

**A CRITICAL ACCOUNT OF THE  
HISTORY OF MEDICAL PHOTOGRAPHY  
IN THE UNITED KINGDOM**

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# ABSTRACT

This thesis is about the fundamental importance of medical illustration to the modern National Health Service as an educational and diagnostic aid to understanding the human condition and the pathology of disease and suffering.

- Part One argues that a distinct tradition of medical illustration first emerged in early modern Europe.
- Part Two gives an account of the earliest medical photography in Europe and America, and the role it was allowed in the service of the emerging tradition of modern medicine.
- Part Three considers how the professional conventions of modern medical photography emerged in the 19th- and early 20th-Centuries through the growth of specialization, and includes an account of the most important archives in Britain and America which have survived from this formative era.
- Part Four is an account of the growth of medical illustration departments within British hospitals in the years following the Second World War, and of the limited success of efforts to create a professional body and nationally coherent courses to support trainee practitioners.
- Part Five is a critical assessment of the status of medical illustration as a profession within the National Health Service today.

It is suggested that the value of medical photography has never been fully appreciated by the institutions and authorities of professional health-care in the United Kingdom, and that the subject has relied on the enthusiasm of dedicated individuals in order to progress. Nevertheless, a critical awareness of the history of the subject suggests that it should be treated as a mature and valuable aspect of modern medicine.

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## PICTURE ACKNOWLEDGEMENTS

Figures 6 & 7 are reproduced with the kind permission of the National Galleries of Scotland. Figures 11 & 12 are reproduced with the kind permission of the Otis Historical Archives at the US National Museum of Health and Medicine, Armed Forces Institute of Pathology. Figure 5 is taken from Ollerenshaw R. Medical Illustration. The Impact of Photography on its History. *J Br Photogr Assoc* 1968; 36/1 (February): 3-13. Figure 8 is taken from Krämer K-L. Medizinische Photographie in der Orthopädie einst und heute – Ein geschichtlicher Abriss. *Zeitschrift der Orthopädie* 1986; 124: 578-586. Figure 9 is taken from O'Rogers B. The First Pre- and Post-operative Photographs of Plastic and Reconstructive Surgery: Contributions of Gurdon Buck (1807-1877). *Aesthetic Plast Surg* 1991; 15: 19-33. Figure 10 is taken from Mann W. History of Photography of the Eye. *Surv Ophthalmol* 1970; 15/3: 179-189.

# INTRODUCTION

This thesis is about the fundamental importance of medical photography in the modern National Health Service (NHS) as an educational and diagnostic aid to understanding the human condition and the pathology of disease and suffering. The pre-eminence of photography in medical illustration is historically well established and is only now being challenged by the advent of computer-generated illustration, which sooner or later will force illustrators to reconsider their most basic aims and practices as long-held distinctions between objective and creative illustration are increasingly blurred.

As long ago as 1963, F.W. Hawkins, then chief examiner of the Institute of British Photographers, noted that a meaningful history of photography (and hence of medical photography) should be much more than just an encyclopædia of facts:<sup>1</sup>

In the past the history of photography has always been taken as something which is a series of dates, but what one is concerned with professionally is looking at photography as part of the modern scene and how it is being influenced by photography.

In this spirit, it is the intention of the author to present, not a detailed year-by-year account of the history of medical photography (which would anyway require a very much longer thesis), but rather a critical essay illustrating the crucial periods in which the character of medical photography as practised in the modern NHS was decisively shaped.

In this way, the author believes it can be shown that the value of medical photography has never been fully appreciated by the institutions and authorities of modern professional health-care in the United Kingdom; instead the subject has relied on the enthusiasm of dedicated individuals in order to progress and so create a professional ethos. Inevitably, therefore it has developed in a haphazard way and been subject to *ad hoc* policy-making which has rarely acknowledged the needs of the subject or of its practitioners.

Over 150 years have passed since the earliest-known clinical photograph was taken, that of a Scottish woman with a goitre taken by Hill and Adamson in *ca.* 1847, and it must be a sobering thought for British medical photographers to reflect on the essential character of the history of their profession, and to consider what must be done to ensure that henceforth it is recognized for what it certainly is – a mature and intrinsic aspect of modern medicine in the United Kingdom.

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1. Quoted in Harrison NK: Education in Medical Photography. Report on the IBP Medical Group's 13th Annual Conference. *Brit J Photogr* 1963; (1st November): 937.

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# 1. THE EARLY HISTORY OF MEDICAL ILLUSTRATION

A common error is to think of medical photography as just one new speciality among many, yet medical illustration is as old as medicine itself and the present is only a very short interval of time between the past and the future.

This view, as stated by Ollerenshaw,<sup>1</sup> is charitable, but ethnocentric – in supposing that the interests and practices of other human communities must be essentially the same as our own.<sup>2</sup> It would be a mistake simply to assume that there has always been a tradition of medical illustration in all human societies,<sup>3</sup> and the author has argued elsewhere that the modern profession of medical illustration is firmly rooted in modern western culture and particularly in the emergence of new ideas in European science.<sup>4</sup> Since the subject of the present thesis is the development of professional medical illustration during the 19<sup>th</sup> and 20<sup>th</sup> Centuries, this chapter begins by summarizing these origins.

There may have been an ancient tradition of medical illustration in Europe founded on the achievements of the artists of Classical Greece, who used everyday themes in their decorative arts. The philosopher Aristotle is reputed to have used drawings in his teaching, and by the 4th Century BC diagrams to illustrate medical matters were produced by Hellenistic anatomists studying in Alexandria in Egypt.<sup>5</sup> Greek science was subsequently embodied in the practical medicine of the Romans, amongst whom Celsus (*fl.* 15-65 AD) wrote the most celebrated books on anatomical, surgical and pathological subjects, principally *De Re Medecina*. Celsus' intellectual heir Galen dominated medicine in the 2nd Century AD, and based his anatomical observations on animal dissection. However, with the advent of Christianity and its emphasis on the soul rather than the body, and subsequently the Church's domination of book production, medical studies in Europe were still to be taught exclusively on the basis of Galen's text until the 14th Century.<sup>6</sup> According to Maingot:

We do not find any authentic anatomical illustration depicting diseases until the Renaissance, when both medicine and art had a glorious rebirth.<sup>7</sup>

Medical texts from mediaeval Europe are notably *disinterested* in the observation of human anatomy, and tended to repeat slavishly the archetypes established in Galen's text, accompanied by illustrations of the Roman scholar himself dignified in the ermine-trimmed gowns of mediaeval universities.<sup>8</sup>

However, the artists of 15th Century Europe began to reject the authority of Galen and rediscover the classical traditions of Greek art. The observation of natural forms came to the fore, and there is significant evidence to suggest that artists such as Raphael and Michelangelo performed their own dissections. Leonardo da Vinci (1452-1519) created and published important anatomical works, but it is important to note that he was interested in the study of proportion for artistic ends rather than in anatomy for its own sake.<sup>9</sup> Nevertheless, Leonardo was able to combine techniques familiar to him from architecture and engineering in order to visualize and represent the human body as recognizable, 'three-dimensional' figures (Figure 1). His revolutionary research cleared the way for the artistic milestone of Vesalius' *De Humani Corporis Fabrica* (1543) – the first complete and systematic description of the human body produced in modern Europe. Although it contained 670 pages of text, Vesalius himself acknowledged that the text was secondary to the 186 plates, which were accurate in their observation and artistically superb (Figure 2).<sup>10</sup> The authority of the book was such that it was given over to the atten-

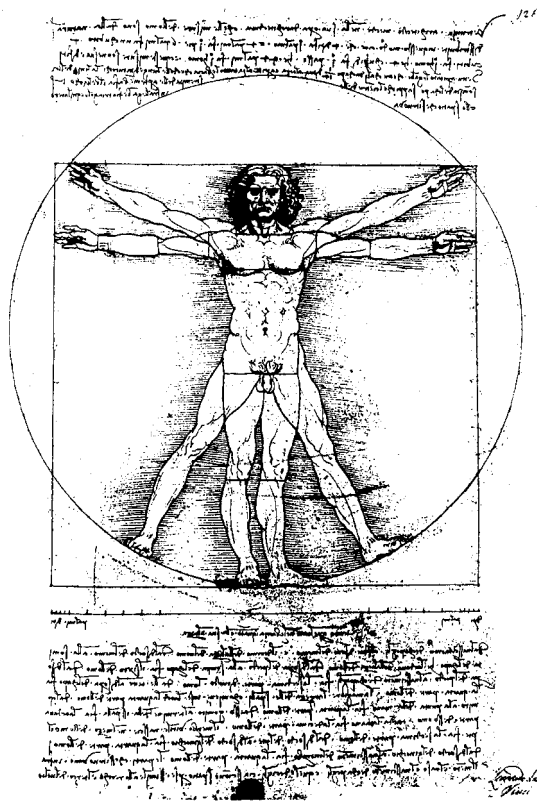


Figure 1. Anatomical drawing from an original manuscript by Leonardo da Vinci.

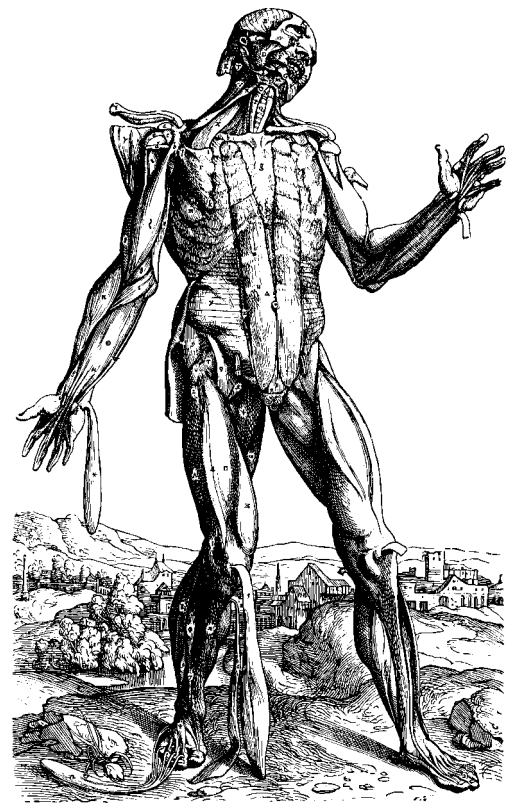


Figure 2. From Vesalius' *De Humani Corporis Fabrica* (1543).

tions of Oporinus in Basle, the master printer of the day, who produced a magnificent volume of a size and quality reminiscent of contemporary editions of the Holy Bible.

However, it is easy to overlook the cultural background within which these early anatomists were working, and therefore to suppose that they were groping towards the modern tradition of medical illustration. That such was not the case is clear if we consider the contemporary intellectual climate of post-Reformation Europe. In Britain, for example, this was a culture of great achievement – the age of Shakespeare and Milton, Locke, Wren and Newton. In England by 1660, 2.5% of the male population of a relevant age was in higher education – a figure not matched again until after World War One.<sup>11</sup> Nevertheless, a distinguished historian of the period, Thomas, maintains that:

... it is beyond dispute that Tudor and Stuart Englishmen were, by our standards, exceedingly liable to pain, sickness and premature death.<sup>12</sup>

Life expectancy amongst the nobility of the country was 29.6 years – no better than that of ancient Egypt.<sup>13</sup> Endemic diseases included tuberculosis, influenza, typhus, dysentery, smallpox, bubonic plague, malnutrition and mutilation; hospitals for the poor of London already existed at St. Bartholomew's and St. Thomas'.<sup>14</sup>

It might be expected, therefore, that advances in anatomical knowledge arose out of a determination to understand better human disease and suffering. However, Stuart England was also a community which accepted the commonplace existence of magic and miracles (i.e. the intervention of the supernatural in human affairs), and believed that the aim of all knowledge was to understand the created order of God as described in the Bible. In the greater scheme of things, human suffering counted for little, except as a clue to understanding the Creator's will, and therefore the study of Man was discounted as a legitimate subject in itself.<sup>15</sup> According to the prevailing philosophy, Man had been created in the image of

God and was 'the centre of the world', according to the scientist Francis Bacon;<sup>16</sup> the world itself was 'full of hidden meanings ... awaiting decipherment'.<sup>17</sup> In short, the study of Man and Nature was an attempt to decipher God.

In this task, the scholars of 16th- and 17th-Century Europe were guided by the certainty of their belief that all creatures of the earth were made to resemble each other, and that the smallest things were 'scale models' of the largest. For example, a plant was simply an inverted animal, head down with its mouth in the earth. Moles, on the other hand, were secret marks of the true nature of the body on which they occurred (and famously were used to identify witches);<sup>18</sup> and, just as moles stood in relation to the body, so the body stood in relation to the universe: Paracelsus of Berne (1493-1541) maintained that man is 'a firmament constellated with stars', and his face is a map of the sky, whose seven orifices correspond to the known planets.<sup>19</sup> Paracelsus, however, was no mere mystic<sup>20</sup> – he was the most brilliant contemporary of Vesalius, and a celebrated writer on pharmacology, therapeutics and surgery, principally in his *Opus Chyrurgicum* (1536).<sup>21</sup> It was also in this spirit that Pierre Belon produced the first great work of comparative anatomy, *Histoire de la Nature des Oiseaux* (1555), in which bird and human skeletons were portrayed alongside one another in order to demonstrate graphically the resemblance of all God's creatures.<sup>22</sup> Anybody who tried to maintain that the work of Vesalius overturned this intellectual climate would have to explain why later generations of scholars took the study of anatomy even more clearly in the direction of this seemingly bizarre metaphysics:<sup>23</sup> in the following century Crollius in his *Traité des Signatures* (1624) compared 'fits and apoplexy' to 'the tempests of the sky', and Aldrovandi in his *Monstrorum Historia* (1647) compared man's 'baser parts' to Hell.<sup>24</sup>

By the end of the 18th-Century, however, the metaphysical belief in the resemblance of all aspects of God's Creation had been

swept away by the revolution in ideas which we now term the Enlightenment. The heart of this revolution was an acceptance of the notion that the universe was governed by natural laws, which left no room for miracles or divine intervention.<sup>25</sup> Already in the late 17th-Century, scientists like Robert Boyle had opposed alchemy with observations of natural physics; in the following decades, the research of physicians such as Harvey (on blood circulation), Glisson (on rickets), Willis (on the nervous system), and Sydenham (on epidemics) raised the study of human disease and suffering to the status of a subject worthy of consideration in its own right. It is important to note that the practical achievements of these men were limited (in England throughout the early 18th-Century life expectancy was decreasing), but we can recognize in their careers that the real difference between the 17th- and the 18th-Centuries was a shift in ideas towards beliefs more comparable to those of our own in the modern world.<sup>26</sup>

The shift in ideas was fundamental, ushering in the new age of democracy, evangelism and life insurance: in science, it was manifest in the emerging belief that the universe, and everything in it, could be described by rational investigation, and was not an infinite mystery. The natural world replaced God as the focus of intellectual thought, and research into human anatomy came to serve a very different science. The rational study of Nature demanded accurate observation, and physicians especially looked increasingly to artists for help in recording detailed research accurately. It was in this new intellectual environment that photography first became even thinkable: science now needed art for illustration, yet demanded a precision beyond the skills of any one human artist, and so researchers began to speculate on how they could manipulate 'Nature's own pencil', light, to harness undistorted images. Therefore, a landmark in the genesis of the modern tradition of medical illustration can be seen in the publication in Britain of William Cheselden's *Osteographia* (1733), containing

56 copper-plate illustrations drawn by the author with the aid of a camera obscura (Figure 3). And so it was that, as the Age of Enlightenment gave way to the Century of Progress, during which 'Niepce and

Daguerre unlocked the treasure chest of photographic images',<sup>27</sup> it only remained to be seen how soon the modern science of medicine would adopt the services of a powerful new ally – photography.

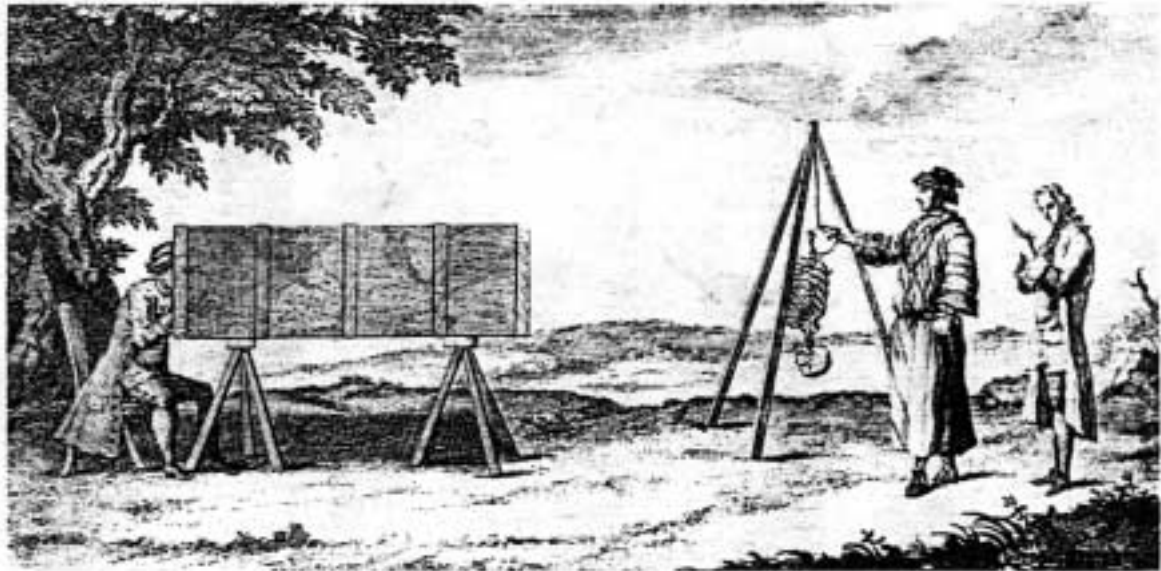


Figure 3. From William Cheselden's *Oesteographia* (1733).

## Notes on Part 1

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- 1 Ollerenshaw R. Medical Illustration. The Impact of Photography on Its History. *J Biol Photogr Assoc* 1968; 36/1: 3. Comparable views can be found elsewhere, e.g. Maingot R. *The Relationship of Art and Medicine*. London: 1974: 1.
- 2 It has even been argued by respected social anthropologists that art, even in its broadest sense, cannot be defined as a single phenomenon across all cultures, e.g. see Geertz C. *Local Knowledge. Essays in Interpretive Anthropology*. New York: 1983: 94-120.
- 3 Archaeologists associate the appearance of art – let alone technical illustration – exclusively with modern man (*homo sapiens sapiens*), and even then place it relatively late in human development (no earlier than 40,000 years ago in Europe and Australia, and probably even later elsewhere). On the other hand, the appearance of medicine, as a practical means of coping with disease and suffering, can presumably be dated no later than the appearance of religion, and religious burial is apparent amongst human populations – including Neanderthal man (*homo sapiens neanderthalensis*) as well as modern man – 60-100,000 years ago. For a brief introductory account, see Mithen S. *The Prehistory of the Mind. A Search for the Origins of Art, Religion, and Science*. London: 1996: 21-3, 154-63.
- 4 McFall KJ. A Notable Anniversary in the History of Medical Illustration. *J Audiov Media Med* 1997; 20: 5-10.
- 5 Donald G. The History of Medical Illustration. *J Audiov Media Med* 1986; 9: 44.
- 6 *ibid.* 45.
- 7 Maingot, *op. cit.* 1.
- 8 Donald, *op. cit.* 45.
- 9 Ollerenshaw, *op. cit.* 4. Nevertheless, Leonardo's stated views do echo those of modern medical illustrators and proponents of audio-visual educational media: 'Do not busy yourself in making enter by the ears things that have to do with the eyes for in that you will be surpassed by the artist.' [quoted in Donald, *op. cit.* 45].
- 10 Donald, *op. cit.* 46.
- 11 Thomas K. *Religion and the Decline of Magic*. London: 1971: 4.
- 12 *ibid.* 6.
- 13 *ibid.* 6.
- 14 *ibid.* 17.
- 15 Foucault M. *The Order of Things*. London: 1970: 386.
- 16 Quoted in Thomas, *op. cit.* 1971: 283.
- 17 Thomas K. *Man and the Natural World*. Harmondsworth: 1983: 64.
- 18 These ideas were held, not just by the ignorant and superstitious, but also by the educated élite, as, for example, in the following statement from Paracelsus' *Die 9 Bücher der Natura Rerum* [quoted in Foucault, *op. cit.* 26]: 'It is not God's will that what he creates for man's benefit and what he has given us should remain hidden ... And even though he has hidden certain things, he has allowed nothing to remain without exterior and visible signs in the form of special marks – just as a man who has buried a hoard of treasure marks the spot that he may find it again.'
- 19 Quoted in Foucault, *op. cit.* 19.
- 20 For an up-to-date introduction to the career of Paracelsus, see Strathern P. *Mendeleyev's Dream. The Quest for the Elements*. London: 2000: 70–98. For a more comprehensive, but older, account, see Pachter HM. *Paracelsus: Magic into Science*. New York: 1971.
- 21 Maingot, *op. cit.* 27.
- 22 Foucault, *op. cit.* 22.
- 23 Vesalius himself was a committed student of Galen, and abandoned his anatomical studies in 1544 because of strong opposition from Galenist scholars.
- 24 Quoted in Foucault, *op. cit.* 22.
- 25 Thomas, *op. cit.* 1971; 769-70.
- 26 *ibid.* 788.
- 27 Donald, *op. cit.* 47.

## 2. THE EARLIEST MEDICAL PHOTOGRAPHY

In Part One, the author argued that medical illustration is a specifically European cultural phenomenon, whose necessary prerequisite was a shift in the perception of the study of the human body which took place in the 18th Century. By the beginning of the 19th Century, therefore, the context had already been established for the emergence of medical illustration as a science in its own right. Part Two will now consider how photography was developed to aid clinical medicine as an accompaniment to this new, scientific interpretation of medical illustration during the 19th Century.

### Early European Clinical Photography

The progressive development of clinical photography has necessarily always been governed by technical developments in photography. The first workable photographic processes were publicized on 7th January 1839, in a report to the French Academy of Sciences by the physicist Arago. He described the work of Daguerre and Niepce (although Daguerre received the majority of the credit since Niepce had died in 1833). Fox Talbot had also been working on photographic problems since 1835 and had patented the talbotype (later known as the calotype) in 1841. Although Daguerre's process enjoyed considerable popularity, it was soon realized that it was not capable of further development; hence Fox Talbot, from whose work today's modern processes stem directly, has been called the 'inventor' of photography. In 1851, Archer introduced the wet collodion process which gave excellent results, faster speed and enabled cheap copies to be made easily, and, by 1871, Leach Maddox had produced the first workable dry plates using gelatin as the medium to hold the silver bromide.

The first application of photography to medicine appears to be in the field of photomicrography, where Alfred Donné was reported to have exhibited the apparatus for making individual daguerreotypes.<sup>1</sup>

These daguerreotypes could not be easily reproduced though Donné attempted to do so by etching the plate with nitric acid and printing it onto paper. In 1845, Donné published his *Cours de Microscopie*, to illustrate which he employed an engraver to copy his eighty-six photomicrographs.

Broadly defined, medical photography embodies a wide variety of photographic subjects including clinical photography, photography illustrating techniques, specimen photography, public relations photography and portraiture.<sup>2</sup> However, it is important to stress at this point that the author is principally interested in clinical photography: a clinical photograph is one which depicts a patient and his or her disease, with the appearance of the disease being the principal subject of the photograph.

Some of the earliest clinical photographs seem to have been made by a local portrait photographer or sometimes by the actual doctor involved.<sup>3</sup> Therefore, many of the conventions employed in these early photographs were those used in paintings and drawings for portraits and domestic scenes. Photographers drew on these conventions in all areas of medicine, in order to represent sick people, treatment, and doctors individually or in groups, so that medical pictures generally were little different from those depicting everyday affairs.<sup>4</sup> In early clinical photographs for example, a patient's social class can usually be deduced from his or her dress, demeanour, or surroundings. Gürtner has gone so far as to remark that:

Aufnahmen von Krankheitserscheinungen und Patienten aus der Frühzeit der Photographie sind nicht bekannt und dürften wohl auch nicht gemacht worden sein. Denn die technischen Voraussetzungen für solche Aufnahmen gab erst die Erfindung des Anastigmats (1889) und der hochempfindlichen Negative.<sup>5</sup>



His conclusion is, as we shall see, too sceptical in its phrasing, since the pioneers of the use of photography in a medical environment anticipated a distinct practice of clinical photography as early as the 1850s. However, many of the basic conventions by which we can distinguish clinical photographs from other depictions of medicine, or indeed from any other sort of picture, were not generally apparent until the 1890s (when, for example, photographers had begun to respect patients' anonymity, to omit from the frame parts of the body which were not diseased, and to eliminate indications of social class).

Given the problems of distinguishing 19th Century clinical photographs from any others, it is not surprising to note the lack of agreement amongst authorities on when or where the first clinical photograph was taken. The earliest clinical photograph known to the author is a calotype of a woman with a large goitre, taken by Hill and Adamson *ca.* 1847 in Edinburgh<sup>6</sup> (Figure 4). Wilson has suggested that the photograph was commissioned by Dr. James Inglis, although the only evidence for this is the as-

sociation of the facts that Hill and Adamson had taken a portrait of the doctor and that he had a specialist interest in goitres.<sup>7</sup> It is, however, interesting to compare this calotype to others that Hill and Adamson took in the same period, from which it can be seen to contrast strongly with their portraiture where the artistic arrangement and lighting of the sitter is obviously the main consideration (Figure 5). This strongly suggests that the calotype of the woman with the goitre was created according to a specific set of conventions, which could reasonably be linked to clinical photography as defined above.

Several authorities identify Berend and Diamond as the first *consistent* users of photography within medicine in the early 1850s.<sup>8</sup> In 1852 Hermann Wolff Berend,<sup>9</sup> founder of a Berlin orthopaedic clinic, applied photography to the recording of orthopaedic cases by taking pre- and post-treatment images, after receiving a photograph of a patient with scoliosis from Russia (Figure 6).<sup>10</sup> In 1855, Berend submitted the first major paper on clinical photography, entitled 'Über die Benutzung der



Figure 4. Woman with goitre. The earliest known medical photograph, by Hill and Adamson *ca.* 1847.



Figure 5. Unknown woman. Contemporary portrait by Hill and Adamson *ca.* 1847.

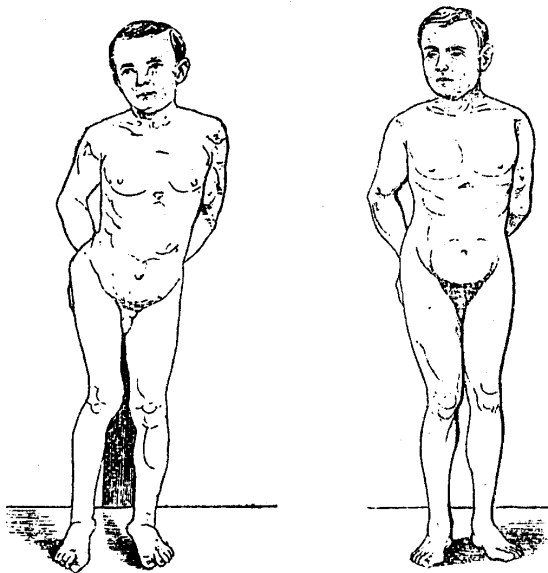


Figure 6. Woodcuts after photographs by H. W. Berend (1859).

Lichtbilder für heilwissenschaftliche Zwecke'.<sup>11</sup> At the same time, Hugh Welch Diamond of the Surrey County Asylum in Twickenham was photographing his patients in order to evaluate the physiognomy of the insane. Diamond was actually a founder member of the Royal Photographic Society, and in 1852 had established a darkroom in the asylum using the wet collodion process. His photographs were used: for diagnosis; to evaluate physiognomy; to show the progress of treatment; and to act as clinical records.<sup>12</sup> Diamond also used his photographs in treatment, having recognized that they had a marked impact on patients because an accurate self-image helped 'make the patient change from the way [he] was in the picture'.

Diamond issued a set of notes illustrated with photographs in 1854, though no copies of these have survived.<sup>13</sup> G. B. Duchenne of Boulogne had also photographed patients (undergoing electric stimulation of individual muscles) as early as 1852 or 1856,<sup>14</sup> and the first widely published medical photographs were the frontispiece and sixteen illustrations of pathological cases in the second edition of his *L'Electrisation Localisée* (1862). His second publication in that year, *Mecanisme de la Physionomie Humaine*, also contained photographs. It is interesting to note that the books were published by dif-

ferent houses, which is probably an indication of the expense of their production.<sup>15</sup>

In his 1855 paper Berend revealed his euphoric reaction to the possible benefits medical illustration stood to gain from the development of photographic technology:

... erkannte ich auf der Stelle, daß nunmehr das Mittel gegeben sei, die so lange gefühlten Uebelstände unvollkommener, nicht naturgetreuer Darstellung unmöglich zu machen.<sup>16</sup>

In these remarks, Berend might have been echoing those Renaissance illustrators who had looked to light as 'Nature's own pencil', and he simultaneously called into question the documentary value of techniques then in common use by medical illustrators such as diagrams, casts and the use pathological slides and dissection material.<sup>17</sup>

Just one year later, a report in the *Journal of Photographic Science* offered a flattering account of a paper read to the Royal Society by Diamond on the subject of photography applied to the phenomena of insanity, which reiterated the advantages of photography as an objective technique, and the euphoria with which they were to be welcomed:

The metaphysician and moralist, the physician and physiologist, will approach ... an inquiry with their peculiar views, definitions, and classifications. The photographer, on the other hand, needs, in many cases, no aid from any language but his own – preferring rather to listen, with the picture before him, to the silent but telling language of nature ... The photographer catches in a moment the permanent cloud, or the passing storm or sunshine of the soul, and thus enables the metaphysician to witness and trace out the connexion between the visible and the invisible in one important branch of his researches into the philosophy of the human mind ... Photography ... confirms and ex-

tends this description [of the physiology of insanity], and to such a degree as to warrant the conclusion that permanent records thus furnished are at once the most concise and the most comprehensive.<sup>18</sup>

It is apparent, therefore, that, amongst the earliest users of photography in a medical environment, Berend and Diamond already anticipated the distinction between (objective) clinical photography and (creative) portraiture, and the subsequent emergence of photography as the pre-eminent, illustrative tool that was finally secured by the introduction of new technology in the 1890s.

Nevertheless, Berend and Diamond were not the only European researchers advocating the use of photography in clinical science during the mid-19th Century. For example in England, the surgeon Alexander Balmanno Squire published *Photographs Colored from Life of the Diseases of the Skin* in book form between 1864-66. His advocacy of photography echoed that of Berend:

The great difficulty hitherto experienced in producing illustrations adequately portraying (*sic*) the various diseases of the skin, induced me to try if greater accuracy and more lifelike representations might not be obtained by means of photographs of the disease coloured from life by one of the best artists ... soon became evident that excellent results were to be obtained by this means and that they might be rendered more widely available by publication.<sup>19</sup>

It has been claimed that Squire subsequently inspired A. Hardy of the St. Louis Hospital in Paris to adopt photography, and a pupil of the latter, A. de Montméja, was put in charge of a photographic studio in the hospital.<sup>20</sup> Again in England, in 1867 Charles H. Moore published a study of rodent ulcers which contains photographs and woodcuts of photographs.<sup>21</sup>

A significant new development came about when a photographic department was first established within a hospital, in France at

the Clinic for Diseases of the Nervous System at the Salpêtrière Hospital in Paris. The Hospice was transformed in the 1860s into a leading medical hospital through the efforts of the neurologist J. M. Charcot. He created the Photographic Service Laboratory under the auspices of the Assistance Publique in 1878, and appointed Albert Londe as director in 1882. Londe went on to achieve international stature not only in the field of photography but also in his specialisms in medicine and radiology. In 1888 he published *La Photographie Moderne* which included a chapter on medical photography, and in 1893 he published the first book specifically on medical photography, *Photographie Medicale*. The latter is dedicated to Charcot, whose stated belief was that photography was not only important to medicine but that its importance would increase in the future.

### Early American Clinical Photography

In a series of articles on the 'Early Medical Photography in America (1839-1883)', Burns has attempted to establish that:

American physicians used photography before anyone else to record and document disease and to show surgical results ... Thus in the area of medical photography, nineteenth century American physicians were ahead of their European colleagues.<sup>22</sup>

His argument is based on the observation that previous works on the history of medical photography have established a gap in the record of development: the emergence of photomicrography can be traced during the period of 1839-1845, but then there are no significant new developments until 1852, when the work of Berend and Diamond began. At this time, however, in America the use of the daguerreotype was much more popular than in any other part of the world:

America produced more and better daguerreotypes and employed the medium more widely and for a longer period of time than any other nation.<sup>23</sup>

Burns' research in early medical journals has uncovered woodcut illustrations derived from clinical daguerreotypy (and labelled as such), which appeared in print from 1849 onwards – with the suggestion that some were taken as early as 1848.<sup>24</sup> Several examples are given including an article published in 1850 in the *American Journal of Dental Science* by one R. Thompson. Its accompanying photographs, of the left superior maxillary bone, were taken in Columbus, Ohio and dated 1848. In the *Medical Examiner* (Philadelphia) dated 1st April, 1851 an article by Charles Gilbert was illustrated by photographs taken by 'Laughlin' in 1849 and 1850.<sup>25</sup>

A portrait of a patient possibly taken as early as 1845 by Gurdon Buck was published in the *American Journal of the Medical Sciences*. This daguerreotype was taken to record the postoperative appearance of the patient three days before discharge from the New York Hospital,<sup>26</sup> but it conforms to none of the conventions which we would now expect of a clinical photograph, and rather seems posed as a typical portrait (Figure 7). Moreover, the surviving details of the daguerreotype and engraving were not actually published until 1876 in Buck's *Contributions to Reparative Surgery*, and the volume of the journal in which it was originally pub-



Figure 7. Woodcut after daguerrotype by Buck ca. 1845.

lished is no longer available for consultation. The 1876 book has many examples of Buck's work but it otherwise dates from 1862 or later, and, in view of Berend's career, it may therefore be stretching the evidence to describe Buck as 'undoubtedly the first surgeon in medical history to use pre- and post-operative photographs of patients routinely'.<sup>27</sup>

Other examples of medical photography from the period are not strictly clinical images. Daguerreotypes from 1847 show pre-operative etherizations, and a photograph of surgery taken by Southworth and Hawes can be dated some time after March 1847. A daguerreotype showing the dissection of a cadaver was taken as early as ca. 1844-1845. However, these images were primarily intended to show the techniques and equipment in use, with the specific details of the disease or the patient being irrelevant.

There is, therefore, no shortage of evidence for the association of medicine with photography in the United States in the 1840s, and American physicians were also associated with the more general development of photographic science and art. Nevertheless, in spite of the wide range of examples cited by Burns, the basis of his argumentation and the force of his conclusion seem unacceptably emphatic. Even when the possible early daguerreotype produced for Buck is taken into account, there is still no evidence of an actual clinical photograph dated earlier than the calotype made by Hill and Adamson in Scotland, and nothing to support the conclusion that there were consistent users of clinical photography in North America before Berend and Diamond began their photographic activities in Europe. It seems more straightforward, therefore, to conclude that initial experiments in the application of early photography to medical science were being conducted on both sides of the Atlantic. What seems certain, however, is that unequivocal evidence of experimentation in both Europe and America taken as a whole means that the hitherto-supposed gap in the record of development between 1845 and 1852 can no longer be maintained.

## Notes on Part 2

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- 1 Gürtner H. «Medizinische Photographien» in der Frühzeit der Photographie. *Ciba Zeitschrift* 1935; 21: 740.
- 2 There is, of course, a clear if imprecise distinction between the illustration of generalisations, for example in textbook diagrams, and in the illustration of particular clinical cases. In the former case, it would be difficult to refute the view of Maingot, op. cit. 3, that: '... in the past many medical books were illustrated by master artists, and in the functions of anatomy and surgery the brush and pencil still retain their supremacy over all other methods of illustration, including modern photography.'
- 3 From the 1850s British and American medical journals regularly carried general items on photography for readers who were amateur enthusiasts, cf. Fox DM, Lawrence C. *Photographing Medicine. Images and Power in Britain and America Since 1840*. Westport: 1988: 21.
- 4 *ibid.* 9.
- 5 loc. cit. 'Images of the appearance of disease and of patients from the early days of photography are not known and probably were never made. The technical prerequisites for such images were first available through the discovery of the anastigmatic lens (1889) and of the high-sensitivity negative.'  
These remarks have been attributed to Rosen, e.g. by Burns SB. Early Medical Photography in America (1839-1883) - Part 3. *NY State J Med* 1979; 1257 (May); however, Rosen G. Early Medical Photography. *Ciba Symposia* 1942; 1344 (August-September), is no more than a verbatim translation of Gürtner's text quoted here.
- 6 The calotype is now in the Scottish National Portrait Gallery. The working partnership of Hill and Adamson (1843-47) is justifiably one of the most famous in photographic history. They produced hundreds of calotypes, most of which were portraits of individuals amongst the different professions and social classes in Scotland.
- 7 Wilson GM. Early Photography, Goitre, and James Inglis. *BMJ* 1973; 2: 104.
- 8 Berend HW. Über die Benutzung der Lichtbilder für heilwissenschaftliche Zwecke. *Wiener Medizinische Wochenschrift* 1855; 19: 291, implies that photography was then regularly used in an orthopaedic clinic in Vienna under the auspices of Drs. Lorinser and Fürstenberg. This clinic can be dated to the early 1850s or immediately thereafter, cf. Kormann quoted in Krämer K-L. Medizinische Photographie in der Orthopädie einst und heute – Ein geschichtlicher Abriß. *Zeitschrift der Orthopädie* 1986; 124: 580.
- 9 Also cited as Friedrich Jacob Behrend.
- 10 Krämer, op. cit. 580
- 11 The first journal devoted to medical photography was published in Leipzig in 1894, entitled *Internationale medizinisch-photographische Monatschrift*, cf. Ollerenshaw, op. cit. 3.
- 12 Burns SB. Early Medical Photography in America (1839-1883) - Part 5. *NY State J Med* 1980; 272 (February).
- 13 Gernsheim A. Medical Photography in the Nineteenth Century - Part I. *Med Biol Illus* 1962; 11: 88. The lack of surviving copies suggests that the notes may have been published privately.
- 14 1852 according to Cuthbertson A. The First Published Clinical Photographs? *Practitioner* 1978; 221: 276; but 1856 according to Gernsheim, op. cit. 92.
- 15 Cuthbertson, loc. cit.
- 16 op. cit. 291: 'Immediately I understood that now the method had been found which would make the long-perceived defects of limited, unrealistic images impossible.' The same sentiments and appreciation of the clinical potential of photography were echoed a few years later in the United States by Surgeon John Brinton, curator of the Army Medical Museum, cf. Rhode M. Photography and the Army Medical Museum, 1862-1945: 2, and also Part Three.
- 17 Krämer, op. cit. 580. Earlier, in 1853 at a demonstration of his techniques, Berend had already lauded: 'Diese Anwendung der Photographie für descriptive Pathologie ... welche die Naturtreue der Darstellung, die früher bei Zeichnungen, Gipsabgüssen u.s.w. vielfach vernachlässigt oder in Frage gestellt wurde, über allen Zweifel erhebt.' ('This use of photography for descriptive pathol-

- ogy ... whose ability to represent nature faithfully is beyond doubt in areas which earlier diagrams, plaster casts etc. overlooked or left open to question.'). Quoted in Krämer, op. cit. 580.
- 18 Review of HW Diamond. On the Application of Photography to the Physiognomic and Mental Phenomena of Insanity. *J Photogr Soc* 1856; 44 (21st July): 88-89.
  - 19 Quoted in Gernsheim A. Medical Photography in the Nineteenth Century - Part II. *Med Biol Illus* 1962; 11: 147. Squire later edited the quarterly journal *Diseases of the Skin* from 1873.
  - 20 *ibid.*
  - 21 *ibid.* 148.
  - 22 Burns SB. Early Medical Photography in America (1839-1883) - Part I. *NY State J Med* 1979; 788 (April).
  - 23 *ibid.*
  - 24 The present author is not aware that similar research has been undertaken in the United Kingdom.
  - 25 Rogers mistakenly confuses Gilbert's 1851 article with Thompson's 1850 article, cf. Rogers BO. The First Pre- and Post-Operative Photographs of Plastic and Reconstructive Surgery: Contributions of Gurdon Buck (1807-1877). *Aesthetic Plast Surg* 1991; 15: 21.
  - 26 So Burns SB. Early Medical Photography in America (1839-1883) - Part 4. *NY State J Med* 1979; 1937. However, Rogers, op. cit. 19, believes that the portrait was a pre-operative image.
  - 27 *ibid.* Rogers does seem generally to overstate Buck's primacy. For example, he also states, loc. cit., that Buck should be given 'the credit for demonstrating to the reader for the first time a wealth of cases upon whom (*sic*) plastic surgery techniques were used with skill and efficiency'. However, in 1863 the Hungarian Janos Balassa published *New Operative Methods of Nose Reconstruction* containing eleven plates of patients including 'the earliest use of photography yet found to record a reconstructive series', cf. Wallace AF. The Early History of Clinical Photography for Burns, Plastic and Reconstructive Surgery. *Br J Plast Surg* 1985; 38: 451.

### 3: MEDICAL PHOTOGRAPHY UNTIL THE SECOND WORLD WAR

The fact that the potential of photography was being widely exploited by the end of the 19th Century owed much to new technology such as the anastigmatic lens, and to innovative techniques such as stereoscopic photography. The latter was popular in the Victorian drawing room, but demanded a generally higher degree of accuracy in order to have value for clinicians. As early as 1861, one J. Ganz began taking stereoscopic photographs for Professor T. Billroth at the Chirurgische Klinik in Zürich.<sup>1</sup> The first set of images was published in 1867 in Billroth's *Stereoskopische Photographien chirurgischer Kranken I*, with case-notes in German and French. Subsequently, the first two decades of the 20th Century, and especially the years of the First World War, saw the introduction of innovations, such as roll-film cameras, which are still crucial to medical photography today. Another major innovation was the introduction of colour film, for which Augustus and Louis Lumière have been heralded as pioneers.<sup>2</sup> On 30th May 1904, the brothers published their paper 'On a New Method of Producing Colour Photography', describing the first viable direct colour process based on the autochrome process.<sup>3</sup> Their process was commercially introduced in 1907, but as early as 1901, in presenting a paper at the Académie de Médecine de Paris, they had outlined the advantages of applying colour photography to medical science in such crucial areas as clinical teaching, the reproduction of microscopic and histological specimens, bacteriology, and the study of embryological and cytological phenomena.<sup>4</sup>

#### Specialization

Despite the inevitable dependence of medical photography on commercial technology, it was far from true that medical photography was slavishly adopting the techniques of commercial photographers. As the 19th Century drew to a close, and photography

began to be adopted into the institutional structure of medical science, many specialist applications were being developed by, or on behalf of, clinical practitioners. Just as medical photography had begun with photomicrography, clinical photographers and physicians realized that photography had potentials which could be exploited in specific ways in the different fields of medicine. Its illustrative and educational value was also brought to the fore, so that in the early 1880s Thomas R. French remarked that:

If an easy method of taking photographs can be developed, the pictures can again be photographed as a block and used as we now use woodcuts. Again, the negatives being of glass, can be used in the lantern and the pictures thrown upon the screen for classroom instruction.<sup>5</sup>

What follows, therefore, is a brief historical survey of the emergence of various crucial specialized photographic techniques specifically developed for the service of medical science.

#### 1. Endoscopy

The development of endoscopic visualization was an inevitable prerequisite for the successful photography of the body cavities. The first recorded attempt at endoscopy was undertaken by Bozzini to examine the larynx in 1804, and attempts continued throughout the first half of the 19th Century to invent an instrument which could facilitate such an examination.<sup>6</sup> Only in 1855 did Manuel Garcia actually succeed in this aim.<sup>7</sup> Nevertheless, as soon as the larynx was thus accessible to examination, a number of laryngoscopists became convinced of the optical feasibility of obtaining photographs of the area. An experiment by Czermak of Austria was only partially successful, but remains the first recorded attempt to photograph human internal organs,

and it is significant that he used artificial light rather than sunlight.<sup>8</sup>

The first instrument able to visualize the urinary bladder was produced by Désormeaux in 1853, although in early instruments the light-source had to be situated outside the speculum.<sup>9</sup> In 1867, Bruck first voiced the belief that it would be possible to put the light-source at the distal end of the instrument by using an electronically heated platinum loop.<sup>10</sup> This proposal failed to gain any widespread acceptance, and it was not until 1877 that it was revived by Max Nitze who produced the first modern cystoscope. His apparatus embodied the basic principles of all subsequent cystoscopes and urethroscopes – namely an electric light-source located close to the field to be examined, and the use of a lens system.<sup>11</sup> By 1887, the incandescent bulb had replaced the platinum loop, providing a more reliable source of illumination. With the production of the so-called Nitze-Leiter instrument, cystoscopic photography came into general use among practitioners. Nitze used ‘a camera of the shape of a flat round box ... fixed to the external end of a cystoscope of somewhat larger diameter and supplied with a stronger lamp and better lenses than usual’.<sup>12</sup> The film was placed in a revolving disc containing several circular perforations which allowed a corresponding number of photographs of the interior of the bladder to be taken. Nitze’s excellent results were circulated as early as 1894 in his publication *Kysto-photographischer Atlas*.

In 1882 the New Yorker, French, demonstrated the practicality of his technique for the photography of the larynx and nasopharynx, as well as its usefulness for the study of both the physiological action of the larynx in speaking and of its pathological conditions.<sup>13</sup> French’s reports were presented in 1882 at the annual meeting of the American Larynological Association, where he exhibited several photographs produced in collaboration with George Brainerd.<sup>14</sup> In the first reported experiments he used sunlight, although, in his own statement, he had in-

tended to use electric lights. The first photographs to be taken were of Brainerd’s larynx, using a time of exposure varying from 1 to 4 seconds. French continued his experiments and his method had greatly improved by 1886, by which time he was experimenting not only with sunlight, but also with oxy-hydrogen, magnesium and electric lights.

Soon afterwards, in 1890, Walter Woodbury described and illustrated the photogastroscope (an endoscope attached to a camera) for photographing the stomach.<sup>15</sup> His two-inch long camera contained a film one-fifth of an inch wide and twenty inches long, and was supplied with light by a small electric lamp. In all probability, we must assume that it was the very first successful gastroscopic camera.

## 2. Ophthalmology

The human retina was probably first photographed in 1885 by W.T. Jackman and J. D. Webster, with an exposure of twenty minutes by gaslight.<sup>16</sup> The first published photographs subsequently appeared in *The Photographic News*, London on 7th May, 1886. In order to get these images Jackman and Webster had used a small camera securely attached to the head of the patient, together with an ophthalmoscopic mirror in front of the lens at an angle of 45° so as to reflect the light from an albo-carbon burner placed near the ear (Figure 8). The time of exposure was therefore much reduced at 2.5

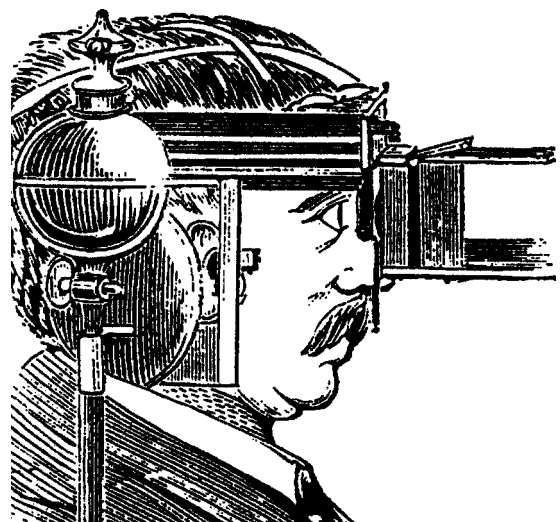


Figure 8. Early ophthalmoscope by Jackman and Webster (1886).



minutes. The resultant pictures were far from acceptable by modern standards, and details were obscured by the large reflex from the cornea. Nevertheless, the optic disc and a few of the large vessels in its proximity could vaguely be determined.

Further experiments during the following years were principally aimed at overcoming a whole host of attendant problems including adequate illumination, an emulsion more sensitive to red, the elimination of the troublesome reflex, and the need for an image of a size and clarity adequate for specialist diagnostic purposes. The first truly successful photograph of the retina is attributed to Gerloff in 1891.<sup>17</sup> Gerloff had used an immersion system, which subsequently was superseded by the more complex apparatus of Dimmer, who actually described his early results in 1889 although he did not publish them until 1899. The enormous advances made by Dimmer were the product of a full ten years of research undertaken with the co-operation of the firm of Zeiss.<sup>18</sup> The resultant camera was exceedingly cumbersome and expensive, and only one was ever actually made, but it did produce reflex-free photographs. Dimmer published his first retinal atlas in 1907, but it is his second atlas, published posthumously in 1927 with the collaboration of Pillat, which serves as a landmark in the history of fundus photography. Thereafter, the first commercially viable fundus camera was developed by Nordenson of Uppsala and introduced in 1926.<sup>19</sup> Although the specialist cameras used in modern fundus photography have improved greatly, it is still true to say that the majority of retinal cameras are based on the principles of the original Nordenson camera.

Stereoscopy was popular in the Victorian drawing room, but in order to be useful for clinicians it demanded a high degree of accuracy. As early as 1861, one J. Ganz began taking stereoscopic photographs for Professor T. Billroth at the Chirurgische Klinik in Zürich.<sup>20</sup> The first set of the resultant images was published in 1867 in Billroth's *Stereoskopische Photographien chirurgischer Kranken, Heft I*, together with case-notes in German and French.

### 3. Motion

In the domain of medical science the pioneering experiments in the photography of motion were conducted by Eadweard Muybridge who published a series of plates of abnormal gaits in a book on locomotion in 1887.<sup>21</sup> This monumental work of eleven volumes contained hundreds of tables in which the various stages of human and animal movement are illustrated. Using Muybridge's chronophotograph-technique, a rapid series of single exposures of a dog's heart was taken by Reichert in 1887, and this should probably be recognized as the earliest medical images of motion.<sup>22</sup> One P. Schuster made the first medically-orientated motion picture in 1897 to demonstrate complex body movements.<sup>23</sup> This technique was facilitated by the introduction by Eastman in 1898 of flexible film. Subsequently, the French surgeon Doyen allowed himself to be filmed whilst operating in Paris in 1898, and is also said to have produced a surgical film for Professor Ernst von Bergman in 1903.<sup>24</sup>

### Archives

The brief survey set out above is intended to show that many of the specialized applications of photography in the service of modern medicine were already projected, and in many cases being developed in line with modern techniques, by the last quarter of the 19th Century. What is less clear, however, are the pathways and contacts by which technical developments and specialized techniques actually spread to make a wider impact on the practice of clinical photography; although medical photographs were certainly being produced in great numbers by this time, it seems equally true that, in England at least, most of these images were the work of local commercial photographers hired on an individual basis by physicians. Nevertheless, many of the conventions used in current clinical photography were demanded by physicians and medical researchers, and clinical photographs from this time resemble modern clinical photographs much more closely than they

resemble photographs from the middle part of the 19th Century. Presumably we should conclude that practising clinicians and a relatively small number of specialist clinical photographers played the crucial role in the establishment of these conventions. The author concludes this chapter, therefore, with a brief discussion of the earliest surviving archives of medical photographs in which the emergence of medical photography as distinct scientific tradition is documented.<sup>25</sup>

### 1. United States Army Medical Museum

Thousands of medical photographs taken during the American Civil War (1861-1865) are preserved at the Army Medical Museum (AMM) in Washington, thereby forming one of the largest as well as the earliest-known of medical photographic archives. The *Catalogue of the Army Medical Museum 1866* offered the first impression of the size of the collection: probably by then it already totalled one-thousand seven-hundred and sixty-six images, including six-by-six inch photographs and the more popular *cartes de visites* (although the accuracy of this figure has been challenged<sup>26</sup>). The AMM had been founded on the initiative of Surgeon-General Hammond 'to improve the care of the sick or wounded soldier by making available for study pathological specimens of war wounds and diseases': hence its Civil War archive consists mainly of photographs taken for physicians of health-related matters arising directly from the war.<sup>27</sup>

The most complete and impressive publication from the AMM was the *Photographic Catalogue of the Surgical Section of the Army Medical Museum*. Eventually eight volumes were published,<sup>28</sup> each consisting of fifty tipped-in albumen prints, generally depicting patients and their wounds with a brief case-history appended to the reverse (Figure 9). Many are posed as typical contemporary portraits, but others include evidence of the employment of techniques to ensure the objective representation of subjects, for example in the use of a mirror to show the full extent of an injury (Figure 10). The first curator of the AMM, Surgeon John

Brinton, and his successor, Dr. George Otis, employed a Washington-based photographer, William Bell, to take the majority of these photographs, although those in the first volume were the work of an anonymous predecessor and several other photographers became involved in the ongoing project.<sup>29</sup>

### 2. Queen's Hospital, Sidcup

The photography of medical subjects was first undertaken in London hospitals many years before the earliest organized photographic departments were established in the capital (see Part Four). For example, at St. Bartholomew's Hospital clinical photographs are known to have been taken since 1892 (Figure 11). Subsequently, a photographic service was organized at St. Bartholomew's, possibly arising from the occasional photography of a group of radiographers, or more generally from the enthusiasm of various medical practitioners.<sup>30</sup> In 1914 another such *ad hoc* service was established in the capital at King's College Hospital.

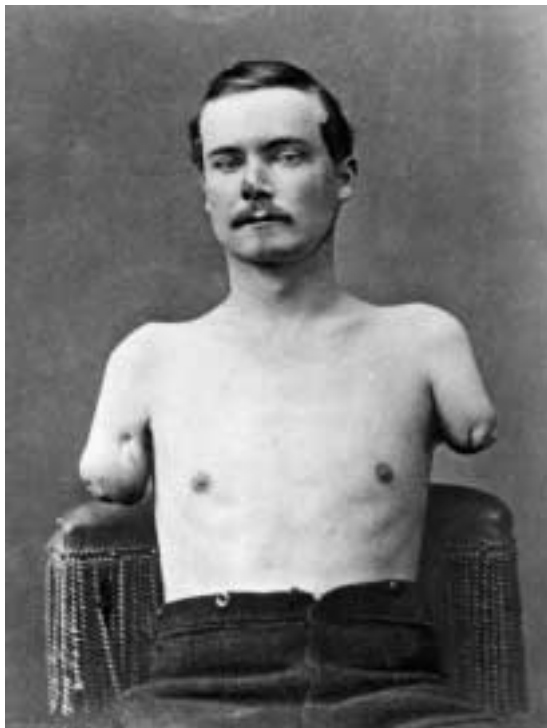
However, the earliest major archive of medical photographs in Britain, at the Queen's Hospital in Sidcup, was born, like the United States Army Medical Museum, out of the needs of war. The grounds of the Frognaal estate had become the site of a specialist hospital for the treatment of facial injuries in February 1917, at the height of World War One, and opened in July 1917.<sup>31</sup> The service was designated as a central hospital for all His Majesty's Imperial Armed Forces in late 1917, and the original British team of surgeons, dentists and other clinicians was soon joined by practitioners from throughout the British Empire, and later by colleagues from the United States.

The hospital as it opened comprised five-hundred and sixty beds, and included amongst its departments full facilities for photography as well as an artists' studio. The Queen's Hospital, therefore, quickly generated an enormous number of clinical images. However, by 1921 the end of the war had ensured that the workload of the hospital was steadily diminishing and the various professional contingents began to re-

turn overseas, generally taking their illustrations with them. Records from New Zealand were recently returned by Professor A.D. Macalister, and these have now been documented by Dr. A.N. Bamji and assistants. More recently, the records of the British clinical contingent have been located, containing approximately two-thousand three-hundred photographs. Hence the early clinical records of the Queen's Hospital are beginning to re-emerge as a fine archive of medical illustration from the early part of this century (Figure 12).

The Macalister Archive includes complete case notes in typescript summaries, accompanied by clinical photographs and radio-

graphs. Many of the photographs are accompanied by paintings which add a gruesome note of colour to already disturbing monochrome images (Figure 13). These images remain a shocking chronicle of the horror of trench warfare, but it is more important for our present purpose to see in them the accurate documentation of early maxillo-facial surgery and a full record of the skill and care of an early and busy department of medical illustration.<sup>32</sup> The photographs offer clear evidence of the employment of establishing shots, standardization and serial photography as far back as 1916 (Figure 14). It is unfortunate, however, that virtually nothing is known today of the photographers, artists and technicians themselves.



**Surgeon General's Office.**  
**ARMY MEDICAL MUSEUM.**

PHOTOGRAPH No. 207. *Amputation of Both Arms for Gunshot Injury*

This photograph represents a discharged soldier of many months, who was seen at the corner of Seventh street and Pennsylvania avenue, with a one armed companion, who turned a barrel organ, while this more mutilated man had suspended about his neck a chest for alms, the lid of which he opened by a backward movement of his left shoulder. He was photographed at the Museum in 1865. He gave his name as Sergeant Warden; but a history of the case is not found on the Surgical Records. After a long search it has been impracticable to identify the case with any of those of double amputation reported at this Office. A newspaper item states that this man was found dead in the streets of Buffalo in 1868.

Photographed at the Army Medical Museum.  
 BY ORDER OF THE SURGEON GENERAL:  
 GEORGE A. OTIS,  
 Asst Surg. U. S. A., Chronic A. M. M.

Figure 9. Photograph and accompanying case history from the Army Medical Museum, Washington.



Figure 10. Typical portrait-style photograph (left), and an example of the use of a mirror to show the full extent of injury (right) from the Army Medical Museum, Washington.



a.



b.



c.



d.



e.

*Figure 11.*  
*a. Dystrophy due to polio; b. Severe rheumatoid arthritis; c. Large multi-nodular goitre; d. Congenital syphilis; e. Smallpox.*  
*From the archives of St. Bartholomew's Hospital. Printed from half-plate glass negatives.*



Figure 12.  
a. The earliest dated photograph in the Macalister Archive, taken in Boulogne (1916); b. Intra-oral view; c. Surgical photograph; d. Specimen photograph. From the Macalister Archive.



Figure 13. Photograph, with accompanying watercolour by Daryl Lindsay. From the Macalister Archive.



a.



b.

Figure 14.  
a. Lateral facial view and corresponding x-ray; b. Establishing view and close-up view of wounded ear.  
From the Macalister Archive.





c.

c. Sequence of photographs showing process of nasal reconstruction. From the Macalister Archive.

### Notes on Part 3

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- 1 Gernsheim A. Medical Photography in the Nineteenth Century – Part I. *Med Biol Illus* 1962; 11:92.
- 2 Aterman K, Grimaud J-A. The Brothers Lumière. Pioneers in Medical Photography. *Am J Dermatopathol* 1983; 5/5: 479.
- 3 *ibid.* 480.
- 4 *ibid.* 481.
- 5 Rosen G. Early Medical Photography. *Ciba Symposia* 1942; (August-September): 1349.
- 6 *ibid.* 1345.
- 7 *ibid.* 1347.
- 8 *ibid.*
- 9 Rosen, *op. cit.* 1352.
- 10 *ibid.*
- 11 *ibid.*
- 12 *ibid.* 1355.
- 13 *ibid.* 1348.
- 14 In London in 1883, Lennox Browne had also attempted to photograph the larynx, but eventually abandoned his experiments without success, cf. Ollerenshaw R. Medical Illustration. The Impact of Photography on its History. *J Biol Photogr Assoc* 1968; 36/1 (February): 10.
- 15 Gernsheim A. Medical Photography in the Nineteenth Century – Part II. *Med Biol Illus* 1962; 11: 152.
- 16 Mann W. History of Photography of the Eye. *Surv Ophthalmol* 1970; 15/3: 181.
- 17 Williams AR. The History of Medical Photography. Williams AR (ed.): *Medical Photography Study Guide*. London: 1984 : 331.
- 18 Mann, *op. cit.* 181.
- 19 *ibid.* 183.
- 20 Gernsheim A. Medical Photography in the Nineteenth Century – Part I. *Med Biol Illus* 1962; 11:92.
- 21 Lugli T. Hand Diseases in Early Photographs. *The Hand* 1980; 12/1: 99.
- 22 Ollerenshaw, *op. cit.* 14.
- 23 Keys TE, Julin LA. The Development of the Medical Motion Picture. *Surgery, Gynecology and Obstetrics* 1951; 630.
- 24 *ibid.* Doyen, who died in 1916, left an impressive legacy of medical motion picture films, including a record of the surgical separation of Siamese twins in Berlin.
- 25 There are other archives dating to this period, but it would go beyond the scope of the present thesis to present a full account of all of these. For convenience the author refers the reader to the useful account presented in the series of articles by S.E. Stool entitled 'Biological Photographic Collections', published in the *J Biol Photogr Assoc* in the period January 1987–April 1993.
- 26 Burns SB. Early Medical Photography in America (1839-1883) – Part 6. *NY State J Med* 1980; (August): 1456.
- 27 *ibid.* 1452.
- 28 According to Rhode M. Photography and the Army Medical Museum, 1862-1945: 2, four volumes were published by January 1869, with four more added by late-1881. The first five volumes were republished together in 1871 as *Photographs of Surgical Cases and Specimens Taken at the Army Medical Museum*, together with a partial index written by Otis. Selected images from the last three volumes were republished in Otis' *Gunshot Fractures of the Femur*. Burns, *loc. cit.*, however, states that only seven volumes were published.
- 29 Rhode, *loc. cit.* Bell apparently worked for the AMM until the fourth or fifth volume had been prepared, and the later volumes include the work of other photographers, mostly anonymous except for E. J. Ward, who is known to have taken many photographs for the last three volumes.

- 30 Harrison NK. Photography in the London Teaching Hospitals. *Brit J Photogr* 1954; 101 (24th September): 484.
- 31 Bamji AN. The Macalister Archive: Records from the Queen's Hospital, Sidcup (1917-21). *J Audiov Media Med* 1993; 16/2: 76.
- 32 *ibid.* 82.

## 4. MEDICAL PHOTOGRAPHY IN POST-WAR BRITAIN

In spite of the significant growth in the usage of medical photography in the early decades of the 20th Century, as late as World War Two clinical photography was generally undertaken by pathology, electrocardiography and radiography departments.<sup>1</sup> These were departments which normally had cameras and processing facilities amongst their own equipment, and the situation can be seen as symptomatic of the fact that few hospitals were prepared to invest in specialist photography units. Little attention was given to such a limited subject in either the photographic or medical press, and there were no established standards for training and apprenticeship. Consequently hospitals did not offer high salaries to photographers, whom they considered semi-skilled workers.<sup>2</sup> It is not surprising, therefore, to note that the major figures in the post-war development of medical photography in Britain typically began medical careers in related professions before moving into specialist photography in response to a growing demand for services.<sup>3</sup>

In the early 1920s Dr. Geoffrey Hadfield encouraged his technician colleague at the Bristol General Hospital, Victor Wilmott, to provide a photographic service suitable to the requirements of a large general hospital, including clinical photography, the photography of pathological specimens, photomicrography, and the reproduction of radiographs.<sup>4</sup> When Hadfield was made Professor of Pathology in the Royal Free Hospital, Wilmott accompanied him, and so in 1928 started the first specialist photographic service in a London hospital. Subsequently Wilmott followed Hadfield to Bristol University, where he set up a new photographic service in 1934. In 1935 Wilmott himself moved on to establish a similar service in the Postgraduate Medical School at the Hammersmith Hospital.<sup>5</sup>

However, it was in the immediate post-war years that the real establishment of organized medical photography in Britain took

place: for example, new departments were established in most major London hospitals within eight years of 1945:

Year	Hospital	Dept. Head
1945	Westminster Guy's <sup>6</sup> Great Ormond St.	Peter Hansell Sylvia Treadgold Derek Martin
1947	Royal Cancer St. Bartholomew's Royal National Orthopaedic	Josephine Hunt N. K. Harrison  Robert Whitley
1948	Institute of Ophthalmology	Peter Hansell
1949	St. Mary's	Peter Cardew
1950	The London	Ray Ruddick
1952	St. Thomas's	Ken Moreman
1953	Charing Cross	Patricia Turnbull

*Table showing the rapid emergence of medical illustration departments in the major London hospitals after the end of World War Two, and during the creation of the NHS.*

This process was no doubt largely stimulated by the vast experience garnered during the war and did partially rely on ex-services photographers, such as Tommy Longmore at the Kodak School of Radiography. Longmore's *Medical Photography – Radiographic and Clinical* remained a recognized reference text from its publication in 1944 until its eighth edition in 1969. Following the pattern established by Wilmott, the foundation of new departments generally arose from the enthusiasm and dedication of a relatively small number of individuals, such as Dr. Peter Hansell, Dr. Peter Cardew and Norman K. Harrison.<sup>7</sup> These years were necessarily innovative: most of the newly-formed departments were staffed by a single person and the appropriate photographic equipment, insofar as it even existed, was often hard to obtain.<sup>8</sup> There was certainly no spare money, a dearth of sensitive materials of any kind, and practically no camera or darkroom equipment, save for war surplus auctions or generous gifts from

retiring American troops.<sup>9</sup> As one practitioner remarked at the time:

It would be interesting to know ... if such resourcefulness is a necessary quality of a medical photographer, or whether it has merely been inbred through years of vain striving for more apparatus.<sup>10</sup>

Nevertheless, this new breed of specialists did draw heavily on their own initiative and technical skills to attain the standards required by the clinicians of the day.<sup>11</sup>

In November 1945, Dr. Peter Hansell established probably the first organized central medical photography service in a British hospital at the Westminster Medical School in London. Hansell was a keen amateur photographer, who, having trained and qualified as a physician, realized the need for audio-visual aids in the education of medical students – having himself been taught by ‘sheer unadorned oratory’.<sup>12</sup> As early as 1947 several new departments had been established, so that the subject could be said to be ‘undergoing an evolutionary process consequent on a growing understanding of the real function of such a unit within the parent community’.<sup>13</sup> Nevertheless, few teaching hospitals were properly utilizing their photographic units, and there was still no agreed and unambiguous vision of the service they would provide. In 1946, Dr Brian Stanford had compared medical photography directly with radiology, and discussed standardization across the two disciplines.<sup>14</sup> He envisaged the ideal clinical photography department as one whose photographers were trained nurses, with the Director being medically qualified. Some clinicians even argued that they alone possessed the expertise necessary to take responsibility for the photography, and so photographic professionals were only needed to provide technical support (and would, of course, be paid accordingly).<sup>15</sup>

Many of the new departments of medical illustration were based within university medical schools, including by the early 1950s all eight postgraduate centres in London and

many larger provincial centres, such as Newcastle, Glasgow and Cardiff. Although documentation for hospitals outside London is less available, it would be wrong to forego any mention of the careers of such figures as Joseph Larway, Dr. Robert Ollerenshaw, Cyril Duncan, and Thomas C. Dodds. Larway became chief photographer at the Birmingham Accident Hospital as early as 1943, establishing a department to document war injuries and undertake specialized photography for the Medical Research Council Burns Unit. A qualified radiologist, Ollerenshaw started the research-funded photographic service at Manchester Royal Infirmary in the late 1940s, which has survived to become a large, modern university department.<sup>16</sup> Duncan took up an appointment in 1946 with the University of Newcastle-upon-Tyne,<sup>17</sup> where he established an audio-visual department serving the University and the North Eastern Health Authority. In 1950 Dodds, previously in post in the Department of Pathology, became Director of the Medical Photography Unit at the University of Edinburgh.

### The Development of Representative Professional Bodies

Concurrent with these developments within hospitals were initiatives to form a nuclear professional body committed to the progress of medical photography. In 1943 the Association for Scientific Photographers (ASP) had been formed to promote the uses of photography and to standardize often varied working procedures in the applied sciences by disseminating information and staging exhibitions.<sup>18</sup> There was a strong medical photography presence within the ASP, and a medical group had occasionally been mooted. In 1944, interested members organized a meeting regarding the formation of a medical group, which was subsequently formed in February 1945, under the chairmanship of Dr H. Mandiwall. The advantages of linking up with the Royal Photographic Society (RPS) were realized, and an agreement was reached on the understanding that the work of the newly formed

Medical Group would continue in the event of the absorption of the ASP by the RPS. This amalgamation came about on 1<sup>st</sup> March 1946, and a medical photography group of the RPS was formed the following month 'to promote the use and advancement of photography in all branches of medical science'.<sup>19</sup>

Since membership of the Royal Photographic Society was very broadly based and open to interested amateurs, it was inevitable that the staff of the nascent departments of medical illustration would anticipate an organization better able to deal specifically with their professional problems, especially within the trade union and political domains. In 1948 the Birmingham branch of the Institute of British Photographers (IBP) had formed a medical group, which quickly developed from a social gathering to a professional body headed by Larway.<sup>20</sup> The same year several medical photographers met at the Regent Street Polytechnic in London regarding the proposal to form a national medical group of the IBP, based upon organizations such as the Society of Radiographers and the Chartered Society of Physiotherapists, which had syllabuses of training recognized by hospital and medical authorities.<sup>21</sup> Therefore, in May 1948 a medical group was indeed formed under the aegis of the IBP – although intended to work alongside the RPS – and was, quite unusually, granted its own constitution in 1955.<sup>22</sup> The group was expressly concerned with training, professional status, salaries and all other matters of practical importance for the present and future of medical photography.

Harrison proposed that the newly formed group create a register of all practising medical photographers, analogous to those which already existed for dentists and nurses, that would be recognized by all hospital and medical authorities. Hence the first register of British medical photographers was published on 27<sup>th</sup> May 1948.<sup>23</sup>

It is not suggested that any effort should be made to compel hospital authorities to employ only medical photographers whose names are on the register. There is no need for that

undesirable attitude, for the time would quickly come when practically every worth-while photographer would be on the register... and just as health authorities now practically enforce that physiotherapists and radiographers should be on the register of their respective society, so eventually the same attitude would apply to medical photographers.<sup>24</sup>

The register was closed on 31<sup>st</sup> March 1950 (although the deadline was later extended until March 1954), and thereafter entrance was available only to new Associates of the Institute, who would be arrived at exclusively by examination. Consequently the medical group also established its own examination structure (upon which the programme of the Register of Biological Photographers in the USA was modelled in the early 1960s<sup>25</sup>).

However, in 1965 the Council of the now renamed Institute of Incorporated Photographers (IIP, formerly the IBP) withdrew the constitution of the medical group, which therefore ceased to exist. In response a new medical committee was appointed by the Council, although membership of this committee would no longer be obtained through a free ballot of existing members. Amongst the membership there was noted:

... a feeling of regret at the destruction of the Medical Group and a feeling that... the medical committee will still be a 'chosen body' of Council and not representative of practising medical photographers.<sup>26</sup>

This unwelcome development provoked serious consideration amongst practitioners about establishing a new body that would be able to address the concerns of everyone professionally engaged in medical and biological illustration. Moreover, given the ever closer working relationship between artists and photographers, particularly in the larger teaching hospitals, it was now felt that a professional body was required to look after the interests of both professional groups. In fact the idea was first

voiced at the annual assembly of the MAA in 1963, when Peter Cull suggested that:

If medical illustration continues to develop we will necessarily find ourselves being drawn even closer together ... and form one large body consisting of all those concerned in the whole field of medical and biological illustration .<sup>27</sup>

In September 1965 practical courses in medical photography, linked to classes in anatomy and physiology, were initiated by the Board of Management for Glasgow Royal Infirmary in conjunction with several other hospitals and the Glasgow College of Building and Printing. The next March, following the disestablishment of the medical group of the IBP, the Institute of Medical Illustrators in Scotland was formed under the chairmanship of T. T. Paterson, Professor of Industrial Administration at the University of Strathclyde,<sup>28</sup> to maintain professional standards in medical and biological photography and to supervise and standardize training and qualifications. The stated aim of the new body was to 'engage and foster the training and qualifications of all persons engaged as medical and biological photographers and artists in Scotland'.<sup>29</sup>

In London, meanwhile, meetings had been taking place between photographers and artists regarding the formation of a new national body to represent medical illustrators generally. Joint chairmen of the original negotiation group were Peter Hansell and Gabriel Donald of the Medical Artists Association (MAA), with Peter Cull and Norman Harrison acting as secretary and treasurer respectively. In December 1966 a postal survey of 338 professionals regarding the possibility of establishing a national body, produced 325 favourable replies. Consequently the Institute of Medical and Biological Illustrators (IMBI) was formed in 1967, with Peter Hansell as Chairman, 'as a professional body dedicated to achieving the integration of all forms of illustrators working in the fields of medicine and biology'.<sup>30</sup> Its stated objectives were to encourage and improve the employment of illustration in

clinical practice and medical education by means of the dissemination of information and the creation of a qualifying body which would be responsible for standards of conduct. The IMBI also offered itself as an advisory body to other institutions, and more generally worked to raise the profile of medical illustrators as a distinct group of professionals with its own specific practical and ethical problems within the health-care environment.

## Medical Photography in the National Health Service

Progress in the organization and representation of medical photography within hospitals during the post-war years was sufficiently rapid to ensure that medical illustration has played a role within the NHS since its inception in 1948. In effect the history of organized medical illustration within British hospitals has been contemporary with the history of the NHS, but the two have not always had a comfortable relationship. The haphazard growth of medical illustration within the NHS has conformed to the historically familiar pattern – that is motivated largely by local medical staff who can appreciate its potential contribution to case records, diagnosis, publication, teaching and research. Inevitably this *ad hoc* commitment to the profession means that modern departments often vary considerably in the quantity and quality of administration, personnel, equipment, accommodation, and service.<sup>31</sup>

For example, it was not until some time after the inception of the NHS that the Whitley council committees, established by the Government to regulate conditions of service for medical auxiliaries, first issued grading and salary scales for medical photographers. In the immediate post-war years salaries varied widely,<sup>32</sup> and despite the interest of the medical groups of the RPS and the IBP, the harmonization of salaries within the emergent profession had never been systematically addressed by hospital and governmental authorities. In 1949 discussions between the Whitley Council and the

Trade Unions led to a report, 'Photography in Medicine', which proposed a comprehensive statement regarding training, qualifications and salaries for the attention of the then Health Minister, Aneurin Bevan.<sup>33</sup> By May of that year, the government had begun to assess the roles of medical auxiliaries within the hospital service, defining such persons as those 'who assist medical practitioners (otherwise than nurses) in the investigation and treatment of disease by virtue of some special skill acquired through a recognized course of training'. A Board of Registration of Medical Auxiliaries was formed, which initially included radiographers, dietitians, opticians, chiropodists and speech therapists. Although medical photographers were excluded from this category – the prevailing argument being that the numbers involved were too small, although they were at least equal to those of chiropodists, dietitians and speech therapists – but there was encouragement from the subsequent Cope Report of 1951, which seemed to pave the way for the inclusion of medical photographers.<sup>34</sup>

Nevertheless, the scales proposed in the 'Photography in Medicine' report were not implemented 'due to the parsimony of some authorities or to the restrictive management of the Ministry of Health',<sup>35</sup> the authority responsible for the salaries of medical photographers working in the NHS. The inertia of the Ministry was not due to inactivity on the part of the IBP, which had been agitating for a considered and reasonable salary scale to be set in conjunction with Whitley Council, but was met with what have been described as frustrating and evasive tactics.<sup>36</sup> A report in the *Hospital Officer* described the Whitley Council system as 'a costly and dangerous failure applied to hospitals',<sup>37</sup> because regimented salary scales made it possible to employ only second rate employees, whilst competent employees would leave in significant numbers to seek work in the private sector.

During these turbulent early years of the NHS, negotiations were conducted on behalf of the IBP for admission to the Whitley

Council. In 1954, at the AGM of the medical group of the IBP, it was reported that an application for membership to the Board of Registration of Medical Auxiliaries was rejected on the grounds that 'the medical group was not an autonomous body, but subject to an overriding control by the organization of which it was a part'. However, the struggle to establish national standards of training as defined by the IBP medical group through its syllabuses and examinations did eventually gain recognition as requirements for professional qualification in the Whitley Council structure. In 1951 medical photographers were incorporated under the Professional and Technical Staffs (B) Council along with technicians, orthodontists, etc.,<sup>38</sup> and this had a significant effect in terms of the unification of salaries within the NHS, and, above all, on the recognition by the NHS of medical photographers as a distinct professional grouping. However, pay scales for photographers were still not linked directly to those of other staff within the hospital, and medical artists were not officially recognized at all and so continued to be employed on an *ad hoc* basis. Since the momentous PTB 43 document of 1951 – which has effectively been in force ever since – there have been periodic circulars dictating the adjustment of salary scales. Indeed one such pay increase awarded by an Independent Committee in 1963 provoked the ironic comment:

... medical photographers employed in the NHS will have their salaries increased by about 10 shillings in the pound. One can only hope that such an increase does not tempt them into any form of riotous living.<sup>39</sup>

During the first two decades of the NHS, medical illustration was subject to no apparent national or regional policy, and departmental heads were rarely in total control of their finances. The Hospital Scientific and Technical Services Committee, set up in July 1967,<sup>40</sup> recommended in proposals for a Scientific Service that:



We think it would be appropriate to include departments of medical illustration in the Scientific Service, and that medical artists and photographers should enjoy the benefits of its career structure.<sup>41</sup>

However, this proposal was incorporated separately from references to other PTB Staff, and during subsequent discussions between the IMBI and the NHS it became obvious that the relevant authorities were going to ignore the suggestion.<sup>42</sup> This prompted the IMBI Council to review the circumstances of medical illustration within the NHS and make its own recommendations in 1971 for the development of a nationally-coherent service.

The ensuing report from the IMBI concluded that an unsatisfactory situation had been exacerbated by the difficulty of engaging and retaining adequately-trained staff, a state of affairs it blamed on poor career prospects and a lack of training facilities.<sup>43</sup> In most cases, however, a more stable situation had developed in the teaching hospitals: where departments of medical illustration had been placed under the auspices of a university authority, they could offer more attractive career prospects and salaries.<sup>44</sup> This allowed the more able applicants in medical photography to be encouraged and enticed to university positions.<sup>45</sup> It was also felt that significant developments within the profession were taking place in these departments because of improved working relationships in administration, greater access to committees and the relative enhancement of the status of the subject.<sup>46</sup>

In general, however, the career structure for a medical photographer in the NHS was extremely limited (as defined by the Whitley Council PTB 251), and entry to the profession could be made by diverse routes which varied considerably in requiring attainment levels from graduate to school-leaver. The IMBI Council maintained that the formulation of a national development policy for medical illustration in the NHS was a necessary adjunct to medical practice and to the advancement of education and train-

ing in the service as a whole.<sup>47</sup> A suggested career structure, based on the Zuckerman Report, provided four career levels, each having a lateral promotion scale, leading to the most senior grade of Regional Director of Illustration Services.<sup>48</sup>

Unfortunately, there was no clear response from the Whitley Council to these proposals or the difficulties which prompted them, and in 1972 an independent survey (commissioned by the Manpower Evaluation Officer of the Birmingham Regional Hospital Board) concluded that:

... the medical photographer has not found his final role and is still searching for his/her identity in the NHS structure ... It is essential that with the growing awareness in the NHS of the needs for education and training of all types there is a place for staff to advise on and produce training material of every possible kind, and to assist in its dissemination ... The qualification of departmental managers need to be raised above those of the purely technical or even medically-orientated. Involvement in educational principles attached to audio-visual and other forms of teaching support requires a higher academic background: involvement in finance and business matters requiring management training.<sup>49</sup>

### Medical Photography Training in Post-War Britain

A professional journal of medical illustration in Britain, was first mooted by Charles Engel of Guy's Hospital,<sup>50</sup> and the British Medical Association (BMA) Council which sat on 5<sup>th</sup> April 1950 agreed to take financial responsibility for such a publication, Dr. O. C. Carter noting that :

... the committee was convinced that this was the work of growing importance and would be of great value. The Association would be pioneers in a branch of education, at present, in its infancy'.<sup>51</sup>

As a result the quarterly *Medical and Biological Illustration* (M&BI) was first published by the *British Medical Journal* (BMJ) division of the BMA in January 1951. The journal was devoted to all aspects of medical illustration, and Peter Hansell, who had been a regular contributor to the BMJ, became its first editor. The BMA backed the journal until 1974, after which time it became the official organ of the IMBI. In 1978 it was renamed *Journal of Audiovisual Media in Medicine* under the editorship of Richard Morton.

The publication of M&BI helped to crystallize the notion of medical illustration in Britain as a distinct paramedical profession, whose proponents came to believe that recruitment could no longer simply rely on students emerging from schools of photography.<sup>52</sup> The technical colleges' schools of photography had resumed their training courses by the end of the war: by then it had already been realized that students needed training in the medical aspects of the profession in order to gain respectability and confidence, but that it was precisely in this area that educational facilities were critically limited.<sup>53</sup> A summary of the corpus of knowledge of medical photography as a subject was set out in 1949 by the Medical Committee of the Institute of British Photographers (IBP) and a syllabus for examination at the level of the other specialist examinations conducted by the IBP was drawn up, thereby giving impetus to research combining medical illustration and scholarship. Shortly afterwards, however, a survey of London teaching hospitals conducted by Norman K. Harrison (eventually published in 1954<sup>54</sup>) found that only one of twelve was willing to admit students of medical photography, principally because of space limitations in the new departments. In fact, the only significant practical training was provided by Kodak and Ilford who each ran one-month courses primarily for the benefit of radiographers but including a short section on medical photography.<sup>55</sup>

In 1952, therefore, Harrison set up the London School of Medical Photography (LSMP) as a voluntary organization at St. Bart-

holomew's Hospital, with a foundation council composed of the heads of eight photographic departments in London teaching hospitals or medical institutes.<sup>56</sup> Dr. W. F. Berg of the Kodak Research Laboratories in Harrow became the first principal, with Derek Martin as Chairman. Its stated aims were to:

... promote and facilitate the acquisition and distribution of the knowledge of the various arts and sciences connected with medical photography, and to teach all ordinary subjects which may be of use in that profession.<sup>57</sup>

All members of the Council, the principal and the teachers volunteered their services, in the hope of fostering amongst students an appreciation of the culture of service that ought to exist within hospitals.<sup>58</sup>

The LSMP was recognized by county authorities, government departments and overseas bodies for the allocation of grants to assist students' finances, and it offered a fifteen-month intensive course of full-time study in practical medical photography to meet the requirements of the syllabus of the IBP Final Examination in Medical Photography. The course syllabus consisted of specialized training at each of the eight medical schools, with students also attending lectures at the Regent Street Polytechnic and receiving tuition in anatomy, physiology and related subjects at St. Bart-holomew's Hospital. The School also ran courses in specialized branches of medical photography for advanced workers. In 1952 the LSMP published *Medical Photography: The Study Guide of the London School of Medical Photography* based on course notes issued to its students and authored by such significant figures as Patricia Turnbull. Through three editions, the Guide has proved invaluable to a wide audience of medical photographers working towards professional examinations.<sup>59</sup>

The LSMP ceased taking students in 1977 when the Institute of Incorporated Photographers (IIP, formerly the IBP) discontinued the Final Examination in Medical Photogra-

phy. It then switched roles to provide a distance-learning scheme in anatomy, physiology and associated subjects which was made available to medical photographers studying for the examinations of the IIP or the new IMBI photography examination, and to artists studying for membership of the MAA. This distance-learning scheme was itself discontinued in the mid-1980s due to a lack of students, and the LSMP was wound up with its assets passing to the Institute of Medical Illustrators (IMI, formerly IMBI) in 1991.

In spite of the progress made during the first two decades of the NHS towards establishing professional training and seminal publi-

cations for medical illustrators, the 1971 IMBI Report concluded that the examinations and qualifications then acceptable to the Whitley Council and the NHS were not adaptable to its proposed career structure, and so a new examination structure was proposed based on consultation with associated parties such as the IMBI itself and the IIP.<sup>60</sup> The IMBI Council also felt it essential that the profession should accept trainees and make provision for training at all levels: regional and inter-regional training schemes were required together with appropriate facilities and financial support. As with the rest of the Report, the relevant authorities were unresponsive to these proposals.

## Notes on Part 4

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- 1 Personal communication: Dr. Peter Hansell. Throughout the war, the London-based Metal Box Company paid the salary and the costs of the clinical photographer Percy Hennell. From June 1940 he recorded the injuries of civilians as well as service casualties (generally plastic surgery cases). His work transformed the photography of plastic surgery, and resulted in a legacy of over five thousand photographs, now archived at the Royal College of Surgeons. cf. Wallace AF. The Early History of Clinical Photography for Burns, Plastic and Reconstructive Surgery. *Br J Plast Surg* 1985; 38: 452.
- 2 Hansell P. Medical Photography. A Review. *The Lancet* 1946; (31st August): 299.
- 3 Examples include radiography (Sylvia Treadgold, Patricia Turnbull), radiology (Robert Ollerenshaw), medicine (Peter Hansell), anaesthesiology (Peter Cardew), optical draughtsmanship (Ray Lunnon), as well as commercial photography (Norman K. Harrison, Robert Whitley) and forensic photography (Joseph Larway).
- 4 Harrison, NK. Photographic Profile – Victor Wilmott, FIIP, FRPS. *Br J Photogr* 1967; 114: 126.
- 5 *ibid.*
- 6 Sylvia Treadgold was initially employed at Guy's Hospital in the Department of Diagnostic Radiography, where she began making prints of x-rays and offered a limited service of clinical photography and lecture slides. The actual year in which she established a photographic department at the hospital is not known to the author, but it was certainly shortly after the end of the war. In 1948, Treadgold, who was a trained artist, expanded her graphics service, and so responsibility for photography in the department passed to Charles Engel.
- 7 Of course, these individuals were generally known to each other and often worked closely together. For example, having set up a department of medical photography at Guy's Hospital, Sylvia Treadgold worked along with Patricia Turnbull and Charles Engel.
- 8 Hansell P. Editorial. *J Audiovis Media Med* 1993; 16/3: 99.
- 9 Personal communication: Dr. Peter Hansell (letter dated 18th April 1995).
- 10 Hansell, *op. cit.* 1946.
- 11 For example, Ray Lunnon joined the new medical illustration department at the Institute of Ophthalmology in 1948 as an assistant photographer. Having trained as an optical instrument draughtsman, his design skills were put to use developing a variety of specialist equipment, cf. Retirement RJ Lunnon. *IMBI News* 1981; (October): 1.
- 12 Williams AR. An Interview with Dr. Peter Hansell, FRCP, Hon FIMI, Hon FRPS, FBIPP, FBPA. *JBPA* 1991; 59/4: 141.
- 13 Hansell P, Ollerenshaw RW. Applied Photography. Relation of the Photographic Department to the Teaching Hospital. *The Lancet* 1947; (1st November): 663.
- 14 Dr Brian Stanford, who was qualified as a radiologist, was unable to secure a hospital post. He was a great innovator, and became a freelance consultant with a particular interest in endoscopy. Personal communication: Dr. Peter Hansell.
- 15 Correspondence in the *BMJ*, taken from Mediphote. *Br J Photogr* 1948; (13th August): 326.
- 16 Ollerenshaw co-edited the eighth edition (1969) of Longmore's text-book, and 'his energetic pioneering efforts to get medical photography established, recognized and practised to the highest possible standards' is still recognized today. Hansell P. Obituary – Dr Robert Ollerenshaw. *IMBI Newsletter* 1987; 100 (February): 5-6.
- 17 According to his obituary in *J Audiovis Media Med* 1979; 2: 135, although the school that later became Newcastle University was still King's College, Durham in 1946.
- 18 Harrison NK. Medical Photography in the United Kingdom: Development, Scope and Training. *The Proceedings of the First International Congress on Medical Photography and Cinematography*. Düsseldorf 1960; 159.
- 19 Harrison NK. A Decade of Medical Photography. *Br J Photogr* 1954; (31st December): 663. A key instigator in the formation of this group was Mrs. Rosalind Maingot, a fashionable portrait artist and wife of the distinguished surgeon, Rodney Maingot. Personal communication: Dr. Peter Hansell.

- 20 Mediphote. *Br J Photogr* 1948; (7th May): 180.
- 21 *ibid.*
- 22 This was an unprecedented event within the IBP, although the medical group remains only a sub-committee of the main BIPP council to this day.
- 23 Thereafter the register was published annually until the mid-1950s and listed all Fellows and Associates of the IBP.
- 24 Mediphote, *loc. cit.* 1948; (7th May).
- 25 In 1962, Howard Tribe was the first appointed chairman of the Education and Certification Committee of the Biological Photographic Association, and the first certificates of the RBP were awarded in 1965.
- 26 Mediphote. *Br J Photogr* 1965; (13th August): 698.
- 27 *ibid.*
- 28 Loudon Brown was appointed as the first secretary of this body.
- 29 Mediphote. *Br J Photogr* 1966; (19th August): 713. In January 1975, the Institute of Medical Illustrators in Scotland (IMIS) amalgamated with the Institute of Medical and Biological Illustrators, though a Scottish Board was negotiated to deal with specific Scottish University and NHS politics.
- 30 IMBI: *Code of Practice on Confidentiality of Illustrative Clinical Records*. Surrey: 1988: 1.
- 31 IMBI: *Medical Illustration in the National Health Service*. London: 1971: 5.
- 32 Typically a chief photographer could expect to earn between £400 and £500, with an assistant earning £300 to £400.
- 33 The Wages Committee of the IBP assisted in compiling the scale after confidential information had been obtained from hospitals and universities. The Little Man. The way of the IBP. *Br J Photogr* 1948; (25th June): 254.
- 34 The Board now consisted of eight committees – radiographers, dietitians, chiropodists, medical laboratory technicians, occupational therapists, physiotherapists, remedial gymnasts and speech therapists.
- 35 Mediphote. *Br J Photogr* 1954; (20th August): 427.
- 36 *ibid.*
- 37 The Dangers of Uniform Salary Scales by a Teaching Hospital House Governor. *Hospital Officer* 1954; June taken from Mediphote, *loc. cit.* 1954; (20th August).
- 38 Whitley Council for Great Britain and Northern Ireland: *Professional and Technical B Council. Committee E: Pay and Conditions of Service*. London: DHSS: 1951.
- 39 Mediphote. *Br J Photogr* 1963; (30th August): 755.
- 40 The committee was set up with the following scope: 'To consider the future organisation and development of Hospital Scientific and Technical Services in the National Health Service and the broad pattern of staffing required and to make recommendations.'
- 41 Zuckerman S. *Hospital Scientific and Technical Services. Report of Committee 1967-68*. London: HMSO, 1968: para. 5.1.1.
- 42 Personal communication: Nigel Pearce.
- 43 IMBI, *op. cit.* 1971; 5.
- 44 IMBI, *loc. cit.*
- 45 Hansell P: Personal communication (letter dated 5th June 2000).
- 46 IMBI, *loc. cit.* Medical photographers working in the University environment actually sought parity with the medical laboratory technicians who, after a long struggle by their Union (ASTMS), negotiated a revised qualification structure and were thus paid accordingly. Robertson SJ. The Unions and Medical Illustration *Br J Photogr* 1975; (19th September): 840-1.
- 47 IMBI, *op. cit.* 1971; 10.

- 48 The Zuckerman Committee Report recommended the rationalization of the technical professions in the NHS by the integration of their grades and salary scales onto a common spine.
- 49 Quoted in Bowcock L. Medical Illustration in the National Health Service: Forty Years of Progress? *J Audiovis Media Med* 1989; 12: 6.
- 50 The first journal principally devoted to medical photography was *Internationale medizinisch-photographische Monatsschrift*, published in Leipzig from 1894.
- 51 Mediphote. *Br J Photogr* 1950; (September).
- 52 Williams, op. cit. 143.
- 53 Harrison NK. Education in Medical Photography. Report on the IBP Medical Group's 13th Annual Conference. *Br J Photogr* 1963; (1st November): 936.
- 54 Harrison NK. Photography in the London Teaching Hospitals. *Br J Photogr* 1954; 101 (24th September): 484-486.
- 55 As early as 1935, the Ilford Radiographic Technical and Developmental Department was started to promote the advancement and improvement of standards of work in radiography and medical photography. After the war, the Society of Radiographers course contained a module in medical photography (run by both Ilford and Kodak). This was later dropped and the short courses were then offered to those taking the IBP Final Examination. Personal communication: Dr. Peter Hansell.
- 56 The institutions involved were: Guy's Hospital Medical School; St. Mary's Hospital Medical School; The Middlesex Hospital; The Hospital for Sick Children, Great Ormond Street; The Institute of Ophthalmology; The Institute of Orthopaedics; The Royal College of Surgeons of England; and St. Bartholomew's Hospital.
- 57 Mediphote. *Br J Photogr* 1962; (May).
- 58 Reports and Proceedings. The London School of Medical Photography. *Med Biol Illus* 1963; 1.
- 59 For the third edition, edited by AR Williams, the title of the volume was changed to *Medical Photography Study Guide*.
- 60 IMBI, op. cit. 1971; 12.

## 5. MEDICAL PHOTOGRAPHY IN THE MODERN NHS

At the 1963 Conference of the IBP Medical Group, one T. Harris (of the School of Photography, Birmingham College of Art) predicted the death of small departments of medical photography in favour of large units staffed by technicians, who would do the routine work, and technologists and specialists who would provide advice.<sup>1</sup> In fact no such evolution has occurred, and in the modern NHS medical illustration departments still divide into two categories corresponding to those identified in the IMBI's 1971 Report. Those in district general hospitals are still relatively small (generally employing three or four people) and provide a routine service of photographic patient-records, reprographic work and computer-generated illustration. In teaching hospitals, departments are generally bigger and better staffed and provide a service which emphasizes education in its broadest sense. These departments serve the school, hospital and research departments, and so administrative, equipment and salary costs are divided between university and NHS, and staff may even be appointed separately.<sup>2</sup>

In 1988 the IMBI Council submitted its most recent report concerning the changing role of medical illustration in the NHS. It was especially concerned with the way in which changes in NHS management, funding, and technological advances had affected medical illustration departments throughout the United Kingdom. In this connection, a number of concerns for the wellbeing of the subject were raised:

- The increased responsibility of department heads for larger staff numbers, budget control, income generation, and projects in different illustrative media meant that they needed management training in addition to technical and medical qualifications. Moreover, it was felt that involvement in audio-visual projects and other forms of teaching support required a strong academic background.<sup>3</sup>

- A generally unsatisfactory career structure was especially evident in the fact that many medical artists were employed on *ad hoc* grades with only bare guidelines to act as job descriptions and qualification requirements.<sup>4</sup>
- The Whitley Council PTB Conditions of Service were held to be irrelevant to any modern medical illustration service. In fact, the Conditions of Service as drawn up in the 1950s had barely changed, and inevitably contained no provision for modern staff numbers or the technology in routine use.<sup>5</sup>

A 1981 offer of a reorganized career structure for medical photographers made no direct mention of qualifications and had been rejected by the trades unions as offering no financial benefit whatsoever.<sup>6</sup> The unions did, however, form a PTB Group, seeking professional advice in order to negotiate pay and conditions with the NHS. Eventually, in 1989 medical photographers were put on a common pay spine with other PTB Staff, including physics technicians, operating department assistants, and dental technicians. Medical Technical Officer (MTO) grades were introduced for technicians holding BTEC, City & Guilds or other suitable qualifications in appropriate disciplines, who have followed a suitable scheme of supervised training.

At the 1963 Conference of the Medical Group of the IBP, Miss P. M. Turnbull of Charing Cross Hospital warned that the low profile of medical photographers in hospitals could lead to practical and ethical difficulties:

Remember that we, who are in a relatively new and unknown profession, do not always have the immediate recognition from staff and patients that we are professional people and not just happy 'snap-takers'.<sup>7</sup>

At that same time there were initial moves within the profession to ensure that medi-

cal photography was incorporated within legislation governing professions supplementary to medicines (PSM). However, the DHSS and PSM Council consistently maintained that medical illustrators, still less medical photographers alone, did not constitute a recognizably distinct profession, as was made explicit in a letter from the DHSS dated 29th October 1981:

We are very much aware of the contribution to the work of the National Health Service made by those employed in medical illustration. Unfortunately, it does not appear to us that it is appropriate to regard medical photographers, medical artists, chartists, graphic designers and audio-visual technicians as forming coherent parts of one profession supplementary to medicine ... In our view, the majority of professional skills and the knowledge upon which medical illustration depends, are not specifically related to the National Health Service; although we appreciate that working in such an environment makes special demands upon those concerned ... As your letter implies extension of the PSM Act could be expected to lead to restriction of employment within the NHS to those registered ... I am afraid the Department does not consider such a restriction justified.<sup>8</sup>

Thereafter, the initiative was pursued no further.

However, in 1988 the IMBI Council proposed its own general code of practice, *Confidentiality of Illustrative Clinical Records*, for medical illustrators throughout the United Kingdom in order to protect patients, doctors and illustrators themselves from the possibility of improper use of sensitive material. This was later updated and renamed *A Code of Responsible Practice – Protocols for Ethical Conduct and Legal Compliance for Medical Illustrators* in January 1996. The Council also established a working group to examine the possibility of creating a na-

tional register of accredited practitioners to be maintained and monitored by an independent body, which seemed advisable in view of the changed working environment created by new legislation and codes of practice generally applicable to the NHS. Thereafter, the Register of Medical Illustration Practitioners was set up in 1989, with the recommendation that admission to it should be determined on the basis of academic attainment, technical competence, and knowledge of relevant codes of practice which would then be binding on the accredited individual. The Register is a voluntary scheme of self-regulation, with all major professional bodies involved – BIPP, BOPA (British Ophthalmic Photographic Association), MAA and the Institute of Medical Illustrators (IMI, as the IMBI had been renamed).<sup>9</sup> Unfortunately, however, this organization has not gained sufficient authority to be more widely recognized within the NHS.

The role of the medical illustrator has had to change with the advent of the information age, with technology leading the way we work. The range of activities now undertaken in a typical medical illustration department in a hospital or university medical school is diverse; few other departments have such a wide range of functions. The use of technology in medical education has had a vast impact on the way students are now taught - with a huge emphasis on student-centred learning. Thus many larger University departments have employed learning technologists, who can produce multimedia software packages to assist in the learning process. Telemedicine allows the monitoring, diagnosis and treatment of patients, with the required expertise regarding the technology often falling to the medical illustrator. The Government has set up plans for fully integrated electronic patient records, where clinical photographic records will be an everyday occurrence. All kinds of information can be disseminated on the World Wide Web, and the knowledge of image capture and compression, and graphic design skills can be found within the



departments of medical illustration. In short, '[medical illustrators] are the people who know how to use combinations of communications media to best effect in the service of medicine.'<sup>10</sup>

The NHS itself has developed into a complex industry for health care. In 1990, *The NHS and Community Care Act* was introduced to establish an internal market within the NHS to ensure that funding would follow patients. The underlying argument of the White Paper was that competition between healthcare providers for the custom of purchasers would bring greater efficiency in the use of NHS resources and improvements in the quality of service to patients. As a consequence, trusts were intended to act as self-governing units, establishing contracts with purchasing units by devolving responsibility and management to hospitals (or groups of hospitals) and clinicians. Thereby they would gain autonomy from regional and district control and the freedom to deal with patients at a local level.<sup>11</sup> To support the functions of what amounted to a distinct new industry, an army of support staff and a radically new management structure grew. In turn each of these groups created its own training and development courses to supplement traditional forms of nurse training and the more recent expansion of post-graduate courses.

In 1994 the Government introduced its Private Finance Initiative (PFI), which offered incentives to private businesses to get involved in designing and building NHS facilities. Whilst promoted by the Conservative Government as a way to add to government investment in the NHS, it was suggested that the Government was actually using PFI as a substitute for central funding. However, Kenneth Clarke, then Chancellor of the Exchequer, insisted that from June 1994 every Trust proposal for spending money over £500,000 had to prove that the PFI option had been fully examined. May 1997 saw a change in Government with the Labour Party returning to power. One of its stated aims was to reform the NHS by abolishing the competitive internal market.

It also intended to reduce the number of Health Authorities and trusts as a way of reducing management costs and so make more money available for patient care. *The New NHS – Modern, Dependable* was published in December 1997, although with the exception of the planned dismantling of the internal market, many other changes introduced in 1991 remained, including PFI. The anticipated merging of trusts was completed in April 2000 and it is thought that this will result in a reduction of support departments as services are rationalized in a further effort to reduce operational costs.<sup>12</sup>

The Government's paper *Agenda for Change – Modernising the NHS Pay System* was issued in October 1999<sup>13</sup>. It has proposed the introduction of three pay spines for those working in the NHS, with increases determined respectively by: the Doctors and Dentists Review Body; the Review Body for Nursing Staff, Midwives, Health Visitors and Professions Allied to Medicine (temporarily named NRPB); and a single pay negotiating council replacing the current separate functional Whitley Councils and other negotiating bodies. Most medical illustrators would consider themselves part of the healthcare team, whether or not they happen to be members of the IMI. However, only time will tell whether the Government is willing to accept medical illustrators as part of the NRPB, or whether it will continue to view the profession as standing outside key healthcare professions.

The definition of a health professional relating to the NRPB is given as follows:

Professions with a minimum entry requirement of three years' educational study (or equivalent) to diploma level or higher, in a health specific area (other than medicine or dentistry) and which are state registered and have a substantial majority of members employed in healthcare.

*Agenda for Change* also suggests that exceptions might be made for staff groups which meet the majority, but not all of the above

conditions. This open-ended statement might seem to allow medical illustrators to be included, but we should not become complacent lest the problems discussed in Part Four be repeated. So, as we move into a new century, medical illustration still has not received recognition from the governing bodies of the NHS, and we may be facing our last chance to be officially recognized as healthcare professionals. IMI has carried out all the necessary work to meet the criteria for inclusion in the NRPB as far as is possible – a degree course is in place (see below), likewise a pilot CPD scheme<sup>14</sup>, and a new membership category has been created for those not wishing to study for the degree. However, the IMI membership still only comprises a small percentage of those employed in medical illustration in the UK, and as such, is not recognized by the Government as representing the whole of the profession.

At the Annual Conference of the IMI in September 1999, Duguid noted :

... although we have not been able to achieve all that was hoped for, the profession has continued to survive. Even against a harsh political backdrop in the 80s, which at the time was quite draconian as far as the Health Service and Higher Education were concerned.

Once again, the profession finds itself wondering whether it will be taken seriously. Perhaps the scope of the profession has grown too wide for the once desired central state registration to be possible – there may be many ‘illustrators’ doing many different things, often with virtually no patient contact, though still dealing with confidential images and information. Fleming has suggested that it may seem increasingly desirable to abandon the Whitley Council pay scales in favour of a flexible structure responsive to the skills and experience of individual medical photographers rather than to grading categories.<sup>15</sup> This will certainly be necessary if departments are to retain highly motivated staff in a profession that increasingly demands a wide range of skills at a high

level of attainment. Otherwise, such highly skilled staff may find more attractive positions in departments which operate independently of the NHS (although there are very few of these at present), or commercial graphics companies whose services are bought in by hospital trusts. It is also true that the advent of computer-generated illustration has blurred neat categorical distinctions between medical photographers and medical artists, and enhanced the individual character of the work of medical illustrators.

### **Medical Photography Training in the Modern NHS**

In Part Four the author demonstrated that a number of training and education courses for medical photographers have been promoted since the creation of the NHS and the rapid growth of medical illustration in hospitals and medical schools which followed, but that many of these have been short-lived. The fact remains that medical photography is a small profession, whose annual intake of new staff is fairly low and thinly spread throughout the United Kingdom, and consequently its presence in NHS policy-making has been modest. Despite occasional calls from within the profession,<sup>16</sup> there has never been a central initiative by the NHS or the government to address the special training needs of medical photographers. Consequently schemes sponsored by a particular health authority or group of hospitals have emerged to meet local demand, and others have been set up by individual colleges or professional bodies, but as recently as 1989 it was still possible to qualify as a basic grade medical photographer without being subjected to any assessment of competence or knowledge, simply by completing six years work in an appropriate field.<sup>17</sup>

Local schemes have certainly helped students fortunate enough to be sponsored by a hospital or living within easy reach of an institution operating a scheme. However, for the remainder, and therefore for the majority of student medical photographers, the reality of the past has generally been unaided

home study using textbooks *ad hoc*, and, should they be sufficiently motivated to sit examinations, failure.<sup>18</sup> Therefore, one of the strongest recommendations made in the IMBI 1988 Report was for the introduction of a nationally coherent qualification system for medical illustrators based on the IMBI Diploma and the BIPP Higher Certificate (see below), by which students could demonstrate the necessary combination of practical skill and theoretical knowledge to meet the demands of the modern profession. The following is a brief review of the major qualifications presently available for prospective medical photographers.<sup>19</sup>

### 1. British Institute of Professional Photographers

As has already been noted, the BIPP (formerly IBP and IIP) has organized medical photography examinations since the IBP Final Examination in Medical Photography was instituted in 1949. In 1976 this was replaced by the Higher Certificate Examination in Medical Photography, renamed the Pre-Fellowship Examination in 1991. In order to introduce a two-tier system of qualifications conforming to contemporary educational thinking, the Basic Certificate Examination in Medical Photography was first offered in 1966, and has since been recognized by the DHSS (currently the Department of Health) as a qualifying entry into the Whitley Council career structure for medical photography. Subsequently it was updated in conjunction with the IMI in 1985 to form the Conjoint Examination in Medical Photography. In 1988 the IMI withdrew from the joint scheme and the BIPP reinstated the Basic Certificate in a redesigned form as the Qualifying Examination in Medical Photography in 1992. Nevertheless, throughout this long tenure as an examining body within medical photography, the BIPP has never provided teaching or any other support for medical photography students preparing for its examinations.<sup>20</sup>

### 2. Cardiff School of Medical Photography

As in many busy medical schools, the Medical Illustration Department at the Cardiff Royal Infirmary trained small groups of jun-

ior staff for many years until, in 1969, the recruitment of supernumerary Trainee Medical Photographers began in preparation for staffing a new department to be located in the University Hospital of Wales then being built at Heath Park. Initially three trainees *per annum* were accepted onto a three-year in-service education course in order to supply trained staff to local hospitals.<sup>21</sup> These students were trained in the existing department at the Cardiff Royal Infirmary, until a successful bid was made for space and facilities within the purpose-built Combined Training Institute for Professions Supplementary to Medicine. Subsequently, the School of Medical Photography opened in 1974, with the ethos that training should be carried out in close association with the Department of Medical Illustration so that students would gain theoretical understanding and practical experience together.

Subsequently, the proposal to elevate the status of the training course at the School of Medical Photography to that of a higher degree was a practical recognition of the growth of medical photography as a subject and the concomitant increase in the complexity of medical illustration as a skilled profession. Market research had also suggested that a postgraduate programme promised to be attractive to graduates, and it had already been recognized that many applicants for places at the School already held a degree in photography. Therefore, approval was granted to offer the course from 1990 as a Master of Science degree of the University of Wales, styled 'Medical Illustration (Photography and Video)'. Since then full-time students of the School have normally been graduates, although the course is also available as a distance-learning option for full-time employed medical photographers.<sup>22</sup> Since 1969 students of the School have also routinely been entered for the BIPP Basic Examination (and subsequently the Qualifying Examination in Medical Photography).

In 1995 the School, along with the other Schools in the Institute of Health Care Stud-

ies, merged with the University of Wales College of Medicine (UWCM). At that time the Schools became Departments of UWCM within the new School of Healthcare Studies and the Cardiff School of Medical Photography became the Department of Medical Illustration Education. On the 1st October 1998 the department became the Education & Training section of the Media Resources Centre taking it from the School of Healthcare Studies into the Division of Information Services and Media Resources.<sup>23</sup>

The Education and Training section now also offers a one year, full-time or two year, part-time Postgraduate Diploma (PGDip) in Medical Illustration, where students study alongside the MSc students for some study modules. The one year full-time course is designed to meet the needs of overseas students, with the two year part-time course available for UK students. A thirty week, distance learning course, the content of which is based on the BIPP Qualifying Examination in Medical Photography is also available, designed specifically to support practicing medical illustrators intending to gain professional qualifications.

### *3. The Institute of Medical Illustrators*

The IMBI initiated its own examination scheme in the early 1970s by offering basic certification on a number of specific skills, and subsequently its Primary Certificate in Medical Illustration. This was the precursor to the Part One Diploma Examination, set up in 1980 but dropped in 1985 with the development of the Conjoint Examination in Medical Photography (with the BIPP, see above). At that time, a syllabus had also been published for a higher examination, to be known as the Part Two Diploma Examination. Policy changes led the Institute to resolve that a single-tier examination scheme was most suitable for the profession and it withdrew from the Conjoint Examination three years later in favour of its own new Diploma in Medical Illustration.<sup>24</sup>

The Educational Committee of the IMI developed the structure of the Diploma in Medical Illustration in such a way as to al-

low candidates a considerable latitude in developing skills and completing the assessment for the Diploma. A basic requirement was that assessment should allow both graphic<sup>25</sup> and photographic students to qualify with skills that are relevant to the actual practice of medical illustration in the modern NHS (including management, legal and health and safety skills), and yet still be flexible enough to adapt to new developments as they occur.<sup>26</sup> In particular, it stressed that attainment in medical knowledge should be of a standard sufficient to ensure that the illustrator can communicate easily with the clinician. Nevertheless the ability to undertake research and demonstrate creative ability in graphic art or photography is also promoted.<sup>27</sup> The Diploma was modified in 1991, and again in 1995.

The standard of the IMI Diploma in comparison to the qualifications of analogous medical professions was difficult to assess since it had no institutional accreditation. However, it was noted that many other professions allied to medicine (including podiatry, radiography, speech therapy and physics technician) had a first degree as their basic entry qualification. Therefore, the Institute resolved to establish a comparable entry level qualification, and its Education and Qualifications Committee was asked to report on the matter. Subsequently, in 1993 the Committee converted the syllabus of the IMI Diploma into a modular programme, bringing it in line with other analogous qualifications, and a course development committee was established with representatives from the Institute and from Glasgow Caledonian University (GCU). Finally, in June 1996 a Bachelor of Science Degree in Medical Illustration under the imprimatur of the IMI was validated by the Senate of the GCU.

As with the earlier diploma, the structure of the BSc in Medical Illustration has been designed in such a way as to allow candidates a considerable latitude in developing skills and completing the degree, especially so as to facilitate the broadest possible access, even for those who do not have the minimum HND entry qualification:

- Prospective students can study for a two-year full-time HND at the Glasgow College of Building and Printing, before studying for the degree in a third and final year at GCU.
- Students with existing media qualifications, and already working in the medical environment, can undertake a three-year part-time programme.
- A conversion course has been developed that allows holders of the IMI Diploma to study to obtain the BSc degree.
- Prospective students already working as professional medical illustrators, but who do not have the minimum entry qualification, are able gain appropriate credit

ratings through the Accreditation of Prior Learning and Accreditation of Prior Experiential Learning schemes.

In addition to the BSc in Medical Illustration the IMI also runs a Post Experience Certificate in Medical Illustration in conjunction with the Education and Training section at the Media Resources Centre in Cardiff.<sup>28</sup> This is available to students who already possess a suitable media degree and who wish to become professional medical photographers or artists without studying for the BSc degree. The nine-month course is weighted heavily with practical assignments, providing the student with the skills required to practice as a professional Member of the Institute of Medical Illustrators.<sup>29</sup>

## Notes on Part 5

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- 1 Quoted in Harrison NK. Education in Medical Photography. Report on the IBP Medical Group's 13th Annual Conference. *Br J Photogr* 1963; (1st November ): 954.
- 2 Bowcock L. Medical Illustration in the United Kingdom. *Med Biol Illus* 1975; 25: 190-191.
- 3 IMBI: *A Survey of Medical Illustration Services in the National Health Service* London: 1988: 9.
- 4 *ibid.*
- 5 *ibid.*
- 6 The trades unions involved have included ASTMS (now MSF), NALGO, COHSE and NUPE (the last three now having combined to form UNISON). As a professional body IMBI was forbidden by its articles of association to undertake any trades union activity. In fact, at the PTB Council there was strong opposition from trades union officers to the involvement of professional bodies in negotiations (according to Nigel Pearce in a personal communication to the author).
- 7 Quoted in Harrison, *op. cit.*: 954.
- 8 Letter from Mr David Paine, Management Side Secretary DHSS, to Mr Nigel Pearce, Honorary Secretary of the IMBI, dated 29th October, 1981. I am grateful to Nigel Pearce for providing me with a copy of this letter.
- 9 The Institute of Medical and Biological Illustrators was renamed the Institute of Medical Illustrators in September 1989, under the chairmanship of Gillian Lee.
- 10 Morton RA, Nicholls J, Williams R. The changing role of the medical illustrator. *J Audiovis Media Med* 2000; 23/2: 65-68.
- 11 Fleming CM. The Trust Experience. *J Audiovis Media Med* 1993; 16/3: 113.
- 12 Fleming C. The Trust experience: eight years on. *J Audiovis Media Med* 2000; 23/1: 17-21.
- 13 Department of Health. *Agenda for Change - Modernising the NHS Pay System*. London; HMSO, 1999.
- 14 The CPD scheme is now in its second pilot year, with it becoming mandatory in the year 2001.
- 15 Fleming, *op. cit.*: 116.
- 16 e.g. by J.L.A. Hunt, then secretary of the IBP, at the 13th Annual Conference of the IBP Medical Group, quoted in Harrison, *op. cit.*: 937.
- 17 According to the conditions established in Whitley Council for Great Britain and Northern Ireland: *Professional and Technical B Council. Committee E: Pay and Conditions of Service* (DHSS, 1951). Since 1989, the minimum assessed qualification for any medical photographer has been established as the BTEC Diploma.
- 18 F.W. Hawkins, then Chief Examiner of the IBP, quoted in Harrison, *op. cit.*: 936.
- 19 Practical considerations allow me to discuss only the most widely recognized qualifications. Other institutions and professional bodies have in the past, or still do, run courses and/or offered qualifications, including: BOPA, Berkshire College of Art and Design, Manchester Royal Infirmary, and Birmingham Health Authority. The situation facing prospective students has generally been complex, and the fact that many qualifications and training courses have often changed name compounds the confusion.
- 20 Young S. *The Development of a Master of Science Course in Medical Illustration (Photography and Video)*. 1995: 11.
- 21 Initially, Trainee Medical Photographers had to be at least eighteen-years old with four GCE Ordinary level passes, preference being given to applicants who had obtained a photographic qualification at the City & Guilds or the IIP Intermediate level. Occasionally students without qualifications were employed, who then undertook a part-time day-release course leading to the City & Guilds examination. Since 1986 only Trainees with a recognized photographic qualification have been recruited.
- 22 Distance-learners must also be at least twenty-five years old, with five-plus years experience, and photographic/medical photographic qualifications by examination.
- 23 <http://medico.uwcm.ac.uk/medilledu/> Accessed June 2000.
- 24 Young, *loc. cit.*

- 25 cf. the following remark from Johns M. New IMI Diploma in Medical Illustration: One Examination for One Profession. *J Audiovis Media Med* 1991; 14: 44. 'There has never been a satisfactory way for the graphic designer to qualify within the Institute at a time when graphic design has become a major constituent part of our day-to-day work.'
- 26 *ibid.*
- 27 Although the IMI has not normally provided teaching for students preparing for its examinations, it did instigate a summer school in 1989 in conjunction with Kodak. This is a one-week residential course with a theoretical and practical content, originally for candidates in both the IMI and the BIPP examinations, but since 1993 targeted specifically at students of its own Diploma, cf Young, *op. cit.*: 12.
- 28 The Education and Training section supplies a self-directed learning package and undertakes the assessment for the Anatomy and Physiology component of the course.
- 29 <http://www.imi.org.uk/pec> Accessed June 2000. In 1999, the Institute introduced a new membership structure, where the Associate (fully qualified) grade was renamed Member grade.

## 6. CONCLUSIONS

Medical photography remains a small profession, and there has never been any initiative by the NHS or the Government to address the professional needs of medical photographers. Nor is there any reason to suppose that the opinions of the present Labour Government are significantly different since to those of its Conservative predecessor, as set out in a 1981 letter which maintained that 'the majority of professional skills and the knowledge upon which medical illustration depends are not specifically related to the NHS'. However, I hope to have shown that this is a mistaken view. The traditions of modern medicine and medical illustration emerged together in 18th-Century Europe, and have been interrelated ever since. In Cheselden's *Osteographia* we can see that early medical illustration had already realised the potential of 'drawing with light', and since then photography has been the pre-eminent tool of the medical illustrator. In the work of Hill and Adamson and Buck we can discern a heritage for medical photography which is effectively as old as that of photography itself. Moreover, the writings of Berend, Diamond and Squire are compelling testimony to the fact that the pioneers of our subject foresaw immediately the many ways in which photography is now routinely put at the service of modern medicine.

The introduction of trust status for hospitals means that these are times of change in the NHS, entailing a realignment of support staff and a radically new management structure. In itself this suggests that NHS expenditure on training is likely to be increasing, and this is a circumstance which ought to afford medical illustration the opportunity to progress rapidly in the United Kingdom. However, if this is to happen it seems likely that medical illustration must reverse the historical tendency for the NHS to underestimate its contribution to modern health-care and to condemn the subject to develop in the *ad hoc* manner which has been characteristic so far.<sup>1</sup> For example, Bowcock has demonstrated that a steady increase in the

numbers of Professional and Technical Staff in the NHS during the period 1949-85 has not been matched by the numbers of medical photographers and medical artists employed.<sup>2</sup>

Nevertheless, the present state of the subject in the United Kingdom leaves us with reasons to look to the future optimistically. In the face of official intransigence even within the NHS, the very fact that medical photography is routinely used in most hospitals is a tribute to the initiative and tenacity of its practitioners past and present. This is a heritage of achievement of which the profession ought to be justly proud. Similarly, the fact that new initiatives are emerging in response to professional difficulties is unequivocal evidence of the vigour of the subject and its success in establishing an appropriate professional ethos. It is also true that better and more coherent training opportunities now exist for students of the subject than at any time previously, and the foundation of the MSc Degree at the University Hospital of Wales and the BSc under the aegis of the IMI ought to afford a significant new degree of self-respect.

To end at the beginning, however, a critical account of the history of medical photography shows that the true value of the subject has never been fully appreciated by the institutions and authorities of professional health-care in the United Kingdom. More than 150 years have elapsed since Hill and Adamson's seminal photograph, and practitioners of the subject would do well to reflect on the essence of its history and consider what must be done to ensure that henceforth it is recognised for what it certainly is – a mature and intrinsic aspect of modern medicine in the United Kingdom.

By building on existing strengths at the same time as learning new skills, and acquiring new expertise, the medical illustrator can look forward to playing a more central role in the professional healthcare and medical education communities of the future.<sup>3</sup>



## Notes on Part 6

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- 1 cf. the remarks of Johns M. New IMI Diploma in Medical Illustration: One Examination for One Profession. *J Audiovis Media Med* 1991; 14: 44.
- 2 Bowcock L. Medical Illustration in the National Health Service: Forty Years of Progress? *J Audiovis Media Med* 1989; 12: 5.
- 3 Morton RA, Nicholls J, Williams R. The changing role of the medical illustrator. *J Audiovis Media Med* 2000; 23/2: 65-68.