td>1</td>
</tr>
<tr>
<td>March</td>
<td>Simpson</td>
<td>Scotland</td>
<td>2</td>
</tr>
<tr>
<td>March</td>
<td>Dubois</td>
<td>France</td>
<td>2</td>
</tr>
<tr>
<td>May</td>
<td>Smith</td>
<td>England</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

When Smith reported his cases, then, only 11 other recipients of anaesthesia had been reported by two other workers — nor were there any later references to other instances having occurred prior to this time — so that Smith can certainly not have been asked 'frequently' about the religious propriety of obstetric anaesthesia, in view of the lack of public knowledge or experience of the practice.

The explanation of this may be that Protheroe Smith was known to have been 'a man of marked religious views, of the Evangelical school' who 'made those views prominent in every relationship of his life'. He was also a man who 'did not contribute much to the literature of his profession'. Taken together these two facets of Smith's character might well explain a degree of exaggeration, when introducing his strong personal interest in religion into a professional report, of a type which he was unaccustomed to make. Smith's pamphlet *Scriptural Authority for the*
Mitigation of the Pains of Labour by Chloroform, and other Anaesthetic Agents appeared some fourteen months later and, as with Simpson, it seems not unreasonable to ask whether Smith, in view of his interests, might have considered one or two chance remarks and 'worried' these in his own mind, until they reached the proportions of a problem far beyond the few comments which touched off the process.

If this was so, then it is suggested that the apparent conflict arose through an order of events approximately as follows.

One or more of Smith's three patients in March-April 1847 may have voiced doubts to him concerning the religious propriety of anulling the pains of parturition and, in reporting the cases, Smith expanded upon this query in the light of his 'marked religious views'. Simpson, also a man with a growing interest in religion (171), was disturbed by his conversations with Parke in October 1847. Following upon this came Smith's comments, and also similar queries addressed to him privately in his own extensive practice. Being both a prolific author of papers, pamphlets, etc., and also a keen defender of anaesthesia against attacks from any source, Simpson produced a pamphlet defending obstetric anaesthesia from attacks on religious grounds. This pamphlet was written partly for general defensive purposes (as other papers had been, and continued to be, written) and partly to clear Simpson's own mind on the theology of the practice, as this aspect was currently his other main interest. So little was the actual religious opposition to obstetric anaesthesia, in fact, that six months later Simpson could report his belief that 'any objections on this point ... have ceased among us'.
Smith was impressed by Simpson's pamphlet defending the procedure, however, and - again moved by his religious views - went a stage further and wrote a pamphlet quoting positive 'Scriptural Authority for' the practice - a pamphlet which was full of Biblical references and redolent of the most Evangelical type of religious tract. Smith asked Simpson for advice and, although the latter regarded the 'problem' as no longer a live issue, Simpson wrote to Smith in reply, expanding his original views slightly. It is clear that, by this time, Simpson believed that the comments of at least some of his patients sprang more from envy and frustration (163) than from genuine religious doubts.

Following Smith's 1848 pamphlet the 'debate' was not aired again publicly although, as indicated in Section 3.1.2, private doubts may have lingered on for some few years.

That this explanation of events fits the observed facts is also true when one looks beyond Britain. With one exception only, no reference at all has been found to the existence of any religious objections to anaesthesia, either in Europe or in America. The one exception, Channing's Treatise on Etherization in Childbirth (172), was clearly stimulated by Simpson's pamphlet (which Channing quoted extensively) and the implication in Channing's writing was that it was that pamphlet which had planted the idea in America - especially amongst the medical profession - that anaesthesia in midwifery might be un-scriptural. Noyes' comments on the situation, cited by Channing (173), seem to have convincingly quashed such doubts, and no other reference to the subject is to be found in the American literature thereafter.
The lack of religious comment upon anaesthesia in America is, perhaps, especially revealing. That there was no lack of interest in religion - and especially in unorthodox forms of Christianity - in that country is obvious. At the time when anaesthesia was first introduced America had already given birth to the Church of Jesus Christ of Latter Day Saints (Mormonism) and Seventh Day Adventism, while the ensuing thirty years were to see the introduction there of the Church of Christ Scientist, and the Millenial Dawn (Jehovah's Witnesses) - both sects which were to have particular differences with orthodox medical opinion.

Both America and Britain shared an extensive period of evangelical revival during the nineteenth century. The fact that the social climate of neither country gave rise to religious objections to anaesthesia, other than by a very few individuals, suggests that such views were not merely not widespread, but that if any conflict existed over this point, it was largely within the minds of Simpson and Protheroe Smith - men with strong interests both in the propagation of anaesthesia, and in the study of religion.

3.2. ANSWERS TO THE RELIGIOUS OBJECTIONS

From whatever sources religious objections to anaesthesia may have arisen, virtually the whole defence on these grounds stemmed from the work of James Young Simpson. One other pamphlet on similar lines was published by Protheroe Smith of London but this, and everything else that was written on the subject, appeared after Simpson's Answer to the Religious Objections, and referred specifically to it.
3.2.1. J.Y. Simpson's defence

Simpson's pamphlet: Answer to the Religious Objections advanced against the employment of Anaesthetic Agents in Midwifery and Surgery was published in December 1847 in Edinburgh and a second edition of 1000 copies was printed in 1848. The pamphlet bore on its cover two texts from the New Testament: 'For every creature of God is good, and nothing to be refused, if it be received with thanksgiving' (I.Tim. 4. 4): and, 'Therefore to him that knoweth to do good and doeth it not, to him it is Sin' (Jas. 4. 17)(174).

These Texts seem to have summed up Simpson's philosophy - that all of God's gifts are necessarily good, and that to neglect to make use of a 'good' was itself sinful. In turn, this line of argument appears to have postulated the converse as the core of religious objections to anaesthesia; i.e., that the discovery of anaesthetic agents was contrary to God's will, and that their use did not constitute a 'good' as understood by Christianity. In fact a third element entered into Simpson's argument, and formed a major part of his thesis: the accuracy (or inaccuracy) of translation of the scripture which pronounced the primeval curse, which apparently lay at the core of the dispute.

In his pamphlet Simpson said:

'It is almost unnecessary to begin with premising, that those who object to the superinduction of anaesthesia in parturition upon religious grounds, found their objections principally on the words of the primeval curse which God pronounced after the temptation and fall of our first parents' (175).
In fact no evidence exists that such objections had, at this time, been advanced. He then quoted the passage in Genesis, 3, 14-19, 'interpolating in Roman letters the Hebrew originals of those two nouns which are the more immediate subjects of doubt and difference of opinion'. The passage thus annotated is worth quoting in toto:

*Genesis, chap. iii. v. 14. - "And the Lord God said unto the serpent, Because thou hast done this, thou art cursed above all cattle, and above every beast of the field; upon thy belly shalt thou go, and dust shalt thou eat all the days of thy life.

15. "And I will put enmity between thee and the woman, and between thy seed and her seed; it shall bruise thy head, and thou shalt bruise his heel.

16. "Unto the woman he said, I will greatly multiply thy sorrow ("itztzabhon) and thy conception; in sorrow ("etzebh) thou shalt bring forth children; and thy desire shall be to thy husband, and he shall rule over thee.

17. "And unto Adam he said, Because thou hast hearkened unto the voice of thy wife, and hast eaten of the tree, of which I commanded thee, saying, Thou shalt not eat of it; cursed is the ground for thy sake: in sorrow ("itztzabhon) shalt thou eat of it all the days of thy life:

18. "Thorns also and thistles shall it bring forth to thee; and thou shalt eat the herb of the field.

19. "In the sweat of thy face shalt thou eat bread, till thou return unto the ground; for out of it wast thou taken; for dust thou art, and unto dust shalt thou return." '.

The pamphlet thereafter consisted of a seven-point commentary on this passage, which may be summarised thus:
1. (p. 5).

The primeval curse was triple, containing judgment upon the serpent, the woman, and the ground. That this was not immutable is evidenced by God's own promise to remove them, recorded several times in scripture (e.g. Dt. 7, 13. 'I will bless the fruit of thy womb and the fruit of thy land').

2. (pp. 6-8).

Simpson claimed that arguments against the use of anaesthesia in labour assumed a literal interpretation of the curse, which Simpson himself apparently rejected. 'I will greatly multiply thy sorrow and thy conception' (or, as some Hebrew scholars stated, the sorrow of thy conception). If this curse was to be taken literally, said Simpson, then so must that upon the ground.

'The agriculturist, in pulling up "the thorns and thistles" which the earth was doomed to bear, so far tries to counteract that part of the primary doom; and yet is never looked upon as erring and sinning in doing so.'

This was even more so when man

'instead of his own sweat and personal exertions ... employed the horse and the ox - water and steam power - sowing, reaping, thrashing, and grinding machines, &c., to do this work for him'.

Indeed,

'if some physicians hold that they feel conscientiously constrained not to relieve the agonies of a woman in childbirth, because it was ordained that she should bring forth in sorrow, then they ought to feel conscientiously
constrained on the very same grounds not to use their professional skill and art to prevent man from dying; for at the same time it was decreed, by the same authority and with the same force, that man should be subject to death, - "dust thou art, and unto dust shalt thou return".

3. (pp. 8-12).

The Hebrew word translated as 'sorrow' in the English Bible is variously given as 'etzeb' and 'itzzab hon', which are synonymous nouns (similar to labour and laboriousness in English) drawn from the common root verb 'atzabh'. This verb was defined in Gesenius' Lexicon thus: '1. To labour, to form, to fashion. 2. To toil with pain, to suffer, to be grieved'. Simpson believed that 'no scholar would deem it erroneous to affix to it the same simple original signification "labour", "toil", without deeming it requisite to believe, that it at all farther necessarily imports that the implied labour and effort must essentially be to such an excess as actually to amount to the supervention of pain and agony'.

It was pointed out that 'the greatest characteristic of human parturition as compared with parturition in the lower animals, is the enormous amount of muscular action and effort (labour) provided for, and usually required for its consummation' due to the erect position of the human body. Significantly, 'The state of anaesthesia does not withdraw or abolish that muscular effort, toil or labour; for if so, it would then stop, and arrest entirely the act of parturition
itself. But it removes the physical pain and agony otherwise attendant on these muscular contractions and efforts. It leaves the labour itself ('atzebh) entire'.

Simpson pointed out that in the curse on man (v.17. "In sorrow shalt thou eat of it all the days of thy life") 'itztzabhon certainly meant toil or labour, rather than suffering or pain, and that in v.29, in relation to the same curse, it was indeed translated as 'toil'. In the whole of the Old Testament over twenty different terms in Hebrew were rendered in English as "sorrow". In only six other places did the noun 'etzebh occur, in none of which did it certainly imply physical pain; and in two cases it was actually rendered as (physical) labour.

4. (pp.12-14).

There are a number of passages in the Bible in which the 'purc pain and supersensitive suffering of the parturient mother' are referred to. In these cases the Hebrew nouns used which are rendered in English as pain, pangs, etc., are hhil and hhebhel. An example of the former is found in Jer. 22, 23 ('anguish hath taken hold of us, and pain as of a woman in travail'), and the latter in Is. 26, 17 ('Like as a woman with child, that draweth near the time of her delivery, is in pain and crieth out in her pangs'). Simpson pointed out that

'the feelings or sensation of excruciating pain accompanying the process of parturition, are designated throughout the Bible by two Hebrew words which are entirely and essentially different from that term which is translated "sorrow", in the oft repeated expression - "in sorrow thou shalt bring forth children" '.

- 230 -
From this he gained support for his contention that the word rendered 'sorrow' would more properly be rendered 'labour', and that 'pain' was not a proper understanding of the word 'etzebh in Gen. 3, 16.

5. (pp.14-15).

Even if the primeval curse did condemn women to 'pure physical and pain and agony in parturition' (which Simpson denied), the curse was abrogated by Christ's life and death, and Simpson suggested that

'under the Christian dispensation, the moral necessity of undergoing such anguish has ceased and terminated. Those who believe otherwise, must believe, in contradiction to the whole spirit and whole testimony of revealed truth, that the death and sacrifice of Christ was not, as it is everywhere declared to be, an all-sufficient sacrifice for all the sins and crimes of man'.

6. (pp.15-19).

The history of opposition to new ideas in science and in medicine was alluded to - with special reference to the battles over small-pox inoculation and vaccination - and a caution given against 'always recklessly calling up again the same religious, or supposed religious, arguments under the same circumstances'. Simpson suggested that

'The very fact that we have the power by human measures to relieve the maternal sufferings, is in itself a sufficient criterion that God would rather that these sufferings be
relieved and removed. If He had willed and desired them not to be averted, it would not be possible for man to avert them. For while it is our duty to avoid all misery and suffering that is avoidable, it would certainly be impossible for us to eschew any that God had permanently and irreversibly decreed should not be eschewed*.

7. (pp.19-23).

An objection 'that in superinducing a temporary absence of corporeal sensibility, we also superinduce, at the same time, a temporary absence of mental consciousness' was indicated. Simpson cited a view that medical men were 'not entitled to put the activity and consciousness of the mind of any patient in abeyance, for the mere purpose of saving that patient from any bodily pain or agony'. In refuting this view Simpson noted that the use of opium and other narcotics to render patients unconscious was long-established and accepted medical practice. Further, men commonly 'surrendered up their mental consciousness in common sleep, far, far beyond the time required merely for the refreshment and renovation of the system'.

Finally Simpson quoted Gen. 2, 21 as evidence of precedent for the use of anaesthesia in surgery by God Himself.

"And the Lord God caused a deep sleep to fall upon Adam; and he slept; and he took one of his ribs, and closed up the flesh instead thereof".
The arguments used by Simpson in his pamphlet reveal a peculiar mixture of erudite philosophy and simple, homespun Christian faith. Whereas the case for more accurate translation of the original Hebrew text was apparently penetrating and convincing, the likening of the making of woman from Adam's rib, to a surgical operation with anaesthesia, drew down upon Simpson a certain amount of ridicule and scorn. It is interesting to conjecture from where Simpson obtained his theological ideas, and his knowledge of the use of Hebrew (177). Concerning the theology, it seems reasonable to suppose that Simpson at least referred to one or more of the commentaries on the Bible which were available to him. At that time there were certainly eight such commentaries reasonably accessible. Of these, five made no comment on the implications of Genesis 3, 16a, other than to note the fact that the 'sorrow' of pregnancy was punishment for the sin of Eve (178).

Two other commentaries, possibly the most widely used throughout much of the 19th century, were those of Scott (179) and Henry (180). In his commentary on Gen. 3, 16 Scott noted that prior to the fall

"it can hardly be conceived that any pain or sorrow would have been connected with pregnancy, or child-bearing, had not sin been committed: but now the Lord threatened to multiply the woman's sorrows, even those of her conception; so that, in a world of suffering, the pains and sufferings of the female sex are greatly multiplied indeed, almost beyond expression".

Scott also noted that 'the woman ..., received her sentence, respecting the sufferings to which she and her daughters would be subjected'. 
This comment might well have been seized upon by those who believed that the 'curse' was intended to continue for all time.

Henry devoted some considerable space to the consideration of Gen. 3, 16, and it is certain that Simpson was familiar with this commentary at least, for he referred to it in his pamphlet on the subject (181). Henry was clear that 'the sentence passed upon the woman' represented 'proper punishments of a sin in which she had gratified her pleasure and her pride', and that 'every pang, and every groan of the travailling woman, speak aloud the fatal consequence of sin' (182). The reason for this Henry saw thus:

'It is God that multiplies our sorrows ... God, as a tender Father, does it for our necessary correction, that we may be humbled for sin, and weaned from the world by all our sorrows; and the good we get by them, with the comfort we have under them, will abundantly balance all our sorrows, how greatly soever they are multiplied' (182).

Simpson wrote approvingly in his pamphlet of 'the sound and excellent Matthew Henry' (183) but it seems likely that his arguments in favour of obstetric anaesthesia were written despite that commentary, and gained nothing from it. The only gap in the consistency of Henry's approbation of the 'curse' was his note; 'how mercy is mixt with wrath in this sentence; the woman shall have sorrow, but it shall be in bringing forth children, and the sorrow shall be forgotten for joy that a child is born, John xvi, 21' (182). This gave nothing to Simpson's argument either, however, nor was it an argument used or referred to by him.
At most, it would seem that the commentaries of Scott and Henry suggested a case for there being religious objections to obstetric anaesthesia, which Simpson might have used as a guide to the points requiring answers.

Only one contemporary commentator might have given Simpson grounds for refuting the necessity of pain in parturition. The Rev. R.S. Candlish wrote that the present state of man was

'not a state of complete deliverance from the consequences of the fall, but a state during which these consequences are partly in abeyance - and provision is made for their alleviation in the meantime, and their entire removal at last' (184).

There was no further explanation of these views. Candlish was minister of St. George's church in Edinburgh, and his commentary on Genesis was published in 1843; it is most probable that Simpson was aware of it, and was encouraged by it in viewing the 'curse' as neither permanent nor irremovable. There is no record of any correspondence between Simpson and Candlish, however.

Concerning Simpson's views on the Hebrew of the Old Testament, it is possible to reconstruct his sources with some certainty. Simpson clearly used a Hebrew Old Testament - although which particular edition is not known - but he also made passing reference to two other books, Tregelles' translation of Gesenius' Hebrew and Chaldee Lexicon to the Old Testament Scriptures (185), and Wigram's The Englishman's Hebrew and Chaldee Concordance of the Old Testament (186), published in 1846 and 1843 respectively. It was
clearly from these two latter works that Simpson abstracted the philological information used in the third and fourth sections of his pamphlet.

Simpson's comment in his pamphlet that 'In the Old Testament, above twenty different terms or nouns in the original Hebrew text are translated by the single term or noun "sorrow" in the English text'(187) is an observation which can be made directly from Wigram's concordance (188), and the examples of words rendered 'etzebh and 'itztzabbon are exactly those of Wigram (189). Similarly, the examples of hhil and hhebhel are also those of Wigram (190), although in the latter case not all of Wigram's examples were quoted by Simpson.

In similar manner, Simpson's definition of 'atzabh is a direct quotation from Gesenius' lexicon (191), as were his definitions of the different translations of 'etzebh.

Simpson had a good command of Latin (192) and had studied Greek (193), but there is no record of his ever having studied Hebrew. The exposition in sections 3 and 4 of his pamphlet, when compared with Gesenius and Wigram, bears all the hallmarks of an intelligent layman's utilization of reference books in a subject with which he was not familiar, and Simpson's philology was indeed criticized by G.R. Noyes, a very distinguished Hebrew scholar, as being imperfect (194). Thus, although a general knowledge of the scriptures was implicit in Simpson's writing, his knowledge of Hebrew seems to have been obtained principally from the study of two reference books.
The views expressed in the fifth section of Simpson's pamphlet (quoted above) may hint at apocatastatic universalism but, in view of the comparatively simple state of Simpson's religious beliefs at this time\(^{195}\), they more probably do no more than represent the generally liberal tendency of his theology. The pamphlet was said to have been written 'principally during a day's confinement to my room when convalescing from the prevailing influenza'\(^{196}\), and Simpson clearly recognised that it was imperfect and susceptible of improvement.

At some time early in 1848 Simpson was approached by Dr Protheroe Smith of London, for advice on the subject of religious objections to obstetric anaesthesia, and he wrote a lengthy letter to Smith, who published it as an appendix to the pamphlet which he himself was writing on the subject. Simpson's letter to Smith elaborated 'some points on which, if I had had time, I would perhaps have more insisted on'\(^{197}\). An unpublished draft for this letter\(^{198}\) indicates that, despite the writer's reference to it as 'a few hurried notes', the letter was carefully written, several times revised and polished, and the subject of very deliberate and considered thought. The final letter was dated 8th July 1848 and was primarily concerned with emphasising the arguments from philology in Simpson's original pamphlet, with an additional appeal to physiology.

Simpson pointed out that each labour 'pain' consists of
'two distinct and separate elements; viz. first, of contraction of the uterus and other assistant muscles; and, secondly, of sensations of pain, more or less agonising, accompanying these contractions, and directly resulting from them'.

By means of anaesthesia, said Simpson,

'We abrogate the second element of the so-called labour-pain, without destroying the first. We leave intact the expulsive muscular efforts, but remove the sense and feeling of pain accompanying these efforts'.

Relating this to the primeval curse Simpson said that

'the efforts or muscular contractions (the 'etzebh of the curse) are ... left in their full and complete integrity under the state of anaesthesia; while the pangs or sufferings (or hhal), against which the language of the curse does not bear, are alone annulled and abrogated' (199).

Criticism was also made of practitioners who, in seeking to take the 'curse' in Gen.3, 16 literally, were acting illogically in attempting to practise medicine in general, and midwifery in particular, and thus breaching the primeval curse in its other aspects. Indeed, seeking to oppose obstetric anaesthesia while continuing to practise other means of easing the pains of parturition, meant that

'Gaining your end, according to their religious views, imperfectly, was no sin - gaining your end more fully and perfectly is, they argue, an undiluted and unmitigated piece of iniquity ... The principle of interference is not altered by the degree of relief afforded being more or less, greater or smaller. "For whosoever shall keep the whole law, and yet offend in one point, he is guilty of all"' (200).
Cynically Simpson suggested that obstetricians who objected to anaesthesia on religious grounds 'must, or at least ought to abstain, in fact, from all obstetric practices whatsoever; they should, in short, give up their present profession as a profession of sin - and "in the sweat of their face" eat bread' (200).

Similarly, any female patients holding the same views 'cannot conscientiously content themselves with rejecting merely the use of chloroform in annulling the pangs of parturition; they must reject all kinds of medical assistance in their hour of travail; they must give up, indeed, all assistance whatever. If the supposed pains and perils of the primeval curse are to be submitted to, on the grounds that they are divinely appointed and unavoidable ordeals - they they must be submitted to in all their unmitigated power and plenitude' (201).

Christian ethics are essentially objective, recognising 'right' and 'wrong', 'good' and 'bad', as absolute values. In the case of anaesthesia it was apparently being argued that, in general surgery, relief of pain was (implicitly) 'right', while in obstetric surgery it was (explicitly) 'wrong'. The particular point Simpson was making was that if his (alleged) opponents were correct, and alleviation of the pains of labour was morally 'wrong' (for whatever reason), then surely it must be as wrong to relieve them partially as wholly. Simpson's own religious philosophy at that time was summed up in the penultimate sentence of his letter. 'We may always rest fully and perfectly assured that whatever is true in point of fact, or humane and merciful in point of practice, will find no condemnation in the Word of God' (202). This view represents a
very simple, yet very pious faith, in contrast with the sophistication of Simpson's arguments on Biblical translation and exegesis.

3.2.2. Protheroe Smith's defence

Dr Protheroe Smith, a distinguished London 'physician-accoucheur' and teacher of midwifery, published his pamphlet *Scriptural Authority for the Mitigation of the Pains of Labour, by Chloroform, and other anaesthetic agents* in the second half of 1848. The dedication (to Simpson) was dated 28 June and Simpson's letter to Smith, dated 8 July 1848, was included as an Appendix. Smith actually said little about anaesthesia that was new. He repeated arguments which Simpson had already used, but he wrote with a different object. Simpson had entitled his pamphlet 'Answer to the religious objections', and had sought to defend obstetric anaesthesia from attack, whereas Smith's pamphlet ('Scriptural Authority for . . .') sought to produce active Biblical authority for the procedure.

By comparison with Simpson, very little indeed is known of Protheroe Smith, who was a respected obstetrician and gynaecologist in practice in London. Practically all that can be learned of Smith, despite a lengthy search in the literature, is to be found in the obituary notices which appeared in the *Lancet* and *British Medical Journal*, some information in a recent article by Winterton, and that which was revealed in his own writings.
Smith was the son of a Devon medical practitioner, who trained at St Bartholomew's Hospital in London and qualified MRCS in 1833 and MRCP in 1846. He graduated M.D. at Aberdeen in 1844 but, although he travelled to Aberdeen to be examined, there is no indication whether he stopped off in Edinburgh during the journey, or whether at that time (or later) he ever met Simpson.

In 1842 Smith founded the Hospital for Diseases of Women, in Red Lion Square, London; the first hospital for women in Britain. About 1847-48 he became a lecturer on Midwifery and Diseases of Women at St Bartholomew's Hospital. As a gynaecologist Smith achieved some minor fame as one of the first ovariotomists, and as an inventor of instruments for use in his specialty.

Protheroe Smith was a staunch Evangelical Christian and almost certainly a member of the Church of England. The minutes of the Soho hospital which he founded invariably refer to the proceedings being opened with prayer, and in 1870 he was presented with a painting of the hospital, under which was inscribed the text: 'Blessed is he that considereth the poor. The Lord will deliver him in time of trouble'. As was common practice at the time, it was a rule of the Hospital that 'There shall be prayers and a portion of the Scriptures read in the Hospital every morning and evening'. Smith himself was a man obviously steeped in the Scriptures, and the practical nature of his Christianity is well evidenced by his action in founding the Soho Hospital against great opposition and with great difficulty, at a time when virtually no facilities existed for the care of gynaecological patients.
Smith's theology was inclined to the dispensationalism which was then beginning to be taught (211), and his arguments in favour of obstetric anaesthesia included this aspect of Christian belief (212).

Smith's approach to the anaesthesia 'debate' was to query "what is truth". He answered that question with a quotation from the gospels - "Thy word is truth" (John, 17, 17). Upon this assumption Smith decided to 'submit the question at issue to the test of Holy writ'. In fact the 41-page pamphlet contained over 190 biblical references - not all of which were strictly apposite.

Like Simpson, Smith seems to have met 'religious objections' to obstetric anaesthesia from individuals rather than from any organised 'opposition'. Smith's apologia for his pamphlet (213) was:

'I have received so many communications, from both Professional and non-Professional correspondents, advocating "Religious Objections" to the use of Chloroform vapour in Midwifery, that I have been induced to publish my views on the subject, in order to furnish a reply to each'.

That Smith should have been the recipient of such 'communications' is probably explained by his having been the first person in England to have used anaesthesia in midwifery.

Having repeated most of Simpson's arguments (including those concerning the various Hebrew words translated as 'sorrow', 'labour', 'pain' and 'pangs', which arguments he regarded as
'conclusive philological proof') Smith concentrated upon the belief that the ordinances of the Old Testament had been 'modified by the perfect obedience and vicarious sacrifice of "the last Adam"', pointing out that 'since the death of Christ, there has been a progressive advance in such knowledge as is especially designed to ameliorate the curse'.

Smith believed that 'Christ is throughout the key to Scripture - the one great idea of the Bible' and that

"the religious objections" to the abolition of pain in labour have chiefly originated from confounding the dispensations, and mingling the ordinances of one with those of another. It has not been clearly seen (he said), that the very words which in one dispensation, and to one people, conveyed a literal command, to be obeyed literally; in another age and dispensation, supplies simply a type of some part of God's work or purpose, though often, at the same time, yielding to the believer of every age matter of comfort or warning, according to his need" (214).

Smith argued that the Old Testament law was replaced by Christ who, by His death, redeemed all mankind and (quoting the Church of England Communion Service) "by His one oblation of Himself once offered, He made a full, perfect, and sufficient sacrifice, oblation, and satisfaction for the sins of the whole world". From this, Smith argued, it followed that as sin was the ground upon which the primeval curse had existed, in expiating the sins of mankind Christ had simultaneously abolished the curse.
"Thus, though the body may "return unto the ground"; and to accomplish this destiny, death often brings in its train disease and pain; yet, freed from the power of sin and the curse ... the employment of means for annulling pain, or in any other way modifying the curse, is not only legitimate, but strictly in accordance with the example of our Lord, who "was manifested that He might destroy the works of the Devil". (215).

So Smith concluded that 'Even the primal curse has been, in a measure, deprived of its terrors by that "one Sacrifice for sins for ever".

Smith's belief in the almighty power of God was the basis of a secondary argument.

If "in sorrow thou shalt bring forth children", meant that all women should henceforth suffer pain in the act of parturition, there never could have been such a thing as a painless labour. But there have been such, both naturally as well as by the aid of Anaesthetic agents, therefore "in sorrow thou shalt bring forth" cannot mean that women shall suffer physical pain at the time of childbirth. It follows that there is no attempt to set aside Gen. iii. 16, when means are used to prevent parturient suffering. Whatever is the meaning of Gen. iii. 16, it is expressed not like a command which may, or may not, be complied with, but as a sentence which cannot be evaded. To suppose, then, that the use of Chloroform removes the "sorrow" entailed upon woman in bringing forth children, is to suppose that the efforts of man can frustrate the purpose of God. (216)

a supposition which Smith described as 'the error of supposing the creature has power to abrogate the decree of the Creator'. Smith
quoted specific instances of painless natural labour, which he offered as 'incontrovertible evidence that to imitate what God, in his Providence, has permitted, cannot be in opposition to his Sovereign decree' (217).

Whether Smith had any real effect in allaying the qualms of those whose consciences were troubled by the implication of obstetric anaesthesia cannot be known, however. By the time that he wrote the conflict appeared to be virtually over, and his pamphlet was not again mentioned in the literature.

Certainly Smith's own sincerity was obvious in his writing, and it is probable that any waverers who were susceptible to the proof of scripture, and who read Smith's pamphlet, would have been impressed by it. It was the only original work on this subject ever to be published in England.

3.2.3. Miscellaneous writings

A few other medical authors writing on the religious objections to obstetric anaesthesia deserve brief mention.

Dr. J.T. Conquest, a noted London obstetrician, included a section on 'the use of chloroform' in his Letters to a Mother (218), first published in 1848. In one section Conquest gave strong support to the use of chloroform in obstetrics (although cautioning against its 'indiscriminate' use), and expended four pages on the religious objections to its use. The arguments used were largely quotations from, and elaborations of, Simpson's pamphlet, and were
clearly designed to re-assure mothers of the desirability and propriety of abrogating the pains of labour. Conquest was a religiously minded man (he was responsible for an edition of the Bible — The Bible with 20,000 Emendations). As a firm admirer of Simpson (219), his support for him is not surprising.

Of possibly greater significance was a section in an American textbook, published in 1848 at about the same time as Protheroe Smith's pamphlet. Channing's A Treatise on Etherization in Childbirth (220) was a lengthy book (400 pages) which reviewed the whole subject of obstetric anaesthesia, with many case histories. Ten pages were devoted to "The Religious Objection to Etherization" (221). As with Conquest's book, this work contained little that was new, but there are a few interesting points worthy of note.

Firstly, it was the only American text in which religious objections to obstetric anaesthesia were studied by an eminent obstetrician (222). Channing cited a great deal of Simpson's argument, and noted that the religious objection 'was first brought forward in Scotland, and has at length appeared here ... , and that medical men were among its advocates' (223). As an example of this latter situation Channing quoted 'a medical friend' who had written to him saying: 'God has said, "In sorrow shalt thou bring forth children"; and the very suffering which a woman undergoes in labor is one of the strongest elements in the love she bears her off-spring' (223).
Channing had sought the views of a theologian on the subject, however. Professor G. R. Noyes of the Harvard Divinity School, whom Channing consulted twice, believed that in reading Gen. 3, 16, 'the common mode of understanding the verse must be retained', although he pointed out that 'In point of fact, the birth of children seems to have been an occasion of joy to Eve on the whole. See Gen. iv, 1, &c. and iv. 25'.

Noyes disagreed with Simpson's exercises in philology, claiming of the Hebrew terms Itztizabbon and Etzebb that 'the instances much predominate in which they imply pain of body or mind', and that his own translation of Gen. 3. 16 would read: 'I will greatly increase the painfulness of thy conception. In pain shalt thou bring forth children'. Nevertheless, Noyes believed that 'God could not have intended, by any thing in the Scriptures, to oppose the development of any of the laws of nature; which are his own laws. The application of the agents of nature, by human ingenuity, to the relief of pain, is also the use of God-given means by God-given powers. How, then, can such a course be irreconcilable with any intimations of the divine will whatever?'

Noyes' concluding comment to Channing was:

'No one will pretend, that there is any thing preceptive in Gen. iii. 16. It is of the nature of prediction. But the duty of relieving distress is the express dictate of nature and revelation. It would seem, therefore, to be wisdom to follow the dictates of nature and revelation, and leave predictions and threatenings to be fulfilled by Him who made them.'
This suggestion that 'No one will pretend, that there is any thing preceptive in Gen. iii. 16' is interesting in the light of the suggestion to be made infra that the religious objections to anaesthesia were more imagined than real. Possibly few people did make this 'pretence', but it was this possibility which underlay the whole debate.

Noyes' comment seems analogous to that of the Scottish theologian, Chalmers, that 'he did not see any theological part pertaining to obstetric anaesthesia. Channing concurred with Noyes' views, and summarized thus:

'What more fitting labor for man than to abolish pain, preserve health, soften toil, develope (sic) mind and heart, and so make some approach to that spiritual elevation which is the inspiration of our religion, and the object and end of our highest aspirations?' (229)

There also appeared a few less detailed, and less important examples of medical comments offering support for obstetric anaesthesia on religious grounds. An early example of this was a lecture given in Edinburgh in December 1847 by Dr Samuel Thomson, 'on the new anaesthetic agent chlorform' (sic). The local press reported that

'After a brilliant introduction, in which he dilated upon the superior position in which man was placed by his Creator, for becoming acquainted with surrounding objects, and rendering them conducive to his comfort, and as a stimulus to unceasing exertion to dive into the realms of obscurity, in order to increase his happiness, enlarge his understanding, and more clearly and forcibly lead the mind
to adore that great God who crowned all those labours with success, he entered into a discussion of the physical, analytical, and synthetical branches of chemistry... (230).

This approach - that all knowledge and experience came from God and was, therefore, to be used for the greater glory of God - was one which was much favoured by those who defended the introduction of sundry new medical procedures against religious antagonism, including Simpson himself. A particularly interesting contribution to the debate, which has apparently been lost sight of for the whole of this century, was a thesis by one of Simpson's own students, Francis John de Quincey (231).

Written in March 1849 (i.e. some fifteen months after Simpson's pamphlet) the thesis - predictably - followed much of Simpson's own line of argument, although one or two additional points were well made. In particular Dr Quincey noted that, followed to its logical conclusion, a literal interpretation of the primeval curse would imply forbidding embryotomy and the caesarian operation, so that a woman with a contracted pelvis must 'be allowed to die undelivered because she is guilty of the sin of having a contracted pelvis; a sin which is certainly not under her control; and the punishing of which would seem to war with the attributes of infinite wisdom, justice and love, which we regard as the brightest characteristics of the deity' (232).
He also noted that

'the unhappy and wicked woman who remains unmarried appears to break the command in four several ways, according to the following tabular statement:

I. She has no conception.
II. She brings forth no children.
III. Her desire is not to her husband.
IV. Her husband does not rule over her.' (233)

De Quincey's father appended a letter to his son's thesis in which he argued that

'if all pain when carried to the stage which we call agony (or intense struggle among vital functions) brings with it some danger to life (as I presume must be the case) then it will follow - that knowingly to reject a means of mitigating, or wholly cancelling the danger, now that such a means has been discovered and tested, travels on the road towards suicide ... It is even worse than an ordinary movement in that direction; because it makes God an accomplice, through the Scriptures, in this suicidal movement; nay the primal instigator to it by means of a supposed curse interdicting the use of any means whatever (though revealed by Himself) for annulling that curse.' (235).

Both De Quinceys were clear in their own minds as to the real reason for apparent religious objections to anaesthesia. The son referred to

'a large class of mankind, who considering the words old and good as synonymous, can admire nothing that has not upon it the dust of forty generations; and to whom novelty is a mere rock of offence'.
He referred to these men as holding 'a secret but deeply rooted prejudice against everything that comes from a particular place or individual, or with which personally they have no concern', so that 'they pass through life; detraction and opposition their sole offering to others who are able and disposed' to 'do good and to discover'.(236). To such people Francis De Quincey attributed all the forms of opposition to anaesthesia. Thomas De Quincey was more blunt. He asked,

'is there are real religious scruple at the bottom of these objections? Is it not a jealousy of Professor Simpson's great discovery that really speaks through this jesuitical masquerade of conscientious scruples?'(237)

This contribution is interesting. The younger De Quincey's views were clearly designed to be acceptable to Simpson, his teacher(238), and are thus predictable, but the note by his father - a perceptive layman with neither a medical nor a theological training - indicates the sort of views which could be held by a man brought up in the evangelical tradition(239). These views confirm that antagonism to obstetric anaesthesia was neither universal, nor automatic, amongst the educated general public.

Certainly, at least some of the medical profession were very strongly in favour of regarding anaesthesia as a God-given gift, as this final anonymous quotation (from the correspondence columns of the Lancet) indicates:

'A distinguished physician of one of the great metropolitan hospitals addresses us as follows:
"The greatest blessing vouchsafed, in these latter days, to those who live on earth, is, for the present, in the keeping of one class of men, and of that alone. The prevention of pain by the inhalation of ether vapour has been hitherto practised only by those whose business is with the healing art. As yet, this gift from Heaven to all is held by us of the medical profession in special and exclusive trust. It is time that we acknowledge the Giver. Let not this warrant of mercy pass from us to the world at large, without the stamp of worship and thanksgiving. It has been often said by the pharisee, that, as a class of men, physicians and surgeons are wanting in the sentiments of love and reverence to Him whose sentence is for life or death. Let us refute this idle and petulant slander now, while occasion serves, at once and for ever. Let the chaplain of every hospital in which these wonders have been witnessed, be invited BY THE MEDICAL OFFICERS of the establishment to offer up their humble and hearty thanks for the late mercies vouchsafed to the patients under their charge. Let every student in every class-room humble himself, with his teacher, in the presence of an agency which renews in suffering man the healing miracles of old. There should be public acts of thanksgiving throughout the land, for this signal favour to man present and to come. Let young and old be earnest for this privilege, with their clergy, and let physicians and surgeons be the first to bow the knee." (240).

3.3. THE PRINCIPAL PARTICIPANT - JAMES YOUNG SIMPSON

As will now be obvious, the 'conflict' between religious beliefs, and the use of anaesthesia in obstetrics, centred upon James Young Simpson of Edinburgh. All other writers on this subject were either quoting, or paraphrasing, Simpson or making the general
observation that all advances in medicine were the gifts of God, to be taken and enjoyed by mankind. It will also be noted that only in Britain — and particularly in Scotland, the home of Simpson — has it been said that the 'religious objections' received any prominence, despite widespread objections to the use of obstetric anaesthesia elsewhere on other grounds. Therefore it is necessary to consider the character of Simpson, and his attitudes to anaesthesia and to religion.

It has generally been held that James Young Simpson was a deeply religious man, who was notable for practising in his daily life the Christian virtues taught by the church. While this is a true generalisation it is less often appreciated that Simpson's 'conversion' to active Christianity was a phenomenon of his later life, and that until 1861-62 his Christian virtues were probably no greater than those of many of his colleagues.

As a child Simpson grew up in a fairly typical Scottish home, the son of the village baker at Bathgate in Midlothian. Simpson's parents — especially his mother, who died when Simpson was aged nine — were God-fearing, even devout Christians, but apparently no more so than was common amongst Scots country folk in the early nineteenth century. From his birth in 1811, until he became a student in Edinburgh in 1825, Simpson showed no exceptional religious interests, nor was his student life measurably different from that of his contemporaries.

Simpson qualified as a Member of the Royal College of Surgeons of Edinburgh in 1830, and graduated M.D. in 1832, at the age
of 21. He married his cousin, Jessie Grindlay of Liverpool, in December 1839, and six weeks later crowned his increasingly successful career as an obstetrician by being elected to the Edinburgh Chair of Midwifery, at the age of twenty-eight (242) (Fig. 2.2).

Writing of the period following Simpson's acquisition of the Chair of Midwifery (1839-41) Duns commented that:

"While attracting the attention of men by the manifestation of great powers, and intermeddling with most branches of knowledge, if not literally speculating de omni scibili, it is remarkable that, up to this period, there is scarcely a trace among Dr Simpson's papers and correspondence of the least interest in religious matters, or even in the state of the Scottish Church, which, for several years, had been getting much attention from thoughtful men ... In a word, there was that baptized heathenism which often becomes the broken reed on which noble and richly-endowed minds are content to lean. Several Churchmen, more than Church matters, had attracted his attention, in connexion with their advocacy of schemes of philanthropy. But it is abundantly evident that he had never thought deeply, if at all, on his own relation to God, or his own hopes in time and for eternity" (243).

After his marriage Simpson attended St Stephen's Church in Edinburgh, where he fell under the evangelical influence of the minister (then Dr William Muir) and "began to think about religion, but without any efforts to become religious" (244). Simpson was obviously much influenced by Dr Muir, for at some time in 1842 he wrote to his brother Sandy of the apparently imminent disruption within the church (245):
'Great Church discussions here! Twenty-four of our Edinburgh clergy are to go out. I am half pleased that I am not sitting under one who does go. Dr Muir remains - If otherwise, I would certainly have seceded too. I have wagered Mr Angus that 400 ministers at least will leave their churches' (246).

In the event the disruption took place a year later, on 18 May 1843, when 474 of the 1203 ministers of the established church seceded. Dr Muir was not one of these, although Simpson did join with the seceders.

William Muir (1787-1869) was one of the more influential ministers in the Scottish kirk at this time (247). Educated and ordained in Glasgow, he had come to Edinburgh in 1822, and in 1838 was Moderator of the General Assembly. A learned theologian, Muir was also a man of profound tolerance and moderation. During the troubles within the church, leading up to the disruption of 1843, he spoke forcefully for reconciliation between the parties to the dispute over patronage (248). Although his sympathies were with Chalmers and those who seceded in 1843, Muir remained within the established church where he was much consulted by the government on the question of patronage, and occupied a position of much influence. It is very probable that Muir's role in attempting to reconcile conflicting factions within the church impressed Simpson as a worthy example of practical Christianity - a model which may have influenced Simpson's own later attempts to reconcile the apparently conflicting interests of religion and medical science.
Concerning the disruption of 1843, Duns' comment was that

"Dr Simpson had avowedly tried to keep clear of ecclesiastical discussions, and wished to be held neutral. But he soon found this impossible. He could not continue indifferent to their bearings on the private rights of conscience, the rights and liberty of Christian congregations, the question of Church and State, national character, and political progress."

When the ministers walked out of the General Assembly in 1843

"All Dr Simpson's sympathies went with these men, and he became a Free Churchman."(249)

The disruption was partly a matter of church politics, and was essentially concerned with the principle of whether the church was to be ruled by God or by the state. Simpson's adherence to the Free Church has all the marks of a man supporting an act of principle which he admired. Thus far in his life, as Duns pointed out, Simpson had shown no particular interest in theology and it is the more surprising, therefore, to note that the first such interest was his concern about Parke's views (250) and the subsequent rapid publication of his pamphlet Answer to the Religious Objections ... in 1847. This latter document - an impressive piece of Biblical exegesis - was prepared by a man who had no theological background or training, and one is bound to wonder whether Simpson consulted with Chalmers, Muir, or any other theologians over its preparation (251). Although avowedly written 'during a day's confinement to my room - when convalescing from the prevailing influenza' (252), the pamphlet bears all the marks of considerable forethought and preparation.
Nothing is known of Simpson's relations with the clergy at this time, other than his admiration for Dr Muir. The first reference by Duns to his own friendship with Simpson dated from the latter half of 1849(253) - more than a year after the 'dispute' was said by Simpson to have been virtually over. At this time Duns noted of Simpson that 'one could not help noticing that his interest in religion was becoming more marked than before'(253).

The views of others coincided with Duns' upon the simplicity of Simpson's religious faith up until this time. Gordon described him in 1897 as having possessed, prior to 1861, 'to the full the national characteristic of intimate acquaintance with the letter of the Old and New Testaments'(254), while his youngest daughter Eve said that

'He had perfect reliance and belief in Divine mercy and love, and this had been implanted in him as a child and grown up with him'.

She also commented that

'The simplicity of his nature, despite his deeply thoughtful mind and his argumentative abilities, led him to believe in the gospel with the perfect, unquestioning belief of a child. He knew his Bible from cover to cover'; but

'He was no theologian. His faith had come to him as if inborn'(255).

Simpson's eldest child, his daughter Maggie, had died in 1844 aged 4 and this event had certainly caused him to think more closely of the Almighty, but the pamphlet of 1847 and letter to Protheroe Smith of 1848 were the first outward expressions of
Simpson's interest in theology; they were to be followed by other examples. There is no doubt that the illness and death of Simpson's childhood friend John Reid also moved him deeply. During the onset of Reid's final agonies in 1848 he was converted to an active Christian faith, and this deeply impressed Simpson. Reid died in July 1849, in great pain but at peace with his Maker (256), and Duns dated Simpson's own growing interest in religion from this event and time (253).

In 1851 Simpson joined the attack then being mounted upon the practice of Homoeopathy, (introduced by the German Dr Hahnemann) with a speech to the Edinburgh Medico-Chirurgical Society. This speech was published in 1851 as a pamphlet, revised in 1852, and incorporated into a lengthy tract in 1853 (257), one chapter of which was headed 'Notes on the peculiar theological opinions of some of Hahnemann's disciples ... moral and religious symptoms produced and cured by some homoeopathic drugs'. Hahnemann had (for homoeopathists) a charisma not dissimilar to that of some nineteenth century American religious leaders, and newly qualified homoeopathists were required to subscribe to a religious oath concerning their future practice.

In addition to a lengthy - and skilful - attack upon homoeopathy on clinical and scientific grounds, Simpson took some trouble to attack it upon grounds of religion. Unlike his defence of anaesthesia in 1847, which had relied largely upon philology, Simpson's religious attack upon homoeopathy was based upon its nature as a heresy (which he compared closely with Mormonism (258)), and the apparent blasphemy of homoeopathists in their references to Hahnemann. In a darker vein, homoeopathy was also likened to witchcraft in that it played upon common credulity (260).
It is apparent that through the 1840's and 1850's Simpson was slowly entering a period of his life in which religion was coming to mean more and more to him, prior to his momentous 'conversion' at Christmas 1861, when he entered fully into a life of deep commitment to Christ, which was to last for the final ten years of his life. Beyond noting the fact and the date of Simpson's 'conversion' (which is well reported and documented in the biographies of Simpson and in the Dictionary of National Biography, and which coincided with the peak of the Edinburgh Revival of 1860-61), it is not necessary to consider this here, other than as the culmination of a long process. Within this process the writing of his pamphlets Answer to the Religious Objections ... and Homoeopathy... were early examples of Simpson's concern with religion.

The progress of Simpson's religious interests in this period are summarised in Table 2.4 below and, for greater clarity, placed in the context of his professional life in Fig. 2.3. It will be noted that Simpson's Answer to the Religious Objections ..., and the subsequent development of his arguments in the letter to Protheroe Smith (262), came at a time when his interest in religious matters was stirring into life, and were the first of his public disputations upon theological topics. It will also be noted that, coincident with his growing interest in religion, Simpson started to develop interests in very many aspects of medicine, and expand his childhood interest in archaeology, in which he became an acknowledged expert. These interests, as reflected in his writings, are shown in Fig. 2.3 (263) and help to illustrate how Simpson, once his professional future was secure, started to broaden his horizons with a seriousness of purpose which had hitherto not been possible.
<table>
<thead>
<tr>
<th>Date</th>
<th>Interests in Church 'Politics'</th>
<th>Personal Experiences of Religious Significance</th>
<th>Public Disputation of Theological Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1842</td>
<td>Expressed sympathy with 'political' dissenters within established church.</td>
<td>Death of Margaret, his first child, (aged 4).</td>
<td>Publication of Answer to the Religious Objections (to obstetric anaesthesia)</td>
</tr>
<tr>
<td>1843</td>
<td>Secession, and formation of Free Church. Simpson joined with seceders.</td>
<td>Death of his daughter Mary (in infancy).</td>
<td>Publication of his letter to P. Smith (on religious objections to anaesthesia)</td>
</tr>
<tr>
<td>1844</td>
<td></td>
<td>Illness and conversion of his friend John Reid.</td>
<td>Lecture on Homoeopathy, including religious aspects.</td>
</tr>
<tr>
<td>1847</td>
<td></td>
<td>Death of his friend John Reid.</td>
<td>Publication of revised pamphlet on Homoeopathy, including religious aspects.</td>
</tr>
<tr>
<td>1851</td>
<td></td>
<td></td>
<td>Publication of book on Homoeopathy, including religious aspects.</td>
</tr>
<tr>
<td>1852</td>
<td></td>
<td></td>
<td>Involved in much public speaking and sermons on religious topics.</td>
</tr>
<tr>
<td>1853</td>
<td></td>
<td></td>
<td>Involved in much public speaking and sermons on religious topics.</td>
</tr>
<tr>
<td>1861</td>
<td></td>
<td>Growing sense of Christian commitment culminating in his personal 'conversion' on Christmas day.</td>
<td></td>
</tr>
<tr>
<td>1862</td>
<td></td>
<td>Death of his son Jamie (age 16). Much encouragement from friends in his new religious life.</td>
<td>Dispute over theology of the Westminster Confession, when elected an Elder of the Free Church.</td>
</tr>
<tr>
<td>1863</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1866</td>
<td></td>
<td>Death of his brother David, his son David (age 24) and daughter Jessie (age 17).</td>
<td></td>
</tr>
<tr>
<td>1867</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fig. 2.3

WRITINGS ON:
- Hospitalism
- Public Health
- 'Listerism'
- Syphilis
- Removal of coccyx
- Acupressure
- Surgical sutures
- Paediatrics
- Homoeopathy
- Mesmerism
- Archaeology / History
- Operative mortality
- Transfusion
- Pharmacology
- Wound dressings
- Anaesthetics
- The Medical profession
- Leprosy
- Medical politics
- Contagion
- Anatomy & Physiology
- Hermaphroditism
- Obstetrics & Gynaecology

Introduction of
Obstetric anaesthesia

Interest in
Church 'politics'

Personal experience
of religious
significance

Public disputation
of theological
significance

Personal and public
commitment to
active christianity

Qualified:
A = LRCS
B = MD
C = Married
D = Elected Professor of Midwifery
E = President of RCS (Ed)
F = President of Edin. Med.
G = Baronet Chir. Socy.

Age
20 30 40 50 59
All of Simpson's biographers agree upon his meticulous way of studying a new field of interest by careful research into the history, theory, practice and implications of the subject. Most of Simpson's interests resulted in the numerous publications by which the perambulations of his roving and never-quiescent mind may be plotted.

The year 1847 marked a watershed in Simpson's career. Outside his own professional area anaesthesia was only one of Simpson's many concerns, but it happened to coincide, in 1847, with the growth of his attention to religion: what more natural than the juxtaposition of the two subject areas in Simpson's keenly analytical mind, resulting in a study of their supposed inter-relationship?

Simpson's belief was that the introduction of any new concept into medical science aroused opposition, and he cited the case of vaccination to illustrate a previous example of this (264). This view was reiterated in later years when he had to defend another of his innovations (acupressure). He then said that 'No improvement in our profession has ever, perhaps, succeeded without, in the first instance, being more or less strongly and strenuously opposed' (265).

Simpson was a man of entirely exceptional talents, and there appears little doubt that it was his interest in religion which brought to the fore the 'conflict' over obstetric anaesthesia. To what extent this 'conflict' was, in fact, a product of his own mind has been considered in section 3.1.3; but without Simpson there can be little doubt that any conflict which did exist between religious belief and anaesthesia would have received but scant attention, either at the time or since.

85. The Institution's minute book gives the title of the paper as 'On the moral propriety of administering aether in other than extraordinary cases. The version quoted in the text is that given by Parke in his later pamphlet based upon the paper. (Op.cit).


87. Ibid. p.221.


'Mr Parke read a paper "on the moral propriety of administering aether in other than extraordinary cases". He laid down many strong objections to the indiscriminate use of aether and chloroform and expressed a fear that insanity would be one of the results of most frequent occurrence were such a course persevered in. The discussion turned on the use of these agents in labour. Mr Batty, Mr Banners, who thought that convulsions would be frequently induced, and others spoke in disapproval. Mr Waldie, Dr Orpen, Dr Ramsay and others also joined in the discussion and the meeting separated at half past nine.'


90. See Section 3.1.2.

92. Ibid. p.11.

93. Ibid. p.12. Parke also included on the cover of his pamphlet the text 'Despise not the chastening of the Lord - Heb. xii.5'.

94. Smith, P. Scriptural Authority for the Mitigation of the Pains of Labour. London: Highley (1848).


99. Haggard, H.W. Devils, Drugs and Doctors. New York: Halcyon (1929). p.107. Haggard not only confused the cases against Eufame Macalyane and Agnes Sampson, he also introduced the suggestion that the case(s) was tried before the King in person - for which there is no evidence at all.


140. Sections 2.2.1 and 2.2.2.


144. William Featherstonhaugh H. Montgomery (1797-1859) was a prominent Irish obstetrician who qualified, and spent the whole of his working life, in Dublin where for thirty years he held the Chair of Midwifery. Despite his high repute the only biographical notes which have survived are contained in three short and anonymous obituary notices (*Med. Times & Gaz.*, xl. (1859). p.664; *Lancet*, ns.i. (1860). p.24; *Dublin quart. J. med. Sci.*, xxxiii (1862).p.250) which mention only his professional career. No personal details can be traced, and the only hints of his religious views are those contained in a hitherto unpublished letter to Simpson (referred to below) dated 27 December 1848, and his paper 'Objections to the indiscriminate Administration of Anaesthetic Agents in Midwifery' (*Op.cit*) published in 1849. From these sources it appears that Montgomery professed a belief in God and in his omnipotence. He expressed the view that all pain was ordained by God, but balanced this with the view that the medical practitioner had the right to use all of God's gifts to alleviate suffering. The viewpoint is suggestive of a conventional Christian belief with no strongly held theological bias. Montgomery also hinted at contempt for those who quoted scripture selectively in support of a cause (See sect.3.1.1).

146. The difficult punctuation of Montgomery's letter has been left unaltered, but the sense is clear enough.


149. I Tim., 4. 4. 'For every creature of God is good, and nothing to be refused, if it be received with thanksgiving.' Jas. 4. 17. 'Therefore to him that knoweth to do good and doeth it not, to him it is sin.'

150. Ibid. p.336.


154. The work of cataloguing this huge and important collection has recently been completed by the College Librarian, Dr. I. Simson Hall, to whom I am indebted for access to some of the correspondence and for permission to reproduce some of this which has not appeared in print elsewhere.


The article referred to in this passage was a review article published anonymously, and based upon three sources; Robinson, J. (Op. cit); Simpson, J.Y. 1847a (Op. cit); and the medical periodicals passim. It appeared as Art. VII in The North British Review 7 (1847). pp.169-206.
157. (Contd.)

In the event this review article did conclude with just over half a page of comments in a religious vein. These merely asserted that anaesthesia, like vaccination, was a gift which came of God, and went on to remind readers of 'the sovereign power of Him who doeth all things wisely and well' and 'is all bountiful, as he is omniscient and almighty'.

These final two paragraphs were written in a different style from the rest of the article and are purely theological in tone. They may well have been penned by Chalmers. There is no reference to any possibility of religious objections to anaesthesia, in midwifery or elsewhere.

158. Thomas Chalmers was one of the most notable figures in nineteenth century Scottish church life. Born in 1780 and brought up as a strict Calvinist Chalmers was licensed as a preacher at the age of 19, became Professor of Moral Philosophy in St. Andrews University in 1823, and of Divinity in Edinburgh University in 1828. He became Moderator of the General Assembly of the Free Church of Scotland, which position he held, together with the chair of Divinity at New College, Edinburgh, until his dramatic death during the General Assembly of 1847. Chalmers was the author of one of the eight Bridgwater Treatises and a recent assessment of him has averred that 'his theology was Calvinistic, with the stress rather on the needs of man than on the election of God' (Oxford Dict. of Christian Church. London: OUP. 2nd Edn. 1974). If true, this may have affected his attitude to the propriety of anaesthesia.

159. See Section 3.2.3.


163. Simpson, J.Y. Draft of letter to Dr. Protheroe Smith.
Undated, but known to be early 1848. M.S. in collection of Royal College of Surgeons, Edinburgh. Hitherto unpublished. Quoted by permission of the librarian. A similar view was expressed in an undated letter to Simpson from a Dr. R. Malcolm of Edinburgh, who said:

'Since Nov. last I have employed Chloroform in above thirty cases of Labour and with the most delightful and satisfactory results... I have repeatedly found the mothers of my patients object to anaesthesia - as if they grudged that their daughters should not experience the same sufferings as themselves, - but I have uniformly found them afterwards as grateful as their daughters for the relief administered.'

This hitherto unpublished letter is in an uncatalogued recent acquisition of Simpson correspondence in the National Library of Scotland, Accession No. 5683.


165. The only record now extant of this diary is the copy made by Princess Beatrice after the Queen's death, when the originals were burned. This passage is quoted by Thomas, K.B. in The Development of Anaesthetic Apparatus. London: Blackwell (1975). p. 233.

Despite the fact that the anaesthetist present for the birth was Dr John Snow, at least one commentator has fantasised the incident to include the presence of Simpson, with no regard to factual accuracy or the relevance of dates. See Bankoff, G. (Op. cit). p. 195.


167. Section 3.1 and Appendix VI.
168. e.g. Refs. 8, 41, 42, 49, 64, 89, 134.


171. See Section 3.3.


173. See Section 3.2.3.

174. This latter quotation had been the text of the first sermon preached in support of vaccination half a century earlier. (See Part I, Section 3.2.1).


177. The manuscript catalogue of books in J.Y. Simpson's personal library (in the possession of the Royal College of Physicians, Edinburgh) contains no entry for any Bibles, commentaries, or other theological works (apart from Row's History of the Kirks of Scotland). The 2200 entries are nearly all of medical works published up to 1853, and probably are not inclusive of all of Simpson's books. I am indebted to the librarian of the Royal College for allowing me to study this catalogue.


195. See Section 3.3 below.

197. Ibid. p.44.


200. Ibid. p.46.

201. Ibid. p.47.

202. Ibid. p.52. In the original draft of the letter (Op.cit), Simpson had originally written: 'will find no condemnation in the Bible which (is the) Word of God'.


207. Aberdeen University (King's College). Minutes of Court. 11 July and 31 July (1844).

208. In 1848 J.Y. Simpson, in his letter to Smith (op.cit) referred to some letters he had received 'from some men of high rank in your church; and a note in approval was brought to me, emanating from one of your most exalted and most esteemed episcopal dignitaries' (p.44).

209. Soho Hospital for Women. Minute Book. 15 June and 6 July (1870). The text is from Psalm 41. v.1.


211. e.g. Smith, P. (1848). Op.cit. p.18. 'Believing, then, that a knowledge of the dispensational character of God's dealing with man is essential to the clear perception of my argument, I shall venture here to enlarge a little on this subject ...'
212. Ibid. pp.18-30.


214. Ibid. p.17.


216. Ibid. p.31.

217. Ibid. p.33.


219. e.g. Ibid. Dedication. p.v.

'To J.Y. Simpson, M.D., F.R.S.E.

My Dear Dr Simpson,

I dedicate this little Work to you, that I may have the pleasure of recording the high estimate I entertain of your private worth, and of your professional character and attainments.

Your untiring efforts for the advancement of medical science, and for the alleviation of human suffering, have laid the public and the profession (which you so eminently adorn) under the deepest obligations to you, and I most sincerely hope you may be spared to a very distant day to realize those rewards which your unwearied industry, honourable bearing, and disinterested labours, cannot fail to command.

Such is the unfeigned and cordial desire of

Your faithful friend,

J. T. Conquest.'


221. Ibid. pp.141-52.

222. Channing was Professor of Midwifery and Medical Jurisprudence in the University at Cambridge, Mass. (USA).

223. Ibid. p.142.
George Rapall Noyes (1798-1868) was a unitarian clergyman who held the dual post of Professor of Hebrew and Oriental Languages, and Lecturer on Biblical Literature and Theology, at the Harvard Divinity School. He was described in the Dictionary of American Biography (London: OUP. 1934) as 'one of the ablest Biblical scholars of his day'.


Ibid. p.148.

Ibid. p.147.

Ibid. p.145.

Ibid. p.152.


(Nevertheless this attitude was sometimes adopted. See Part III, Section 2.1.4).

Ibid. p.35.

This was Thomas De Quincey (1785-1859), the famous prose writer and 'Opium-Eater', who lived in Edinburgh from 1828 until his death.

Ibid. pp.74-5.

Ibid. pp.7-9.

Ibid. p.85.

De Quincey's examiner wrote on the thesis: 'A chip of the old block - a most Creditable essay - worthy of competing'. The thesis was awarded a commendation.


Anon. (Correspondence). Lancet (1847), i. p.265.
241. Of the five full biographies of Simpson which have been published in English (i.e. those by Duns, J., Gordon, H.L., Simpson, E.B., Shepherd, J., and Simpson, M., all op. cit.) that by Duns is both an exceptionally helpful and potentially misleading work, in that Duns was both an old friend of Simpson's and also, as a fellow member of the Free Church of Scotland, particularly interested in recording 'Sir James's religious history'. It is largely from Duns' biography that factual details of Simpson's life have been drawn, however.

John Duns, DD; FRSE; FSA Scot. (1820-1909) was a minister of the Free Church of Scotland from its foundation in 1843. He became Professor of Natural Science at New College, Edinburgh, in 1864 and was at various times President of the Royal Physical Society, Edinburgh, and Vice President of the Royal Society of Edinburgh. The author (inter alia) of Biblical Natural Science (1863-66) and Science and Christian Thought (1866), Duns was notable as one learned both in science and religion, who sought to reconcile these two areas of study. (Brief biographical details are found in Who Was Who, 1897-1916).

244. Ibid. p.127.

245. The Free Church of Scotland was formed following a disruption from the established Church of Scotland in 1843. This disruption was essentially over the issue of patronage, and was widely regarded as a most honourable example of principle triumphing over self interest. A total of 474 ministers who joined the secession signed a deed of demission, in which they relinquished all emoluments and privileges received under the established church. A good - if rather simplified - account of the intricacies of Scottish church history is that by Burleigh, J.H.S. A Church History of Scotland. London: O.U.P. (1960). See especially pp.350-2.


251. It has not been possible to trace any correspondence between Simpson and either Chalmers or Muir. Sources searched include Chalmers, T. Selection from the Correspondence of Thomas Chalmers. Ed. Hanna, W. Edinburgh (1853); the catalogue of manuscripts in the library of the Royal College of Physicians, Edinburgh; the collection of Simpson correspondence in the Royal College of Surgeons, Edinburgh; the manuscript collection of the National Library of Scotland, (including a recent acquisition of uncatalogued correspondence of J.Y. Simpson - Accession No.5683); the catalogue of manuscripts in the library of New College, Edinburgh (of which Chalmers was Principal and Professor of Divinity from 1843 to his death in 1847).


256. Dr. John Reid (1809-49), an old school friend of Simpson, subsequently Professor of Anatomy at St. Andrews University, died on 30 July 1849 of a very painful cancer of the tongue. For an account of Reid see Wilson, G. Life of Dr John Reid. Edinburgh: Sutherland & Knox (1852).

258. Ibid. p.11.

259. Ibid. pp.21-2.

260. Ibid. pp.144-5.

N.B. Witchcraft was an offence in both England and Scotland until as late as 1736. The last execution for witchcraft in Scotland took place in 1722 - only 131 years before Simpson was writing.


263. Figure 2.3 was compiled from Russell, K.F. and Forster, F.M.C. A List of the Works of Sir James Young Simpson, 1811-1870. Melbourne: University of Melbourne (1971), which is the most complete bibliography of Simpson yet to appear. It lists 237 titles by Simpson, exclusive of reprints and duplication of papers and pamphlets, and classes some series of articles under single titles.

Figure 2.3 indicates the years in which papers on given subjects appeared, but not the numbers of such papers.


Apart from Protheroe Smith, virtually every contemporary writer who spoke either of religious objections or support for anaesthesia did so (a) following the publication of Simpson's pamphlet on the subject in 1847 and, (b) based his comments almost entirely upon that pamphlet. Protheroe Smith's own pamphlet excited no further comment at all. It seems clear that, by the middle of 1848, any agitation amongst the general public which had existed on the question of the religious propriety of anaesthesia had been almost completely satisfied. It has frequently been stated in modern commentaries that the religious dispute over anaesthesia was finally silenced by Queen Victoria's use of ether during the birth of Prince Leopold, which gave respectability to the practice. In fact Prince Leopold was born in 1853, five years after Simpson claimed that the debate was finished. Although the royal accolade for chloroform may well have helped quieten a few remaining tender consciences, it can have played no major part in resolving any general conflict.

The 'conflict' between religious belief and medical practice over anaesthesia, contrary both to popular understanding and to much modern commentary, was short, restricted, and centred around two men who were anxious to see that no such conflict could result in any limitation of the spread of anaesthesia - especially in obstetrics. In short, despite a spirited battle between the protagonists and the opponents of anaesthesia upon medical, physiological, and even moral grounds, the religious issue was never a real factor in this particular medical development; nor was the anaesthesia question a
real factor in the mainstream of nineteenth century religious belief. The 'conflict' between medical science and religious belief, at this point was more imagined than real.

Three possible origins for the apparent conflict have already been considered (268), but there remains a final possibility - that some objections were indeed raised privately, but that a regular conflict is no more than a historiographical artifact. The evidence for existence of personal objections to the new practice, while slight, is nevertheless too definite to be disregarded (269) - especially as it extends to as late a possible date as 1852 (270). Simpson's Answer to the Religious Objections ..., published in 1847, appears to have brought to an end many of these fears, however, and it is this defence - rather than the objections themselves - which has been noticed by almost every commentator since (271).

It is possible that many historians of medicine, reading Simpson's pamphlet on the 'Religious Objections' and Duns' biography (the standard source for information on Simpson), have approached the subject with a preconceived expectation of a conflict, and have written accordingly, without sufficient critical assessment of the actual extent of religious opposition.

The facts that anaesthesia did receive only a cautious welcome from the medical profession (on other grounds), and that a number of medical practitioners did introduce a religious (or, more often, a moral) element into their arguments (272) may well have reinforced the impression of a regular conflict upon religious grounds.
Constant repetition of this theme over the last 100 years \((271)\) has so impressed the public with the reality of the 'religious conflict' over anaesthesia that it is probable that what is, in fact, no more than an artifact of historiography, has become sanctified as a historical 'fact' - a 'conflict' which actually never existed.

Personal reservations about anaesthesia upon religious grounds were certainly felt, but the lack of evidence, either for theological opposition to anaesthesia from the institutional churches, or of any widely held (or expressed) opposition on the part of individuals, is too significant to be discounted. It must be concluded that there never was any formal 'conflict' between religion and science at this point.

Finally, it is relevant to note two more general aspects of the question.

1. While attitudes to the relief of pain and suffering formed a major part of the (undoubted) general opposition to the introduction of anaesthesia, these attitudes were widely adopted on grounds of a contemporary understanding of the physiological role of pain, and not upon grounds of scriptural pronouncement. As already noted, the arguments from religious belief were confined to a very few people. The arguments from the medical view that pain was a salutary, and desirable, phenomenon and (in obstetrics) an occasional aid to diagnosis, were widespread, and were indeed sustained long after the 'religious' arguments were over \((273)\).
Despite the apparent brutality of surgery in pre-anaesthetic times, and the apparent insensitivity of medical practitioners to the suffering of their patients, there is no real reason, however, to believe that the medical profession in the nineteenth century was any less humanely motivated than in any other era – including our own. Undoubtedly some practitioners were consciously callous, and others indifferent to their patients' suffering, but this has been true during all periods of history of a minority of any particular group.

Pre-anaesthetic surgery demanded a hardened exterior attitude and appearance of its practitioners in order that they could continue in their terrible work: yet the motivation which drove men to undertake a living so distasteful in its daily detail, was no less noble than that which applies to-day – the eventual alleviation of human suffering, and the saving and prolongation of life. That medical practitioners accustomed to such work saw pain both as a natural phenomenon, necessary to survival, and as a useful index to the diagnostician, is not surprising. Men with the optimistic – and occasionally recklessly experimental – outlook of J.Y. Simpson were few, and the traditional conservatism of the medical profession helped to ensure that their less visionary (or less audacious) colleagues were not slow to criticise and question every new technology which departed from received orthodoxy.

Views on pain and suffering were strongly held in the first half of the nineteenth century, but on grounds of expediency and of an (as yet) imperfect understanding of human physiology. Nineteenth century objections to the relief of pain may appear mistaken when seen from a late twentieth century viewpoint, but they were honestly held in the light of contemporary knowledge and experience.
2. Religious belief concerning the role of pain, as expressed in the debate over anaesthesia was, surprisingly, related very little to institutional Christianity. Despite the strict adherence of the Calvinist churches to scripture as the ultimate authority no church, as an institution, made any pronouncement or comment upon the propriety - or otherwise - of anaesthesia. All of the comments which were made in a religious vein sprang from individual belief, or understanding of scripture. Not only did no institutional church comment, but the only two notable theologians whose opinion was sought (Chalmers and Noyes) saw no reason either to support or condemn anaesthesia on scriptural grounds.

This is not to say that institutional Christianity was bereft of views upon the significance and relevance of pain and suffering from a religious point of view, but the ability to annul pain by means of this one development in medicine must have appeared of no more relevance to the churches than it did to the individual theologians cited.

The two men who did consider the subjects of relief of pain and religious belief to be connected - Smith and Simpson - were from what might be termed 'the left wing' of the Christian church, an Evangelical Anglican and a Calvinist. While this fact might have predisposed their minds to consideration of any subject in terms of scriptural authority, it did not similarly move any of the countless other medical practitioners brought up within these (and similar) denominational beliefs to action upon this one point. One is bound to see religious beliefs concerning the propriety of anaesthesia as essentially personal, therefore.
It is indeed probable that, had Simpson not been the prominent and charismatic figure that he was, the whole controversy of religious belief versus medical science and technology, on the subject of anaesthesia, would have passed with as little notice as apparently did the comments of Protheroe Smith, and this particular area of (apparent) conflict would have been long since forgotten.
NOTES AND REFERENCES


267. See ref. 164 in Chap. 3.

268. See Sections 3.1.1., 3.1.2., 3.1.3.

269. Section 3.1.2.


271. Table 2.2, Section 3.1.

272. See Sections 2.2.1. and 2.2.2.

273. *e.g.* Papers by Nunn, R., Cooper, B., Pickford, J.H., and the letter of Meigs, C.D. to Simpson, dated 18 Feb. 1848 - all op. cit. Also note:-


(A directive concerning the use of chloroform, from the Director of Army Medical Services in the Crimea, reprinted).

'Dr Hall takes this opportunity of cautioning medical officers against the use of chloroform in the severe shock of gunshot wounds, as he thinks few will survive where it is used. But as public opinion, founded perhaps on mistaken philanthropy, he knows is against him, he can only caution medical officers and entreat they will narrowly watch its effects; for however barbarous it may appear, the smart of the knife is a powerful stimulant; and it is much better to hear a man bawl lustily than to see him sink silently into the grave'.
PART III

THE VALUATION OF FETAL LIFE

- Induced Abortion and the Caesarian operation.
INTRODUCTION

Of all the problems which have faced mankind over the centuries, one of those which has proved least amenable to solution is identification of the moment which marks the commencement of 'life'. Bound up with this has been the difficulty of defining life itself.

The ancients recognized a time of 'quickening', when the fetus in utero could be felt to move and, for many years, this point of 'quickening' was related to 'ensoulement' - the point at which the new individual received its soul. It was only about a hundred years ago that the interaction between the male sperm cell and the female ovum was shown to be the point of conception (1). It was also during the eighteenth and nineteenth centuries that the medical profession began to speak increasingly of fetal 'viability'. By this term was meant the stage of development at which the fetus (2) was theoretically capable of independent existence from its mother, and this period was (somewhat arbitrarily) set at about seven and a half to eight months of pregnancy. Thus by 1875 there were four stages at which it was possible to regard biological life as beginning:

1. Conception
2. Quickening - 40 to 80 days after conception
3. Viability - 7½ to 8 months after conception
4. Birth - 9 months after conception

Nor was this the only area of confusion, for birth itself was not a readily defined point in time. Was 'birth' the mere ejection of a single limb from the uterus - even if this was then
thrust back in order to allow the infant to be delivered in the normal head-first position - or was it the expulsion of the entire fetus? (3) Again, was one to regard the beginning of life as that point during the birth process when the infant drew its first breath, or did independent existence begin with the cutting of the cord? And what was the 'point of birth' when a child was delivered by means of a caesarian operation? None of these problems could be simply resolved and indeed they remain bones of contention and of legal dispute even to-day (4).

Arising from the differing views upon the commencement of life there naturally existed differing views upon the value of the fetus, especially as compared with that of its mother in situations when only one or the other could be expected to survive. Comparable with the biological views on the possible stages at which life might be thought to begin there existed religious views on the commencement of spiritual life, which might be:

1. 'Ensoulement' - varyingly believed to occur at conception or at quickening.
2. Baptism - which might take place (in exceptional circumstances) before birth, or after birth.
3. Conversion - when an individual actively accepted the Christian faith.
4. Physical death

Views upon the value of fetal life were, therefore, liable to be affected by religious belief as well as by scientific belief.

In practice the Roman Catholic church held that human life began at
ensoulement (a point which came to be seen as coincidental with conception) and that baptism was necessary for all mankind, so that all fetal life had an absolute value. This view contrasted with that held by those not of the Roman Catholic persuasion, who generally held that life began with birth and that baptism was not an essential sacrament. In this latter view, fetal life had no particular value and was always considered secondary to the existing life of the mother.

Procedures affecting fetal life - especially those of induced abortion, embryotomy, and the caesarian operation - came to be focal points of conflict as developments in medicine affected the application of these to the taking or saving of life, fetal and maternal. An area of conflict between medicine and religion appears to have existed upon this issue of the nature and value of fetal life, and it is to a study of this area that this section is devoted.
NOTES AND REFERENCES


2. The term used to define the product of gestation for the greater part of pregnancy is variously spelled 'foetus' and 'fetus'. The latter usage is that currently employed in obstetrics and will be adhered to, except when quoting original texts in which the former spelling occurs.

3. This type of problem is well exemplified by the case of Thamar, recounted in Genesis, 38, 27-30. 'And it came to pass in the time of her travail, that, behold, twins were in her womb. And it came to pass, when she travailed, that the one put out his hand: and the midwife took and bound upon his hand a scarlet thread, saying, This came out first. And it came to pass, as he drew back his hand, that, behold, his brother came out: and she said, How hast thou broken forth? this breach be upon thee: therefore his name was called Pharez. And afterward came out his brother, that had the scarlet thread upon his hand: and his name was called Zarah.' Resolution of the question 'which was the firstborn?' does not appear directly in the Bible but in subsequent genealogies the name of Pharez always appears before that of Zarah, implying that Zarah's premature appearance did not grant him the right of primogeniture. (e.g. Gen.46, 12; I Chron. 2, 4; Mt. 1, 3; Lk. 3, 33)

4. In 1974 the Law Commission reported to the Lord Chancellor on 'the nature and extent of civil liability for ante-natal injury', as a result of legal uncertainty concerning the rights of the fetus. The present state of the law was found to be confused and a list of 25 recommendations was appended together with a draft 'Congenital Disabilities (Civil Liability) Bill'. Inter alia it was proposed that

5. While tradition asserts that this operation was named after the emperor Caius Julius Caesar (B.C.102-44), who was alleged to have been born by this method, it is now widely accepted that the term is derived from the Latin verb caedere: to cut. In this latter event the procedure should properly be called the caesarian operation and this term will be used except where original sources are quoted which refer to the more popular 'Caesarian section'. A full discussion on the origin of the name of the operation is contained in Young, J.H. Caesarian Section, London: Lewis (1944). pp.2-4.
2. THE VIEWS OF THE MEDICAL PROFESSION

2:1 REASONS FOR UNDELIVERABLE PREGNANCIES

During the period prior to the twentieth century, when the caesarian operation was considered a high-risk procedure almost certain to cost the patient's life, the choice facing medical practitioners in certain cases was not an enviable one. In 1668 Mauriceau had shown that the pelvic bones are not separated in normal labour, so that the fetus must be delivered through a cavity of fixed dimensions. Where the conjugate of the pelvic brim was 2½ ins. (64 cm.) or less there was little or no chance of a full-term fetus passing through the pelvic cavity. In some cases the pelvic outlet was even smaller, so that there was no possibility even of any dis-membered part of the fetus passing through it.

The incidence of disproportionate pelves in Europe in the 18th and 19th centuries was relatively high due to the widespread poverty of the masses, which in turn ensured dietary deficiencies leading to rickets and malacosteon. This latter disease had a much greater prevalence in Britain than elsewhere, as was pointed out in 1880 by Harris who, in a comparison of the mortality of caesarian operations in Britain and the U.S.A., identified the causes of bad British results as stemming from patients who were unfit to endure any major surgery by reason of poverty, malnutrition, the presence of malacosteon (rare in the U.S.A.) and habitual heavy drinking.

Problems could also arise when, at the time of delivery, the fetus presented in an abnormal position (Fig. 3.1). In such
Fig 3.1  Fetal presentation at delivery

Normal

Abnormal: Breech

Face

Shoulder
cases the fetus could not always be turned to the normal position, to permit vaginal delivery.

The resolution of pregnancies in which, for any reason, the fetus could not be delivered entire per vias naturales, was achieved in one of four ways.

2.1.1 Induced Abortion

Even in comparatively recent times the terms 'abortion' and 'miscarriage' - essentially synonymous - have been confused, being commonly applied to the termination of a pregnancy before and after a period of four months' gestation, respectively. Common usage in the western world has tended to follow the convenient legal fiction that individual fetal viability can be determined precisely, on the sole basis of gestation\(^9\). Some early writers further confused the situation by including in the term 'abortion' any premature induction of labour which, in the light of the primitive state of paediatric medicine until quite recent times, resulted almost invariably in the production of a stillbirth or of a neo-natal death. In the present context 'abortion' will be considered as referring to artificial induction of the termination of pregnancy prior to a period when the fetus has reached a stage of development at which it might be considered to be capable of independent existence outside the uterus.

The spread of induced abortion as a therapeutic tool in modern times was at first slow. After the period when Avicenna's Canon was displaced as a principal text book in western medical
schools (i.e., the middle of the 17th century) no reference to induced abortion appeared in any medical writings until the latter part of the eighteenth century. The first public suggestion that abortion might be induced as a therapeutic measure was made by William Cooper, a London Doctor of Medicine, in 1769 during the course of a paper reporting the performance of a caesarian operation. Cooper's paper was read before a Society of Physicians in London by William Hunter, and published by the society in 1772(10).

The case concerned a 23-year-old woman who was 'much deformed' and in her second pregnancy. During labour it was discovered by Cooper that due to a constricted pelvis the fetus was not deliverable. At that time, it was alleged, no caesarean operation had been performed 'upon the living subject' in London for over a century due to the great risks involved, nevertheless Cooper attempted the operation, both mother and child subsequently dying two days later.

Such cases of a disproportionate pelvis rendering normal delivery impossible were not uncommon and in these cases the alternatives appeared to practitioners as little more than a sentence of death on the mother from shock, haemorrhage or infection if any interference was attempted, or from shock, exhaustion, haemorrhage, rupture of the uterus, renal failure, or infection if it was not. Truly this 'doctor's dilemma' required a solution and Cooper was not afraid to express his view. 'Before I conclude, allow me to propose the following question, viz. In such cases where it is certainly known that a mature child cannot possibly be delivered in the
ordinary way alive, would it not be consistent with reason and conscience, for the preservation of the mother, as soon as it conveniently can be done, by artificial means, to attempt to produce an abortion?\(^{(11)}\)

Cazeaux, writing in France in 1883, claimed that Cooper's question on the propriety of abortion 'was shortly afterward decided in the affirmative by most English practitioners\(^{(12)}\). In fact, no such opinion appeared in print in England for many years, although in France approval did come sooner. In 1813 Fodéré referred approvingly to induced abortion and, in his \textit{Traité Complet de l'art des Accouchemens} published in 1835, Velpau stated that he found it impossible to balance the precarious life of a fetus of three to six months with that of an adult woman with all her social commitments. In such cases, where full-term delivery was impossible, he did 'not hesitate to advise abortion in the first months of the pregnancy\(^{(15)}\). Velpau clearly distinguished between abortion ('\textit{Avortement provoqué}') and premature induction of labour ('\textit{Accouchement prématuré artificiel}'), restricting the latter to the period from seven months' gestation onwards.

The French accoucheurs and chirurgiens debated the propriety of \textit{avortement provoqué} at length - and with some heat - in a series of meetings of the \textit{Académie Nationale de Médecine} in Paris during the first quarter of 1852\(^{(14)}\).

Cazeaux, on behalf of a three-man commission, reported to the \textit{Académie} in favour of induced abortion in cases of pelvic
abnormality, but was opposed to it for other disorders, such as the excessive vomiting of pregnancy (i.e. hyperemesis gravidarum). This view was opposed by Dubois and by Danyau, who were both strongly in favour of extending induced abortion to include cases of severe vomiting, and by Bégin who was resolutely opposed to all induced abortion.

Briefly, the case for inducing abortion for severe vomiting of pregnancy was that in these cases the woman was unable to take nourishment - or even water - and if the pregnancy was not terminated by spontaneous or induced abortion she would die from exhaustion, malnutrition, and dehydration. Cessation of pregnancy generally brought about cessation of the near-continuous vomiting and was thus life-saving. This case was rejected by Cazeaux on the grounds that induction of abortion was not always successful in achieving the desired end (15).

Regarding cases of contracted pelvis Cazeaux had no doubts, and unreservedly recommended induction of abortion when the pelvic opening was less than 6½ centimetres (16).

The only voice raised during this debate to gainsay the principle of induced abortion was that of Bégin, who questioned whether induced abortion was absolutely without risk to the mother. Statistics for this type of operation were not known and the mortality and morbidity following it could only be guessed at; at the same time the risks of criminal abortion were widely stressed and it was not known to what extent these risks related to operator
competence rather than the operation per se\(^{(17)}\). A hundred and twenty years later a British report has suggested that the same criticisms are still valid\(^{(18)}\). Bégin's other point was that it is the way of mankind for 'usage to be succeeded by abusage' and that the instruments produced by 'those who today are so ingenious', and designed to make therapeutic abortion more easy, would inevitably fall into the wrong hands and make criminal abortion more easy than it had hitherto been\(^{(19)}\)\(^{(20)}\).

The Académie finally settled for a non-contentious course and, at the end of the debate on 30 March 1852, adopted a resolution which neither condemned nor approved any particular line of action.

By the end of the nineteenth century medical views were polarising. In considering indications for induced abortion the Canadian, Cameron, writing in 1899, based these upon the most clearly expressed statement of the situation yet to appear:

'The life of the foetus is dependent upon that of the mother; if the mother is allowed to perish, the foetus must perish with her. For the foetus the result will be the same in grave cases, whether abortion be induced or not: it will perish in either event. But for the mother it is entirely a different matter: her life may be saved by the speedy arrest of gestation.' \(^{(21)}\)

More precisely, Cameron divided the indications into two categories in which 'it may be said that the induction of abortion is justifiable (1) whenever there is such mechanical obstruction that the birth of a
viable child is impossible; (2) whenever the mother is suffering from such grave disease that her life is in imminent peril and can be saved only by the arrest of gestation

In the first category Cameron included the now classical case of a deformed pelvis (with the precise reckoning that 'when the conjugate of the brim is under 6 cm. (2.36 in.) the induction of abortion is indicated', together with 'mechanical' obstructions caused by tumours, carcinomas, certain 'displacements' of the uterus and 'Fixation of the uterus by adhesions'.

The second category is interesting in that it included not only the severe vomiting of pregnancy and recalcitrant haemorrhages which had been much debated as indications previously, but also heart disease and the conditions (but recently uncovered by the advance of medical science), of Pernicious Anaemia and Albuminuria. It was becoming clear in this work that, once accepted in principle, induced abortion for therapeutic purposes may be extended to include more conditions than had been dreamed of in most nineteenth-century medical philosophies.

The techniques used to induce abortion, although subject to refinement, did not alter substantially from the time of Cooper until the eighteen-eighties, by when antisepsis, anaesthesia, and blood transfusion were all developing from hypotheses to technologies. A study of forty-two text books on obstetrics and gynaecology published in the century between 1825 and 1925 shows, in illuminating fashion, the development of induced abortion (Table 3.1). During the first sixty years of this critical period, of twenty-eight
<table>
<thead>
<tr>
<th>Date</th>
<th>Author(s)</th>
<th>Title</th>
<th>Country</th>
<th>Attitude to Induced Abortion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1826</td>
<td>Hamilton, J.</td>
<td>Outlines of Midwifery</td>
<td>Scotland</td>
<td>No ref.</td>
</tr>
<tr>
<td>1828</td>
<td>Burns, J.</td>
<td>Principles of Midwifery</td>
<td>England</td>
<td>No ref.</td>
</tr>
<tr>
<td>1829</td>
<td>Waller, C.</td>
<td>Elements of Practical Midwifery</td>
<td>England</td>
<td>No ref.</td>
</tr>
<tr>
<td>1834</td>
<td>Blundell, J.</td>
<td>Principles &amp; Practice of Obstetricy</td>
<td>England</td>
<td>No ref.</td>
</tr>
<tr>
<td>1835</td>
<td>Velpau, A.</td>
<td>Traité complet de l'art des Accouchemens</td>
<td>France</td>
<td>In favour</td>
</tr>
<tr>
<td>1837</td>
<td>Conquest, J.T.</td>
<td>Outlines of Midwifery</td>
<td>England</td>
<td>No ref.</td>
</tr>
<tr>
<td>1840</td>
<td>Cazeaux, P.</td>
<td>Theoretical &amp; Practical Treatise on Midwifery</td>
<td>France</td>
<td>In favour</td>
</tr>
<tr>
<td>1841</td>
<td>Rigby, E.</td>
<td>System of Midwifery</td>
<td>England</td>
<td>No ref.</td>
</tr>
<tr>
<td>1842</td>
<td>Lee, R.</td>
<td>Clinical Midwifery</td>
<td>England</td>
<td>No ref.</td>
</tr>
<tr>
<td>1845</td>
<td>Chailly, H.</td>
<td>Traité pratique de l'art des Accouchemens</td>
<td>France</td>
<td>In favour</td>
</tr>
<tr>
<td>1858</td>
<td>Tyler-Smith, W.</td>
<td>Theory and practice of Midwifery</td>
<td>England</td>
<td>Limited approval</td>
</tr>
<tr>
<td>1866</td>
<td>Churchill, P.</td>
<td>Management of labour in Contracted Pelvis</td>
<td>England</td>
<td>Doubtful</td>
</tr>
<tr>
<td>1867</td>
<td>Jones, W.H.</td>
<td>Traité complet d'Accouchemens</td>
<td>France</td>
<td>In favour</td>
</tr>
<tr>
<td>1867</td>
<td>Joulin, M.</td>
<td>On the Signs and Diseases of Pregnancy</td>
<td>England</td>
<td>Disapproves</td>
</tr>
<tr>
<td>1867</td>
<td>Tanner, T.H.</td>
<td>System of Midwifery</td>
<td>France</td>
<td>No ref.</td>
</tr>
<tr>
<td>1867</td>
<td>Leishman, W.</td>
<td>Manual of Midwifery</td>
<td>England</td>
<td>Disapproves</td>
</tr>
<tr>
<td>1873</td>
<td>Schroeder, K.</td>
<td>Advice to a wife</td>
<td>Scotland</td>
<td>No ref.</td>
</tr>
<tr>
<td>1875</td>
<td>Chavasse, P.H.</td>
<td>Contribution to mechanism of ... parturition</td>
<td>England</td>
<td>Disapproves</td>
</tr>
<tr>
<td>1876</td>
<td>Duncan, J.M.</td>
<td>Manual of Midwifery</td>
<td>England</td>
<td>No ref.</td>
</tr>
<tr>
<td>1876</td>
<td>Meadows, A.</td>
<td>Treatise on Science &amp; Practice of Midwifery</td>
<td>England</td>
<td>Disapproves</td>
</tr>
<tr>
<td>1876</td>
<td>Playfair, W.S.</td>
<td>Student's guide to practice of Midwifery</td>
<td>England</td>
<td>No ref.</td>
</tr>
<tr>
<td>1880</td>
<td>Swayne, J.G.</td>
<td>Observations on ... obstetric observations</td>
<td>England</td>
<td>Disapproves</td>
</tr>
<tr>
<td>1884</td>
<td>Barnes' R. and F.</td>
<td>System of Obs' Medicine and Surgery</td>
<td>USA</td>
<td>In favour</td>
</tr>
<tr>
<td>1889</td>
<td>Hirst, B.C. (Ed)</td>
<td>System of Obstetrics</td>
<td>England</td>
<td>In favour</td>
</tr>
<tr>
<td>1890</td>
<td>Lusk, W.T.</td>
<td>Science &amp; Art of Midwifery</td>
<td>USA</td>
<td>In favour</td>
</tr>
<tr>
<td>1890</td>
<td>Parvin, T.</td>
<td>Science &amp; Art of Obstetrics</td>
<td>England</td>
<td>In favour</td>
</tr>
<tr>
<td>1897</td>
<td>Dakin, W.R.</td>
<td>Handbook of Midwifery</td>
<td>England</td>
<td>In favour</td>
</tr>
<tr>
<td>1899</td>
<td>Taylor, J.W.</td>
<td>Extra-uterine Pregnancy</td>
<td>England</td>
<td>In favour</td>
</tr>
<tr>
<td>1903</td>
<td>Norris &amp; Dickinson (Eds)</td>
<td>Text Book of Obstetrics</td>
<td>USA</td>
<td>No ref.</td>
</tr>
<tr>
<td>1905</td>
<td>Jardine, R.</td>
<td>Clinical Obstetrics</td>
<td>Scotland</td>
<td>In favour</td>
</tr>
<tr>
<td>1906</td>
<td>Eden, T.W.</td>
<td>Manual of Midwifery</td>
<td>England</td>
<td>In favour</td>
</tr>
<tr>
<td>1912</td>
<td>Marshall, B.</td>
<td>Manual of Midwifery</td>
<td>Scotland</td>
<td>In favour</td>
</tr>
<tr>
<td>1921</td>
<td>Berkeley &amp; Bonney</td>
<td>Diff's (etc) of Obstetric Practice</td>
<td>England</td>
<td>In favour</td>
</tr>
<tr>
<td>1923</td>
<td>Fitzgibbon, G.</td>
<td>Practical Midwifery</td>
<td>Eire</td>
<td>In favour</td>
</tr>
<tr>
<td>1923</td>
<td>Kerr et al.</td>
<td>Combined Text Book of Obs &amp; Gyn.</td>
<td>England</td>
<td>In favour</td>
</tr>
<tr>
<td>1924</td>
<td>Fairbairn, J.S.</td>
<td>Gynaecology with Obstetrics</td>
<td>Eire</td>
<td>In favour</td>
</tr>
<tr>
<td>1925</td>
<td>Tweedy &amp; Wrench</td>
<td>Practical Obstetrics</td>
<td>Eire</td>
<td>In favour</td>
</tr>
</tbody>
</table>

Table 3.1
authors only six wrote approvingly of induced abortion; a further two had mixed opinions on the subject and, of the remaining twenty, sixteen made no reference to induced abortion while four positively condemned it. By contrast, during the ensuing forty years all but one of the fourteen authors studied wrote approvingly of the practice, and none spoke against it.

Apart from the obvious improvements in safety which came with developments in medical science, the reasons which underlay the change of viewpoint on induced abortion, dating from the mid-eighteen-eighties, appear to be complex. Prior to 1884 the only writers (of those listed in Table 3.1) who indicated approval of induced abortion consisted of three Frenchmen (Velpau, Cazeaux and Joulin), one German (Schroeder) and two Englishmen (Clay and Churchill). Those expressing opposition to the practice were all English (Tanner, Chavasse, Playfair and Radford). After 1884 approval was uniformly given by all of the writers studied. It is possible that personal religious views entered into the attitudes taken by some of the individuals named above, although there is no evidence of this and the only one of these of whom any strong religious convictions are recorded is Churchill (who was 'deeply religious' and an active supporter of the Episcopal church in Ireland\(^24\)). The views of some of these workers may also have been coloured by a form of special pleading for alternative procedures in which they had an interest. For example, Radford was the foremost supporter of the caesarian operation in the period to 1884 and believed that this operation allowed both maternal and fetal lives an improved opportunity of survival if the operation was performed electively.
Primarily, attitudes to induced abortion on the part of medical practitioners during the nineteenth century appear to reflect a growing acceptance of the procedure, as it became increasingly safe and certain in the light of developing medical technology.

2.1.2. The Caesarian Operation

Prior to the eighteenth century the Caesarian operation had been performed, (generally post mortem) with two prime intentions; (1) to save the life of a child whose mother had died before delivery, the pregnancy being sufficiently advanced to allow hope of a viable infant surviving; and, (2) to permit baptism of any child which was pre-viable but which might nevertheless live - however briefly - after its mother's death; this sacrament would thus ensure salvation for the child, in the eyes of the Roman Catholic church.

Medical opinion, prior to the second half of the nineteenth century, in general was strongly antagonistic to the idea of the caesarian operation other than as a post-mortem exercise. A typical view - and a very influential one - was that of Mauriceau, the most prominent French obstetrician of the 17th century. In his monumental Des Maladies des Femmes, published in 1668, Mauriceau considered the caesarian operation at length (25). It was Mauriceau's belief that 'When a pregnant woman is effectively in labour, it is only rarely that the expert surgeon cannot extract the child, dead or alive, whole or in pieces' (26). He did not believe in the
necessity of the surgeon 'by a too great excess of inhumanity, cruelty and barbarity, coming to the caesarian section while the woman is living, as some authors have rashly recommended, and others have themselves practised' (26).

The factors which combined to make the caesarian operation so fearful an option when normal delivery could not be effected were threefold:

1. The performance of major abdominal surgery in the absence of any knowledge of bacteriology, or experience of antiseptic or aseptic procedures (such as were later to be developed by Lister and his successors) meant an inevitably high mortality from sepsis - especially as, in closing the wound, no attempt was made to suture the uterus until late in the nineteenth century.

2. Blood loss from a vascular structure like the uterus could be severe - even allowing for massive contraction consequent upon the removal of its contents. Furthermore, failure to rapidly clamp off bleeding vessels must have not infrequently led to subsequent (possibly fatal) thrombosis.

3. Major abdominal surgery upon a non-anaesthetised patient would frequently lead to severe oligaemic shock, which was often fatal. Until the unhurried working permitted by the introduction of general anaesthesia this factor also claimed many lives.

Despite these problems a more optimistic view eventually prevailed in France, notwithstanding the earlier warnings of Mauriceau. One of the most remarkable surveys of the caesarian operation ever to
appear was produced by M. Simon in two papers published by the Académie Royale de Chirurgie in 1743 and 1753. In the first paper Simon surveyed the history of the operation and in the second he studied, in extenso, the indications for it. The two papers were very thoroughly and extensively documented and impress one with the very careful research and study which obviously went into their preparation.

Simon believed that the operation should be performed not only post-mortem, but also ante-mortem when delivery per vias naturales was not possible. He said 'I propose, in this memoir, to show that on such occasions, greater advantages are to be reaped from it than when it is performed in the first case (i.e. post-mortem): for when it is performed after the mother's death it is not only useless to her but also for the most part to the child, whereas I shall prove by a great many instances, that this operation performed in the second case (i.e. ante-mortem) has preserved the life of many mothers and many children'.

Simon's carefully reasoned advice was generally well marked in France but almost totally disregarded in Britain, where the operation remained more feared than understood. Very few caesarian operations were performed in Britain until the end of the 19th century and the reasons for this will be discussed below. It may be noted, however, that the maternal mortality of the caesarian operation was undoubtedly high, although it gradually improved with experience and with the development of new technologies.
In 1844 Kayser, of Copenhagen, surveyed 338 cases then on record, which dated from 1750 to 1839. An overall maternal mortality rate of 62% tended to hide a substantial improvement in safety with the experience gained over the period studied. The actual figures, broken down into shorter periods were:

1750 - 1800 117 cases = 68% mortality
1801 - 1832 148 cases = 63% mortality
1833 - 1839 71 cases = 49% mortality

It was also demonstrated that the length of time the mother had been in labour prior to operation materially affected the outcome, the mortality rates shown being:

Maternal
- Over 72 hrs labour : mortality 72%
- Less than 72 hrs labour : mortality 67%

Foetal
- Over 72 hrs labour : mortality 60%
- 24 - 72 hrs labour : mortality 33%
- Less than 24 hrs labour : mortality 28%

Another statistical survey (forming part of a report on an unsuccessful case in London in 1850) gave a very detailed breakdown of the causes of maternal death in 147 cases, including many of Kayser's series. These figures showed that most deaths occurred between 12 and 72 hours after operation. The causes were shown as in Table 3.2.
TABLE 3.2

Causes of Maternal Death following Caesarian Operations (33)

<table>
<thead>
<tr>
<th>Cause of maternal death</th>
<th>No. of cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemorrhage</td>
<td>14</td>
<td>9.5</td>
</tr>
<tr>
<td>Shock to nervous system</td>
<td>33</td>
<td>22.5</td>
</tr>
<tr>
<td>Inflammation</td>
<td>56</td>
<td>38.1</td>
</tr>
<tr>
<td>Haemorrhage and shock</td>
<td>9</td>
<td>6.1</td>
</tr>
<tr>
<td>Haemorrhage and Inflammation</td>
<td>18</td>
<td>12.2</td>
</tr>
<tr>
<td>Shock and Inflammation</td>
<td>11</td>
<td>7.5</td>
</tr>
<tr>
<td>Causes independent of operation</td>
<td>6</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td><strong>147</strong></td>
<td></td>
</tr>
</tbody>
</table>

From these figures it is clear that inflammation (i.e. infection) was a major factor in over one half of the fatal cases, either alone or in combination with shock (which in turn was implicated in more than one third of the fatalities), and with haemorrhage (perhaps surprisingly) being implicated in only just over one quarter of cases. It is notable that these three factors, all soon to become controllable by reason of developments in medical practice, were responsible for all but 6 of the 147 deaths analysed - that is 95.9% of the maternal mortality occasioned by caesarian operations in the period to the middle of the nineteenth century.

The caesarian operation thus came only slowly to be seen as a possible solution by which the life of a mother might sometimes be saved, and which might also occasionally save the child.

However, one area within which there existed marked differences of opinion was the fetal survival rate following post-mortem caesarian operations. Opinions within the medical profession
varied from the wildly optimistic to the absurdly pessimistic, while Roman Catholic theologians tended to quote only the results of those writers who claimed a substantial rate of success. As early as 1764 Canon Francisco Emanuel Cangiamila reported that in a number of cities post-mortem caesarian operations had proved to be very successful (Table 3.3), and concluded that the operation should therefore never be neglected:

**TABLE 3.3**

<table>
<thead>
<tr>
<th>City</th>
<th>Period</th>
<th>Operations performed</th>
<th>Number of Infants surviving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montreal</td>
<td>'A period of 24 years'</td>
<td>Not stated</td>
<td>21</td>
</tr>
<tr>
<td>Caltanisecta</td>
<td>1704 - 1748</td>
<td>60</td>
<td>55 (92%)</td>
</tr>
<tr>
<td>Victoria (Syracuse)</td>
<td>1734 - 1752</td>
<td>20</td>
<td>20 (100%)</td>
</tr>
<tr>
<td>Sambuca (Girgenti)</td>
<td>Not stated</td>
<td>22</td>
<td>18 (82%)</td>
</tr>
</tbody>
</table>

Some reports cited alleged survival at quite incredible intervals after the maternal death; for example in 1777 Bordenave mentioned a case of a woman who had died in the Hotel-Dieu about an hour after mid-day and who was opened at seven in the evening, with the production of a male child said to have then lived for a further two hours.(35). In the light of modern medical knowledge such stories must be regarded with suspicion, although remarkably little has been written within the last fifty years upon the incidence of fetal survival, related to the interval between maternal death and post-mortem caesarian operation.(36).
The last quarter of the nineteenth century saw drastic changes in the performance of the caesarian operation which, in a very short period of time transformed the procedure into a relatively safe, and therefore medically acceptable, solution to many of the problems of obstetrics for which it had hitherto been so widely rejected.

The changes which took place were of two sorts:

i) in the general sphere of medical science the more widespread use of anaesthetics, the development of Listerian principles of antisepsis and (later) asepsis and, with the turn of the century, the growth of blood transfusion, all served to make possible and safe

ii) the new techniques of surgery which were developed in rapid succession in attempts to reduce the risks to which women had hitherto been exposed.

During the first quarter of the twentieth century the caesarian operation thus achieved a position as a routine procedure of comparative safety which made other procedures for dealing with undeliverable pregnancies redundant.

2.1.3. Embryotomy

The resolution of an undeliverable pregnancy for many years was achieved, in Britain, by embryotomy.

The term 'embryotomy' may be used to embrace all destructive operations upon the fetus, of which craniotomy (perforation and breaking up of the fetal skull) was the most common. Embryulcia was another contemporary term used to include such procedures (Fig.3.2).
Decapitation might also be resorted to in the case of an impacted shoulder presentation. Such operations, performed upon a dead fetus in order to remove it with minimal risk to the mother, while they might be aesthetically unpleasant would strike few people as of questionable morality: when performed upon a living fetus the reaction might well be otherwise. In Britain, however, the operation was performed on a massive scale right through the eighteenth and nineteenth centuries, notwithstanding the objections of a few practitioners who were concerned with distinguishing between a living and a dead fetus in utero.

A major problem which faced any opponent of embryotomy upon the 'living' fetus was the difficulty of distinguishing a live fetus in utero from a dead one. The pulsations of the umbilical cord were used for this purpose, as was detection of the presence of the fetal heart's 'souffle' by stethoscope, but in the long run it was impossible to make entirely accurate diagnoses of fetal life in every case. Professor James Young Simpson of Edinburgh made the reality of this problem very clear:

'And, as if to add to the horrors of craniotomy, when performed upon a living infant, (he said) some authors (and among them even the very latest), tell us, that whatever doubts may have existed as to the child being alive or not at the date of operating, the results of the operation itself will decide the point; for if it be alive at the time of the deadly perforation of its scalp, skull, and brain, this fearful fact will be revealed to the practitioner by warm and fluid streams of blood pouring along his fingers and hand, before any masses of broken brain escape; or the reverse.'(39)
In France it was seen that embryotomy, apart from ensuring delivery of a dead infant, offered serious risks to the mother also. Reporting to the Académie Nationale de Médecine in 1852 Cazeaux concluded that 'Induced abortion being much less serious for the mother than embryotomy performed at the end of pregnancy, the medical practitioner can and must perform it for preference'\(^{(40)}\).

In Britain such comparisons were not held to be valid (see Sect. 4.2.1) and the position has been summed up by Young thus:

'The frequency with which craniotomy was performed in Great Britain was a great blot on midwifery practice in that country. The figures indicated a destruction of foetal life which we cannot look back to without a shudder, and justified the reproaches cast on British obstetricians by their continental and American brothers.'\(^{(41)}\)

It was not until the beginning of the twentieth century that the caesarian operation came to replace embryotomy in Britain.

2.1.4. Inaction.

In reviewing the problem of women who were undeliverable \textit{per vias naturales} one further alternative remains to be considered. In cases in which an abortion had not been induced early in pregnancy, and embryotomy was either unacceptable or impossible, a caesarian operation was the only physical alternative to allowing the woman to continue in labour until she died undelivered. That such a barbarous course of action as the latter could even be contemplated seems strange to modern thought, yet this was sometimes the case, so great was the terror held by the caesarian operation for many British practitioners.
One such case was described by Thomas Radford (1793-1881) in 1867. The patient, aged 21, unmarried and in her first pregnancy, had a badly deformed pelvis due to rickets. Consultation between a number of practitioners produced a majority decision against performing a caesarian operation and attempts were made - unsuccessfully - to break up the fetal skull sufficiently to remove the infant piecemeal; a further attempt made twelve hours later was also unsuccessful. A caesarian operation was again suggested but over-ruled. Radford reported that the woman was then abandoned to die, with a mutilated infant which had escaped into the abdomen through a rupture in the anterior wall of the uterus.

That such cruelty could be the result of a lack of reasoned thinking in many cases is instanced by the comment of Simmons in 1798 that 'Life is in the hands of God! and as there are cases of recovery by the powers of nature, working an outlet by Abscesses, and in other ways, the only hope for the patient's surviving is by a reliance on her aid'. A pious hope that nature would resolve a non-deliverable pregnancy (other than by a lingering and painful death) is evidence that the successful dissemination of scientific thought in medicine was not, at that time, far advanced.

It must be appreciated that cases of women dying undelivered for lack of a sufficiently bold surgeon were never common. Such cases occurred, and some are attested beyond reasonable doubt, but it should not be suggested that they were other than small in number. That these cases appeared to occur solely in Britain was a corollary of the British dislike both of induced abortion and the caesarian operation. This naturally led, in turn, to a relatively
large number of children un-deliverable per vias naturales due to the maternal pelvic anatomy, surviving to the full term of pregnancy and facing either embryotomy or inaction as the only alternatives.

2.2 RELATIVE VALUATION OF FETAL AND MATERNAL LIFE

As a generalization it may be stated that, throughout the eighteenth and nineteenth centuries, the medical profession tended to regard the fetus as of secondary value to the mother and expendable in her interests, although a number of practitioners differed from this view. In France, despite the pressures of the Roman Catholic church (see Chap.3) most authorities on obstetrics had taught this dictum. As early as 1668 Mauriceau, the first of the great French accoucheurs, wrote (concerning the caesarian operation): 'I am unaware that there has ever been any law, Christian or Civil, which prescribes martyring and killing the mother in order to save the child' (44). The anti-clerical fervour of the revolutionary period strengthened views of this sort and a typical nineteenth century approach was that of Velpau who, in 1835, explained his attitude thus:

'For me, I confess that I find it impossible to balance the precarious life of a fetus of three, four, five or six months, of an existence which is scarcely different from that of a plant, which has not yet got any bond with the outside world, with that of an adult woman with a thousand social connections, who we are enlisted to save; so that in such a case of extreme contraction (of the pelvis), if it is positively demonstrated that delivery at term would be impossible, I would not hesitate to advise abortion during the first few months of the pregnancy.' (45)
A similar view was expressed in the context of the caesarian operation before the Académie Nationale in 1852 by Cazeaux, easily the most influential of the nineteenth century French obstetricians. Cazeaux summarised the situation thus: 'In every case of a caesarian operation it is the tree in all its strength which is felled in order to gather the fruit. An adult is sacrificed, to whom her family and society look for numerous services, in order to save an infant who for a long time to come will require numerous sacrifices on the part of society and of its family.' (46)

The conclusion drawn by Cazeaux was that 'Placed in the cruel situation of choosing between the life of her child and her own preservation a woman has, by the law of nature, the right to choose to destroy the fetus. In this case, the medical practitioner can and must sacrifice the child to save the mother.' (47)

The only French voice to be raised in opposition to this thesis during the nineteenth century was that of Bégin who, in the course of the same debate in the Académie Nationale, refused to accept that any obstetrician could be certain of accurately measuring a pelvis, or had any right to kill a fetus.

'I have been brought up, medically speaking, (said Bégin) in the doctrine which is in harmony with my whole moral being, to understand our art as being supremely that of saving; this type of direct killing of a human creature, deliberately proposed, no matter for what motive, is an act which cannot in any case be part of it.' (48)

Bégin went on to point out that the practitioner advocating induced abortion was not saving a threatened life, but choosing between two
lives and ending one of them - a choice of life or death which he denied to be the right of any medical practitioner. Cynically he admired 'the ease with which, in this system, the medical practitioner finds himself changed into an executioner of that which a mother finds unacceptable within her'.

In Britain the majority French position was widely misunderstood. Dr. Charles Clay of Manchester, writing in 1856, summed up the position as he understood it. Having stated that pelvic deformity may 'render necessary, and even justifiable, the induction of abortion for the ejection of a non-viable foetus', Clay pointed out that

'This conclusion, however, must be received with some degree of limitation; the difference in value of the life of the mother compared with that of the child in this country, and in nations under the rule of the Catholic religion, necessarily points to opposite conclusions. In England, the practice is to sacrifice all to the safety of the mother; whilst in Catholic states, the child to be born is the principal object of solicitude, even to the sacrifice of the mother.'

The point missed by Clay, and by most other nineteenth century British obstetricians, was that in northern Europe, and especially France, medical practice was no longer 'under the rule of the Catholic religion' and differed little from that in Britain on the principle of the comparative values of fetal and maternal life. The difference lay in the means rather than the end.
The British attitude to the use of destructive operations upon the fetus essentially combined a pre-determined relativity between the values of maternal and fetal life with a disbelief in the possibility of maternal survival following caesarian operation. This was well expressed by Kinkead in 1880: 'The teaching of the British school has been most emphatic - that where a living child cannot be extracted entire per vias naturales, its destruction and mutilation are justifiable, and that the safety of the mother is always to be preferred to that of the child' (52). The view was elaborated by an anonymous writer in 1843 who, writing of the caesarian operation, said of the preference for crochet over scalpel:

'Long may our countrymen continue to act on this principle. Where are the circumstances that can ever warrant the certain endangerment, nay often the more than probable sacrifice, of a mother's life for the chance - and, be it remembered, it is nothing more - of preserving that of her child' (53).

Some British obstetricians took a different view of the relative values of mother and fetus, although these were minority attitudes throughout the nineteenth century. At the very start of the century John Hull, M.D., (1761-1843) noted that

'When a woman has conceived, whose pelvis is distorted in an equal degree from Malacostecon, whose life must necessarily be embittered by pains and infirmities, and who cannot be expected to live many months, provided her delivery can be safely effected, is it justifiable, or proper to sacrifice the child, by inducing abortion with the view of prolonging her miserable existence? I am of opinion, that it is not;
because the child's life is in this case of more value to society, to its friends, and to itself than that of the mother. Indeed the mother's life is often a positive evil to herself under such circumstances. (54).

Hull's example - the induction of abortion (necessarily, early in a nine-month pregnancy) proposed in a woman with a very limited life expectancy - was too uncommon a situation to be very convincing, but the principle of preferring the life of the fetus to that of its mother was clear.

This view was later developed by Radford, who was an admirer of Hull (and with whom he was contemporary), although Radford's thesis (55) was more carefully developed and presented in a less emotional manner than that of Hull had been. Pointing out that 'The British obstetric principle, which admits the preferential use of the crochet, or the induction of abortion, is based on a calculation made as to the relative value of life of the mother and that of the infant or of the embryo', Radford suggested that 'The impulse of natural feeling would probably - nay, nearly to a certainty - induce a man to decide in favour of the proposition that 'the life of the infant or embryo is of little value when compared with that of the mother'. It was Radford's view, however, that

'in the settlement of a question which involves the preservation or destruction of a human being, neither abstract reasoning nor feeling should be allowed to influence the obstetrician; - conscience, reason, and judgement, ought to actuate him, after having fully and deliberately considered all the relative and contingent circumstances which either now or in future appertain to the case'.
Radford pointed out that in some instances repeated craniotomy was called for and in individual cases 'from one to twelve infants have been destroyed' (56). He assumed that, at the time of marriage, neither partner was aware of any physical defect which might render normal delivery possible, 'otherwise they were solemnly called upon at the altar to avow it' (57). In view of this Radford felt that when such a defect became apparent in a first pregnancy craniotomy might be performed to save the woman's life, 'But, in a second pregnancy, when they are fully acquainted that an unmutilated infant cannot be born, the question stands on very different social and moral grounds' (56). Radford felt that

'The life of the woman is not, either relatively or comparatively, always of the same value. If she be afflicted with a serious disease, or labouring under some incurable malady, being unfit and unable to discharge her domestic and her social duties, which can alone render her life desirable to herself or to her friends, then, under such circumstances, the infant's life ought not to be sacrificed for the mere ideal chance of prolonging her miserable existence, which is a positive evil to herself' (56).

A similar view was expressed by Clay (58).

It was Kinkead of Dublin who, in an address to the Dublin Obstetrical Society in 1880, put his finger on the crux of the problem -- the nature of the fetus. He said:

'If the child's life was, in its essence, something different before birth from what it is after -- if whilst in its mother's womb, it had no separate existence -- if it was merely a portion of its mother,
and not a separate, distinct individual - if it was "a mere vegetative life" - then indeed the doctrine "that embryotomy stands first, and must be adopted in every case where it can be carried out without injury to the mother", or "with a reasonable prospect of safety to the mother" (59) would be established on a firm and unassailable basis, and we need have no more hesitation in removing the child, than we have in cutting off a leg or amputating a breast. But the case is widely different. Before birth the child is just as much a living, distinct individuality as it is after. It has as perfect a right to its life as its mother has to hers (60).

This 'distinct individuality' of the fetus had been recognised as early as 1777 by the French accoucheur Bordenave, who noted that 'The fetus has a circulation of its own, by which it metabolises the juices which it receives; its mother's respiration is not immediately necessary for it; it can therefore survive its mother, and be independent for the few moments necessary to maintain its life' (61). The same individuality was considered by Radford in 1880 when he asked rhetorically, in craniotomy,

'do we really consider the great social evil we may commit by thus destroying an infant in utero?...There are no physical marks or phrenological indications from which we can ascertain by an examination per vaginam whether there exists in the brain such an organic condition as might enable the individual to become a most valuable and shining member of society. I will just refer to one as an example. Suppose the head of Shakespeare had been opened, what would have been the loss to society!'
Radford's conclusion was that 'To prevent the reckless use of the perforator is an object of the highest importance, and claims the force of the restrictive influence of every obstetrician whose professional talents and reputation stand high in the profession'.

Such a man was Professor James Young Simpson and, lest it be thought that religious views on the morality of destroying fetal life were entirely Roman Catholic in origin, it should be noted that Simpson was a staunch Scottish Presbyterian who, in 1843, had joined the disruption within the kirk, from which was formed the Free Church of Scotland.

An obstetrician of paramount authority, Simpson said, 'Assuredly no man would consider himself justified, on any plea whatever, in perforating, and breaking down with a pointed iron instrument, the skull of a living child an hour after birth, and subsequently scooping out its brain. But is the crime less when perpetrated an hour before birth? Modern physiology has fully shown, that there is no such distinction between the mental and physiological life of an infant, an hour before labour is terminated, and an hour after it, as to make any adequate distinction between the enormity of the act, as perpetrated at the one or at the other of these two periods.'

In one special circumstance medical opinion was - and has remained - unanimous upon the necessity of destroying the life of the fetus. In ectopic gestations the fetus is implanted outwith the uterus - usually in one of the Fallopian tubes - and in this latter case is not capable of reaching maturity.

Writing in 1876 Parry, the first to successfully treat the condition by surgical means, was quite clear upon this point.
Rupture of the cyst will probably occur and end fatally before the end of the fourth month. To prevent this, and save the life of the woman, it has been proposed to destroy that of the foetus. No question of morality can enter into the consideration of this subject. There is no hope that the child will become viable, and if it should live as long as this, the history of the operation of gastrotomy for its relief shows that the results are so fatal to the mother, that the accepted custom of obstetrics, to save hers, as the more valuable life, when one has to be sacrificed, applies here with great force. If extra-uterine pregnancy has been diagnosed, there is no doubt about the propriety of destroying the life of the ovum, if this can be done without increasing the dangers of the mother (65).

That there were doubts concerning the 'propriety of destroying the life of the ovum' is clear from the case of Duncan and Mason, reported in 1883 (66), which was notable for the lengths to which the authors had been prepared to go in order to kill an ectopic fetus without resorting to surgery. The fetus was subjected to electrical currents, injections of morphia, 'electrolysis', and aspiration of the amniotic sac, over a period of fourteen days. Two days later the patient herself died. At autopsy the fetus was found to be macerated 'with the chief part of each bone bare... Almost all the internal organs are diffused in the surrounding fluid, or so soft as to be easily washed away. The heart hardly recognisable' (66).

Duncan and Mason's case, not surprisingly, was much criticized by their contemporaries. A typical comment was that of Tait:
"Such a record is positively discreditable to the art we practice, a series of ineffectual experiments were tried upon this poor mother and child, one after another involving fearful suffering and finally double death, when probably both lives might have been saved by following the ordinary rules of surgical proceedings." (67).

Precisely what Tait - a pioneer of the surgical excision of tubal ectopic gestations - meant by this last remark is unclear, for it is difficult to see how the life of the fetus could have been saved, even though one might agree with Tait that less drastic measures may not have cost the mother her life too.

It is probably true to say, however, that of all the measures ever proposed in the fields of obstetrics and gynaecology the termination of an ectopic gestation is the one which has generally received the most overwhelming and undivided support of the medical profession. The doubts expressed about embryotomy, induced abortion, and the mortality of the caesarian operation, find no echo in medical writings on this subject.
NOTES AND REFERENCES


7. Also known as mollites osseum. A condition caused by calcium deficiency in pregnancy. Probably the same condition as that now known as osteomalacia, which is only rarely seen outside famine areas.


9. In the United Kingdom The Offences against the Person Act (24 & 25 Vic. cap 100. 1861) made any action with intent to procure a miscarriage a felony (sec's 58 & 59). The Infant Life (Preservation) Act (19 & 20 Geo.V. cap 34. 1929) created a separate offence of 'child destruction', when a pregnancy is terminated at a period of 28 weeks gestation or thereafter.


11. Ibid. p.271.


15. Ibid. p.386.

16. Ibid. p.382. The problem of measuring the cavity of any particular pelvis might have appeared to be one of some difficulty, but as
early as 1787 J.L. Maudelocque published his *Principes sur l'art des Accouchemens, par Demandes et Réponses, en faveur des Sages-Femmes de la Campagne* (Paris: Méquignon), in which he described a simple and effective technique which he had developed after studying many women both in life and post-mortem (p.52). Until the development, and widespread use, of radiological methods the measurement of 'Baudelocque's diameter' was the universal method of determining pelvic dimensions.

20. It is interesting to note that a distinction between licit and 'criminal' induced abortion was being introduced on the basis of the operator's professional status rather than of the law, sacred or profane. Such a distinction has never been challenged from within the medical profession, although it was at various times contested in the courts (e.g. *Brit. med. J.* i (1920). p.589).
22. Ibid. p.196.
23. The selection of these 42 books was made arbitrarily. They consist of all the text books on gynaecology and/or obstetrics contained in the collection of Aberdeen University which were published between the dates stated and which do not treat exclusively of one topic within those specialties. The dates were also arbitrarily selected as covering a century, during which induced abortion developed from being a rarity in British medicine, to a commonplace procedure.
24. Sources of information included the Dictionary of National Biography, Plarr's Lives of the Fellows of the Royal College of Surgeons, obituary notices in the medical press, Who Was Who, specific biographies where these exist, and a study of the authors' own writings.


30. Ibid. p.99.


33. Ibid. Adapted from Table, p.84.

34. Cangiamila, F.E. Sacra embryologia, sive de officio sacerdotum, medicorum, et aliorum circa aeternam parvolorum in utero existentium salutem. 1st German Edn. Monachii & Ingoldstadii (1764). Lib II. p.119

36. J.H. Young (Op. cit) referred to a total of 16 cases between 1900 and 1940, most of which resulted in a living child. The intervals between maternal death and operation were stated for only four cases, and these varied from five to fifteen minutes.


38. Bumm, E. Grundriss zum studium der Geburtshülfe. Wiesbaden: Bergman (1903). Fig. 566. p.760.


43. Simmons, W. Reflections on the propriety of performing the Caesarian operation. Manchester (1798).


47. Ibid. pp.389-90 (Nos. 3-4)


49. Ibid. p.516.

50. Ibid. p.519.

52. Kinkead, R.J. 'Craniotomy and its Alternatives: Caesarian Section, etc.' Dublin J. med. Sci. 69 (1880) pp. 445-446.


   i) 'the causes for which Matrimony was ordained. First, it was ordained for the procreation of children'.

   ii) 'I require and charge you both as ye will answer at the dreadful day of judgement, when the secrets of all hearts shall be disclosed, that if either of you know any impediment, why ye may not be lawfully joined together in Matrimony, ye do now confess it.'

Although a reference to the Anglican prayer book, this charge to the bride and groom was based upon the York and Sarum Manuals, and thus continued the practice of the Roman ritual.

58. Clay, C. (Op. cit.) p. 10. (Induced abortion in a woman with a deformed pelvis, pregnant for a second time) 'amounts to neither more nor less than a premeditated destruction of human life, subversive of all moral law'.


63. For an assessment of Simpson's character and religious views see Part II. Sect. 3.3.

64. Simpson, J.Y. (1855). (Op.cit). Vd.1. p.602 His authority for quoting 'Modern physiology' as showing no distinction between the mental life of an infant an hour before and after birth cannot be traced. The physiological similarity had been noticed as early as 1777 by Bordenave (Op. cit).


3. THE VIEWS OF THE CHURCH

The religious views of most individuals in western Europe have always tended to be moulded by the corporate opinions of the institutional churches, except in the minority situation where outstanding individuals have themselves moulded the opinions of the churches. Religious views upon the value of fetal life, at least until the middle of the twentieth century, have emanated mainly from the Roman Catholic church, and only very rarely have they been expressed from outwith that church. It is, therefore, with Roman Catholic views that one must be principally concerned when considering 'the church' in this context.

In his 'Ethics' Aristotle defined life to include that which 'has a rational principle' and to exclude 'the life of nutrition and growth'\(^\text{(68)}\). Elsewhere Aristotle more closely defined the beginning of life as the period of 'quickening' (when the child could be felt to move in the uterus), which he stated to be forty days gestation for a male child and ninety days for a female child\(^\text{(69)}\). This 40-day/90-day 'rule' lingered on for many centuries, to become the core of protracted theological arguments on the 'period of ensoulement' of the fetus - and hence the period at which it may or may not be licit (in the eyes of the church) to destroy the fetus's biological life.

Broadly speaking, up to the end of the eighteenth century the view of the Roman Catholic church was that a fetus was a living human being, with a soul, from an early stage of its development - which was generally identified with Aristotle's period of 'quickening'.
This view later hardened to include recognition of the fact that independent life began at conception and, from this, it followed that all fetal life was of value. The Roman church regarded that value as being equal to that of any other human being.

3.1 THE HISTORICAL VIEWS OF THE ROMAN CATHOLIC CHURCH

Early church writings had condemned abortion\(^{(70)}\). Much of the later teaching of the Roman Catholic church was based upon the condemnation by Augustine (354-430 A.D.) in his 'Marriage and Concupiscence'. In considering married couples who avoided producing children Augustine said:

'Sometimes (Aliquando) this lustful cruelty or cruel lust comes to this that they even procure poisons of sterility, and if these do not work, they extinguish and destroy the fetus in some way in the womb, preferring that their offspring die before it lives, or if it was already alive in the womb, to kill it before it was born.'\(^{(71)}\)

During the twelfth century much canon law was formulated in the Roman church and amongst this, in a section of Gratian's \textit{Decretum}\(^{(72)}\) devoted to matrimony, the Augustinian denunciation was inserted \textit{verbatim} as the canon \textit{Aliquando}\(^{(73)}\), condemning abortion utterly and supplemented by a question proposed by Gratian himself - 'Are those who procure an abortion homicides or not?' The answer, quoting Augustine and St Jerome, was clearly in the affirmative, but with the qualification that this was so only when the fetus was formed and (thus) ensouled\(^{(74)}\). A later confirmation of this view...
was made by Pope Innocent III (1198-1216) in a decretal which dealt with 'voluntary and chance homicide'. This decretal became church law under Gregory IX (1227-1241) as the canon Sicut ex, which declared that homicide occurred only if an aborted fetus was 'vivified', which was taken to be the equivalent of 'ensouled'. This canon, however, was especially intended to decide whether a clerk in Holy Orders had incurred 'irregularity' - that is, he was to be suspended from the exercise of his office - in cases of homicide. A more widespread definition was included in the canon Si aliquis, published by Gregory IX (in the same decretals as Sicut ex) which declared that 'If anyone for the sake of fulfilling lust or in meditated hatred does something to a man or a woman, or gives them to drink, so that he cannot generate, or she conceive, or offspring be born, let it be held as homicide'. This canon thus expressly forbade sterilization, contraception, and abortion at all stages of gestation: it was to be another cornerstone of future Catholic thinking on the value of fetal life.

In the years which followed there was a tendency for the church to adopt a line concerning fetal life which was less severe than that indicated by Aliquando and Si aliquis, so that by the time of Pope Gregory XIII (1572-1585) the Sacred Penitentiary did not treat as homicide the killing of an embryo of less than 40 days gestation. It is probable that Sicut ex was largely responsible for this view, which was not shared by Pope Sixtus V (1585-1590) who, on 16 November 1588, issued the Bull Effraenatum which invoked the words of Aliquando and provided that the penalties under canon and civil law directed against homicide should apply to anyone...
responsible for an abortion at any period of gestation. The exception provided by Sicut ex was eliminated. Those found guilty of abortion were to be excommunicated by the church, with absolution from this punishment reserved to the Holy See alone. Shortly after this Pope Gregory XIV (1590-1591) bowed to pressures from within the church and in 1591 repealed all the penalties not relating to an ensouled fetus, noting that 'the hoped-for-fruit' (of the former legislation) had not resulted.

A belief in immediate ensoulement at conception was necessary for any theological arguments for the absolute value of fetal life. Perhaps the first work to express concepts contrary to the Aristotelian assertions on ensoulement was A Book on the Formation of the Fetus in which It Is shown that the Rational Soul Is Infused on the Third Day. Written by Thomas Ficinus (a French physician) and published in 1620, the object of the work was stated in its title. A more influential work published a year later (and much quoted by moralists in later arguments over abortion) was Paolo Zacchia's Quaestiones medico-legales. Zacchia, a Roman physician and philosopher, laid siege to Aristotle's concept of the fetus, which was accepted by his contemporaries. Denying the view of a fetus which moved through successive stages of vegetable, animal and rational ensoulment during its first forty days of life, Zacchia declared that such a 'metamorphosis' of souls was 'an imaginary thing' based upon no evidence. Zacchia's contention was that the 'rational' soul must be 'infused in the first moment of conception'. This new thesis on ensoulment was received favourably; although its immediate practical effect was admittedly
TEXT
CUT OFF IN THE ORIGINAL
slight, it provided a valuable basis for later thinking.

In the eighteenth century it was held by Constantino Roncaglia in his Congregation of the Mother of God that it was 'most probable that the fetus was ensouled at the moment of conception, or from the third or seventh day' (82).

Also during the seventeenth century, a commission was appointed to consider a number of theological problems. One hundred propositions taken from various sources, were sent to Rome for consideration. On 2 March 1679 all these propositions were condemned by the Holy Office, under Clement IX (1676-1689). Of these, two related to fetal life, suggested that:

34. It is lawful to procure abortion before one hundred propositions taken from various sources, these to Rome for consideration. On 2 March 1679 all these propositions were condemned by the Holy Office, under Clement IX (1676-1689). Of these, two related to fetal life, suggested that:

34. It is lawful to procure abortion before one hundred propositions taken from various sources, these to Rome for consideration. On 2 March 1679 all these propositions were condemned by the Holy Office, under Clement IX (1676-1689). Of these, two related to fetal life, suggested that:

35. It seems probable that the fetus (as long as it is in the uterus) lacks a rational soul and it must be said that no abortion is homicide.

These propositions (along with the other sixty-three) were called 'at least scandalous and in practice dangerous' (82).

Belief within the church in immediate ensoulment of the fetus was later enhanced by two Papal pronouncements. Clement XI (1700-1721) made the feast of the Immaculate Conception one of universal obligation (84), and in 1854 Pius IX confirmed the ancient belief in the Immaculate Conception as dogma that Mary, the mother of Christ, was conceived without sin.
from sin 'in the first instant of her conception' (85). These acts both tended to the discredit of the ancient belief in delayed ensoulment and favoured the thesis of Zacchia.

On the purely scientific front two nineteenth century discoveries set the final seal of disproof upon the old Aristotelian ideas. In 1827 Karl Ernest von Baer discovered the ovum in the human female (86) and in 1875 the joint action of this with the spermatozoon in producing a new human individual was demonstrated (87). Once it had been shown that a biological change took place at the moment of conception, producing an organism which could be distinguished more readily from its progenitor components than from any later stage of its development, no convincing argument remained to support the contention that ensoulment took place at any arbitrarily selected stage during fetal development, rather than at conception.

In 1869 Pope Pius IX, in the constitution Apostolicæ sedis (88), referring to the excommunication for abortion first promulgated in Effraenatum, had dropped the reference to the 'ensouled fetus', and a series of responses from the Holy Office between 1884 and 1902 (89) established a hard line against any interference with fetal life at any stage of development.
3.2. THE DESIRE FOR BAPTISM

The need to ensure baptism for the unborn child was at the root of Catholic concern for fetal life. The Roman Catholic argument for baptism was based upon a passage in the fourth gospel, and the apologia quoting this text was contained in the Rituale Romanum.

'Holy Baptism, the entry to the Christian religion and to eternal life (is that) which holds first place amongst other new Sacramental Laws instituted by Christ; in this, of all things, a promise at least is necessary to secure salvation, as is testified by the words: "Unless a man be born again of water and the Holy Ghost, he cannot enter into the kingdom of God" (John, 3, 5). Thus all that is necessary to that fit end is carefully applied and included in the administration of the rite.'

It is worth noting that, although the view that baptism was a necessary sacrament for all mankind originated as a Roman Catholic one, it did not remain exclusively so. Although much of later Protestant theology has questioned the essential role of baptism in personal salvation — especially of infants — the most influential of the early reformers retained strong views on its desirability, albeit for very different reasons from those adduced by the Roman church.

As an example, Calvin, in his Institutes of the Christian Religion, considered that 'Baptism is the initiatory sign by which we are admitted to the fellowship of the Church,' that it 'shows us our mortification in Christ and new life in him,' and that it assures us 'not only that we are ingrafted into the death and life of Christ,'
but so united to Christ himself as to be partakers of all his blessings. Calvin insisted, however,

'how false the doctrine is which some long ago taught, and others still persist in, that by baptism we are exempted and set free from original sin, and from the corruption which was propagated by Adam to all his posterity, and that we are restored to the same righteousness and purity of nature which Adam would have had if he had maintained the integrity in which he was created'.

Calvin also maintained 'that children who happen to depart this life before an opportunity of immersing them in water, are not excluded from the kingdom of heaven if, in omitting the sign, there is neither sloth, nor contempt, nor negligence'.

The practice of the Roman Catholic church in respect of the unborn child had been foreshadowed during the thirteenth century by St Thomas Aquinas, who posed a problem concerning baptism as a sacrament considered essential to an infant's eternal salvation. Aquinas queried whether, for the child's good when eventual survival appeared unlikely, 'it would be better for the mother to be opened, and the child taken out by force and baptized' so that he 'may be freed from eternal death?'. Answering his problem Aquinas concluded that 'it is wrong to kill a mother that her child may be baptized. If however the mother die while the child lives yet in her womb, she should be opened that the child may be baptized'.

It was in 1733 that Roman Catholic theologians were given the opportunity to discuss the relative values of maternal and
fetal life in the light of beliefs on baptism. The Dutchman, Henry à Deventer's textbook of obstetrics appeared in a number of editions and translations during the early eighteenth century, but in the French translation from the Latin made in 1733 (nine years after Deventer's death) by Jacques-Jean Bruhier d'Ablaincourt, a chapter 'De l'Operation Cesarienne' was inserted, which is not to be found in any earlier edition or translation. (That this chapter is the work of Bruhier seems certain, both from its non-appearance in other editions and from the reference in it to Deventer in the third person.)

The caesarian operation was at that time generally regarded as fatal, and Bruhier noted that ethical problems sometimes arose in cases where an infant could not be delivered by normal means. In order to resolve these problems Bruhier submitted a mémoire to the Doctors of Theology at the Sorbonne and this, together with the reply delivered on 30 March 1733, is appended to Chapter 51 of his translation of Deventer's book.

Of the questions posed by Bruhier, as summarised by the Sorbonne Doctors, it was the fourth which directly faced the problem of the relative valuation of fetal and maternal life. 'Finally, if one cannot save either the mother or the child by performing the caesarian operation, without a well-founded hope for saving the other also, which of the two must one prefer?' The Paris Divines preferred to save the child's life, at least for as long as was necessary to procure baptism, even if this meant (incidentally) the mother's death - although the mother's life was not to be taken deliberately in order to achieve this end.
It was proposed 'that one prefers the spiritual life of a child, which must be understood to be in real danger of not receiving baptism, to the temporal life of the mother, which is a much less "good" to that of the child's eternal salvation'.

In the Roman rite, the order for administration of the sacrament of baptism specified that 'no one enclosed in the uterus of the mother can be baptized', and that 'if the mother dies during her pregnancy the fetus should be extracted from her as soon as possible and, if it be alive, should be baptized. If the fetus is found to be dead and cannot (therefore) be baptized, it cannot be buried in a consecrated place'. The effect of these requirements was that, in utero baptism being forbidden, a post-mortem caesarian operation was mandatory in order to permit the sacrament, and thus achieve the infant's eternal salvation. The only 'escape clause' in this situation was the provision that a fetus may be conditionally baptized upon any presenting part of its body which had left the uterus, even if the child could not be delivered entirely per vias naturales. This provision was later to provide scope for great ingenuity, and a target for much derision.

A final point had been raised by Bruhier, concerning the use of a syringe to baptize an undelivered fetus (Fig. 3.3), and this was accorded separate attention by the Sorbonne Doctors. This idea represented a distinctly novel application of medical technology to religious ends. The problem had also been raised by another (un-named) Chirurgien Accoucheur and it was in reply to him that the Sorbonne Doctors addressed themselves, their reply being affixed to
Fig 3.3 Seringue propre à faire des injections jusques au fond de la Matrice, laquelle doit avoir un bouton perforé de plusieurs trous à l'extrémité de son canon. (Mauriceau, F., Des Maladies des Femmes Grosses et Accouchees, Paris. 1668. pp 368-370)
that given to Bruhier and included by him in his Chapter added to Deventer's book. The question, as posed, related to cases in which a child could not be delivered and was

'held in its mother's womb in such a way that it cannot make any part of its body appear - which would be a case, according to the Rituals, to baptize it at least conditionally. The surgeon who raises the question asserts that by means of a small cannula he can baptize the child directly, without doing any harm to the mother. He asks whether this means, which he proposes, is permissible and lawful, and whether it may be employed in such cases as he has described' (104).

The reply given to this query was important, not only for its theological implications but also for the ammunition which it gave to those not of the Roman Catholic persuasion. In fact the proposed technique was clearly intended to be a means of avoiding the dreaded caesarian operation, in cases where this might otherwise be indicated to procure the child's eternal salvation by baptism in the more usual manner. The suggestion was worthy of serious consideration by Catholic theologians as well as obstetricians, who might find themselves torn between the demands of surgery and religion.

The problem was related to issues concerning the basic meaning of the sacrament of baptism. The Divines noted that 'The Theologians assume the hypothesis that baptism, which is a spiritual birth, supposes a former birth; as they teach it, it is necessary to be born into the world to be reborn in Jesus Christ'. St Thomas Aquinas was quoted as authority for believing that 'one cannot ....
baptize children who are yet held in their mother's wombs', this opinion being based upon 'the fact that such children are not born and cannot be counted among other men; from this he concludes that they cannot be the object of an external action in receiving through the ministry of men the sacraments necessary to salvation' (104).

The corpus of the decision, however, gave a reasoned argument for reversing the old opinion of Aquinas, and accepting that one can be alive yet not born; it then hedged about this new stand with the necessity for further consultations within the church's hierarchy before it could be considered the basis for action. Also raised again, without being satisfactorily resolved, was the old problem of primogeniture. The decision is worth quoting in extenso.

'The rituals follow in practice that which the theologians have established in these matters, and they prohibit, in a uniform manner, the baptism of children who are retained in their mothers' wombs, if no part of their body appears. The agreement of the theologians and of the rituals, which are the rules of the Dioceses, appear to form an authority which determines the present question; however the council, conscientiously considering on the one hand that the reasoning of the theologians is founded solely upon the reason of convenience, and that the maintenance of the Rituals assumes that one can not baptize directly infants thus retained in their mothers' wombs, which is contrary to the present supposition; and on the other hand considering that the same theologians teach that one may risk (the administration of) the sacraments which Jesus Christ has established as the easy, but necessary, means for the salvation of men; and deeming, furthermore, that children retained in their mothers' wombs are capable of salvation because they are (also) capable of damnation;
for these reasons and having regard to the statement which affirms that a certain means has been found to baptize these children thus retained, without harming the mother, the council believes that one may employ the means proposed, in the faith which it has that God would never leave children of this sort without any succour and supposing, as is asserted, that the means under discussion is proper to procure their baptism.(105).

Pointing out that the proposed change of an old rule was implicit in their approval the council of Divines advised further submission of the problem to the supplicant's Bishop and, with his approval, to the Pope. Finally a warning was given that if any such child should, against expectation, subsequently be born 'it would be necessary to baptize them conditionally'(105) in conformity with the established rituals.

As might be expected, the concept of baptism of an unborn and unseen child, by means of a syringe, proved an irresistible target for the malicious wit of those who found the Roman Catholic faith either irrelevant or mistaken (according to their viewpoint). Typical, if more literate than most, was the satire of the Rev. Laurence Sterne in his Tristram Shandy published in 1760(106).

"Mr Tristram Shandy's compliments to Messrs. Le Maync, De Romigny, and De Marcilly (107), hopes they all rested well the night after so tiresome a consultation. — He begs to know, whether, after the ceremony of marriage, and before that of consummation, the baptizing of all the HOMUNCULI(108) at once, slap-dash, by injection, would not be a shorter and safer cut still; on condition, as above, That if the HOMUNCULI do well and come safe into the world after this, That each and every of them shall be baptized again (sous condition.) — And provided, in the second place, That
the thing can be done, which Mr. Shandy apprehends it may, par le moyen d'une petite canulle, and sans faire aucun tort au père' (109).

Sterne was an Anglican priest and a bitter anti-papist who lost no opportunity of deriding Roman beliefs and practices, and his contribution to the debate is notable as the only non-medical attack on Catholic practices in medicine to receive wide distribution. Even in his translation of the original Sterne managed to introduce a derisory tone as he translated the French 'canulle' not simply as 'canula', but as 'injection pipe' where he intended to be descriptive, and 'a squirt' in his footnotes, where he appeared to be making his 'humour' offensive.

If not frankly antagonistic to Christian thought, many medical men were openly contemptuous of it, especially when of Roman Catholic origin. This attitude is revealingly shown in an (atypically) cynical and chauvinistic passage concerning baptism and the caesarian operation in one of the greatest 19th century British text books of obstetrics, Blundell's *Principles and Practice of Obstetrics*, first published in 1834. Referring to the desire to achieve baptism for the fetus trapped in an impassable pelvic cage he said:

"Moreover, should our planet meanwhile escape some of its former catastrophes, posterity will, probably, learn with surprise, some thousand years hence, what have been the opinions relating to these points, maintained by their predecessors. They may learn with surprise, not unmixed with indiscreet levity, that a large and religious body of
their civilized forefathers had been of an opinion, not to be presumptuously touched, that if one of the children of our great Parent were permitted to perish in utero, without the administration of water and words, in consequence of an original and unexpiated moral taint, derived from our common ancestor, eternal perdition would very probably be its portion. Happy, however, as we are in another and better system of opinions, we are not at all surprised to hear that by many, such a notion has been deemed both wholesome and tenable; and some tender mothers, who, with safety to themselves, might perhaps have been delivered by the natural passages, in this hope of securing to their children the baptismal advantages, have, with constitutions on the whole healthy enough, been induced to submit, in preference, to an extraction of the foetus, early in labour, by means of the Caesarian incisions' (17).

These comments encapsulated the prejudices of many medical practitioners concerning both the caesarian operation and catholic views on baptism. While not commending themselves by any intrinsic logic or compassion, such views were given great weight by the professional stature of their author, and were widely supported by other obstetricians, especially in Britain.

3.3. DIFFICULTIES OVER POST-MORTEM CAESARIAN OPERATIONS

A further area of difference between medicine and the church, over the use of the caesarian operation performed after a mother's death, in order to save fetal life, arose in connection with the operator. The medical profession quite obviously saw the procedure as falling within its remit, and with this view the church was (in principle) in full accord. Problems arose, however, when medical
practitioners declined to perform the operation post-mortem - and this situation was not uncommon.

In the face of medical reluctance to operate, the church required that some other person be obtained who would perform the operation necessary for the infant's eternal salvation. Early in the nineteenth century the position was well expressed by Jean Baptiste Bouvier, Bishop of Le Mans, in his Dissertation on the sixth of the Ten Commandments. In expressly ordering the operation to be performed immediately after the death of a pregnant woman Bouvier stipulated that

'no endeavour must be neglected to procure the services of a professional man. If this is impossible, a midwife, some other woman, a married man, or, in case of urgency, anyone at hand may be resorted to, but never a priest unless there is absolutely no other person who can be procured'.

Bouvier's book attracted one particularly cynical and sarcastic attack, in the form of a twenty-three page pamphlet entitled Fragments of Sacred Embryology, written by an unknown medical practitioner of the Paris faculty who used the pseudonym 'Dr Phosphorus'. Bouvier's book was not freely available and 'Dr Phosphorus' immediately leaped upon the fact that it was only obtainable to a very select readership. This criticism seems valid but the remainder of the pamphlet consisted of non-constructive criticism in the form of (a) highly selective quotations from Bouvier, with sarcastic comments designed to cast doubt on their validity, and (b) general remarks of a directly anti-catholic nature.
It is to be admitted that the writings of some clerics were not best designed to mollify medical susceptibilities. For example in 1874 a Father Debreyne, disregarding Bouvier's injunction concerning who may operate, wrote of the priest proposing to perform a post-mortem caesarian operation:

"Armed with the sign of the cross, he will perform the section with confidence and courage; his charity will earn for him from God a double reward for having saved the child from a certain prison where it would necessarily die and, above all for having conferred baptism upon it. He will be its spiritual father, because he will have regenerated it in Jesus Christ.... If the child dies at some time after receiving the sacrament of baptism, as commonly happens, he will immediately have in heaven a special protector who will constantly intercede for him with God. What else confers so much happiness, consolation, and hope for you oh minister and faithful servant of God, to be certain of having been the immediate instrument of eternal salvation of a loved one who, without this sublime and courageous devotion, and the charity you have inspired, would never have the joy of seeing and possessing God eternally" (115).

The difficulties which this kind of attitude exacerbated were typified in a case which had occurred in Brittany some years earlier, in 1846. A woman had died at about six months of pregnancy and the priest had sent for a medical practitioner to perform a caesarian operation, in order that the child might be baptised if still alive. The médecin declined to operate so the priest then sent for a farrier, who was experienced in the operation (for veterinary purposes) and, having explained the urgent necessity of
the case and quoted to him passages from Bouvier's book (116) persuaded him to operate. A dead fetus was eventually delivered but the case was widely reported in the medical press, with much bitter anti-clerical comment. Even in England the case drew forth the remark from an anonymous reviewer: 'We cannot trust ourselves to remark upon this example of priestly interference; but we ask, is this the period of its occurrence the nineteenth century, and the country, enlightened France?' (117).

A more reasoned and balanced view (unusually so for any nineteenth century medical journal taking note of les devoirs que prescrit la religion) appeared in an editorial of the Gazette Médicale de Paris (118). After reviewing the facts of the case it was pointed out that

'If an excess of religious zeal can lead to imprudent acts and regrettable temerity, it is no less regrettable to see the refusal of a large number of legitimate demands for removal of an obstacle to the accomplishment of a duty and to the practice of a tenet which is justly respected.... for everyone should wish that religious law, civil law and science should mutually support one another and come together with a common aim in things of common interest'.

The point at which medicine and religion differed was clearly pinpointed.

'Regulation of the caesarian operation, for the medical practitioner, is subject to three essential conditions which are to be rigorously enforced, that he must know: 1st, that the woman is dead, 2nd that the child is living; 3rd that it is viable... In the eyes of the church it is quite different. The church does not consider only the child's viability, but its actual life. Baptism is obligatory during all stages of fetal life'.
The problem facing the medical profession was seen equally clearly.

'Should the medical practitioner give way to the request of the priest and, in every case of presumed pregnancy, proceed to open the mother's body immediately she has breathed her last? It is often that one's knowledge of a similar case will dictate a prudent hesitancy: and when a practitioner shall have judged it wise to abstain, or at least to delay until he has positive proof of the mother's death, (albeit) at the risk of endangering the spiritual salvation of the child, can it be thought possible that an understanding of the chances of a successful operation can be left to the judgement of persons lacking any knowledge of physiology, and the performance of it be left in untrained hands?' (110)

The author, in viewing this dilemma, recalled that conditional baptism of a living, but non viable, infant could be performed by vagino-uterine injection of water, and that this procedure had received substantial support from eminent and important theologians. This line was therefore to be preferred as removing the necessity for operation in most cases, and therefore the cause of dispute between doctor and priest. The operation itself, the writer felt, was too serious and too delicate, even though performed upon a dead woman, for it to be left in untrained hands, and it must be carried out by a qualified practitioner in every case.

Some twenty years after this the problem was put to the test on a large scale during an outbreak of cholera in Malta during 1867 - an incident which has recently been reviewed by Cassar, in some detail (119). Following the failure of police physicians to perform
caesarian operations in two cases of pregnant women dying of cholera the Archbishop, Mgr. Gaetano Pace Forno, addressed a circular to the parish priests of his diocese reminding them of their duty to persuade medical practitioners to perform such operations and, when this was not agreed to, to obtain a midwife or other person to do so or, in the last extreme, to perform the operation themselves (120). Despite some villification of the medical profession by the press (121) there were apparently no cases reported, following the Archbishop's circular, in which post-mortem caesarian operations were performed by lay persons during the remainder of the epidemic, which lasted from mid August to mid November and claimed over 200 civilian victims. The fears of the Maltese medical profession were at least partially explained by the reports of two instances in which female cholera victims had been pronounced dead and placed in their coffins, only to recover prior to burial (122).

3.4 TWO EXCEPTIONAL CASES - ECTOPIC GESTATION AND UTERINE CANCER

Two indications used by the medical profession for the destruction of fetal life received much support from within the Roman Catholic church and, subject to certain safeguards, were eventually given its tacit approval - these were the detection of cancer in a pregnant uterus, and the case of ectopic pregnancy.

Writing in 1675 Mauriceau had been the first to describe the pathology of a death due to a ruptured tubal pregnancy (123) - that is, pregnancy in which the fetus develops in the Fallopian tube rather than in the uterus (124). The term 'ectopic pregnancy'
was coined by Barnes (125) to describe cases of gestation 'outside the cavity of the body of the uterus'. Ectopic pregnancy may have an incidence of 1 in 500 of all gestations and is generally tubal (126). If left undisturbed such pregnancies will generally result in a ruptured tube, with the accompaniment of massive haemorrhage and serious risk to the maternal life (127).

The church's position regarding the abortion of an ectopic gestation was established by the Holy Office in a series of pronouncements between 1884 and 1902 (128). These decrees made it clear that in any treatment of ectopic pregnancy 'the life of the fetus, to the extent possible, must be seriously and appropriately provided for' and limited consent to surgery to those cases in which 'ordinary results' would provide for the saving of the life of both mother and fetus (129).

The decrees of the Holy Office did not prevent Augustine Lemkuhl, a distinguished Roman Catholic theologian, from pursuing the case for admitting abortion in the two exceptional cases - ectopic pregnancy and cancer of the uterus. Relying on a distinction between 'direct' and 'indirect' killing Lemkuhl, despite the Holy Office, maintained that means which brought about the death of the fetus gradually were 'indirect', and thus might be licit. In the case of cancer of the uterus Lemkuhl claimed that removal of the uterus was a 'moral act' to remove a pathological condition, even if the uterus was pregnant and a non-viable fetus contained therein was thereby caused to die (130). At least until 1930 this interpretation was unchallenged by the Holy Office.
In the case of ectopic pregnancy Lemkuhl's argument was that it was licit to remove the 'tumour' which 'sometimes appears in various organs of the mother' when a fertilised ovum developed outside the uterus\(^\text{131}\). It was not clear in Lemkuhl's presentation whether the 'tumour' to which he referred was the swelling of the tube quite independent of the pregnancy, or whether the mass growing in the tube was the result of the pregnancy itself. This proposition also escaped the condemnation of the Holy Office during the ensuing twenty years.

The special case of ectopic pregnancy was considered in greater detail by another theologian, Bouscaren, in a thesis presented to the Faculty of Moral Theology in the Gregorian University at Rome in 1928 and published in America in book form in 1933 (and in a second edition in 1943\(^\text{132}\)). Bouscaren made a detailed study of the medical and physiological facts of ectopic gestation as well as the doctrine and moral theology which had hitherto determined religious attitudes to this problem, and in so doing cleared a great deal of the contemporary fog of obscurity from the problem. Until Bouscaren's work the moral theologians and those who proposed the excision of an ectopic fetus had each developed their cases with scant regard for one another's positions. The theologians had ignored developments in medicine and surgery, which were both making fetal destruction easier and safer (and therefore more sought after), and also providing alternative techniques (and greater physiological understanding) for the handling of conditions such as ectopic pregnancy: at the same time those who advocated excision of the ectopic fetus tended to ignore religious or moral scruples as irrelevant, and as representing authoritarian doctrine rather than a
rational viewpoint worthy of respect. Bouscaren attempted to place the two viewpoints in context one with the other, and thus to rationally justify the view which Lemkuhl had long propounded.

The exact wording of Bouscaren's thesis was:

'The removal of a pregnant fallopian tube containing a non-viable living fetus, even before the external rupture of the tube, can be done in such a way that the consequent death of the fetus will be produced only indirectly. Such an operation may be licitly performed if all the circumstances are such that the necessity for the operation is, in moral estimation, proportionate to the evil effect permitted. But in all such operations, if the fetus be probably alive, care must be taken to baptize the fetus immediately, at least conditionally.'

Bouscaren's thesis was based upon the old casuistry which distinguished between 'direct' and 'indirect' killing, but to this distinction he brought a new definition - and one which won much support in Catholic circles. In the case of an ectopic pregnancy, said Bouscaren, the Fallopian tube became pathological and its surgical removal was equally licit with any other surgery for the removal of pathological organs. In moral terms, the surgeon's 'direct' intention was to remove the pathological condition; this had a 'good' effect - saving the life of the mother. The killing of the fetus was 'indirect' in that it was the 'bad' effect inseparable from the physical removal of the pathological condition. The surgeon's intention was directed only to the 'good' effect and this outweighed the 'bad' effect if it provided 'a notably greater probability of saving the mother's life'.
Bouscaren stressed, especially in the case of an unruptured tube, that there must exist 'a proportionately grave cause' for the 'indirect abortion' implicit in removal of the tube and it was in the 'notably greater probability of saving the mother's life' that this was to be found. Given good faith on the part of the operator in assessing the probabilities, Bouscaren could then allow the 'indirect abortion' as licit, while adding the rider that if it was 'even slightly probable that a living fetus has been removed from the mother, care must be taken to confer baptism on it immediately' — a stipulation presumably unlikely to raise objections in medical circles where, even if regarded as a meaningless ritual, the sacrament could scarcely be seen as interfering with medical freedom.

So well reasoned was Bouscaren's thesis that it has scarcely been challenged in Catholic circles to the present time.

3.5 CLARIFICATION OF THE CHURCH'S VIEW ON INDUCED ABORTION

During the early part of the twentieth century, the consciences of Roman Catholic medical practitioners were increasingly being subjected to situations of conflict between their medical duty to save maternal lives and their moral responsibility to safeguard fetal life, and this situation was recognised by the leading Catholic moralist of the time Arthur Vermeersch, a Belgian Jesuit. In 1924, in his *Theologia moralis*, Vermeersch called for perspicacious statements of authority by which the consciences of Catholics could be firmly directed upon this point. It was in response both to the growing medical pressures for abortion in special cases, and also to socio-economic pressures, that during the late 1920's
Vermeersch and Franz Hurth prepared for the Catholic church a
document on Christian marriage: its teaching on abortion was
intended to be both severe and final. This document, published as
the Papal encyclical Casti connubii - 'Christian marriage' - was
issued by Pius XI on 31 December 1930 (137).

Alluding to abortion as a 'very serious crime' the
encyclical noted that

'some hold this to be permissable, and a matter to be left
to the free choice of the mother or father; others hold
it to be wrong only in the absence of very grave reasons,
or what are called "indications" of the medical, social,
or eugenic order.... There are even some who demand the
active assistance of the public authorities in these lethal
operations, and it is a lamentable and notorious fact that
there are places where this is frequently afforded' (138).'

Speaking of the 'medical and therapeutic indication' the encyclical
expressed sympathy for women whose health was endangered by pregnancy,
then continued:

'But can any reason ever avail to excuse the direct killing
of the innocent? For this is what is at stake. The
infliction of death whether upon mother or upon child is
against the commandment of God and the voice of nature:
"Thou shalt not kill!" The lives of both are equally
sacred and no one, even the public authority, can ever
have the right to destroy them' (138).

It was pointed out that such excuses as the State's right to inflict
capital punishment, the right of self-defence against an unjust
assailant, and 'any so-called right of extreme necessity' were all
invalid and could not extend to 'the direct killing of an innocent human being' (138). The stress this paragraph appeared to lay on the words 'direct' and 'innocent', and the inclusion of the term 'direct killing' immediately opened again the semantic arguments of Lemkuhl, in the context which the encyclical referred to as 'extreme necessity'. Upon this point there appears to have been a desire to be less than totally dogmatic, and to leave at least some room for subsequent theological and medical manoeuvring.

_Casti connubii_ was not infallible dogma pronounced by the Pope for all time. It has recently been pointed out that even within the Roman Catholic church the Pope 'is not necessarily infallible even when he writes letters to all the other bishops of the Catholic world expressing officially his teaching about points of faith or morality. He is infallible only when he invokes his full authority to demand that every Catholic mind accept what he asserts, and that is a thing he rarely does' (139). Nevertheless, in writing letters 'to all the other Bishops', as in this encyclical, the Papal authority is manifest and few Catholics would fail to treat such teaching very seriously indeed. The view of the Roman Catholic church was - and has since remained - clear. Abortion was the destruction of innocent human life, and thus grievously offensive to both God and man.


   'thou shalt not procure abortion, nor commit infanticide'.
   also (in the same words) in *The Epistle of Barnabas* (c. 1st century A.D.) XIX. 5. *Ibid* pp. 402-3.
   also Tertullian. *Apology* (c. 200 A.D.) IX. 8. (Trans. Glover, T.R.)
   'For us murder is once for all forbidden; so even the child in the womb, while yet the mother's blood is still being drawn on to form the human being, it is not lawful for us to destroy. To forbid birth is only quicker murder. It makes no difference whether one take away the life once born or destroy it as it comes to birth. He is a man, who is to be a man; the fruit is always present in the seed'.


72. The *Decretum* of Gratian was composed in the first half of the 12th century by a Camaldolese monk about whom there exists no precise information, except that he was born in Chiusi and resided in the monastery of SS. Felix and Nabor. The work appeared in the earliest manuscripts under the title of *Concordia discordantium canonum*. It is one of the most important canonical collections in the history of Canon Law, despite the fact that it was never officially adopted as an "authentic" source of Canon Law by papal authority.

73. Gratian. *Decretum*. 2.32.2.7., in *Corpus Iuris Canonici*, Basle (1682)

74. Ibid. 2.32.2.8-10.
75. Gregory IC. Decretales 5.12.20., in Corpus Iuris Canonici Basle (1682).
76. Ibid. 5.12.5.
79. Fienus, T. De formatrice foetus liber, in quo ostenditur animam rationalem infundi tertici die. Antwerp (1620)
81. Ibid at 9.1
82. Roncaglia, C. Universale moralis theologia ad usum confessariorum Lucca (1834). 11.1.2.3.
84. Clement XI Commissi Nobis Rome. (1708)
88. Pius IX Apostolicae Sedis (1869) Rome.
90. Douay translation.


93. Ibid. s.10, p.517
94. Ibid. s.22. p.526


97. Ibid. p.346.
98. Ibid. p.359.
99. Ibid. p.361.
100. Ibid. p.363.

101. Although only included in the Rituale Romanum (Op.cit) and in Canon law in the 19th century, this ruling appears to date from the very early church. St. Augustine (354-430) claimed that, as baptism was a spiritual rebirth, it was not possible to extend it to one who had not been born (Augustine. De peccatorum meritis et remissione, et de baptismo parvulorum. Lib II. Cap xxvii: 'Quare baptizentur qui jam de baptizatis nascantur'. In Migne, J-P. Patrologia Latina. Vol.44. Paris (1865). col.177). Later church writers objected to the practical impossibility of applying water to the fetus in utero without rupturing the membranes within which it was situated, and thus inducing an illicit abortion (Aquinas, Thos. Summa Theologica. Ed. J.J.Cunningham. London (1974). 3a, 68.Q11.pp.114-7). It was not until the 18th century that the practical feasibility of in utero baptism was conceded.


107. The Doctors of the Sorbonne.

108. 'Little man: in this instance, spermatozoa'. (Sterne's note).

109. 'By means of a little injection-pipe, and without doing any harm to the father'. (Sterne's footnote).


111. Bouvier, J.B. Dissertatio in sextum Decalogi praeceptum; et supplementum ad tractatum de matrimonio. Paris. 9th Edn. (1839)

112. Phosphorus, Le docteur (pseud). Fragments d'Embryologie Sacrée. Paris: Henry (1877) p.5. (N.B. No copy of this work is to be found in this country. I am indebted to the Bibliotheque Nationale, Paris, for access to a photocopy of the original.)

113. Ibid. e.g. p.18 'Maintenant, un chapitre de chirurgie sacrée. C'est le manuel opératoire de l'opération césarienne. Oh! mon Dieu, c'est bien simple! '.

114. /
114. Ibid. e.g. p.21. After quoting Cazeaux's rhetorical question as to where the doctor would be found who, forced to choose between the life of a woman and of the child she carried, who would not sacrifice the latter, 'Dr Phosphorus' commented drily: 'Nous répondons: c'est le médecin catholique et véritablement digne de ce nom'.

120. Malta Times (1867) 3 October p.2; 10 October p.2. Cited by Cassar (Ibid)
121. e.g. Cassar (Op.cit) quotes Il Portafoglio Maltese. (1867, 12 October, p.2) which referred to doctors 'who are incapable of performing caesarian section and there are curates and midwives who carry it out successfully, in accordance with the rules of surgical art'. The writer claimed that the doctors objected to the operation because 'they are such cowards that they are not competent to do their duty'.
122. Ibid. p.50.
124. Mauriceau wrongly concluded that the child in his case had been conceived in the uterus and had then been 'pushed' into 'the corner', like a hernia (p.85). He dismissed the (correct) theory that a woman produces eggs in the ovaries, which travel via the Fallopian tube to the uterus and which might be 'fortuitously' lodged in the tube while en route (p.86).


127. Ibid. p.412.

128. See note 89.


130. Lemkuhl, A. *Theologia Moralis.* Freiburg. 12th Edn. (1914) at 1011.

131. Ibid. at 1010.


133. Ibid. c.f. p.25


135. Ibid. pp.169-71


138. Ibid. (In Denzinger at 2242—2244)

4. CONFLICTING INTERESTS OF MEDICINE AND RELIGION

4.1 THE NINETEENTH CENTURY POSITION

The different attitudes of medicine and religion towards fetal life met in an area of conflict, bounded by procedures which might be used either to salvage or to destroy the fetus when its interests conflicted with those of the mother. The development of medical technology, especially in the fields of anaesthesia, blood transfusion, and antiseptic (and later aseptic) techniques in surgery, brought the conflict to a head as techniques for fetal destruction (embryotomy and induced abortion) and for the saving of the fetus (both post-mortem and ante-mortem caesarian operations) were gradually refined and made both more certain and more safe.

By, and during, the nineteenth century two distinct situations existed in, respectively, the countries of northern Europe (especially France) which had a Roman Catholic tradition but, as a result of the Age of Revolution, a generally anti-clerical climate; and in Britain, where the Roman Catholic church had ceased to possess influence during the early 16th century, and where accidents of geography had led to a more insular outlook on life.

4.1.1. The position in France

In continental Europe, and especially in France, the Roman Catholic doctrine of non occides had traditionally meant that the life of neither mother nor child may be taken deliberately in order to save the other. The overthrow of many traditional mores in the anti-clerical fervour of the Age of Revolution caused this doctrine (inter alia) to be questioned.
The view that medical and religious attitudes may be essentially incompatible appeared openly in a book published in 1867, in which 'scientific authorities' were considered paramount. Referring to the 'triple' outlook of 'religion, morality and the law' upon operations designed to destroy fetal life Joulin declined to comment, on the grounds that, in such a situation, no understanding of alternative views to one's own was possible, and the arguments thus had little chance of being heard: he merely satisfied himself with citing two moral theologians, Liguori and Sanchez, who had, in the previous century, pronounced favourably upon induced abortion in certain cases. It was Joulin's view that the medical practitioner should look elsewhere than to the church for his standards, and choose those which seemed to him most suitable from the scientific point of view.

Nineteenth century French obstetricians such as Velpau and Cazeau balanced the lives of mother and fetus where these were at risk and came down in favour of saving that of the mother. With Gallic logic it was obvious to French accoucheurs that, whenever difficulties of delivery could be foreseen, an early induced abortion would offer less risk to the mother than would a destructive operation upon the fetus when labour was in progress; moreover, induction of abortion was also indicated to some workers as a cure for the vomiting of early pregnancy. It was in the light of these attitudes that French writers endorsed early induced abortion as an entirely logical solution to a not uncommon type of problem, and rejected the concept of embryotomy as unsafe for the mother, rather than as an assault on fetal life.
During the years of Roman Catholic domination in France the absolute value put upon human life from *ensoulement*, together with the desire to administer baptism, had made even the discussion of induced abortion impossible. In the post-revolutionary period the climate of opinion once (comparative) political stability had returned was, however, such that the medical profession could discuss induced abortion for therapeutic purposes quite openly. As has been noted (Sect. 2.1.1) when the Académie Nationale de Médecine debated the issue at length in 1851 only one voice was raised to question the morality of induced abortion as a procedure. The tacit approval of the Académie for abortion on medical grounds undoubtedly did nothing to discourage pressures for abortion on purely socio-economic grounds and, as one Academician predicted, the developing skills in performing abortions for therapeutic reasons led to 'abusage' of these techniques for less compelling reasons (148), although this is another issue. In his report to the Académie, Cazeaux was very precise in his criteria for inducing abortion: 'A contracted pelvis of less than 6½ cm. at the smallest diameter, uncontrollable haemorrhage, and tumours of the soft or hard parts which cannot be moved, punctured, cut or removed, are the only indications for induced abortion' (149).

On the other side of the coin procedures designed to deliver an intact fetus, preferably living, (i.e. both post-mortem and ante-mortem caesarian operations) were also - perhaps surprisingly - areas of conflict between medical practitioners and the church, due to the different criteria adopted by the two sides as indications for performing the operation.
The position of the Roman Catholic Church on baptism of the newly born - or partially born - was well understood by the medical profession in the later years of the eighteenth century, as was well illustrated by a section in Baudelocque's *Principles of the art of obstetrics, by Question and Answer, for midwives* published by order of the Government in Paris in 1787. The section headed 'Obligations prescribed by religion' gave a very full account of the church's requirements for baptism of infants unlikely to survive, and even included the advice that 'When one cannot touch the head within the back of the vagina, one may place the water on it by means of a syringe, guiding the canula by means of a finger as far as the mouth of the uterus'. It is interesting to note, however, that no reference occurred in this section to the possibility of performing either an *ante-mortem* or a *post-mortem* caesarian operation in order to enable baptism to be conferred. It must be appreciated that this small work was designed specifically as a guide for unqualified midwives, but it is otherwise very comprehensive. The omission of any suggestion of surgery for this purpose - even if only to condemn it - is possibly significant as reflecting medical distrust of a procedure widely regarded as carrying a high maternal mortality, despite the recognition of the Catholic church's requirement of baptism for the fetus.

As early as 1668 Mauriceau, speaking of those who proposed the operation (post-mortem) had said 'I well know that they cloth themselves with the pretext of being able to give baptism to the infant, who otherwise would be in great danger of privation, because the death of the mother is usually the cause of its own'. The
tacit acceptance that there was life before birth is worth noting. It was Mauriceau's view, however, that the ante-mortem operation was simply a death sentence on the mother, with no chance of remission other than by divine intervention, for he commented that 'if it be true that any women have ever escaped it, we must believe it a miracle, and by the express will of God, who can when he wishes raise the dead, as he did with Lazarus, and change the order of nature when it pleases him, rather than by any effects of human prudence.' (153)

This view of the mortality of the caesarian operation, together with a later cynicism concerning the chances of fetal survival following the operation, governed French practice for many years to come. On this latter point Tarnier, in an annotation to his revision of Cazeaux's Midwifery in 1883, in the context of the post-mortem operation commented that 'As it is the object of the Caesarian operation to save the child's life, it were useless to undertake it before it becomes viable, that is to say, before the end of the sixth month. The only effect of an operation performed before this time would be the satisfaction of some religious sentiment.' (154). The writer's lack of sympathy with 'religious sentiment' is obvious.

The result of these views was that ante-mortem caesarian operations were avoided wherever possible and, when they were adopted as an unavoidable alternative to embryotomy or induced abortion, they were usually performed electively before the woman had become weakened by prolonged labour (as was the British practice), with a consequent poor fetal survival rate due to the hazards of prematurity. In the case of the post-mortem operation medical practitioners would
generally not perform this prior to six months gestation, even to permit baptism of an infant which might just survive long enough for this purpose: after six months gestation the operation was still rarely performed due to the risks of misdiagnosing coma as death, and subsequently causing maternal death by the performance of a lethal operation.

Religious attitudes of the Roman Catholic church, by contrast, called for delay in the performance of ante-mortem operations, to improve chances of fetal survival, and universal performance of the post-mortem operation to allow baptism of the fetus, even if its chances of eventual survival were poor.

4.1.2. The position in Britain

British practice in relation to the life of the fetus differed substantially from that in France, although the end result in terms of fetal survival was much the same.

As a generalisation it might be said that in nineteenth century Britain fetal life was considered to have no intrinsic value. An infant was regarded as worth saving only if it was 'viable', and then only if the mother's life was placed in no consequent danger. Zacchia's contention that the fetus had a soul from conception (155) was enunciated in Italy in 1621, after the English Reformation, and became a specifically Roman Catholic concept which was not taken up by the reformed churches. The lack of concern for fetal life in Protestant countries such as Britain is thus partly explained by the continuation in them of the old Aristotelian ideas of the nature of the fetus.
In Britain, when a fetus was to be destroyed to save the mother's life this was generally done by a destructive operation, rather than by an induced abortion early in pregnancy as was the custom in France. Most British practitioners rejected induced abortion either upon 'moral' grounds - a rather ill-defined position to be discussed in Sect. 4.2.1 - or upon medical grounds based upon the dangers to the mother of the procedure. For example, in 1856 Clay claimed to

'have, then, no confidence in medicines to procure abortion, and should never rely upon them for its accomplishment. The only certain means is by mechanically rupturing the membranes, and thus directly destroying the vitality of the embryo in utero, when it becomes a foreign body, and will sooner or later be treated as such' (156).

Clay was under no misapprehension as to the danger of the procedure which he advocated:

'there are dangers to be feared arising from the operation, of a highly responsible and not unfrequently fatal character, - such as haemorrhage, metritis, and peritonitis: in fact, the probable dangers from induction have been far too lightly estimated, though many deaths have been recorded by high authorities. A fatal termination does not necessarily occur immediately, except from haemorrhage; it is most frequently from secondary causes, as metritis and peritonitis' (157).

Radford, in contrast to Clay, rejected induced abortion on both medical and moral grounds. The moral views of this obstetrician upon induced abortion were summed up in his own writings thus:
'My opinion (which I submit with great deference to the profession) is, that it ought not a second time to be performed (i.e. upon the same woman). If such a practice be admitted as sound, it establishes a principle totally at variance with the laws of God and man' (158).

He went on to say:

'It is not on moral grounds alone that I object to the induction of abortion in order to supersede (as it is said) the Caesarian section. It is not so safe an operation as it is usually represented. On the contrary, sometimes great danger has succeeded, and in some cases even death has ensued. Great difficulty has frequently been experienced in its performance, and in some cases it could not be accomplished' (159).

Radford was notable as one of the few nineteenth century obstetricians openly to reject induced abortion on medical as well as moral grounds. It seems probable that in this he was swayed by his own vested interest in the caesarian operation as an alternative form of treatment for, while the risks of abortion were undoubted facts of life, they scarcely exceeded those of the caesarian operation in Radford's lifetime (1793-1881). On the whole, however, British practitioners of the nineteenth century tended, for whatever reason, to avoid induced abortion.

Medical reluctance to perform caesarian operations was, in Britain, extreme. This reluctance largely reflected the lethal reputation of the operation - a reputation which was not entirely justified, but which influenced many medical practitioners. As an example Sir Fielding Ould (1710-89), a Man-Midwife of Dublin, complained in 1742 that:
'As this detestable, barbarous, illegal Piece of Inhumanity, has been encouraged by many Authors; as Bauhin, Rousset, Lamotte, and many others, whose Credit in other Respects is of no small Consequence; and as this Encouragement extends so far, as to give Attestations of the Recovery of those on whom this Operation had been performed; it is therefore necessary to shew some Reasons for the Improbability, nay Impossibility of Success in this Operation, (159).'

The lack of logic in Ould's attitude is clear in that his argument against caesarian operations was not that they were not successful, but that the evidence of a number of eminent practitioners to the effect that they had sometimes succeeded, must be discarded,

'for from Theory, Anatomy, and every Thing consistent with Surgery, the Caesarian Operation is most certainly mortal as we shall endeavour to prove presently, from Reason and the Nature of the Thing; and I hope it will never be in the Power of any one to prove it by Experience, (160).

During the ensuing century an increasing number of caesarian operations were performed on living patients, with (generally) a high maternal mortality and - in Britain - a much higher infant mortality, than might have been expected. This latter observation has been related to the fact that British obstetricians were reluctant to perform the operation electively, thus placing most cases in the category of emergency operations performed far too late in pregnancy to ensure a good chance of infant survival. Radford, writing in 1880, gave some statistics for the operation.
'The statistics of the results of the Caesarian section, especially as concerns the mothers, are highly unfavourable. The general account stands as follows of the seventy-seven women whose cases are tabulated. Sixty-six, or 85.71 per cent., died; eleven, or 14.28 per cent., were saved ... From the seventy-seven women, seventy-eight infants were extracted (one being a case of twins), of which forty-six, or 58.97 per cent., were saved; and thirty-two or 41.02 per cent., were dead. Nearly all these infants were dead before the operation, which might have been saved if it had been earlier performed.'(161).

Controversy on the desirability of performing caesarian operations raged bitterly in Britain for many years, and nowhere more bitterly than in Manchester, where the principal protagonists were John Hull (1761-1843) and William Simmons (1762-1830)(162). In 1798 Hull was attacked by Simmons for performing the operation. Simmons was inclined to disbelieve reports of success with the operation from other countries, while laying stress on the failures in England. His view - which was not atypical - was that 'Every rational practitioner will feel himself governed by the result of the best experience of his own country, which will vary compared with that of other countries, from difference of climate, customs, and other causes; guided, however, by the probable truth of foreign as well as domestic recitals; and I hope no Englishman will attempt to regulate his practice in this operation, from foreign accounts of its success, for I should pity his patients without envying his credulity.'(163).
Hull's reply included many observations based upon his own experience. Particularly worth mentioning are his views on the comparative value of maternal and fetal life. British practice up to this time had tended almost entirely to destruction of the fetus in an attempt to save the mother. Hull thought that morality might sometimes demand another view and, for the first time in Britain, questioned the thesis that maternal life was always to be valued above that of the fetus. In 1880 a similar view was taken by Radford, who believed that, despite its high maternal mortality, the caesarian operation should be used for delivery in second and subsequent pregnancies rather than resort being had to destructive operations on the fetus.

Of this latter alternative Radford said:

'When we remember the difficulty which in extreme cases is experienced in performing it, the cruelty it inflicts, and many other evils consequent upon it - we may truly wonder that professional men should allow their minds to be haunted by an imaginary Caesarean spectre, and be so obscured to their own moral and social responsibility' (164).

The final paragraph of Chapter IX of his book summed up Radford's views:

'Every woman in whom there exists organic impediment to the passage of a mature or full-grown infant, ought to be at proper time fully informed of the nature and as to the degree of the obstacle. She should also be made acquainted with the alternative operations which are suitable to meet her case. If the obstruction be moderate in degree, then the forceps, turning, or the induction of premature labour, will be proper; but if these means are not available, or if the cause of difficulty is great in degree, then the performance of the Caesarean section will be required' (165).
Radford's views were advanced for his day and it was not until the twentieth century that the old fears were finally dispelled and, consequent upon the improvements wrought by anaesthesia, antisepsis and asepsis, and blood transfusion, the caesarian operation became safe, and a commonplace in Britain. Until that time, despite its own hazards for the mother as well as the child, embryotomy remained the choice of most British practitioners.

Finally it might be noted that, there being no pressures upon British practitioners to save non-viable fetus's for baptism, there is virtually no evidence of post-mortem caesarian operations being either sought or performed in this country. As Protestant theology regarded both infant baptism and fetal life with less enthusiasm than did the Roman Catholic church, this particular area of conflict did not appear in Britain.

4.1.3. Ectopic Pregnancy

In considering this condition virtually all medical practitioners in both Britain and France were united in the belief that the only possible treatments were destruction of the fetus, or excision of the tube complete with fetus. As medical technology developed, the necessary abdominal surgery to deal with tubal ectopic pregnancies became more feasible and replaced various attempts to kill the fetus by other means (e.g. electricity or X-rays) which had hitherto been made.

Almost the only nineteenth-century practitioner to consider the morality of destroying fetal life in an ectopic pregnancy was
Robert Lawson Tait (1845-1899), who was prepared to approve excision of a tubal gestation, but not the direct killing of an ectopic fetus.

In approving excision of tubal gestations while objecting to killing the fetus within the tube, Tait appears to have been arguing the Roman Catholic distinction between direct and indirect killing of a fetus. However, this was more probably a reflection of his views upon competing lines of treatment for a difficult and dangerous condition than a deliberate statement of religious belief. Certainly Tait's reference to the morality of killing a fetus was a refreshing change from the indifference of most of his contemporaries, as was the almost sporting nature of his comments in connection with the fetus' chance of survival. He said:

'I venture to think that my own experience settles the question in favour of surgical interference in ectopic gestation at the time of primary rupture. I think there is no appeal against the decision to cut down and tie the bleeding point. No acupuncture, simple or medicated, and no electrolytic charlatanry will save a woman who has a vessel bleeding into the peritoneal cavity. If the child survives that rupture it has a legal and a moral right to its life, and ought not to be deliberately killed.' (166).

Lawson Tait was not merely a great surgeon (and the virtual founder of the modern science of gynaecology) - he was also a man of exceptionally strongly held and outspoken views on a variety of subjects. Born of a Scottish presbyterian family Tait was a man of strict morality and, in his later years, an ardent anti-vivisectionist. He was said to have had 'a distinct leaning towards the Roman Catholic Church', which religion he regarded as 'a hard one to live up to, but
an easy one to die in', and in 1890 Tait had an audience with the Pope, who consulted him on the risks to mother and fetus in an ectopic pregnancy (167). The fact that an accusation of fathering the illegitimate child of one of his nurses did in fact bring about Tait's professional downfall (an accusation never substantiated) has been held by his biographers (168) not to detract from his essential morality and probity. Tait was unquestionably a brilliant and unusually successful abdominal surgeon who had little patience for the conservative views on abdominal surgery held by most of his contemporaries.

4.2 SOME PROBLEMS OF INTERPRETATION

A number of problems are raised by the differing situations which arose during the late eighteenth and the nineteenth century as between France - a country with a strong Roman Catholic tradition, newly replaced by an official policy of atheism and anti-clericalism - and Britain, a Protestant country in which Anglican priests had come to occupy a much less dominant part in the lives of the people than did priests of the Roman communion. These problems concern the reasons for the differences in approach to the destruction or salvage of fetal life in the two countries, and the reasons for the conflicts which arose between certain religious attitudes, and those developments in medicine during this period which affected fetal life.
4.2.1. **Induced abortion**

This problem poses itself in two parts.

(1) Why was induced abortion practised commonly in France?

The eighteenth century, although largely a time of peace in the military sense, was a period of considerable intellectual ferment. In the field of religion rationalism and Deism flourished and, from these beliefs it was but an easy step for philosophers to manage without even the Deists' 'God'. During this period the writings of Voltaire (1694-1778), Rousseau (1712-78), Diderot (1713-84) and others, were aimed (*inter alia*) at the destruction of a faith which Voltaire thought unworthy of man.

There grew a widespread impiety, and increasingly scurrilous attacks were made upon the Christian faith and all that it held sacred. The worldliness and laxity of many of the principal clerics of the Roman Catholic church in France offered little resistance to such attacks and, when revolution finally broke out in France, the Catholic church and the Christian faith were targets for the revolutionaries, alongside the political institutions of the State. Following the teachings of Voltaire and the *philosophes*, the revolution aimed at overturning the social and religious *mores* of the times, as well as the structure of society.

One Arch-priest of the new libertinism was Donatien Alphonse de Sade (the Marquis de Sade, 1740-1814) who held all life cheaply, and regarded fetal life as valueless. It was in de Sade's *La Philosophie dans le Boudoir*, first published in 1795, that his remarks
on abortion were made. De Sade regarded abortion as a triviality - analogous to purging unwanted matter from the intestines (169) - and scorned the view that it is God who grants an embryo its soul, claiming that it was because of such "mistaken" views that abortion was commonly considered a crime (170).

De Sade's exhortations were in tune with the anti-religious (and anti-clerical) atmosphere in France during the age of revolution and undoubtedly played their part in establishing the new morality - or some might call it amorality - of the post-revolutionary period. It is certainly true that, following this time, the old prohibitions of the Roman Catholic church were increasingly disregarded by the medical profession. There was a strong anti-clericalism in post-revolutionary France which would not oppose practice which the church had forbidden.

The logic of inducing abortion in early pregnancy in women known to have a malformed pelvis was inescapable. In such cases the only alternative was to allow the pregnancy to proceed and terminate it either by a caesarian operation or by embryotomy. Both of these procedures were seen by the French medical profession to carry a greater maternal mortality than did induced abortion. Taken into account with the newfound disregard for fetal life (171) the logical conclusion was that induced abortion was the preferred course whenever early diagnosis of pelvic disproportion could be made. The dis-approbation of the Roman Catholic church no longer acted as a deterrent for most French medical practitioners.
Which leads to the second - and more puzzling - part of the problem.

(2) Why was induced abortion practised only rarely in Britain?

This question admits of no simple answer. In Britain there was no tradition of church opposition to the destruction of fetal life - indeed, embryotomy was widely practised and scarcely criticized - so that induced abortion was not subject to institutional church (or any other) sanctions on the grounds which, prior to the Age of Revolution, had applied in France. Four factors do appear to have had some relevance, however.

i) Dangers of the operation

It had been noted by a number of practitioners that serious haemorrhage, infection, and sometimes shock, followed commonly upon the induction of abortion. Given the rather crude techniques available in the first half of the nineteenth century this is not surprising. The first text-book to describe methods of inducing abortion was published in 1799 and referred to 'suddenly diminishing the volume of the uterus, and thus producing an artificial contraction. By piercing the membranes, either with the finger or a trocar, we let out the waters, and produce a collapse of the uterus'. The author further noted that 'The expulsion of the child, in the early months, from whatever cause it takes place, is uniformly attended with a discharge of blood' (172). It is to be noted, however, that the common alternative of embryotomy also involved risks to the mother of haemorrhage, infection, and shock. The British medical profession seem to have taken the opposite view to their colleagues in France in
believing that the risks to the mother of embryotomy were less than those of induced abortion. No figures appear to have been published relating to either mortality or morbidity in induced abortion or embryotomy, however, and there was no evidence to substantiate such a belief.

If the risks of induced abortion - real or imagined - were indeed serious factors in inhibiting its use in Britain then the change in emphasis in the mid eighteen-eighties referred to in Section 2.1.1. becomes more readily explicable. It will be recalled that, prior to this period, few British text books referred to induced abortion, and none gave it complete support: after this period no text book failed to speak approvingly of the procedure. It was at about this time that induced abortion was rendered safe by the introduction of antiseptic techniques, the general use of a well developed technology of anaesthesia, and the first serious attempts at blood transfusion. The new technology was patently more satisfactory than the crude dismembering of living fetus's and so, where opportunity offered, it became medically acceptable in Britain and entered into more widespread use.

ii) Lack of ante-natal care in Britain.

Induced abortion is, by definition, a procedure of early pregnancy. If the aim was to overcome the defects of a contracted pelvis then abortion had to be induced before the fetus grew to such a size that it could no longer be expelled per vias naturales. In turn, this required that pelvic deformities be diagnosed early in pregnancy.
It may not be immediately obvious to the modern reader how a first pregnancy could go to term with pelvic and other deformities, such as to render normal delivery impossible, remaining undiscovered until the patient had been in fruitless labour for many hours, or even days. In Britain, however, routine ante-natal care in pregnancy is a very recent development and, throughout the nineteenth century, the specialty was struggling to escape from the mediaeval divorcements of midwifery from medicine, and medicine from surgery. During the 19th century the man-midwife and the physician-accoucheur were still parts of recent history. The idea of young married women submitting to intimate examination by a male obstetrician, other than for grave and immediate medical indications, was acceptable neither to British society at large, nor to the medical profession itself (173). Even as late as 1880 Radford could write:

"Surely, the most benighted opponent (of the Caesarian operation) cannot be so mentally blind as not to know that young married women cannot be compelled to submit to vaginal or other examinations in order that it may be ascertained whether there is sufficient pelvic capacity for a full-grown infant to pass through" (174).

In such a climate the discovery of a disproportionate pelvis (or similar abnormality) in a first pregnancy would be delayed until labour was well advanced, thus rendering impossible any early induction of abortion to save the mother.

Ante-natal care was virtually unknown in Britain during the nineteenth century, but that this was not so in France is indicated by the frequency with which early abortions were induced by the medical
profession. That a similar situation existed in Germany also is shown by a letter to Professor James Young Simpson from his son David during the early 1860's. The young Dr Simpson, then working in the Charite at Berlin, wrote that

'It all women who wish to be delivered in the institution must give notice at as early a period of their pregnancy as possible, and they are promised a bed on condition that they come to be examined about once a month between that time and their full period. By this arrangement a capital opportunity is afforded to study the size and situation of the uterus and the state of the vagina and cervix during the various stages of pregnancy.' (175)

It is interesting to speculate whether, but for his early death in 1866, David Simpson would have instituted such a system in Edinburgh, where he returned to practise with his eminent father.

iii) If lack of ante-natal care can explain the absence of induced abortion in first pregnancies in Britain it scarcely does so in multigravidae. Once a woman was known to have a contracted pelvis the risks of future pregnancy would be appreciated. There is some evidence that, at this stage, a 'moral' element came into play amongst the British medical profession which did not appear in the new morality of post-revolutionary France.

Radford had noted that repeated embryotomy in a woman known to have a deformed pelvis might not be justified on moral grounds (176) and in support of this Clay commented in 1856 that if a woman with a deformed pelvis should become pregnant a second time, expecting an induced abortion to be performed,
'it amounts to neither more nor less than a premeditated
destruction of human life, subversive of all moral law,
involving with her, her husband and medical adviser.
A female under such circumstances knowingly placing
herself in such position, as in a second or subsequent
pregnancy she does, is bound, according to Dr Radford's
views, to submit to means to save the child in
preference to herself' (177).

That such 'moral' reasoning was applied in Britain is fairly certain,
although it is equally certain that it was not universally accepted.
Writing in 1876 Barnes, speaking of the need for repeated fetal
destruction (in this case, by embryotomy) in the second and subsequent
pregnancies of any woman found to have a deformed pelvis, defended
such action upon grounds of justice.

'Vengeance, punishment, is not ours ... Can we take upon
ourselves the awful weight of deciding that the wretched
woman was wrong - criminal, in becoming a mother?
She is subject to her husband. If punishment is due,
must it fall upon her? and are we to inflict it?' (178)

On the other hand some British practitioners - unlike
their French colleagues - used 'moral' arguments against all
induced abortion - sometimes with considerable emotion. A notable
example of this was Dr Pye Henry Chavasse. In his Advice to a Wife
(which ran to twelve editions, the later of which consisted of 20,000
copies each) Chavasse referred to
'the heinous and damnable sin of a single woman, in the early months of pregnancy, using means to promote abortion: it is as much murder as though the child were at his full time, or as though he were butchered when he was actually born! An attempt, then, to procure abortion is a crime of the deepest dye, viz., a heinous murder! It is attended, moreover, with fearful consequences to the mother's own health; it may either cause her immediate death, or it may so grievously injure her constitution that she might never recover from the shock. If these fearful consequences ensue, she ought not to be pitied; she richly deserves them all. Our profession is a noble one, and every qualified member of it would scorn and detest the very idea either of promoting or of procuring an abortion, but there are unqualified villains who practise the damnable art. Transportation, if not hanging, ought to be their doom. The seducers, who often assist and abet them in their nefarious practices, should share their punishment.'

Although singularly quotable, widely disseminated, and written in calculatedly emotive terms, Chavasse's text was addressed specifically to the 'single woman' and made no reference to cases of grave clinical necessity. It might be concluded that Chavasse objected to induced abortion for socio-economic reasons, but his position vis-a-vis therapeutic abortion is unclear. Unfortunately it has not proved possible to discover the nature of his personal religious outlook.

Religious attitudes appear to have played little or no part in the rejection of induced abortion in Britain. No institutional church spoke out against the practice and no individual medical practitioner quoted religious reasons for rejecting it. Indeed,
all of those who spoke against abortion on 'moral' grounds appear to have been more concerned with the risks to the mother than with the life of the child, and were generally convinced embryotomists.

iv) The possibility that abortion might be used by some people for reasons other than strictly medical ones must have occurred to many British medical men who were jealous of their profession's reputation. In France, of course, the induction of abortion for social reasons had been advocated by de Sade and, in the anti-clerical atmosphere of the times, few were disposed to argue the point. However, one of the few early British advocates of induced abortion, Churchill, in 1866 considered - and rejected - the possibility of the procedure being 'abused'. Speaking of cases of 'distorted' pelvis he said 'I do not see why abortion should not be induced at an early period in such cases', and then considered whether 'by multiplying the examples of inducing premature labour or abortion, we should run the risk of its being performed unnecessarily or for wicked purposes'. Churchill's conclusion was that

'I do not, in truth, see any force in this objection, for such cases are extremely rare; nor do I anticipate such prostitutiion of their power on the part of the members of our profession, and beyond the profession, the operation is not likely to be much known.' (180).

One cannot but note the extent to which the climate of medical opinion had in fact changed a century after those words were written (181).

Of the four possible factors discussed above - dangers of the operation, lack of antenatal care, 'moral' attitudes towards the
mother's 'guilt', and the risk of abuse of the procedure - none
appears to have been solely responsible for the lack of popularity
of induced abortion in Britain, where peculiar national attitudes
to all of these items added up to a widespread preference for
embryotomy. The one point which does emerge is that in Britain
religious attitudes played no part in the situation, whereas in
France there was the possibility that anti-clericalism produced a
reaction towards doing that which had hitherto been forbidden.

It is probable that the difference between British and
French practice with induced abortion was due - at least partially -
to the amalgam of circumstances listed above. It may also have owed
something to

(i) the more logical approach to the problem of
contracted pelves exhibited by the French
medical profession (maybe a peculiarly
Gallic trait)

and ii) the more widespread prudery in British
society, which tended to cause such problems
to be ignored until a much later stage of
pregnancy, when immediate action was imperative.

4.2.2. Post-mortem caesarian operations

When a pregnant woman dies, there would seem to be everything
to be gained in performing a caesarian operation post mortem in an
attempt to deliver a living child, and virtually nothing to be lost.
In fact, post mortem caesarian operations were not only rarely
performed during the nineteenth century, but were actively opposed by
many medical practitioners. This was a problem primarily of
countries with a Roman Catholic tradition, such as France. Why
did such problems arise?

There were two basic reasons for performing a post-mortem
caesarian operation.

1) To save the life of the child.

This application of the operation was only relevant if
the fetus was 'viable' - that is, capable of surviving independ-
ently of the mother. The definition of viability has always been
somewhat empirical and even to-day the 'period of viability',
although at present fixed legally at 28 weeks of gestation in Britain,
is set at 20 weeks elsewhere (e.g. the United States of America) and
is a matter for both disagreement and continuing improvement. (182)

During the nineteenth century French practice, as described
by Chailly in 1845, was to define abortion as 'expulsion of the
product of conception, before the period of legal viability, which
has been fixed at six months'. (183) Shortly after this the first
English obstetrician in the nineteenth century to come out in favour
of therapeutic abortion, Dr Charles Clay of Manchester, also expressed
himself on viability.

'The expulsion of the embryo before the sixth month and a
half, is strictly an abortion, the foetus up to that
period being non-viable; after that, all expulsions
previous to the ninth month are termed premature labour -
the product being a viable foetus'.

This dogmatic statement is then qualified:
'I believe viability to commence with the sixth month'. (184)
The expression 'I believe' is noteworthy, as indicating the imprecision of such definitions.

In Britain, although there is no evidence of any widespread demand for post-mortem caesarian operations, when there was a reasonable chance of success there was no widespread objection to the idea. Writing in 1882 Playfair summed up the situation thus: 'Since, then, there is a chance, however slight, of saving the child's life, we are bound to perform the operation, even when so much time has elapsed as to render the chances of success extremely small' (185).

ii) To permit baptism of the child.

This reason for performing the operation applied not only to cases where a child capable of survival might be extracted, but also where the child could not be expected to be viable but might nevertheless live the few moments necessary to administer the sacrament, which the Roman Catholic church regarded as indispensable for the eternal salvation of the child. Such cases only arose where there was a tradition of Roman Catholic teaching, as in France.

Why then were there refusals on the part of the medical profession to perform post-mortem caesarian operations? Such refusals appear to have arisen mainly in France, and in connection with non-viable infants for whom baptism was being sought; although there was a general reluctance to operate post-mortem even when there was a chance of fetal survival. There were three main objections.
1) The most common objection was the difficulty of diagnosing maternal death. Even to-day one of the most difficult of medical decisions is to identify the moment of death. This is a matter which has come to be of considerable importance in the field of transplant surgery where rapid removal of an organ immediately following death is essential to its eventual survival within a recipient. In a similar manner the necessity for rapid removal of a fetus following the death of its mother was recognised as important for its eventual survival - but this created difficulties for surgeons and accoucheurs of the eighteenth and nineteenth centuries, who lacked any scientific means of distinguishing between death and coma, and who appeared to be obsessed with the fear of causing, or hastening, death in a comatose woman. In earlier times ante-mortem caesarian operations were regarded as virtual death sentences. In consequence many practitioners preferred not to perform the operation after the supposed death of the mother, especially just to save the child for baptism, as their inactivity avoided any suspicion that they may have thus hastened that death.

2) In the case of 'viable' infants there was a further objection in the actual survival rates of children delivered by post-mortem caesarian operation. Figures for fetal survival were few, and of doubtful accuracy: they varied from those of Schwartz (186), who in 1861 reported that out of 107 cases not one living child was extracted, to those of Duer (187) who in 1879 reported 40 living children obtained from 55 cases. Even in more modern times there has been remarkably little information on this subject and the nineteenth century practitioners could be forgiven some scepticism, although the significance of the interval between death and operation appears not to have been sufficiently appreciated.
3) In nineteenth century France, although a large number of people still professed the Roman Catholic faith, there was a great deal of antipathy to the church, especially amongst the more educated classes. Anti-clericalism was sufficiently widespread to lead to conflicts between those who sought baptism for the infant trapped within a newly dead mother, and those medical practitioners who both disapproved of the church's insistence on baptism and were cynical (or afraid) of the possible results of a post-mortem caesarian operation.

Despite the lack of medical sympathy for religious susceptibilities about baptism (e.g. the views expressed by Tarnier (188)) the fact is that in most cases there were few enough sound medical reasons for refusing to perform post-mortem caesarian operations. In all but a tiny number of cases the fact of maternal death would be beyond reasonable doubt (189) and, when the gestation was sufficiently advanced to produce a 'viable' infant, refusal to operate could otherwise only stem from scepticism as to the fate of the infant, or to antipathy to the religious motives prompting the request if the fetus was non-viable. In post-revolutionary France such attitudes were common enough and not infrequently led to conflicts between medicine and religion. As the problem was primarily a Roman Catholic one it was not much in evidence in Britain.

One further point is worth consideration. If it was the life (or soul) of a human being which was at stake then to a Christian those items placed in the balance against it — the possibility that it might not survive, the fear of a man for his reputation, antagonism
for a religious belief - all appear trivial by comparison. That these items did widely prevail lends weight to the belief that the fetus was seen by many nineteenth century medical practitioners as having little or no intrinsic value as human life.

4.2.3. Embryotomy versus ante-mortem caesarian operation

In both France and Britain a woman with a contracted pelvis who had not undergone an early induced abortion faced surgical intervention to effect delivery of her child. In France the procedure generally adopted (caesarian operation) frequently led to delivery of a live child, while in Britain the usual procedure (embryotomy) aimed specifically at destruction of the fetus. Why was this?

i) France

The Roman Catholic abhorrence of embryotomy as the direct killing of a human being affected medical practice until the time of the Revolution, but even thereafter embryotomy never became popular. French authors (with but one notable exception) regarded the caesarian operation as a more satisfactory solution, in that it offered a chance of survival to both mother and child, in contrast to the certain death of the child involved in embryotomy. It is true that the operation was uncertain in that there were variable, but generally high, mortality rates for both mother and fetus, but the survey of Kayser in 1841 showed that both of these rates were improved by the elective performance of the operation at an early stage in labour (190). This information was well marked in France,
where elective caesarian operations became the rule, and where it was also noted that results in country districts were generally much better than those in large cities, such as London and Paris (e.g. 191). The sole exception to this point of view was Cazeaux, who came to take a pessimistic view of the mortality rates and to believe that the chances of producing a live child by caesarian operation were insufficient to balance the chances of the mother dying as a result of the operation. He also ingeniously noted that less than 50% of all children might expect to live to an age of 30, so that 'you sacrifice more than half of the women immediately; and, even supposing that every child was alive at the time of its birth ... you will not find one-half of them attain the age at which their mothers died.' (192).

This was a minority view, however, and French practice was firmly in favour of the caesarian operation, which offered a chance to both mother and child and thus also - coincidentally - satisfied Roman Catholic attitudes to fetal life and to the necessity for baptism.

ii) Britain

As in Britain there had been no church reaction to the destruction of fetal life by induced abortion, neither had there been any impediment to the growth of embroyotomy, which achieved the same end by different means. Barnes shrewdly noted in 1876 that
"the choice between two operations will be influenced by the comparative skill in them which the operator happens to possess. Under this influence the favoured operation will be more and more cultivated, and its competitor more and more neglected. Thus, to apply this law to the present discussion: the man confident in his skill in the extraction of a dead child by the natural passages with safety to the mother will be disposed to assign the narrowest possible limits to the Caesarian section; and, on the other hand, the man who has not this confidence will be disposed to prefer the Caesarian section, an easy operation\textsuperscript{(193)}."

Despite this over-simplified view of the difficulties of the caesarian operation, this was the position in Britain during the nineteenth century, with most obstetricians preferring the operation of embryotomy with which they had grown up and which, in Britain, was hallowed by tradition.

Embryotomy was effectively the only alternative to the caesarian operation and it was not only a greater familiarity with the former which weighed with the British medical profession, but also a refusal to accept reports of maternal survival with the latter, when these reports emanated from outwith the country. Such statistics certainly existed.

Kayser\textsuperscript{(194)}, in his very comprehensive survey of all known ante-mortem caesarian operations up until 1839, showed conclusively that there was a maternal survival rate of 40 - 50\%, yet time and again during the eighteenth and nineteenth centuries one finds in the British literature references to the operation as being uniformly fatal\textsuperscript{(195)}. At least amongst many British practitioners
there appears to have been a propensity to disregard statistics from other countries (such as those of Kayser), while giving great weight to hearsay and reputation. To what extent such an attitude was in over-reaction to what some saw as the unreasonable and ritualistic demands of religion \(^{196}\), it is hard to say.

Perhaps the root of the matter lay in the British character. If one considers the accidents of geography which made Britain an island, and placed France and Ireland - the countries least touched by the Reformation in northern Europe - as its most accessible neighbours, one has the situation responsible for so much later British insularity.

The differences between Henry VIII and the Popes of Rome, together with the Tudor propensity for quarrelling with other nations, set the scene for England and Wales - and later Scotland - to become a proud and independent world power; but they also left British professional men more cut-off from foreign thought and experience than was the case with those living in countries which lacked the physical boundaries of the British Isles. Whether geography alone was responsible may be doubted, but there is no doubt that for many years Englishmen (and the Church of England) in particular had an arrogant belief in their own superiority over other nations and religious persuasions, which made them difficult neighbours. In earlier times even within Britain the Calvinist Scots and the Roman Catholic Irish had proved irresistible targets for English military domination and missionary fervour. Outwith her own shores the English contempt for all things foreign increased and probably reached its zenith in the late nineteenth century.
In particular, as science and medicine developed during the eighteenth and nineteenth centuries the British medical profession came to typify the national insularity, and also to exhibit a number of peculiar traits, each of which might go some way to explaining why the profession almost universally rejected the caesarian operation in favour of embryotomy - or occasionally inaction - despite foreign reports of the operation's success.

(1) **Extreme conservatism** was perhaps the most evident characteristic of nineteenth century medical practitioners in Britain, who were generally opposed to changes which took place elsewhere. (As an example of this characteristic, at a time when women were elsewhere beginning to practise medicine, Elizabeth Garrett Anderson, the first British woman physician, had to go to Paris to obtain the coveted M.D. degree from the Sorbonne, as no British medical school would admit her.197)

(2) **Personal rivalry** within the medical profession rose to such heights, especially during the nineteenth century, as have rarely been seen at other times and places in our history. The rivalry was intense and bitter. A large proportion of nineteenth century writings on medicine and surgery contain virulent personal attacks upon other practitioners, and pamphlets devoted solely to this end were not uncommon. It is possible that this attitude was sometimes in reaction to the supposed infringement by others of what individual practitioners saw as their own personal field of study - a type of reaction still sometimes seen to-day - but the degree of vituperation was excessive, even if attributable to personal pride.
This particular aspect of medical behaviour was probably the cause of some of the intrusion of religion into medicine, for in fighting for their causes many practitioners used any argument which came to hand to support their case. If anyone expressed a 'religious' opinion — however extreme — upon a medical issue, some practitioner was sure to quote that opinion either in support of his own case or to criticise someone else's.

(3) Simple fear of consequences was probably an important factor in a profession whose reputation for taking, rather than saving, life was proverbial (198). The very rigid conservatism of the British medical profession during the eighteenth and early nineteenth centuries led to a fear of the unknown which is manifest in a number of writings of the period. Regard of individuals for their personal reputations, as has been indicated, was developed to the point of obsession and it is probable that this made many practitioners unwilling to stake all upon an uncertain procedure which might well end in the patient's death.

From a purely professional point of view the two alternatives to the caesarian operation were less damaging to the practitioner in that embryotomy was not a uniformly dangerous procedure for the mother, while the result of inaction was reasonably predictable and the patient's death could then be attributed to 'the will of God' or to 'the course of nature', rather than to 'the act of the surgeon' (199). Such a
hypothesis requires both a contemporary view which held life cheaply, and a somewhat cynical estimate of the 'humanity' of the medical profession.

The former outlook certainly applied, for widespread concern for the concept summed up by Schweitzer as 'Reverence for Life' is essentially a twentieth century innovation. During the eighteenth and nineteenth centuries, when public executions were popular entertainment and men were hanged for stealing the necessities of life for their families, life was valued in the abstract by very few.

Evidence of the cynical inhumanity of the medical profession is very arguable, although it is not entirely lacking. Before the advent of anaesthesia a surgeon had to be a man of hard heart and cold emotions in order to practise his profession at all. To be a bold surgeon required not merely manual dexterity and speed, but also the ability to deliberately shut from one's mind the screams and agony of one's patient. If some such men refused to perform an avoidable operation, preferring embryotomy, or inaction, while others came to find it hard to relate the sufferings of one more patient to any personal idea of pain or distress, it was not surprising. Any profession, at any period, will possess those whose ideals have become vitrified in the face of the realities of a hard life, and the medical profession has not been immune to this rule. It is necessary to retain perspective however - cases of women dying undelivered for want of a caesarian operation were never nearly as common as cases of unborn children killed by embryotomy.
In practical terms the reluctance shown by the British medical profession to undertake caesarian operations proved to be a self-perpetuating situation. In pregnancies where an infant could not be delivered per vias naturales, and an abortion had not been induced early in pregnancy, the choice lay between inaction, embryotomy, and the caesarian operation. In the latter case there should have been no possible excuse for performing the operation other than as an elective procedure before labour became advanced, as was done generally elsewhere. That this was not done in Britain reflects the extent of the fear of consequences which surrounded the ante-mortem operation for so many years. Practitioners performed the operation, if at all, with great reluctance and only as a last resort. This attitude was spelled out clearly by Barnes in 1876, when he said

('Embryotomy stands first, and must be adopted in every case where it can be carried out without injuring the mother. The Caesarian section comes last, and must be resorted to in those cases where embryotomy is either impracticable, or cannot be carried out without injuring the mother. There is, therefore, no election. The law is defined and clear. The Caesarian section is the last refuge of stern necessity.')

As Kayser had pointed out, the later in labour that the operation was performed the higher the maternal - and fetal - fatality rate was found to be, so that by deferring the operation until the last moment the results achieved only served to bolster that fear of consequences of the operation which deferred its performance in future operations. Few nineteenth century British obstetricians broke free from this vicious circle and proved for
themselves that, by performing the operation electively, the outcome was not always necessarily fatal to the mother.

Despite the apparent difference between French and British practice in dealing with undeliverable pregnancies - the former choosing a procedure which hoped to save the fetus, the latter choosing deliberately to destroy it - the over-riding motivation in each case was the saving of the mother's life. The choice of procedure was essentially a medical one owing little or nothing to Christian theology. This attitude was made explicit by Dr Egbert Grandin at a meeting of the American Gynaecological Society in 1891.

"On this occasion, as on others" (he said), "I shall neglect the moral or "theological" side of this question. The decision we reach, I contend, should be based on scientific grounds purely. Once let it be proven that we can save the child through the elective section and yet not imperil the woman to a greater degree than does embryotomy, and there ceases to be an excuse for mutilation of the living foetus. Let the reverse be proven, and neither dogma of church nor choice of laity is going to dissuade the physician from his foremost duty, which is to the woman". (204).

The authority for this choice of 'foremost duty' was not identified, but it clearly had no origin in the Christian tradition.

Towards the end of the nineteenth century improvements made in the technique of the caesarian operation, and especially in such areas of medical technology as antisepsis and anaesthesia, made the operation notably safer. Foremost amongst these innovations
was the improved operation devised in Germany during the 1880's by Sanger (205). Despite the success of the Sanger operation it was not performed in Britain until 1888, when Sir Francis Champneys had a successful case which he subsequently reported to the Obstetrical Society of London (206).

Champneys' report threw some interesting sidelights on the British view of caesarian operations even at this late date. Referring to a recent German paper on the subject (207) Champneys commented:

'We read accounts in Dr Leopold's paper of women who appear to regard a second Caesarian section without apprehension, indeed apparently with pleasant anticipation. Whether this depends on exuberant philo-progenitiveness on the part of Saxon women, on the comfort of their surroundings in hospital, or on the skill and management of the operator, it would be hard to say. It seems, however, quite contrary to the ideas which are generally entertained...' (208)

Champneys, however, was a firm supporter of the new caesarian operation as against craniotomy, in many cases. He said:

'The advancing success of Caesarean section has practically put an end to its limitation to cases of "absolute" contraction, that is to cases where delivery per vias naturales is impossible, and its limits have extended upwards into the class of "relative" contraction.... The settlement of this limit is a matter of great ethical difficulty. If it can be shown that Caesarean section in a given case is no more dangerous than craniotomy, Caesarean section should be done. But it is doubtful how far "desire for offspring" renders it justifiable where craniotomy is safer, except in those difficult and painful cases of cancer where the mother is doomed to certain death, and is therefore, to all intents and purposes, moribund' (209).
Concern for fetal life was still not a force of any potency in English medical circles and one feels that Champneys' comment that 'We have, however, no doubt that the days of delivery by craniotomy and any mode of extraction in pelves of a serious amount of contraction (say a conjugate below 2½ inches) are past' (210), was more a sigh of relief for the operator's aesthetic sensibilities than for the life of the fetus. Speaking in the debate which followed the reading of Champneys' paper Playfair drew attention to the importance of the 'antiseptic principle' in the Sanger operation but also shrewdly noted that 'It is not to be forgotten that a rigid antisepsis may lessen the risks of craniotomy also, and, on the whole, it is not likely that the latter operation will be supplanted by the former' (211). Here again was evidence of the widespread continuing disregard for fetal life as possessing an absolute value.

That the views of Champneys and Playfair were not universal, however, was shown by a paper published in Scotland two years later. In reporting a series of ten Sanger operations performed between 1888 and 1891, of which nine had resulted in maternal survival (212), Murdoch Cameron said,

'I think the time has come when the lives of the mother and child may alike be saved, and I prefer to think that an infant come to maturity is destined for something greater than to have its glimmering life extinguished by an accoucheur skilled in the use of a dreadful perforator. Let our motto be, "We live to save and not to destroy"' (213).
4.2.4. **Religious attitudes of the medical profession**

In those nineteenth century writings upon procedures concerned with salvaging or destroying fetal life which have been studied for this thesis there is very little evidence to be found that they were conditioned by the religious views of the authors.

In France there were strong anti-religious and anti-clerical attitudes in the post-revolutionary period, particularly amongst the educated classes, but in Britain no such situation existed. However, a brief study of the lives of 32 notable nineteenth century British obstetricians and gynaecologists (214) has revealed evidence of serious religious sympathies in only three cases (215). Although such workers as Cameron (216) apparently based their views upon an attitude of common humanity it is not possible to say that religious views were or were not strongly held by most British medical practitioners of the nineteenth century. There is some evidence of an anti-Papism, however.

Writing in 1742 Sir Fielding Ould, a man-midwife of Dublin, had expressed this attitude. Ould's views on the religious connotations of the caesarian operation were stated thus:
Before we proceed any farther, it will be necessary, in order to invalidate the Authority of the Favourers of this unparalleled Piece of Barbarity, to consider what could be their Motive, to hand down to Posterity, Facts in themselves so demonstrably false; what appears to me the most probable in this Respect is this: It is a Principle among the Roman-Catholics, that the Soul of every Child that is not baptized, is annihilated; and consequently, it is the Opinion of their Divines, that the Soul of the Mother whose Existence is established, should be separated from the Body, rather than the Soul of the Infant should be absolutely lost. Now if we consider the Biggotry of that Age, and the Ignorance of the Generality of People in Matters of Religion, we may easily conceive how they might have been led beyond their Reason"(217).

A century later Ramsbotham, a noted English obstetrician, was certain that the more common performance of the caesarian operation in continental Europe - and particularly in Roman Catholic countries - was due mainly to society being dominated by the priests of the Roman communion. In his widely-read text book of obstetrics he said (with more than a hint of chauvinism);

"The fact is not to be concealed, that in different parts of Europe, and especially in Roman Catholic countries, both has this operation many times been had recourse to, under circumstances in which no British practitioner would have considered himself warranted in proposing it - where, indeed, there has existed sufficient available space in the pelvis to admit of the extraction of the foetus per vias naturales; - and also that the women, more under the influence of their clerical pastors than ours are, have more readily and cheerfully submitted, from a sense of religious duty, to this dreadful expedient, while they still possessed considerable strength, that they might not deprive their unborn children of the benefit of admission within the pale of the Christian church"(218).
Despite such isolated instances of antagonism to Roman Catholic teachings, and the three specific instances of positive religious sympathies cited above (215), it can not be said that the present study has revealed much evidence of religious opinions in the professional writings of many nineteenth century obstetricians and gynaecologists (219).

The post-revolutionary antagonism to the Roman Catholic church in France naturally had less effect in Britain than it might have done had this been a predominantly Roman Catholic country. Despite the work of Simeon and other evangelicals in the Church of England, and Wesley and his successors in the free churches, amongst the educated classes of society there was a widespread apathy to anything approaching dogmatic theology, at least during the first half of the century.

In any event, the English churches were apparently disinclined to enter into arguments upon the value of fetal life, to which the medical profession could have reacted.

One particular item is worthy of notice in this context, however. In a book review published in a medical journal in 1843 the anonymous reviewer, after questioning the survival rate of infants delivered by caesarian operation, continued: 'And then think what a miserable end for a poor creature, after undergoing the sharpest pangs that flesh can know, to be subjected to a painful and bloody operation, not for her own, but for another's possible advantage! Every principle of humanity and religion is opposed to such a practice; nay, even the cold dictates of mere science
and physiology must condemn it. In opposition to this view it might be argued that one of the basic tenets of the Christian faith is love for others (e.g. Mt. 22, 39; Mk. 12, 31; Lk. 10, 27; Rom. 13, 9; Gal. 5, 14; Jas. 2, 8; Jn. 15, 12. 17), even to the extent of laying down one’s own life (Jn. 15, 13). In this sense the suggestion that ‘Every principle of ... religion is opposed’ to risking one’s own life in a caesarian operation in the hope of saving the temporal (or even spiritual) life of one’s unborn child, could not apply when such a decision was freely taken by the woman herself. It may be that the anonymous writer was considering only the medical alternatives when such a decision was not forthcoming, rather than attempting to impose a religious belief upon a clinical situation, and in this sense the passage quoted above is ambiguous. Certainly it can not be regarded as typical of contemporary medical attitudes towards religious belief.
NOTES AND REFERENCES


141. Ibid. p.1074.


143. Sanchez. De sancto matrimoni sacramento disputationum. Venice (1712). at 9.20.9(a) - 17.


147. e.g. Ibid. p.468.

148. Ibid. p.522.

149. Ibid. p.390.


151. Ibid. pp.370-1


153. Ibid. p.359.


160. Ibid. p.198.

162. The argument between Hull and Simmons was contained in four 'open letters', each the size of a small book, published in 1798 and 1799. Bound together they constitute a total of 902 pages in a volume 5 1/2 cm. thick.


165. Ibid. p. 67


167. McKay, W.J.S. Lawson Tait. His Life and Work

168. Ibid., and Flack, I.H. Lawson Tait, 1845-1899.

169. De Sade, D.A.F. La Philosophie dans le Boudoir

170. Ibid. p. 116

171. e.g. the views expressed by Velpau (Op. cit) p. 403


173. As an example of the attitudes prevalent in the mid-nineteenth century, a correspondent in the outspoken Englishwoman's Journal wrote in 1862 that it would be difficult to teach women physiology because of 'the extreme repugnance, amounting to disgust, felt by many girls to this class of knowledge'. (The Englishwoman's Journal, IX (April, 1862) p. 142).

(N.B. This item is extremely rare. The British Museum's copy is missing and the only traceable copy is in the library of the Fawcett Society, 27 Wilfred St., London, S.W.1.).


181. e.g. In England and Wales during 1973 (the last year for which full official statistics are available) with a 'Total Care' health and welfare service, of 167,149 abortions performed legally only 7 were for the purpose of saving the woman's life, a further 12 for the purpose of preventing 'grave personal injury' to her health, and 5271 to prevent 'risk to the life of the pregnant woman greater than if the pregnancy were terminated'. The remainder were for lesser medical indications and for 'social' reasons. Four cases resulted in maternal death. During the period 1968-1976 over one million abortions were induced in Great Britain under the provisions of the Abortion Act (1967). (Registrar General's Statistical Review of England and Wales. Supplements on Abortion).
182. No statistics appear to exist of the survival rate of infants delivered prior to 28 weeks gestation but, as an indication of the unremarkable nature of this, two such children are known personally to the author.

Twenty-eight weeks gestation is the period referred to in the Infant Life (Preservation) Act, 1929 (19&20 Geo.5. Ch.34. Sect 1(2)), as distinguishing between an infant which is, or is not, 'capable of being born alive' - i.e. viable.

With the development of neonatal pediatrics leading to infants of progressively shorter gestation periods being capable of survival, the concept of a fixed 'period of viability' is increasingly seen as no more than a convenient legal fiction. Attempts are currently being made to have the law altered so that the legal 'period of viability' is 20 or 24 weeks of gestation.


189. It is interesting to note that as early as 1777 the problem of diagnosing death was not regarded as troublesome by at least one obstetrician. Bordenave (Op.cit) had said: 'The simple inspection of the eyes, which soon become dull and flaccid, are sufficient to determine this condition absolutely' (p.10).


192. Ibid. p.1078.


German Proverb: When you call the physician, call the judge to make your will.

Polish Proverb: Before a doctor can cure one he will kill ten.

Indian (Bengali) Proverb: The destruction of a bushel of eyes makes an oculist; the destruction of one hundred patients makes a doctor; the destruction of a thousand a physician.

The same source includes the following quotations (pp. 394-396)

Broome, William (1689-1745)

Though patients die the doctor's paid:
Licens'd to kill he gains a palace
For what another mounts the gallows

Poverty and Poetry

Armstrong, John (1709-1779)

Many more Englishmen die by the lancet at home,
than by the sword abroad.

Walpole, Horace (1717-1797)

Physicians, though they commit more deaths than soldiers, are never tried.

Letter.
198. (Contd.)

Smith, Sydney (1771-1845)

The sixth commandment is suspended by one medical diploma from the North of England to the South.

Lamb, William; Lord Melbourne (1779-1848)

English physicians kill you, the French let you die.

Quoted by Elizabeth Longford in Queen Victoria, Ch.V

199. e.g. Simmons, W. (1798) (Op.cit)


202. 'The law' referred to by Barnes was of course a hypothetical 'law' of medical practice, and not any legislative enactment.


209. Ibid. p.148.

210. Ibid. p.150.

212. The one maternal death was attributed to a heavy fall in the eighth month of pregnancy, which stimulated premature labour. This woman had undergone embryotomy in each of her three previous pregnancies. From the ten cases, ten live children were delivered including one pair of twins. One infant was known to have been dead for several hours before operation.


214. The workers studied included all the British names in Table 1 (Section 2.1.1 supra) together with those of two other eminent men - Sir James Young Simpson and Dr. Lawson Tait. It is believed that this list includes nearly all the nineteenth century obstetricians and gynaecologists of significance in Britain. Sources of information included the Dictionary of National Biography, Plarr's Lives of Fellows of the Royal College of Surgeons, obituary notices in the medical press, Who was Who, specific biographies where these exist, and a study of the workers' own writings.

215. The three instances are:

Dr. F. Churchill (1808-1878). Said to be 'deeply religious', he was a member of the Irish Episcopal Church and was a keen supporter of foreign missionary work. Writing in 1866 Churchill gave qualified approval to the use of induced abortion, some 20 years before such approval became widespread in Britain.

Prof. James Young Simpson (1811-1870). A founder member of the Free Church of Scotland, his interest in religion grew throughout his life until he came to experience a deep 'conversion' to active Christianity in 1861. He was a keen exponent of Biblical exegesis (See Part II). Simpson was a firm opponent of embryotomy of the living fetus, and wrote strongly condemning the practice (Simpson, J.Y. (Op.cit). p.607)
Dr. James Lawson Tait (1845-1899). A student of Simpson, who had strong leanings towards the Roman Catholic church and who gave advice to the Pope on the question of ectopic pregnancy. Tait never became a Roman Catholic despite his sympathy for that faith.

Tait was the pioneer of surgical excision of tubal ectopic gestations but he was strongly opposed to the direct killing of an ectopic fetus, which action he regarded as 'immoral' (Tait, L. (Op.cit). pp.70-71).


219. One exception to this generalisation was Dr. Protheroe Smith, whose religious views are considered in Part II, Sect. 3.2.2. His views upon the value of fetal life are not on record, however.

The nineteenth century was a period during which great developments took place in medicine which contributed to the saving of fetal life — especially anaesthesia, the use of antiseptic (and later aseptic) techniques, and (to a lesser extent) blood transfusion. The very substantial improvement in the safety of caesarian operations which occurred in the period from about 1870 - 1880 onwards, largely as a result of these developments, altered the whole basis of medical objections, to both the post-mortem and ante-mortem operations which came to be seen as at least as safe for the mother as craniotomy, and eventually more so. The safety of the operation had in fact been improving steadily since the middle of the eighteenth century, but that it was dramatically enhanced by the factors mentioned above is shown in Table 3.4 and Figure 3.4. The figures in this Table, while not strictly comparable, due to the differing criteria employed in their selection (especially the different surgical techniques adopted), nevertheless show the remarkable changes which have been wrought by medical science in this field (221).
TABLE 3.4

Maternal Mortality of the Ante-Mortem Caesarian Operation

<table>
<thead>
<tr>
<th>Period</th>
<th>No. of Cases</th>
<th>No. of Deaths</th>
<th>Mortality %</th>
<th>Type of Operation (ref)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1750-1800</td>
<td>117</td>
<td>80</td>
<td>68</td>
<td>Old</td>
<td>(223)</td>
</tr>
<tr>
<td>1801-1832</td>
<td>148</td>
<td>93</td>
<td>63</td>
<td>Old</td>
<td>(223)</td>
</tr>
<tr>
<td>1833-1839</td>
<td>71</td>
<td>35</td>
<td>49</td>
<td>Old</td>
<td>(223)</td>
</tr>
<tr>
<td>1876-1883</td>
<td>134</td>
<td>75</td>
<td>56</td>
<td>Porro</td>
<td>(224)</td>
</tr>
<tr>
<td>1882-1887</td>
<td>50</td>
<td>15</td>
<td>30</td>
<td>Sänger</td>
<td>(225)</td>
</tr>
<tr>
<td>1889-1892</td>
<td>29</td>
<td>5</td>
<td>17</td>
<td>Sänger</td>
<td>(226)</td>
</tr>
<tr>
<td>-1911</td>
<td>699</td>
<td>54</td>
<td>7.7</td>
<td>L.U.S.</td>
<td>(227)</td>
</tr>
<tr>
<td>-1921</td>
<td>1988</td>
<td>72</td>
<td>3.6</td>
<td>L.U.S.</td>
<td>(228)</td>
</tr>
</tbody>
</table>

These figures are, perhaps, more striking when illustrated graphically, as in Figure 3.4.

The practical effects of this change of attitude naturally included the saving of a considerable amount of fetal life which would otherwise have been lost by induced abortion, embryotomy, or consequent upon the death of the mother. This benefit to the fetus was only a side effect, however, the main intention of the obstetrician continuing to be to preserve the mother at all costs. Writing in 1889 Champneys had said:

'We do not, in the meanwhile, agree with the view that Caesarian section is likely ever to abolish craniotomy within the limits of between three and two and a half or even two inches. For if it be conceded that increased experience is likely to reduce still further the risks
FIG 3.4

Graphical representation of Table 3.4
of Caesarian section, the same would be allowed as regards craniotomy within those limits, for a certain number of women do actually die after, though not necessarily in consequence of, craniotomy. If it be conceded that the mortality of timely craniotomy is even now nil, Caesarian section must, it would seem, always remain the more dangerous. (229).

As the mortality of caesarian operations fell yet lower, so this viewpoint slowly altered amongst leading obstetricians, who came to seek the preservation of both maternal and fetal life. With this acceptance, and with the ever diminishing risks of the operation, the baptismal requirements of the Roman Catholic church could - coincidentally - be met by medical practitioners without any compromise of clinical integrity.

It is possible that in Britain the final reason for the caesarian operation coming to replace embryotomy lay in operating techniques. While Listerism and anaesthesia improved the safety of both procedures, improvements in surgery weighted the balance in favour of the caesarian operation as far as maternal mortality and morbidity was concerned.

There was also an unlooked-for bonus in the spread of low-risk caesarian operations, which benefited Roman Catholic religious views especially. Those developments which had permitted the extension of caesarian operations were also those which had permitted the extension of induced abortion. The availability of safe caesarian operations came to render the induction of abortion unnecessary in cases of pelvic deformity. Nevertheless other, less medically compelling, indications
for induced abortion subsequently arose with the greater (although not absolute) safety given to this procedure by developing medical technology. The growth of induced abortion for socio-economic reasons rather than for those reasons of clinical necessity for which it was originally proposed is outwith the scope of this thesis and, in respect of the development of religious attitudes to the practice, of too recent date to permit of historical perspective.
221. The figures in Table 3.4 have been abstracted from the papers cited, and tabulated in a uniform manner. The series selected for inclusion are those surveying longer periods or wider geographic areas and exclude those for single operators or hospitals, which often tended to be uniformly bad or suspiciously optimistic.

222. 'Old' = the original caesarian operation
'L.U.S. = Lower Uterine Segment operations

227. Routh, A. 'On Caesarian Section in the United Kingdom'.
   N.B. This paper surveys 1282 cases, extending from 1867 to June 1910.
228. Holland, E. 'The Results of a Collective Investigation into Caesarian Sections Performed in Great Britain and Ireland from the year 1911 to 1920 Inclusive'.
6. CONCLUSIONS

For many centuries the Roman Catholic church has strongly supported the concept that fetal life has an absolute value and, wherever possible, is to be saved for baptism even if there is no question of eventual survival. The church came into direct conflict with the medical profession when the latter insisted that the value of maternal life was greater than, and must be preferred to, that of fetal life. In practice these conflicts were restricted to the practices of induced abortion and post-mortem caesarian operations, and in countries with a strong Roman Catholic tradition and a scientifically advanced medical profession, such as France.

The medical profession has always held strong views on change and in Britain, with its Protestant tradition, religious attitudes to the value of fetal life were seen as irrelevant rather than as a serious problem. British medical practitioners - like their French colleagues - had little religious motivation (other than a general anti-Papism) and were concerned solely with their duty to the mother. Had the established churches taken a firm line upon the value of fetal life it is possible that British medical practitioners might have been obliged to justify or defend their actions in the light of religious beliefs. In the event, however, it was not until the second half of the present century that the opinions of the Protestant institutional churches were tested upon this point; and even now they have generally failed to produce clearly defined attitudes to the value of fetal life. Medical opinion has also exhibited a continuing dichotomy, with the majority opinion favouring destruction of fetal life where this is indicated for the benefit of
the mother's physical or mental health. Perhaps this continuing situation is evidence that the attitudes towards fetal life discussed above were not peculiar to any century or country, but constitute a genuine area of conflict between medical science and religious belief, such as that suggested by Joulin in 1867 (231).

The developments of medical science and technology during the 19th century made it possible for the medical profession to adopt procedures which were both medically safer for the mother, and gave an improved chance of survival to the fetus – thus (coincidentally) meeting the requirements of the Roman Catholic church. That these procedures were adopted more slowly and more reluctantly in Britain than in France represents a conflict between reaction and progress in medical science, rather than between religious belief and medical science. Conflicts between medicine and religion over the value of fetal life were resolved by developments in medical science and technology, rather than caused or exacerbated by them. That the destruction of fetal life for socio-economic reasons has become a recent source of conflict between medicine and religion is a further issue at present more within the fields of sociology and ethics than of history.
230. By 1977 the only Christian churches to openly condemn the principle of legalized induced abortion were the Roman Catholic, Holy Orthodox, Scottish Episcopal and United Free Church of Scotland. Most churches remained officially silent or ambivalent on the subject. The American Baptist and Quaker churches officially supported legalized abortion.

PART IV

AN ASSESSMENT
1. SUMMARY

Each of the areas studied above shows a different aspect of the religion/science relationship.

1.1 IMMUNISATION, AND DISEASE

Religious opposition to inoculation appears to have been widespread during the 18th century, but to have faded until the introduction of vaccination in the 19th century met almost no opposition on these grounds.

There is some evidence that religious opposition to inoculation may be related to views associated with extremes of Calvinist theology. These asserted that God, and God alone, may inflict disease upon man (1); and that if God willed that a man should contract a disease then it would be wrong to try to avert that fate (2). In practice the Calvinist churches, like other Christian denominations, have never taught that healing the sick might be wrong. Religious objections to inoculation were directed not at the 'healing' concept so much as to the infliction, by man, of disease - for whatever reason. This was seen by some as an usurpation of God's prerogative.

Such hyper-Calvinist views appear to have been widespread only in Scotland during the early part of the 18th century, and it may be questioned to what extent they were really responsible for the existence of anti-inoculation views, and to what extent these latter were conditioned by financial or other considerations. Certainly by the end of the 18th century inoculation was being widely accepted, even in Scotland.
In England, religious opposition to inoculation was effectively the work of two men, Edmund Massey and Theodore Delafaye, each of whom seems to have been a rugged individualist, atypical of his time and his profession. In Catholic France the religious element just did not enter into the inoculation debate.

During the 19th century religious opposition to cowpox vaccination was virtually non-existent, although a considerable clamour did arise over the attempts of the legislature to make it compulsory.

The overall impression is that, whereas inoculation (and compulsory vaccination) were widely opposed for a variety of reasons, for the most part these were practical, theoretical, or superstitious. Only in the context of hyper-Calvinism may they have been of religious origin - and then only for a short period in the early part of the 18th century. There is no evidence at all of anti-inoculation or vaccination views being expressed outside these limits - indeed very many examples exist both in Europe and America of churches actively promoting immunisation as a desirable protective. Thus, it would seem that conflict between medicine and religion over immunisation was very circumscribed, both in time and in respect of the theological views involved.

1.2. ANAESTHESIA, AND PAIN

In the case of anaesthesia it has been almost impossible to trace any genuine religious opposition to the introduction of the practice. This area is possibly that in which the existence of a
conflict between medicine and religion has constituted one of the most misleading aspects of medical mythology; yet it would appear that no conflict existed, unless in the minds of James Young Simpson and Protheroe Smith — two obstetricians who were firmly committed to the concept of obstetric anaesthesia and who were determined to forestall an opposition which in fact did not materialise.

That some people had reservations about the propriety of obstetric anaesthesia is certain, and that considerable opposition to anaesthesia was expressed upon medical, physiological, and general moral grounds, is undoubted. It would seem probable that a few individuals attempted to support their medical opposition by reference to religious considerations, yet the absence of evidence for any such contemporary doubts (other than as asides in a few medical attacks on the practice) suggests that the belief in the existence of a conflict was an historiographical artifact — the work of the myth-makers who read into Simpson's defence an attack which was never actually mounted.

1.3. **INDUCED ABORTION, CAESARIAN OPERATIONS, AND THE VALUE OF FETAL LIFE**

In contrast to the other two areas discussed, the valuation of fetal life was undoubtedly a point upon which the medical profession found itself in conflict with religious belief. This conflict was most pronounced in countries with a Roman Catholic tradition (such as France) and was the result of two diametrically opposed views. The medical profession, almost uniformly, regarded the fetus as disposable, while the Roman Catholic church believed that life began at conception, and that the unborn child stood in the same need of baptism for its salvation as any other human being.
While the Roman Catholic church did not teach that one must sacrifice the mother to save the child (as has been often averred), it did regard the caesarian operation as a valid means of resolving otherwise undeliverable pregnancies. The undoubted hazards of this operation seem to have caused most medical practitioners to regard it as a virtual death sentence on the mother, however, so they generally preferred an undoubted death sentence on the child, by induced abortion or embryotomy.

There were two related religious issues in this conflict - the value of life, especially before birth, and the necessity for the sacrament of baptism as a means of salvation, even for the unborn child. On neither issue was either side prepared to compromise and only the developments of medical science and technology which made possible the safe performance of caesarian operations resolved the situation.

'the infliction of Diseases, which ... are utterly unlawful to be inflicted, by any who profess themselves Christians.'


'acting contrary to the will of heaven, by introducing disease into the human frame, not inflicted by the immediate hand of Providence'.

2. e.g. Ibid. Vol.19. p.618.

'the people (believe) ... that all diseases which afflict the human frame are instances of the Divine interposition, for the punishment of sin; any interference, therefore, on their part, they deem an usurpation of the prerogative of the Almighty'.

3. Listed in Table 2.2 of Part II.
2. SOME CONCLUSIONS

The Conflict Thesis\(^{(4)}\) is the view - often assumed and unspoken - that the most fruitful way of understanding past and present interactions between science and religion is in terms of a relationship of conflict between them. It is effectively a historiographical model, determining the manner in which past (and present) events are interpreted by the historian. The present study has been concerned with determining whether such a conflict did take place in fact with the development of modern scientific medicine and, if so, to what extent and for what reasons. It may be said that a study restricted to only three areas of medical development, the Christian religion, two centuries of time, and a geographical area covering only part of western civilization is too narrow to permit firm conclusions to be drawn. It is to just these areas of time and space, however, that the Conflict Thesis is of particular relevance.

Insofar as general conclusions may be drawn from the present study it would seem that, while discrete and identifiable areas of conflict undoubtedly have arisen from time to time, there is no evidence of any overall 'warfare' between medicine and religion. The two specific conflicts observed (concerning inoculation and the valuation of fetal life) were the results of situations in which specific items of theological doctrine, each peculiar to a specific branch of the Christian church, caused those who adhered to them to oppose the medical profession. In the one case the religious beliefs were in opposition to a development which the medical
profession believed to be of over-riding practical benefit to their patients, while in the other it was religious belief which caused its adherents to seek surgery which the medical profession regarded as unsafe, for reasons which they regarded as irrelevant, and to oppose the treatments regarded by that profession as orthodox.

It is interesting to note that in the areas of specific conflict studied it was items of doctrine of two Christian persuasions almost diametrically opposed to one another - Calvinism and Roman Catholicism - which were the proximate causes of dispute. Further, it may be observed that neither persuasion became involved in the debate associated with the other. The Calvinist churches did not enter the debate over fetal life and the Catholic church did not oppose inoculation.

The manner of the conflict also differed. In the case of inoculation it was apparently individuals with hyper-Calvinist views who initiated an opposition which, at least by the last decade of the 18th century, was at odds with the attitude of the institutional Calvinist church in Scotland. By contrast, in the case of fetal life it was the institutional church of Rome which fought the fight and, in the present study, this is the only example of an institutional church mounting a major attack upon medical practice.

In the areas covered by the present study there is no evidence of either the established Church of England or the non-conformist churches in England or America, being in opposition to any orthodox medical practice. On the contrary, during the 19th
century the practice of vaccination received wide support from the Anglican clergy, as had the practice of inoculation from American Congregationalist ministers in the previous century.

Upon the existence of a general 'warfare' between science and religion, some 19th century commentators were less than objective. For example, in 1875 Draper alleged that inoculation was 'strenuously resisted by the clergy' (5), but gave no references to support this claim. Even more misleading was White who, in 1896, appeared to give his sources. For example, he quoted pages 231-2 of Vol.1 of Baron's Life of Edward Jenner (6) 'For bitter denunciations of inoculation by the English clergy' (7). This reference is to a secondary source, which itself quoted no identifiable primary sources other than the sermon of Delafaye (8). Similarly, White referred to pages 248-9 of Duns' Memoir of Sir James Y. Simpson (9) for evidence of 'the opposition of conscientious men to vaccination in England' (10). This reference was also to a secondary source which quoted no identifiable primary sources.

In Part II of this thesis it was suggested that the existence of a conflict over anaesthesia may well be an historiographical artifact (11): 'evidence' such as that of Draper and White, quoted above, might suggest that the whole concept of a generalized conflict between medicine and religion could be no less an artifact of the historiography of the history of medicine.
4. Sometimes known as 'warfare thesis', 'military metaphor', etc.


11. Chap. 4.
3. SUGGESTIONS FOR FURTHER STUDY

As has been suggested, conclusions drawn from a study such as this may be of limited value only.

Although only three areas of medical development have been studied here, they were areas selected because they were notable examples of alleged conflict between medicine and religion. Other developments in medicine deserve study in this context, however. For example, although not submitted as part of the present work, a study of the history of blood transfusion, extending over many years, has revealed to the present author a number of instances of opposition to its introduction on medical grounds, but only one connected with religion. This latter opposition has been related to a specific item of theology of a specific (non-Christian) religious persuasion - the belief of Jehovah's Witnesses that transfusion of blood was analogous to the eating of blood \(^{(12)}\), several times prohibited in the Bible \(^{(13)}\).

There are certainly relationships between medicine and religion calling for study in the field of mental health. Possibly in the same area is the question of faith-healing - a phrase which inadequately covers a range of activity spreading from psycho-somatic medicine to apparently genuine miracle cures (e.g. at Lourdes).

For reasons given in the Introduction, the present investigation has been confined to certain Christian churches, and primarily to western Europe - especially Britain and France. Clearly the
attitudes of the non-conformist churches and the Holy Orthodox church, as well as non-Christian religions, call for further study. Of the latter, not only Judaism, Islam, Buddhism, Hinduism, Confucianism, and other eastern religions offer scope for examination, but the non-Christian religions of western civilization such as Jehovah's Witnesses, Spiritualism, Theosophy, Scientology, etc., are relevant to the subject.

Associated with this large number of religious persuasions is the need to widen the geographical area looked at. North America is an obvious area for detailed study, but there is still a need for work to be done on Europe, outside Britain and France, and the study of eastern religions would naturally cover other continents.

Finally, the present work has been roughly related to the 18th and 19th centuries, but it is clear that the reactions included have been part of a lengthy history. The concept of anaesthesia (or, at least, analgesia) was known to the Greeks (14) and Romans (15), and induced abortion is a problem of to-day. The selection of the 18th and 19th centuries for this thesis, while relevant to the Conflict Thesis, leaves very wide scope for further study of the medicine-religion relationship. While the historiography of science has become sufficiently well established for the problems of the alleged 'History of the Warfare of Science with Theology' to have received considerable attention, the problem as applied to medicine has scarcely been given serious consideration. It is hoped that the present work will prove a useful starting point.
NOTES AND REFERENCES


'it has no bearing on the matter that the blood is not introduced to the body through the mouth but through the veins ... The fact is that it provides nourishment to the body to sustain life'.

13. *e.g.* Gen. 9. 3-4; Lev. 3. 17; 7. 26-7; 17. 10-14; 19. 26; Deut. 12. 16; 22-4; Acts. 15. 20; 29.


'Antigone's daughter cried aloud on Eileithyia, the loosener of the girdle, in her bitter childbirth pangs; And the Goddess came to comfort her, and over all her limbs Shed down release from pain. So in the likeness of his Sire A beloved boy was born'.

(N.B. Eileithyia was the goddess of childbirth, often associated with Juno and Lucina in the Roman canon.)


'And some do seeth the roots in wine to thirds, and straining it set it up. Using a Cyathus of it for such as cannot sleep, or are grievously pained, and upon whom being cut, or cauterized they wish to make a not-feeling pain'.

(N.B. 1 cyathus = 11.4 cm³, i.e. approx. 2/3 f1. oz.).
APPENDICES

I  Prayers used at Mr Daniel Sutton's institution, for the recovery of those undergoing inoculation. c.1766

II Data upon which Figs 1.1 and 1.2 were based.

III An address to be presented by Clergymen, at the Baptism of children.

IV Advertisement for Vaccination Tracts, with full list of titles.

V Non-medical sources studied for evidence of religious opposition to cowpox vaccination.

VI Non-medical sources studied for evidence of religious opposition to obstetric anaesthesia.
APPENDIX I

PRAYERS used at Mr. SUTTON'S.

---

A PRAYER for the Recovery of Patients under Inoculation,
[To be said after O God the Creator, &c.]

O ALMIGHTY GOD, in whom we live, move, and have our being, and to whom alone belong the issues of life and death, our only help in time of need, most humbly we beseech thee to grant, that all those of this present household, who now labour under an indisposition of body, may safely and speedily recover from their infirmity. And with earnestness we implore thy greatest blessing on this and every endeavour of thine, to preserve the lives of their fellow-creatures, that our days may be prolonged upon earth, to thy honour and glory, through JESUS CHRIST our Lord. Amen.

---

A PRAYER for the Recovery of Patients from Inoculation.
[To be said after the General Thanksgiving.]

O ALMIGHTY and most merciful Father, by whose gracious providence our lives are prolonged, and we are preserved from the manifold dangers that befall us, we return thee our unsignified sacrifice of praise and thanksgiving for blessing those means to us, which the more we presume it, and in confidence of thy divine pleasure, continue to pursue, for allowing the power of that sickness which hath been so often unto death. And vouchsafe, we beseech thee, particularly to accept the grateful thanks of all those in this present congregation, to whom thou hast lately restored the voice of joy and health. For this thy preservation and providence over us, we loud and magnify thy glorious name, and adore all honour and power to Thine, the Son, and Holy Ghost, now and for ever. Amen.
**APPENDIX II**

Data upon which Figs 1.1 and 1.2 were based.

<table>
<thead>
<tr>
<th>Fig. 1a</th>
<th>Fig. 1b</th>
<th>Fig. 1c</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1790 - 1798</strong>&lt;sup&gt;(1)&lt;/sup&gt;</td>
<td><strong>1843</strong>&lt;sup&gt;(2)&lt;/sup&gt;</td>
<td><strong>1755</strong>&lt;sup&gt;(3)&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Incubulation: No. of Parishes</strong></td>
<td><strong>No. of Parishes</strong></td>
<td><strong>No. of Parish Ministers who seceded</strong>&lt;sup&gt;(4)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td><strong>In Favour</strong></td>
<td><strong>No. Reply</strong></td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>5</td>
</tr>
<tr>
<td>Aberdeen</td>
<td>46</td>
<td>7</td>
</tr>
<tr>
<td>Ayr</td>
<td>35</td>
<td>0</td>
</tr>
<tr>
<td>Argyle</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>Banff</td>
<td>32</td>
<td>2</td>
</tr>
<tr>
<td>Berwick</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Bute</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Caithness</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Clackmannan</td>
<td>42</td>
<td>0</td>
</tr>
<tr>
<td>Dumfries</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Dunbarton</td>
<td>31</td>
<td>1</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Fife</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Forfar</td>
<td>53</td>
<td>2</td>
</tr>
<tr>
<td>Haddington</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Inverness</td>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>Kinross</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>Kirkcudbright</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Lanark</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>Linlithgow</td>
<td>41</td>
<td>5</td>
</tr>
<tr>
<td>Linlithgow</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Nairn</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Orkney</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>Shetland</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Peebles</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Perth</td>
<td>76</td>
<td>6</td>
</tr>
<tr>
<td>Renfrew</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Ross &amp; Cromarty</td>
<td>33</td>
<td>4</td>
</tr>
<tr>
<td>Roxburgh</td>
<td>31</td>
<td>2</td>
</tr>
<tr>
<td>Selkirk</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>Sutherland</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Wigtown</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>865</strong></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>

* Opposition in the past — now changing to acceptance.  
† The exact number of PARISH (as distinct from other) ministers who seceded in these areas — mainly the large cities — is uncertain.
SOURCES


APPENDIX III

"An Address to be presented by Clergymen, at
the Baptism of Children

"To Fathers and Mothers,

"You who are parents must feel yourselves not
less bound by religion, than prompted by affec-
tion, to guard your child from every impending
evil; and especially from infectious diseases
endangering its life. No human malady can
give more serious cause of alarm than the
Small Pox. When taken in the natural way,
it is, as you well know, violent, painful, and
often fatal. Even in those who recover from
it, the countenance is permanently disfigured,
or the constitution receives some irretrievable
injury, by loss of sight, deafness, tedious ulcers,
white-swelling, consumption, &c.—In the
Small Pox, communicated by Inoculation,
there is certainly less danger; but to ensure
success, the most anxious attention and nicest
management are requisite for a length of time.
—Notwithstanding every precaution, the ino-
culated Small Pox has, in many cases, proved
fatal; and it is further highly objectionable,
since, by spreading infection, it endangers the
lives of all persons in the neighbourhood, who
have not previously had the disease. A mild
and certain preventive of the Small Pox was a
few years ago providentially discovered by the
Jennerian Inoculation of the Cow Pock.
This, after the strictest inquiry, has been approved and recommended by the British Parliament; and is now extensively practised, under the patronage of their Majesties, and the whole Royal Family. The new Inoculation may be safely performed at every season of the year, and at every period of life, since it occasions no material disorder, nor is attended with any danger whatever. At the same time no infection is communicable from the persons inoculated to others with whom they have intercourse. Thus this simple and easy process, without endangering the community, preserves all those who undergo it from a most loathsome disease; and never excites in the constitution the dreadful maladies above-mentioned, which so frequently succeed both the natural and inoculated Small Pox.

"That you might not remain ignorant of so inestimable a blessing, this short statement is presented to you; and as you value the life of your infant, and the safety of your neighbourhood, you will immediately avail yourselves of the advantage offered to you; for doubly poignant must be your sorrow, if, by neglecting so to do, your child should perish, or be materially injured by the Small Pox.

"(Signed)

"Minister of"
APPENDIX IV

VACCINATION TRACTS.

No.  I. Letters and Opinions of Medical Men.

II. Facts and Figures, showing that Vaccination has failed to stamp out, arrest, or mitigate Small-pox.

III & IV. Opinions of Statesmen, Politicians, Publicists, Statisticians, and Sanitarians.

V. Cases of Disease, Suffering, and Death reported by the Injured Families.

VI. The Vaccination Laws a Scandal to Public Honesty and Religion.

VII. Vaccination a sign of the Decay of the Political and Medical Conscience in the Country.

VIII. The Propagation of Syphilis to Infants and Adults by Vaccination and Re-vaccination.

IX. Vaccination evil in its Principles, false in its Reasons, and deadly in its Results.

X. Vaccination subverts Dentition, and is a cause of the prevalent Deformity and Decay of the Teeth.

XI. Compulsory Vaccination a Desecration of Law, a Breaker of Homes, and Persecutor of the Poor.

XII. Historical and Critical Summary in Three Parts.

PART I.—The Imposture of the current Small-pox Lymph called Vaccine, and the new Imposture of Calf-Lymph. Also, the Chaos of Status Law dealing with Vaccine Substance.

XIII. Historical and Critical Summary in Three Parts.

PART II.—The Cry of the People against Vaccination is seconded by the Registrar-General's Returns, and justified by the Evidence of Pathology.

XIV. Historical and Critical Summary in Three Parts.


& 1st. Ed. each ; Nos. 10 and 11, 1st. Ed. each ; Nos. 12 and 13, 2d. Ed. ; No. 14, 3d.
APPENDIX V

Non-medical sources studied for evidence of religious opposition to cowpox vaccination.

A. CONTEMPORARY SOURCES
Jan. 1802 — Dec. 1853 (N.B. Dates given are those during this period, for which the periodical was published).

i) Periodicals of a primarily religious or theological nature.

- Biblical Review (1846 – 50)
- Bibliotheca Sacra (1844 – 53)
- British Magazine and Monthly Register of Religious and Ecclesiastical Information (1832 – 5)
- Christian Observer (1802 – 53)
- Christian Remembrancer (1841 – 53)
- Congregational Magazine (1818 – 45)
- Exeter Hall Lectures (1846 – 53)
- Freethinking Christian’s Quarterly Register (1825)
- Investigator (1843)
- Kitto’s Journal of Sacred Literature (1848 – 53)
- Methodist Magazine (1802 – 36)
- Monthly Repository of Theology and General Literature (1806 – 35)
- Prospect (1848 – 50)

ii) Periodicals and Reviews of a general nature

- Bentley’s Miscellany (1837 – 53)
- Blackwood’s Magazine (1817 – 53)
- British and Foreign Review (1835 – 44)
- British Quarterly Review (1844 – 53)
- Chambers’ Edinburgh Journal (1844 – 53)
- Colburn’s New Monthly Magazine (1821 – 53)
- Dublin Review (1836 – 53)
- Dublin University Magazine (1833 – 53)
- Eclectic Review (1805 – 53)
- Edinburgh Monthly Review (1819 – 21)
- Edinburgh New Philosophical Journal (1826 – 53)
- Edinburgh Philosophical Journal (1819 – 26)
- Edinburgh Review (1802 – 53)
- Foreign Quarterly Review (1827 – 45)
- Foreign Review (1828 – 30)
- Fraser’s Magazine (1830 – 53)
- Hogg’s Instructor (1848 – 53)
- Household Words (1850 – 3)
- Howitt’s Journal (1847 – 53)
- Irish Quarterly Review (1851 – 3)
- London Magazine (1820 – 9)
- Monthly Review (1817 – 44)
- New Quarterly Review (1852 – 3)
- North British Review (1844 – 53)
- Pamphleteer (1813 – 28)
Penny Magazine (1832 - 45)
People's Journal (1846 - 51)
Prospective Review (1845 - 53)
Quarterly Review (1809 - 53)
Retrospective Review (1820 - 54)
Sharpe's London Magazine (1846 - 53)
Tait's Edinburgh Magazine (1832 - 53)
Westminster Review (1824 - 53)
Zoist (1843 - 53)

B. SUBSEQUENT SOURCES
Medical Histories and Biographies

Anon. The History of Inoculation and Vaccination for the Prevention and Treatment of Disease. London (1913)
Anon. The Present Position of the Vaccination Question. London (1925)
Bettmann, O.L. A Pictorial History of Medicine. Springfield (1956)
Comrie, J.D. History of Scottish Medicine. London (1932)
Copeman, S.M. Article 'Vaccination' in Encyclopaedia Britannica (11th Edn). Cambridge (1911)
Crookshank, E.M. History and Pathology of Vaccination. London (1889)
Dana, C.L. The Peaks of Medical History. New York (1926)
Dawson, B.D. The History of Medicine. London (1931)
Draper, J.W. History of the Conflict Between Religion and Science. London (1875)
Drewitt, F.D. The Life of Edward Jenner. London (1933)
Haggard, H.W. Devils, Drugs and Doctors. London (1929)
Hayward, J.A. The Romance of Medicine. (2nd Edn). London (1945)
Inglis, B. A History of Medicine. London (1965)
Margotta, R. An Illustrated History of Medicine. London (1968)
Riesman, D. Medicine in Modern Society. Princeton (1938)
Robinson, V. The Story of Medicine. New York (1944)
Russell, J.R. The History and Heroes of the Art of Medicine. London (1861)
White, A.D. A History of the Warfare of Science with Theology. London (1896)
Wilson, G.S. Article 'Vaccination' in Chamber's Encyclopaedia. Oxford (1966)
APPENDIX VI


a) Periodicals of a primarily religious or theological nature

American Biblical Repository (New York)
American Church Review (New Haven and New York)
Biblical Repository & Classical Review (New York)
Biblical Review & Congregational Magazine (London)
Bibliotheca Sacra (Andover)
Christian Examiner (Boston)
Christian Observer (London)
Christian Remembrancer (London)
Christian Review (Boston)
Christian Treasury (Edinburgh)
Christian Witness (London)
Christian’s Penny Magazine (London)
Churchman’s Monthly Penny Magazine (London)
Earthen Vessel & Christian Record & Review (London)
Ecclesiologist (Cambridge)
Evangelical Magazine & Missionary Chronicle (London)
Exeter Hall Lectures (London)
Free Church Magazine (Edinburgh)
Gospel Magazine (London)
Journal of Sacred Literature (London)
Methodist Quarterly (New York)
Monthly Religious Magazine (Boston)
MacPhail’s Edinburgh Ecclesiastical Journal (Edinburgh)
Primitive Church Magazine (London)
Prospect (Guernsey)
Rambler (London)
Scottish Guardian (Glasgow)
Spiritual Magazine & Zion’s Casket (London)
Theologian and Ecclesiastic (London)
Theological & Literary Journal (New York)
United States Catholic Magazine (Baltimore)
Visitor, or Monthly Instructor (London)
Wesleyan Methodist Magazine (London)
Witness (Edinburgh)
Zion’s Trumpet, or The Penny Spiritual Magazine (London)
b) Periodicals and Reviews of a general nature

Aberdeen Journal (Aberdeen)
American Almanac (Boston)
American Institute of Instruction (Boston)
American Journal of Science (New Haven)
American Literary Magazine (Albany)
Annual Register (London)
Athenaeum (London)
Bentley's Miscellany (London)
Blackwood's Magazine (Edinburgh)
British Quarterly Review (London)
Brownson's Quarterly Review (Boston and New York)
Chamber's Edinburgh Journal (Edinburgh)
Colburn's New Monthly Magazine (London)
Dublin Review (Dublin)
Dublin University Magazine (Dublin and London)
Eclectic Magazine (New York)
Eclectic Review (London)
Edinburgh Evening Courant (Edinburgh)
Edinburgh New Philosophical Journal (Edinburgh)
Edinburgh Review (Edinburgh)
Edinburgh Weekly Journal (Edinburgh)
Fraser's Magazine (London)
Gentleman's Magazine (London)
Godey's Lady's Book (Philadelphia)
Hogg's Instructor (London)
Howitt's Journal (London)
Illustrated London News (London)
Journal of the Franklin Institute (Philadelphia)
Littell's Living Age (Boston)
Massachusetts Quarterly Review (Boston)
Mercersburg Review (Mercersburg)
New Englander (New Haven)
North American Review (Boston & New York)
North British Review (Edinburgh)
Notes and Queries (London) [from January 1849]
People's Journal (London)
Princeton Review (Princeton)
Prospective Review (London)
Quarterly Review (London)
Scotsman (Edinburgh)
Sharpe's London Magazine (London)
Southern Quarterly Review (Charleston)
Spectator (London)
Tait's Edinburgh Magazine (Edinburgh)
Times (London)
Universalist Quarterly Review (Boston)
Western Journal & Civilian (St. Louis)
Westminster Review (London)
Zoist (London)
BIBLIOGRAPHY
BIBLIOGRAPHY
(A) Primary Sources

Manuscript Collections

(Redated, but ? 1854).

Official Papers

(i) Acts of Parliament

3 & 4 Vict. cap 29 (1840) 16 & 17 Vict. cap 100 (1853) 24 & 25 Vict. cap 59 (1861);
cap 100 (1861) 26 & 27 Vict. cap 52 (1863); cap 108 (1863) 30 & 31 Vict. cap 84 (1867).
61 & 62 Vict. cap 49 (1898) 19 & 20 Geo. V. cap 34 (1929).

(ii) Government Papers

Hansard's Parliamentary Debates.
London: HMSO (1897).
House of Commons. Report from the Committee on Dr. Jenner's Petition, respecting his
Discovery of Vaccine Inoculation. London (1802).

(iii) The Bible

Authorized (King James) version.
The Douay Bible.
The New English Bible.

(iv) Prayer Books and Manuals

Book of the Common Prayer and Administration of the Sacraments: after the use of
Book of Common Prayer: according to the use of the Protestant Episcopal Church in
the United States of America (1928).
Ritual Romaneum Ordo Administrandi Sacramenta. Edition of 1926. Also undated
early 16th Century copy, in the Library of Aberdeen University.
Scottish Book of Common Prayer (1929).

(v) Church Papers

Apostolicæ Sedis. Pius IX. (1869) Rome.
Codex Iuris Canonici. Rome (1918) 6 Vols.
Codice Iuris Canonici Fontes. Rome (1932).
Confession of Faith: agreed upon by the Assembly of Divines at Westminster. (1647).
Corpus Iuris Canonici. Basle (1682).
Magnum Bullarium Romanum. Lyons (1692).
Minutes
Aberdeen University (King's College). Minutes of Court.
Liverpool Medical Institution. Minutes of Ordinary Meetings. 9th Session (1847–8).
Soho Hospital for Women. Minute Book. (1870).

Pamphlets
Anon. The new practice of inoculating the Small-Pox consider'd, and an humble application to the approaching Parliament for the regulation of that dangerous experiment. London (1722).
Blair, W. The Vaccine Contest. London (1806).
Bolaine, N. Remarks on the Rev. Mr. Delafaye's Vindication of his Sermon ... London (1754).
Booker, L. A Discourse ... on the Duty and Advantages of Inoculating Children with the Cow-Pock. London (1802).
Boyinston, C. Some Account of what is said of Inoculating or Transplanting the Small Pox by the Learned Dr. Emanuel Timonius, and Jacobus Pylarinus. Boston (1721).
Colman, B. Some Observations on the New Method of Receiving the Small-Pox by Ingrafting or Inoculating. Boston (1921).
Delafaye, T. Inoculation an indefensible practice. London (1753).
Delafaye, T. Obedience to Governors stated and enforced. London: Roberts (1767).
Delafaye, T. The Proper Conduct of the Subject under the Present Troubles explain'd at large, and recommended. London: Roberts (1767).
Ferguson, R. A Letter to Sir Henry Halford, proposing a method of Inoculating the Smallpox, which deprives it of all its power of Preventing a Second Attack. London (1825).
Hull, J. A defence of the Caesarian operation. Manchester (1798).
Jenner, E. A Continuation of Facts and Observations relative to the Variolae Vaccinae or Cow Pox. London (1800).
Jurin, J. A Letter to the Learned Caleb Cotesworth, M.D. ... Containing a Comparison Between the Mortality of the Natural Small Pox, and that Given by Inoculation. London: Innys (1723).
Maddox, I. A Sermon Preached ... at the Parish-Church of St. Andrew Holburn, on Thursday, March 5, 1752. London: Woodfall (1752).

Maitland, C. Account of inoculating the small pox. 2nd. Edn. London: Peele (1723).

Maitland, C. Mr. Maitland's Account of Inoculating the Small Pox Vindicated. 2nd. Edn. London: Peele (1722).


Massey, E. The Strait Gate made Impassable, by the abuse of riches, titles, and places of public trust. London (1725).

Massey, E. A Short and Plain Account of Inoculation. London: Meadows (1722).


Moseley, B. A Treatise on the Lues Bovilla; or Cow Pox. London (1804).

Parke, J. Reasons for not using Chloroform except in cases of Extreme Necessity. Liverpool: Howell (1848).

'Philalethes' (Pseud.) Some Remarks on the Reverend Mr. Delafaye's Vindication of his Sermon against Inoculation. London (1754).

Plumptre, J. The Plague stayed; a scriptural view of pestilence ... particularly of the small-pox. Cambridge (1805. a).


Simmons, W. Reflections on the propriety of performing the Caesarian operation. Manchester (1798).

Simmons, W. A Detection of the Fallacy of Dr. Hull's Defence of the Caesarian Operation. Manchester (1799).


Smith, P. Scriptural Authority for the Mitigation of the Pains of Labour. London: Highley (1848).

Some, D. The Case of receiving the Small-Pox by Inoculation, Impartially considered, and especially in a Religious View. London: Buckland (1750).


**Periodicals**

(i) Newspapers

<table>
<thead>
<tr>
<th>Newspaper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberdeen Journal</td>
</tr>
<tr>
<td>Edinburgh Evening Courant</td>
</tr>
<tr>
<td>Edinburgh Weekly Journal</td>
</tr>
<tr>
<td>Scotsman, Edinburgh</td>
</tr>
<tr>
<td>Times, London</td>
</tr>
<tr>
<td>Witness, Edinburgh</td>
</tr>
</tbody>
</table>

(ii) Medical and Scientific Journals

<table>
<thead>
<tr>
<th>Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annali universali di Medicina e Chirurgia. Milan.</td>
</tr>
</tbody>
</table>
Dublin Journal of Medical Science.
Edinburgh Medical and Surgical Journal.
Gazette Médicale de Paris.
Lancet. London.
London Medical Gazette.
Medical and Chirurgical Review. London.
Medical and Chirurgical Transactions. London.
Medical News. London.
Medical Observations and Inquiries. London.
Medical and Physiological Journal. London.
Medical Times. London.
Philosophical Transactions. London.
St. Bartholomew's Hospital Reports. London.
Southern Medical and Surgical Journal. Augusta.
Transactions of the Glasgow Obstetrical and Gynaecological Society.
Transactions of the Obstetrical Society of London.

(iii) Religious Periodicals

American Church Review. New Haven and New York.
Bibliotheca Sacra. Andover.
British Magazine and Monthly Register of Religious and Ecclesiastical Information. London.
Congregational Magazine. London.
Earthern Vessel and Christian Record and Review. London.
Ecclesiologist. Cambridge.
Evangelical Magazine and Missionary Chronicle. London.
Exeter Hall Lectures. London.
Free Church Magazine. Edinburgh.
Freethinking Christian's Quarterly Register. London.
Investigator. London.
Methodist Magazine. London.
Monthly Repository of Theology and General Literature. London.
MacPhail's Edinburgh Ecclesiastical Journal.
Primitive Church Magazine. London.
Prospect. Guernsey.
Rambler. London.
Scottish Guardian. Glasgow.
Spiritual Magazine and Zion's Casket. London.
Theologian and Ecclesiastic. London.
Visitor or Monthly Instructor. London.
Zion's Trumpet or The Penny Spiritual Magazine. London.

(iv) General Periodicals

American Institute of Instruction. Boston.
American Literary Magazine. Albany.
Annual Register. London.
Athenaeum. London.
Bentley's Miscellany. London.
British and Foreign Review. London.
British Quarterly Review. London.
Chamber's Edinburgh Journal.
Dublin Review.
Dublin University Magazine.
Eclectic Review. London.
Edinburgh Advertiser.
Edinburgh Monthly Review.
Edinburgh New Philosophical Journal.
Edinburgh Philosophical Journal.
Edinburgh Review.
Foreign Quarterly Review. London.
Foreign Review. London.
Fraser's Magazine. London.
Godey's Lady's Book. Philadelphia.
Hogg's Instructor. London.
Household Words. London.
Illustrated London News.
Irish Quarterly Review. Dublin.
Littell's Living Age. Boston.
London Magazine.
Massachusetts Quarterly Review. Boston.
Mercersburg Review.
New Englander. New Haven.
New Quarterly Review. London.
North British Review. Edinburgh.
Notes and Queries. London.
Pamphleteer. London.
Penny Magazine. London.
Princeton Review.
Prospective Review. London.
Quarterly Review. London.
Retrospective Review. London.
Sharpe's London Magazine.
Sharpe's Quarterly Review. London.
Southern Quarterly Review. Charleston.
Spectator. London.
Tait's Edinburgh Magazine.
Universalist Quarterly Review. Boston.
Vaccination Tracts. London.
Western Journal and Civilian. Boston.
Zoist. London.

Printed Books

(i) Medical and Scientific


Baer, C.E. *De ovi mammalium et hominis genesi*. Lipsiae: Vossius (1827).


Duncan, J.M. *Contributions to the Mechanism of Natural and Morbid Parturition*. Edinburgh: Black (1875).


Leopold, C.G. Der Kaiserschnitt. Stuttgart (1888).
(ii) Theological


Cangiamila, F.E. *Sacro embryologia*. 1st German Edn. Monachii & Ingoldstadii (1764).


Doddridge, P. *A Course of Lectures on the Principal Subjects in Pneumatology, Ethics, and Divinity*. London (1763).

Fienus, T. *De formatrice foetus Liber, in quo ostenditur animam rationalem infusioni tertici die*. Antwerp (1620).


Lemkuhl, A. *Theologia Moralis*. Freiburg. 12th Edn. (1914).

Liguori, A. *De Theologia Moralis*. Venice. 10th Edn. (1793).


Roncaglia, C. *Universale moralis theologia ad usum confessariorum*. Lucca (1834).

Sanchez. De sancto matrimonii sacramento disputatum. Venice (1712).


Vermeersch, A. *De Theologia Moralis*. Bruges (1924).


(iii) Correspondence

Chalmers, T. *Selection from the Correspondence of Thomas Chalmers*. Ed. Hanna, W. Edinburgh (1853).


(iv) General


(B) Secondary Sources

Non Printed


Printed

(i) Theses


(ii) Biographies


Wilson, G. Life of Dr. John Reid. Edinburgh: Sutherland & Knox. (1852).

(iii) Reference Books


(iv) General Books and Pamphlets

Bryce, J. Ten Years of the Church of Scotland. From 1833 to 1843. Edinburgh: Blackwood (1850).
Crookshank, E.M. History and Pathology of Vaccination. London: Lewis (1889).
Macleod, J. Scottish Theology in relation to Church History since the Reformation. Edinburgh: Free Church of Scotland (1943).
Moore, J. The History and Practice of Vaccination. London: Callow (1817).

Periodicals

Aberdeen University Review.
British Journal of Anaesthesia. Manchester.
Postal History International. Brighton.