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Rook's Textbook of Dermatology

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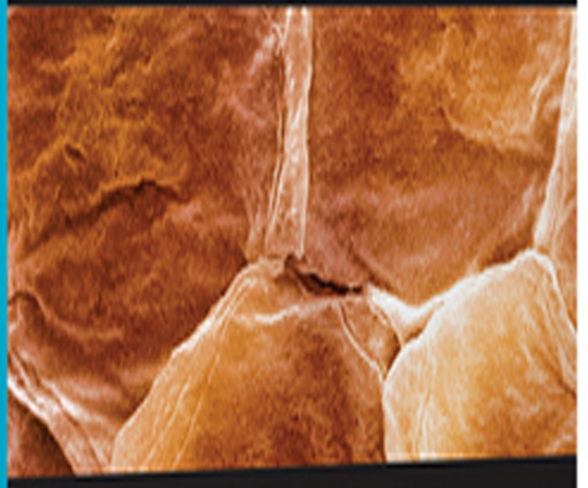

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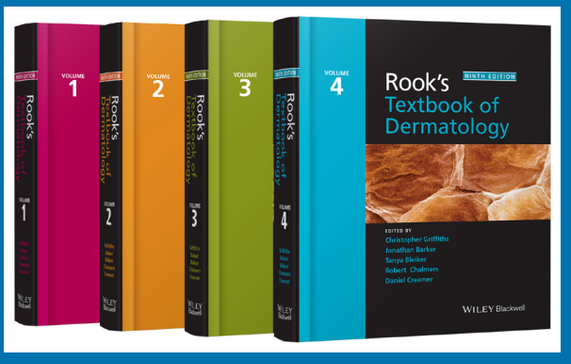

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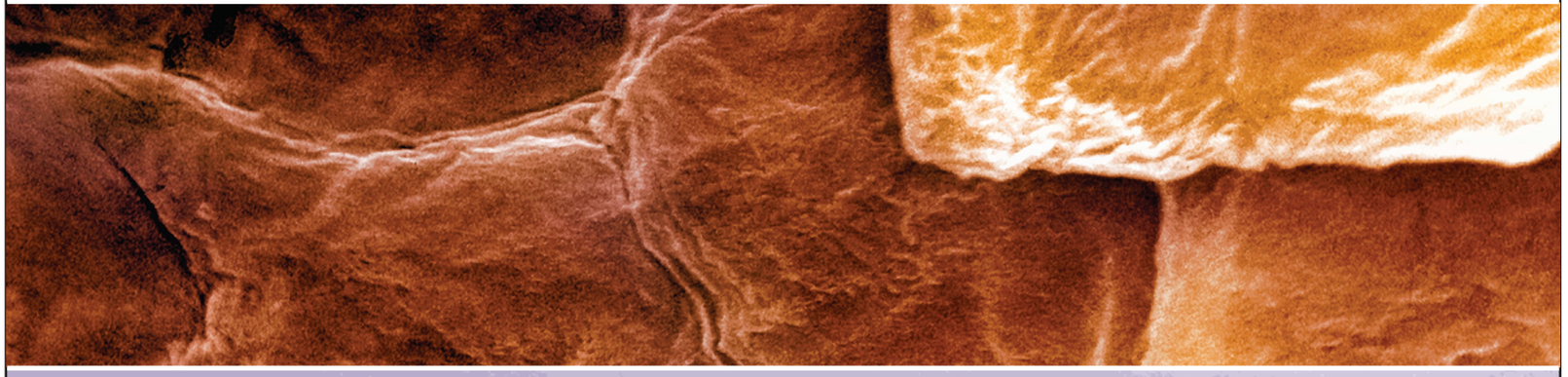

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Contents

VOLUME 2

Part 10 Skin Disorders Associated with Specific Sites, Sex and Age

VOLUME 4

Part 11 Skin Disorders Caused by External Agents

Part 12 Neoplastic, Proliferative and Infiltrative Disorders Affecting the Skin

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Preface to the Ninth Edition

The ninth edition of *Rook's Textbook of Dermatology*, or 'Rook book' as it is known affectionately, marks a significant change from its traditional structure and format. The editorial team has changed: due to the retirements of Tony Burns and Stephen Breathnach and the untimely, early death of Neil Cox, only Chris Griffiths remains from the previous team. The current editors wish to pay tribute to these three, all of whom dedicated significant energy and knowledge to the success of previous editions. Four editors were deemed to be insufficient for a textbook of the complexity and size of Rook and thus a team of five editors supported by 12 associate editors was established for the ninth edition. The content has been reorganized into 14 sections with a total of 160 chapters, more than double the number in the previous edition although the overall size of the book is little changed. The new opening section, Foundations of Dermatology, provides a comprehensive introduction to the subject and there is an expanded section on Aesthetic Dermatology. The authorship has also enlarged with a mixture of authors from previous editions and newcomers, many of whom are from outside the UK and have thus added an important international dimension to the essential 'Britishness' of Rook.

The major change and the one which has catalysed the aforementioned restructuring is the requirement to bring the book into the twenty-first-century publishing world by designing it as much for online use as for a traditional print book. The hierarchical templating required for this has necessitated a complete rewrite and reformatting. The hard copy textbook mirrors the online version, the main difference being that only selected key references are printed in the former, the full reference list being available online. This has enabled us to increase the number of figures and images, all of which are downloadable as PowerPoint slides. We also listened to comments about the inconvenience of the index being printed in only one of the four volumes of the eighth edition and have ensured that it is available in each volume of the ninth.

We view our editorship of Rook as a privilege and are cognizant of our responsibilities as the current custodians of an institution of British dermatology. Thus, the changes we have wrought on the book have been undertaken with a sense of trepidation. Dermatology is at an important and exciting point in its evolution as a subject. The promise of translational research, whereby advances in the understanding of basic pathomechanisms of skin disease have resulted in higher quality patient care, is being realized, much as Arthur Rook, Darrell Wilkinson and John Ebling envisaged in their preface to the first edition of Rook in 1968. We have tried to encapsulate this approach in the ninth edition.

Our thanks go to the wonderful team of Jenny Seward, Catriona Cooper, Nick Morgan, Charlie Hamlyn, Oliver Walter and Martin Sugden at Wiley who have worked tirelessly to help us realize our vision for the new Rook, and to our outstanding project manager Lindsey Williams, and her indefatigable team of copy editors (Jane Andrew and Karen Stephenson), indexer (Jill Halliday) and artist (David Gardner).

Chris Griffiths
Jonathan Barker
Tanya Bleiker
Robert Chalmers
Daniel Creamer

Preface to the First Edition

No comprehensive reference book on dermatology has been published in the English language for ten years and none in England for over a quarter of a century. The recent literature of dermatology is rich in shorter texts and in specialist monographs but the English-speaking dermatologist has long felt the need for a substantial text for regular reference and as a guide to the immense monographic and periodical literature. The editors have therefore planned the present volume primarily for the dermatologist in practice or in training, but have also considered the requirements of the specialist in other fields of medicine and of the many research workers interested in the skin in relation to toxicology or cosmetic science.

An attempt has been made throughout the book to integrate our growing knowledge of the biology of skin and of fundamental pathological processes with practical clinical problems. Often the gap is still very wide but the trends of basic research at least indicate how it may eventually be bridged. In a clinical textbook the space devoted to the basic sciences must necessarily be restricted but a special effort has been made to ensure that the short accounts which open many chapters are easily understood by the physician whose interests and experience are exclusively clinical.

For the benefit of the student we have encouraged our contributors to make each chapter readable as an independent entity, and have accepted that this must involve the repetition of some material.

The classification employed is conventional and pragmatic. Until our knowledge of the mechanisms of disease is more profound no truly scientific classification is possible. In so many clinical syndromes multiple aetiological factors are implicated. To emphasize one at the expense of others is often misleading. Most diseases are to some extent influenced by genetic factors and a large proportion of common skin reactions are modified by the emotional state of the patient. Our knowledge is in no way advanced by classifying hundreds of diseases as genodermatoses and dozens as psychosomatic.

The true prevalence of a disease may throw light on its aetiology but reported incidence figures are often unreliable and incorrectly interpreted. The scientific approach to the evaluation of racial and environmental factors has therefore been considered in some detail.

The effectiveness of any physician in practice must ultimately depend on his ability to make an accurate clinical diagnosis. Clinical descriptions are detailed and differential diagnosis is fully discussed. Histopathology is here considered mainly as an aid to diagnosis but references to fuller accounts are provided.

The approach to treatment is critical but practical. Many empirical measures are of proven value and should not be abandoned merely because their efficacy cannot yet be scientifically explained. However, many familiar remedies old and new have been omitted either because properly controlled clinical trials have shown them to be of no value or because they have been supplanted by more effective and safer preparations.

There are over nine hundred photographs but no attempt has been made to provide an illustration of every disease. To have done so would have increased the bulk and price of the book without increasing proportionately its practical value. The conditions selected for illustrations are those in which a photograph significantly enhances the verbal description. There are a few conditions we wished to illustrate, but of which we could not obtain unpublished photographs of satisfactory quality.

The lists of references have been selected to provide a guide to the literature. Important articles now of largely historical interest have usually been omitted, except where a knowledge of the history of a disease simplifies the understanding of present concepts and terminology. Books and articles provided with a substantial bibliography are marked with an asterisk.

Many of the chapters have been read and criticized by several members of the team and by other colleagues. Professor Wilson Jones, Dr R.S. Wells and Dr W.E. Parish have given valuable assistance with histopathological, genetic and immunological problems respectively. Many advisers, whose services are acknowledged in the following pages, have helped us with individual chapters. Any errors which have not been eliminated are, however, the responsibility of the editors and authors.

The editors hope that this book will prove of value to all those who are interested in the skin either as physicians or as research workers. They will welcome readers' criticisms and suggestions which may help them to make the second edition the book they hope to produce.

Arthur Rook, Darrell Wilkinson and John Ebling

PART 1

Foundations of Dermatology

CHAPTER 1

History of Dermatology

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Introduction: when did dermatology history begin?

The history of dermatology is the history of mankind. Failure to care for the skin increases the risk of skin infections leading to morbidity and disability, and caring for the skin improves the chances of being perceived as being attractive to others thereby enhancing survival of an individual's genes. Primates demonstrate mutual grooming behaviour to reduce infestation and many species lick their wounds. Dermatology activity, removing parasites, applying grease to dry skin and cleaning and dressing wounds and burns, must have been an important role for the Shamans and Wise Women who were responsible for medical care in primitive hominid tribal groups.

Prior to the invention of writing, archaeologists provide evidence of disease and early medical activity. Findings, such as the radiological appearances of possible metastatic melanoma in 2400-year-old pre-Colombian Inca mummies, provide early evidence of the impact of skin disease [1].

The invention of writing coincided with early cities in Africa (Egypt *c*. 3100 BC), the Middle East (Mesopotamia *c*. 3000 BC), India (Indus valley *c*. 2500 BC), Europe (Crete *c*. 1800 BC) and China (Shang *c*. 1400 BC). Early texts were mainly for administrative or religious purposes, but medical writings soon appeared. Many of these related to skin disorders.

Ancient dermatology writings

The first medical texts

Medical writings between *c*. 3000 BC and 400 BC in most cultures had a theoretical basis founded on religious beliefs with pragmatic practical tips. Historians have often stated that there was an initial age of medicine dominated by magic, followed by the growth of rational medicine led by Hippocrates around 400 BC. However the reality was probably not so clear-cut. Experience makes it obvious that doctors who relied totally on magic and religion would not have cured many patients, so all systems of health care contained practical measures.

A pharmacopoea, written by an unknown Sumerian (Mesopotamia in the Middle East) in the third millienium BC may be the earliest medical writing [1]. It is on a clay tablet and describes a selection of external salves comprising cedar oil, wine and botanical, mineral and animal materials. Other preparations include clay mixed with honey, water and oil.

Medical writing moved from clay tablets, to papyrus to paper and now in the 21st century is moving back to tablets of a different type.

Ancient Egypt

Imhotep, the Chief Vizier to the Pharaoh Zoser (2700 BC), was renowned as a physician and was soon deified by the Egyptians (Figure 1.1). Egyptian medical writings date from a millennium

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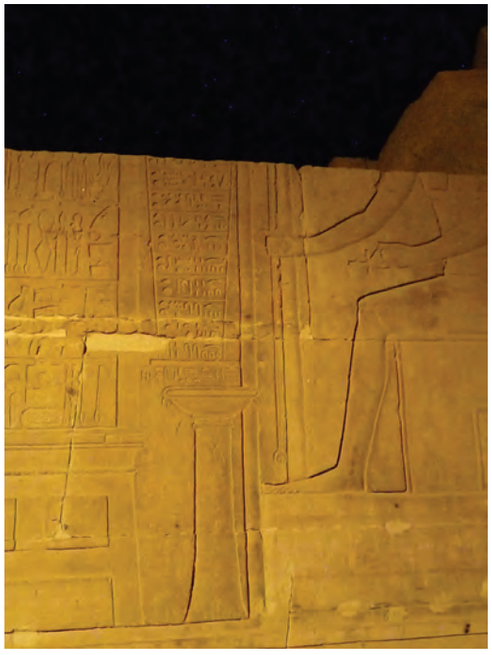


Figure 1.1 Imhotep, seated on the right with a surgical instrument.

later. The Edwin Smith Papyrus (*c*. 1600 BC) known as the 'Book of Wounds' mentions wound dressings using fresh meat and then honey, grease and lint. However, the most important medical text is the Ebers Papyrus (1550 BC) written on over 20 metres of papyrus [**2**]. This describes 700 magical formulae and 800 formulae to treat 15 diseases of the abdomen, 29 of the eyes and 18 of the skin. The text includes a baldness cure: a drink made from black ass testicles, or vulval and penis extracts from a black lizard. The Ebers Papyrus also describes an effective treatment for the Guinea worm: wrap the emerging end of the worm around a stick and slowly pull it out.

Mesopotamia

Over 1000 clay tablets that refer to medicine, of which 40 comprise a medical diagnostic handbook, and written c. 1000 BC, are attributed Esagil-kin-apli, a Babylonian physician. The writings on skin disease demonstrate the interplay of magic and empricisim [3]:

- Tablet 9, line 48: 'If his face is covered in white boils: Hand of the Sun God Ama, he will survive …'.
- Tablet 9, line 49: 'If his face is covered in black boils: Hand of the God I tar, he will die …'.
- Table 14, line 128: 'If his testicles are black he will die …' (possibly the first description of Fournier gangrene).

Ancient Greece

Asclepius is thought to have practiced about 1000 BC in Greece. The reality of his work is lost in stories around his deification. Greek legend confuses him with the Egyptian God/physician Imhotep and also describes him as a son of the God Apollo (the healer) and the Goddess Panacea. Ascelpius is said to have been executed by the gods for taking gold to raise the dead, a lesson for all modern clinicians tempted by greed. Temples to Asclepius included healing dogs to lick wounds. His followers in Greece persisted for centuries and included Hippocrates and Aristotle.

Ancient India

Early Brahmana (hereditary priests) guarded the Sanskrit religious teachings, the Veda (knowledge) from 1500 BC. Much of the medicine revolved around a magico-religious approach that paralleled that of Mesopotamia and Egypt. Vedic rites probably involved human sacrifice but writings included information on practical dermatology such as the use of cautery for haemostasis.

Growth of rational medicine

The Silk Road: the pathway of rational medicine

The trading routes known as the Silk Road linked China, India, the Middle East and eastern Europe *c*. 400 BC. At around this time, a growth of rational medicine appeared in Europe along with similar ideas in south India and China so it seems likely that a flow of medical ideas took place in parallel with the trade items. It can be argued whether knowledge flowed mainly from East to West or from West to East. The 'Diagnostic Handbook' from Mesopotamia, from 1000 BC, remained in print but between 600 and 400 BC changed radically in nature to show that disease was subject to the forces of nature and originated from the body rather than being of a divine nature.

China

Existing texts date back to at least 200 BC but some people contend that they originate over 2000 years before. Some of the original formulae are thought to still be in use today. Although there is little relationship to what western medicine considers to be an anatomical- or physiological-based system, the underlying concepts were not based on religion or spirits. Disease is seen to be based on a loss of harmony of the yin/yang system upsetting the qi (energy) and the meridians [1]. This is a generalist approach: skin disorders are considered to be an internal problem. Sections on skin disease exist in classic works from 652 BC. Urticaria or 'wind type concealed rash' was considered to be due to excess lesser yin causing fluid obstruction in the skin. The 'Yellow Emperor's Inner Canon' describes urticaria and eczema.

South Indian early Buddhism

The Pali scripts date back to around 400 BC and describe the work of the Buddha [**2**]. The *Girimananda Sutra* described dermatology nursing, psychodermatology, occlusion therapy for foot eczema and possible early descriptions of skin diseases including leprosy, boils/abscesses, scrofula, ringworm, scabies, pustular eruptions, plethora, fistula and sexually transmitted diseases.

The Holy Bible

The Book of Leviticus written *c*. 450 BC gave an account of how to diagnose 'leprosy' – although the descriptions of skin disease in this text could include many chronic cutaneous infections including tinea infection, impetigo and infected eczema. Practical tips on the management of contagious cutaneous disease include burning clothes and isolation of those afflicted.

Greeks: the rational age

Hippocrates (*c*. 400 BC) was known to his contemporaries as Hippocrates the Great – an accolade in the age of Plato and Socrates. He was an Asclepian physician and teacher on the island of Cos. Some

of his great ideas may have been written by his pupils who built up a body of medical knowledge at his school over later generations. Hippocrates' school moved away from the magical and religious approach to medicine and adopted a method based on logic and reason. His approach was, like the Chinese, to see disease in the context of the whole patient and to see people as physical entities subject to the same laws of nature as the world. He used diet and exercise as therapies and adopted an expectant approach, not rushing to intervene. His writings on leg ulcers are relevant now: 'In the case of an ulcer, it is not expedient to stand; more especially if the ulcer be situated in the leg; but neither, also, is it proper to sit or walk. But quiet and rest are particularly expedient …'.

The Roman Empire

Galen was born in Pergamon, Turkey in 120 AD and travelled to Egypt to learn about African and Indian medicine prior to settling in Rome. He studied anatomy through the dissection of animals (not humans), but then set Hippocratic ideas into an incorrect anatomical and physiological framework. This was based on four humours that might lead to fever if in excess: yellow bile, black bile, phlegm and blood. This led to an enthusiasm for blood-letting to restore balance in those with fever or if the physician wished to prevent fever.

Galen had a powerful intellect, an overbearing personality and a gift for self-publicity and was a prolific writer. Consequently, perhaps, this theoretical basis for medicine became entrenched in Europe and the Middle East. A period of relative intellectual stagnation regarding underlying disease processes persisted for over 1500 years. This may have been partly due to religious and cultural bans on human dissection until Renaissance times.

Over the next 500 years a series of Greek and Roman writers defined diseases within this flawed model of basic science. Therapeutic advances were made with various herbal and mineral remedies for skin disorders. Wood tars and coal tars were described for inflammatory skin disorders, presumably eczema and psoriasis [3]. The last of the series of Greco-Roman authors was Paul of Aegina (around 700 AD) who wrote a medical encyclopaedia in seven books of which book IV concerns skin disease [4]. This may be considered the earliest dermatology textbook.

Dermatology after the fall of Rome

Early Islamic medicine and dermatology

With the failure of the Roman Empire and the onset of the Dark Ages in Europe, the baton of medical knowledge in the West was passed back to the Middle East. Much would have been lost were it not for translations into Arabic by Christian and Islamic scholars at the Bayt al Hikma centre set up in 832 in Baghdad, the capital of the Islamic Empire. Hundreds of Greek, Latin and Sanskrit texts were translated, making Islamic culture the centre for learning. A series of medical compendia were produced, the first being the 'Paradise of Wisdom' (*Firdaws al-bikma*) by Ali ibn Rabban al-Tabari (c. 850 AD).

The great Persian physician, Muhammad ibn Zakariya al-Razi (865–925; known as 'Rhazes' in the West) studied in Rayy near Tehran, before settling in Baghdad. He wrote over 200 texts and initially challenged many of Galen's precepts – although ultimately describing himself as a Galen's disciple. He wrote *al-Jadari wa'l-hasba* ('Smallpox and Measles') in which he was the first to distinguish between febrile exanthemas: 'The rash of measles usually appears at once, but the rash of smallpox spot after spot'. Al-Razi's work was renowned in the Arabic world and was translated to Latin, still being reprinted in the West in 1542, over 600 years after his death.

The Persian writers, al-Majusi (Haly Abbas: 10th century), Ibn Sina (Avicenna: 980–1037) and al-Zahrawi (Albucasis: 936–1013) all wrote influential medical texts.

Italy during the European Renaissance

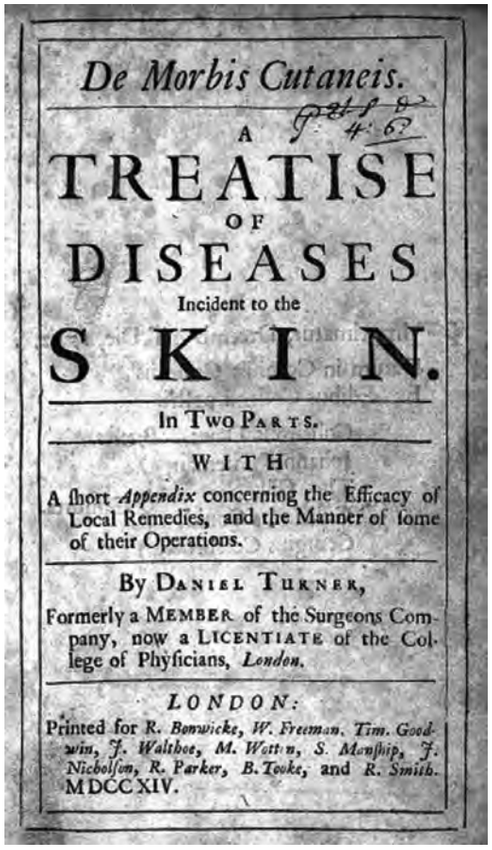
In the mid-16th century Europe was slowly struggling out of the religious superstition that characterized the Dark Ages and Middle Ages. A group of brilliant doctors in Padua, including Vesalius and Mercurialis (Geronimo Mercuriale), set up a system of learning and wrote medical texts that revitalized medicine in Europe. Mercurialis wrote *De Morbis Cutaneis* in 1572: this summarized work of earlier writers and had a focus on hair disorders, but still represents the first dermatology textbook in the West since the time of Paul of Aegina, 800 years before.

European Enlightenment

A series of dermatology textbooks written in the 18th century pulled dermatology through to the beginning of the modern age.

Daniel Turner (Figure 1.2) wrote the first English language dermatology textbook in 1712 [**1**] (Figure 1.3). This was a series of case reports and was popular, running to four editions over 20 years. Turner was an English surgeon, who aspired to be a physician, and he dedicated this book to the President of the London Royal

Figure 1.2 Daniel Turner. (From http://wellcomeimages.org/. Copyrighted work available under Creative Commons Attribution only licence CC BY 4.0 http://creativecommons.org/licenses/by/4.0/. Wellcome Library, London.)


De Morbis Cutaneis.

A TREATISE OF DISEASES Incident to the SKIN.

In Two Parts.

WITH

A short *Appendix* concerning the Efficacy of Local Remedies, and the Manner of some of their Operations.

By Daniel Turner,

Formerly a Member of the Surgeons Company, now a Licentiate of the College of Physicians, *London*.

LONDON:

Printed for *R. Bonwicke, W. Freeman, Tim. Goodwin, J. Walthoe, M. Wotton, S. Manship, J. Nicholson, R. Parker, B. Tooke,* and *R. Smith.* MDCCXIV.

Figure 1.3 The first English language dermatology textbook by Turner. (From http://wellcomeimages.org/. Copyrighted work available under Creative Commons Attribution only licence CC BY 4.0 http://creativecommons.org/licenses/by/4.0/. Wellcome Library, London.)

College of Physicians. He was awarded association to the Royal College as a 'Licentiate', but a medical degree from Oxford or Cambridge was required to be a full member. Turner then endowed a medical library at Yale University in America and was given the first medical degree awarded in America, but this distinction still failed to achieve his college membership.

Dermatology was linked with venereology in Europe, and Jean Astruc, physician to the Parisian Court, wrote a definitive text summarizing all knowledge on syphilis. He described the anatomy of the skin and linked cutaneous diseases to the sebaceous glands.

In Italy, Bernadino Ramazzini wrote a textbook on industrial disease in 1700, which classified occupational dermatoses ranging from varicose veins in priests to syphilis in midwives and wet nurses [2].

Classification was in the air: following Linnaeus, clinicians across Europe strove to classify cutaneous disease. Joseph Jacob Plenck, a Viennese-born professor in Buda, wrote a classification of skin disease in 1776 that divided skin disease into 14 categories [**3**]. This was a landmark for dermatology, being the first serious attempt to classify skin diseases. The following year, Antoine Charles Lorry in France wrote a text that considered the pathology, physiology and aetiology of skin diseases [4].

Growth of scientific dermatology

Willan and Bateman: definition of skin diseases

Prior to Robert Willan, terms were used loosely to describe skin diseases. Two doctors might use the same descriptive term to mean different appearances. Attempts to describe disease characteristics in classifications were ambiguous. Willan (Figure 1.4) defined precisely the terms used to describe skin disease. He wrote a classification based on these definitions, first published in Breslau from 1798 onwards [**1**] (Figure 1.5). He died before finishing his next work, but it was completed by his friend and student, Thomas Bateman in 1813. Bateman's *A Practical Synopsis of Cutaneous Disease* was translated into the main European languages and remained the standard textbook until the 1830s [**2**].

Willan produced images of skin diseases in his textbook (Figure 1.6), the first dermatology atlas, that was completed by Bateman in 1817 [3]. This atlas went through many editions and was still in print in 1877.

Willan and Bateman changed the way dermatology was practised, with followers all around Europe: Biett and Cazenave in France, Chiarugi in Florence, Alfaro in Spain and Klaatch and Schreiver in Germany.

L'Hôpital St Louis, Paris: the first skin hospital

The time of war in Napoleonic Europe not only produced a great step forwards in England, but also led to the encouragement of science in France. In 1801 the L'Hôpital St Louis became a dermatology hospital under the leadership of Jean-Louis Alibert (Figure 1.7). His flamboyant personality, prolific writing and elegant descriptions and atlases included the famous 'arbre des

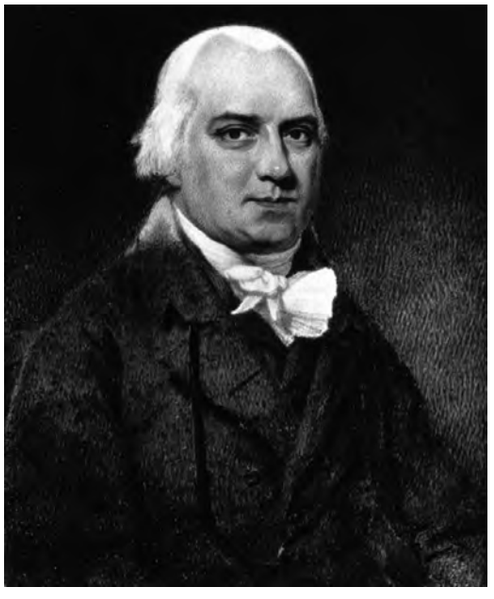


Figure 1.4 Robert Willan. (From http://wellcomeimages.org/. Copyrighted work available under Creative Commons Attribution only licence CC BY 4.0 http://creativecommons.org/licenses/by/4.0/. Wellcome Library, London.)