1

Consuming light

> It is only within quite recent times that the question of utilizing the sun's rays for the purpose of the prevention or cure of disease, or other objects of health, has been seriously considered and practically applied. Like most of the greatest things in life, the very simplicity and obviousness of the method – at any rate the principle of it – seems to have concealed the secret. It is the obvious thing that invariably escapes our notice. In our moments of idealism we talk of 'hitching our wagon to a star'. May we not, in a more prosaic and material spirit, harness our bodies to the Sun?[1]
>
> (Edward J. Deck, 1926)

> The treatment of some diseases by exposure of the skin to the action of light, natural or artificial, has in a marvellously short space of time leaped from the obscure position of a somewhat contemptuously neglected specific to the status of one of the most valued and even invaluable weapons in the medical armoury.[2]
>
> (Royal Institute of British Architects [RIBA], 1933)

In May 1928, *The Times* published a forty-page supplement entitled, 'Sunlight and Health', replete with photographs, illustrations, and advertisements. Readers' eyes were greeted with smiling faces, bronzed skin, and lithe nude and semi-nude figures in open fields and on busy beaches, or indoors under gleaming lamps and shafts of light (Figs. 1.1–1.4). These images represent bodies consuming therapeutic light – soaking up its rays – and the natural surroundings and technological paraphernalia enabling such exposures. Together they offer a salient point of entry into the history and visual culture of light therapy in Britain during the early twentieth century, the subject of this book. This supplement, which collapsed medical and popular conceptions of light therapy, evinces the central role light played in notions of health, disease, pleasure, and risk at the time, and which persist today.

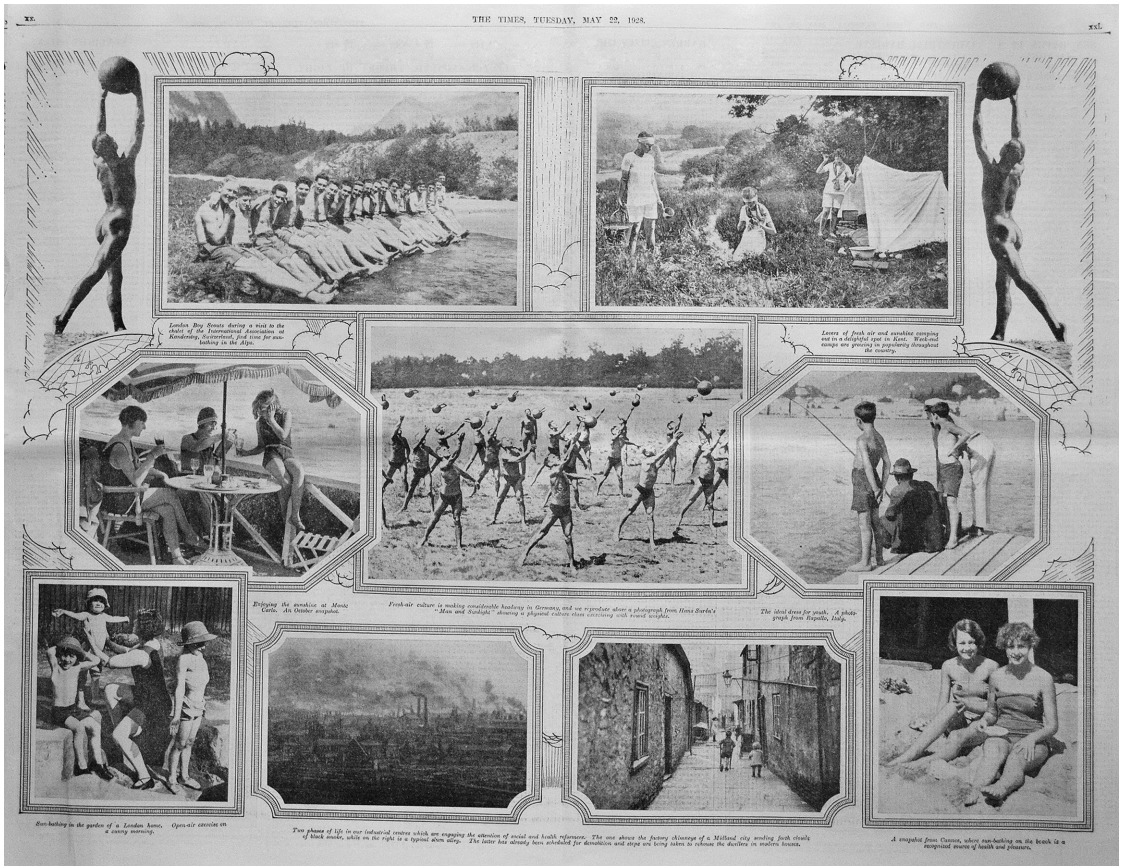

Figure 1.1 'Seeking health in the rays of the sun.'
In the *Times* supplement, 22 May 1928, pp. xx–xxi.

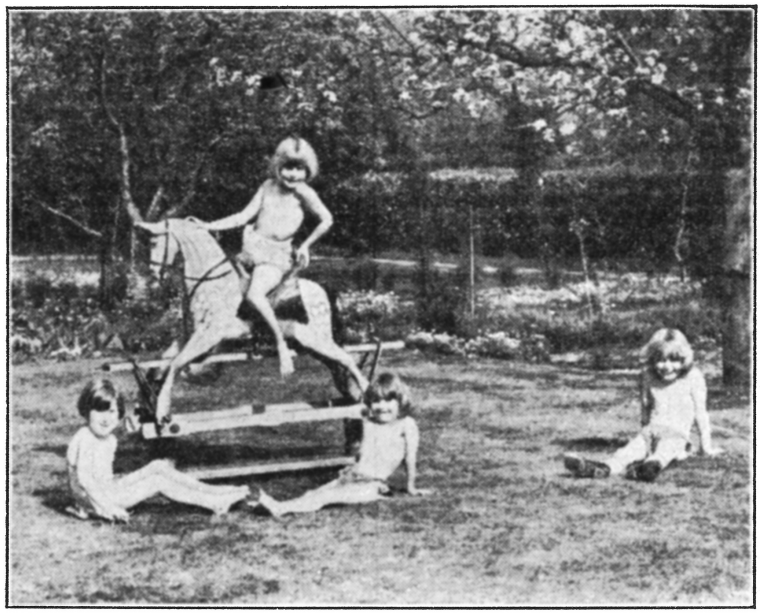

Figure 1.2 'Little patients in the gardens of the country branch of the Royal National Orthopaedic Hospital at Brockley Hill, Stanmore, Middlesex.' In 'Light Treatment in Hospitals', *Times* supplement, 22 May 1928, p. xxxi.

'Light therapy' encompassed a variety of methods and approaches. Bodies consumed therapeutic light in one of two ways: outdoors in the natural sunshine, known as heliotherapy; or indoors with artificial, electrical substitutes, known variously as phototherapy, artificial sunlight therapy, ray therapy, or actinotherapy. The latter method commonly used carbon arc, tungsten arc, or mercury vapour lamps, which produced different outputs of infrared, visible, and ultraviolet rays. Most prized among these was the ultraviolet. Referred to as 'chemical' or 'actinic' rays – notably for their use in photography – the ultraviolet rays were understood to disinfect and heal lesions and wounds by virtue of being bactericidal; to regenerate blood by increasing phosphorus, calcium, and haemoglobin levels; and to stimulate the production of vitamin D, the 'sunshine vitamin'.

To this end, both natural and artificial light were used to combat various illnesses, from the serious to the superficial. Although the effectiveness of light therapy was questioned, its use was widespread, as noted by RIBA in 1933 (see epigraph). Light therapy treated a multitude of ailments such as forms of tuberculosis, skin diseases, and deficiency disorders like rickets. It was also used to stimulate hair growth, correct the mental functioning of 'backward' children, restore 'normal' menstrual flow,

Figure 1.3 'A corner of the ultra-violet ray clinic at Bethnal Green, showing children undergoing treatment. The patients come from large families, living in one room.'
In Leonard Hill, 'Ultra-violet Radiation of Its Measurement', *Times* supplement, 22 May 1928, p. xv.

and increase lactation in nursing mothers. Therapeutic light was aimed onto football players, actors on Drury Lane, miners, athletes, and soldiers too, but most of all onto children. Light therapy took place in hospitals, sanatoria, spas, and in private and public clinics, at schools and factories, on the beach, and in the home.[3] It could be expensive (home-use lamps were pricey) or free when physicians or medical officers of health sent poor children and adults to council-run or charitable clinics.

By 1928, when *The Times* distributed 'Sunlight and Health', light therapy had reached its zenith in popularity, both among the public and the medical profession. Although almost 200 clinics existed in England at this time, the supplement authors described light therapy as in its infancy, awash with 'fragmentary and insufficient' knowledge.[4] The reasoning behind the supplement's publication was the 'wide dissemination of the information' that 'must hasten the coming of established and authenticated knowledge'.[5] In other words, *The Times*' editors intended the supplement to enable, not merely reflect, the widespread acceptance and legitimisation of therapeutic light – to cement the so-called innate connection between sunlight and health within the minds of its readership. This was no small feat. Light

Figure 1.4 Advertisement for 'Sunlight' apparatus, Ajax Ltd (London). In the *Times* supplement, 22 May 1928, p. xxxix.

therapy was a self-styled 'modern' and progressive form of medical treatment that never possessed a stable or unchallenged reputation, however popular. As this book argues, the British population's relationship with sunlight, especially ultraviolet light, was complex and contentious, and remains so to this day, as evidenced by continued concerns about sun safety, skin cancer, rickets, and depression.

Throughout the 1928 supplement, ultraviolet light was described as a source of essential nutrition, able to combat rickets by stimulating the production of vitamin D: 'light is a food', declared the opening article.[6] Manufacturers advertised an array of home-use and clinical lamps, propounding to nourish Britain's 'sun-starved' citizens (e.g., Fig. 1.4). Other products offered unfettered access to sunlight through their own transparency: 'Vita' glass windows and 'Celanese' fabric were permeable to ultraviolet radiation, allowing for bodily exposure to sunlight even when indoors and clothed.[7] Those who could not access ultraviolet radiation directly, via sunshine or electrical devices, were advised to consume it through irradiated foodstuffs: an Allenburys' infant food advertisement claimed it was impregnated with vitamin D as a result of being exposed to a mercury vapour lamp.[8] As the supplement's writers made clear:

> Sunlight has become, for the whole world, a commodity rather than a mere stimulus. For sunlight can be absorbed into the body either through the skin or by way of the digestive tract. The conception of 'a place in the sun' is giving way to the conception of a 'ration of sunlight', something to be possessed and consumed.[9]

By correlating an increase in death rates to the winter months, the journal's medical correspondent concluded that 'light is, literally, life'.[10]

When read alongside the images interspersed throughout its pages, such a declaration indicates, at first glance, that the supplement acted as an endorsement for this nascent therapy, one with particularly striking 'legs': the numerous images of attractive and scantily clad women, men, and children 'harnessed to the sun', to quote Dr Edward Deck (1872–1952; see epigraph), produced an effective visual rhetoric wholly dependent on bodily representation, linking sunlight with health, beauty, and erotic promise (Fig. 1.1).

Messy messages

Yet closer examination of the illustrated texts and advertisements unsettles any stable or clear reading of the supplement as a whole; contradictions emerge and confound as competing voices and interests – medical, popular, commercial – topple onto each other. The first article in the supplement, 'A New Science', advised readers against the adoption of irradiated foodstuffs, despite its overall enthusiasm for light therapy: 'Cases

have been reported in which, after the use of irradiated food, symptoms of a more or less distressing type have manifested themselves', the author notes. 'It is probable that in this, as in other directions, "what is one man's food is another man's poison".'[11] This article was placed in close proximity to both Allenburys' irradiated infant food advertisement and an article praising the British food industry for irradiating butter, bread, margarine, and milk to prevent rickets.[12] How were readers to know if Allenburys would act as a cure for their malnourished children and not a poison?

Advice from eminent authorities was no clearer when it came to the use of lamps. Professor Sidney Russ (1879–1963), the world's first hospital physicist, contributed an article on ultraviolet, X, and gamma rays to the supplement, warning readers that,

> Sources of ultra-violet radiation can now be obtained very easily, perhaps too easily, from those who represent that they have 'artificial sunlight' for sale. It is a bad term, for the radiation from none of these lamps resembles sunlight very closely, and they all contain some ultra-violet rays which normally never reach us [from the sun]. So it cannot be recognized too clearly that anyone using such lamps is using a source of rays with which man is yet quite unfamiliar, and how the body is going to react to repeated doses of these rays is not yet really known.[13]

Russ conducted pioneering research on radiation protection at Middlesex Hospital's Medical School while acting as the first chair of medical physics. The hospital was one of many noted in the supplement for employing light therapy for in-patients and out-patients. Others included the (Royal) London Hospital (the reputed first and most well known of hospitals to introduce light therapy in Britain, opening its light department in 1900), the Royal National Orthopaedic Hospital (Fig. 1.2), King's College Hospital (which reported an annual attendance to its sunlight department in 1927 of 81,000 patients), St Bartholomew's Hospital (reporting treating sixty different diseases with light therapy), Guy's Hospital, University College Hospital, St Mary's Hospital, and Charing Cross Hospital.

The last two featured reports addressing light therapy's precarious reputation. Dr Justina Wilson, in charge of the electro-therapeutic and light department at St Mary's, stated:

> light is not a specific remedy for every disease. It is comparatively costly and often inconvenient [...] Ultra-violet light is in its infancy in this country. It is the duty of the medical profession to see it is not brought into disrepute by unscientific persons. It is no mushroom growth; though new to us, this form of therapy is centuries old. It has stood the test of time. Physicians should neither, on the one hand, repudiate it *en bloc*, because some who give it have a

> bad technique and are ignorant of the qualities of the various sources of light; nor should they, on the other hand, be led to accept the extravagant claims made by many who apply it indiscriminately to all conditions.[14]

She was not the first to bring up the costliness of buying, running, and maintaining the electrical equipment. Already by 1903 Sydney Holland (1855–1931), chairman of the London Hospital, was quoted as saying, 'These machines eat money.'[15] Wilson was also not the first, nor the last, to express concern that physicians tended to take extreme views towards the therapy, some advocates describing its effects as bordering on the miraculous or fantastical.[16] The writer reporting on the Charing Cross Hospital further explained: 'The conclusion has been reached that the value of this treatment, properly carried out, is undoubted; but, like all other comparatively new treatments, light treatment has been over-praised and its promiscuous and improper use may lead to its being temporarily discredited in the public mind.'[17] The warning proved prophetic. Less than one year after *The Times* released its 1928 supplement, the very institution that had facilitated light therapy's growth, the Medical Research Council (MRC, founded in 1913), published a damning report undertaken by Dr Dora Colebrook (1884–1965). Attempting to prove whether the therapy's 'extravagant claims' were founded, Colebrook conducted two major controlled trials. The first trial involved adults receiving phototherapy for varicose ulcers. The second involved 300 schoolchildren, a third randomly selected to receive phototherapy to gauge whether ultraviolet light improved their general health and development.[18] In both cases she discovered that light therapy had little effect and, thus, little medical value. The MRC reports caused a particularly vocal outcry in medical and public presses such as the *British Medical Journal* (*BMJ*) and *The Times*, revolving around perceptions about correct technique, standardised practice, and visible results (see Chapter 2). Tensions between the therapy's scientific standardisation and its holistic attention to individual patients led practitioners to assert that, just like photography (the subject of Chapter 3), light therapy was both a science and an art.[19]

The offset statement above, from Charing Cross Hospital's reporter, is the last of the supplement, the remaining pages devoted to advertisements. The words of warning by Russ, Wilson, and this writer sit uneasily next to the advertisements for clinical and home-use lamps by manufacturers. As with irradiated foodstuffs, the supplement provided mixed messages when it came to accessing and consuming the ultraviolet radiation produced by lamps. Russ insinuated that the ultraviolet output of mercury vapour lamps was dangerously close to X rays and gamma rays, both known by the 1920s to be lethal. Indeed, as will be discussed in Chapter 4, ultraviolet radiation's carcinogenic potential was understood already by 1925, amidst the height of its popularity. Because of their similarities, ultraviolet radiation was frequently employed alongside X rays and radium in hospitals

during the early twentieth century, an understudied aspect of light therapy's history.[20]

Hard selling

Turning to the advertisements, major manufacturers such as Hanovia (Slough) and Ajax (London) encouraged 'promiscuous' use of their wares with jovial figures in the height of fashion, with exposed flesh and glowing health (Fig. 1.4). Hanovia's 'Homesun' mercury vapour lamp, which opens Chapter 5, was advertised with illustrations of vigorous athletes, goggled nude and semi-nude children, irradiated milk, and even animals undergoing exposure. Its central vignette featured a nude boy, face tucked to chin and wearing requisite goggles, in front of the 'Homesun' in a private, darkened interior. The advertisement stated that, 'This treatment is now brought within the means of every householder, through the production of a portable Hanovia model … [N]ot to be confused with ineffective toys like small arc lamps. It is now delivered free to any address in Great Britain', with no mention of a medical certificate required.[21] The small arc lamps – those 'ineffective toys' – were advertised a few pages later by competing manufacturers.[22] The mercury vapour lamp, Hanovia's speciality, had the advantage of producing greater quantities and a higher range of ultraviolet radiation and so required very short exposure times in comparison to the carbon arc lamp, but the latter produced a spectrum close to that of sunlight and was thus considered safer and more 'natural'.

Ajax's advertisement included both carbon arc and mercury vapour lamps for sale, to the public and the medical profession simultaneously (Fig. 1.4). Old and young alike, healthy and ill, supposedly could safely expose their skin and eyes to Ajax's lamps. Two vignettes of illustrated adults and children were included, none of the figures wearing goggles to protect their delicate eyes from the ultraviolet light. Undisturbed by the glaring, pointed shafts of white light, they relax, play games, and enjoy meals while being exposed to the health-giving rays 'all day long'. Timed exposures were apparently unnecessary. Dressed fashionably and with the latest haircuts, they were depicted as part of a social class affluent enough to afford the initial cost of a full-size lamp (approximately £400 in today's money) as well as its ongoing electrical consumption and maintenance.[23] Similar models 'of the most powerful kind' were advertised along the borders for the medical profession or for 'skilled operators by medical prescription'. One hopes these were not the 'unscientific persons' who might bring light therapy into disrepute by 'promiscuous' or improper use, in spite of Ajax's encouragement that they do so.

It is not surprising that companies professed the superiorities of their own products against those of their competitors, as Hanovia did. Nor is it surprising that so many different advertisements appeared in the one supplement. After all, by the interwar

years half the income of newspapers came from advertising.[24] What is surprising is that the articles, written by eminent physicians and scientists and *The Times*' editors, spoke directly against the advertisements surrounding them. How were readers to wade through such competing messages when it came to making informed, rational decisions about their health and that of their loved ones? Consuming light was, according to the supplement as a whole, at once a vital necessity and a risky practice.

Soaking Up the Rays explores these tensions within the history of light therapy in Britain with a particular focus on its visual culture, beginning with its earliest modern developments in the 1890s to its deeply embedded medical and public presence by the Second World War. British bodies were remarkably receptive to light's therapeutic potential: Britain's medical body quickly enlisted light's bactericidal properties to treat skin diseases such as lupus vulgaris (tuberculosis of the skin), and soon afterwards other external forms of tuberculosis attacking the bones, joints, glands, and spine;[25] Britain's social body, the public, proved a willing and active audience as popular newspapers such as *The Times* reported on the opening of light clinics and new hospital departments and provided a ready market to manufacturers for the sale of home-use lamps; and the body of the individual British patient, living in smoky urban centres and suffering from deficiency disorders such as rickets – the 'English disease' – was especially starving for light (Fig. 1.5).[26] As such, I mean the word 'receptive' here in two ways. The first refers to the open-mindedness and responsiveness of the medical community and the public, in relation to its nascent growth and acceptance through its visual, material, and textual dissemination. But I also use the word to think about the physical *taking on* or *taking in* of light, of bodies as photosensitive receptacles. The latter ultimately is bound to long-standing perceptions towards light, and especially ultraviolet light, as generative or regenerative, as active and activating, and as transformative in its powers.

Work/working/working through

How did practitioners, operators, and advocates conceptualise light to act upon the body, on its skin, organs, blood, and brain? How and why did they think light therapy worked? How was this imagined and imaged?

Even as late as the 1930s, a number of practitioners – physicians, nurses, masseuses, scientific researchers, alternative healers – confessed that the action of light on the body remained a perplexing mystery.[27] Focusing on the nitty-gritty details, such as exposure methods, the types of equipment, and the different rays, indicates that much speculation and research went into attempting to understand light's enigmatic but powerful effects on the body. Its riddles, put simply, did not remain unsolved for lack of effort. The MRC devoted a research body to the subject, the Committee on the Biological Actions of Light (CBAL, founded in 1922), which was

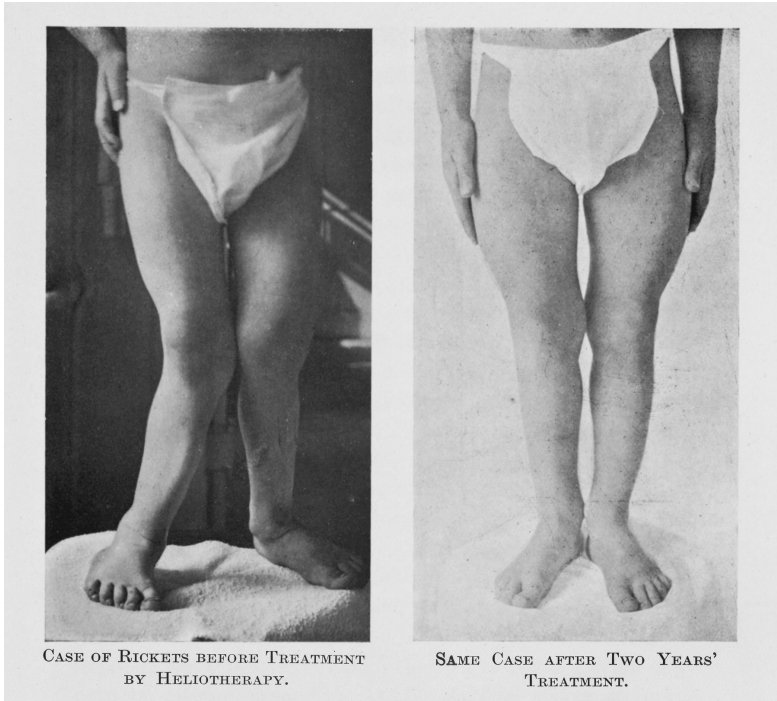

Figure 1.5 Before and after photographs of a child's legs with rickets, treated with heliotherapy for two years, detail. In Leonard Hill, *Sunshine and Open Air* (London: E. Arnold & Co., 1925), opposite p. 90. Wellcome Library, London CC BY-NC 4.0.

based at the National Institute for Medical Research (NIMR) under the direction of the highly respected physiologist Sir Leonard Hill (1866–1952) and his colleague Dr Albert Eidinow, and from which Colebrook's inflammatory reports later surfaced. At the NIMR, Hill and Eidinow undertook many experiments centring on light's actions on human and animal bodies, especially the skin (Chapter 2).

Light-therapy practitioners and researchers allocated enormous visual power to the skin to reveal the body's hidden interior processes under the influence of light's invisible wavelengths.[28] Solar erythema (sunburn) and pigmentation (suntan) were the most prominent of cutaneous reactions to actinic light, and their production on the patient's skin carried significant weight when it came to guiding light dosages, and even indicating the patient's prognosis. The patient who tanned well, for example, was perceived to be on the road to recovery. Both passive and active, the skin was transformed by the rays, being photosensitive, and yet could also transform them: practitioners perceived

that, once pigmented, the skin absorbed and altered wavelengths into different energies during subsequent exposures. As a medical correspondent explained in the *Times* supplement: 'There is ample proof that the skin does not behave as an inert substance in regard to radiation to which it is exposed, but acts as a vital tissue which reflects its activity on the body as a whole.'[29] The German practitioner Hugo Bach even described the skin as 'an organ of light-assimilation', both receptive to light and transformative of its energies.[30] Pliant, penetrable, and receptive, the skin soaked up the rays to become an active, charged organ. It also became aesthetically desirable in the process. Through 'promiscuous' exposures to sunlight, white bodies acquired glowing tans and, worryingly for some, with them the sexual energy of so-called 'primitive' dark bodies (Chapter 5).

Once absorbed, light was understood to affect the body's appetite, blood, organs, nervous system, and psyche. Metabolism was raised, natural immunity was stimulated, and muscle tone was improved.[31] Sickly, malnourished patients gained weight and the bones of rickety children straightened (Fig. 1.5). Tuberculous lesions expelled necrotic bone and tissue then closed with excellent scarring (cicatrisation), as did wounds and burns. For arthritic patients, the joints eased with the help of infrared light, which was known to penetrate deeply into the body and relieve congestion by increasing blood circulation. Psychologically, the light exhilarated the mind and enlivened the spirits, bringing feelings of happiness and well-being.[32] Equally destructive and stimulating, light was a natural panacea in the eyes of its most ardent proponents.

Was it successful and effective as a treatment? I am frequently asked this question. My questions are: does it matter, in order for the therapy to deserve historical analysis and contextualisation? And by what forms of 'proof' can the historian ascertain its efficacy? As Martin Edwards explained,

> Any retrospective attempt to examine 'effective' therapies in isolation from those we now deem 'ineffective' misses the point [...] Whether a treatment 'works' is a socially and culturally bound conclusion, and can be fiendishly difficult ... to assess. New therapies were widespread during the first half of the twentieth century, each held its own promise and had its own advocates, and each required some form of verification.[33]

In light therapy's case, the most convincing forms of proof were the photographs of patients, charts, graphs, and X rays; that is, visual documentation. Take, for example, the before and after photographs of a child patient in a 1921 *BMJ* article by Sir Henry Gauvain (1878–1945), the medical superintendent of the Lord Mayor Treloar Cripples' Hospital in Hampshire (Fig. 1.6). At Treloar's, Gauvain employed natural and artificial sunlight as well as seawater (balneotherapy) to treat children suffering from external forms of tuberculosis, like this child pictured. The caption indicated that she suffered from pulmonary tuberculosis as well as tuberculosis of the cranium,

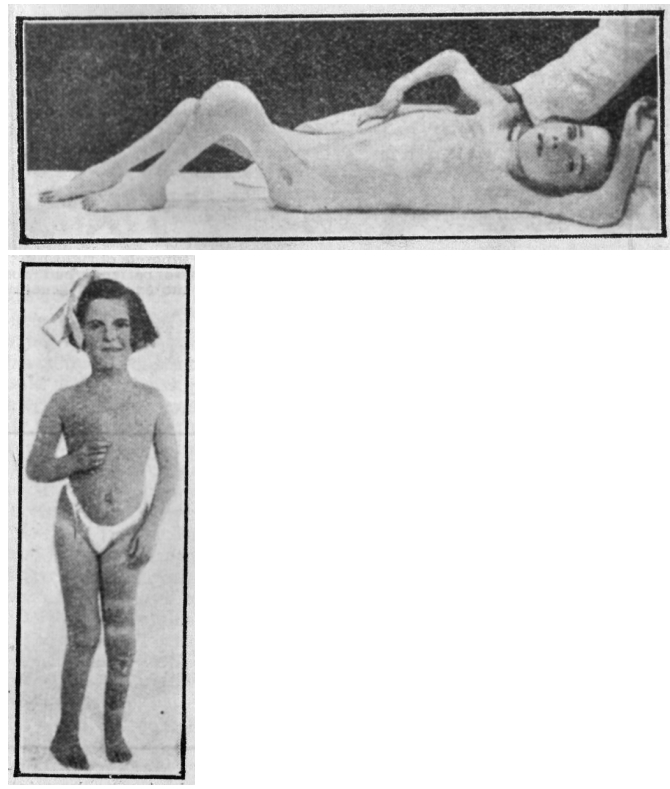

Figure 1.6 Before and after photographs of a patient suffering from multiple tuberculous lesions, treated by heliotherapy and balneotherapy. In Henry Gauvain, 'The General Principles of Treatment in Tuberculous Disease of the Bones and Joints in Children', *BMJ*, 26 November 1921, pp. 876–84, Figures 7 and 9. With permission from BMJ Publishing Group Ltd.

elbows, wrists, knees, ankles, and mesentery, among other conditions. Unable to sit up independently, she was laid on a hospital bed supported by an adult carer, likely a nurse, in the before photograph. The after photograph presented her ambulant, plump, tanned, and happy. So dramatic was her transformation that she appears unrecognisable from her former diseased self.

Images like these quickly convinced medical colleagues and the public of light therapy's miraculous natural powers. But rather than look to this material for some kind of truth about whether light therapy really 'worked', let us treat them first and foremost as representations.[34] Strategic and standardised tactics were commonly employed to demarcate the treatment's effects: darkened interiors for the before image, often with obvious retouching to outline lesions and deformed joints; white exteriors for the after image, which highlighted the child's newly rounded contours and pigmented skin; facial expressions that mirrored physical states, notably the child's smile in the after image; and individualising, personal accoutrements, such as her neat hairstyle and pretty bow in the after image, which make the photograph act at once as a successful case record and a charming portrait.[35]

Recognising aesthetic strategies of representation does not imply such images were deliberate falsifications of the therapy's efficacies. It also does not mean that, by looking at these photographs, we cannot feel empathy for the patient's pain and relief in her recovery. It simply enables us the freedom to comprehend that these images had tremendous *work* to do, and that many contemporaneous viewers were convinced by their performance.[36] They are telling of practitioners' anxious investment in disseminating light therapy's *values* – its medical value or 'worth' and its social value or 'aim', as represented by its aesthetic values or 'luminosity' (relative lightness or darkness, particularly in relation to colour). In fact, as we will discover throughout this book, the images that are *not* convincing, that are resistant to interpretation, might be even more interesting than the ones that are.

Picturing light therapy

Soaking Up the Rays argues that the images and objects produced by practitioners and manufacturers did more than merely describe light therapy; they actively contributed to its very definition and, above all, visualised how light was conceptualised to act upon the body – and rarely in clear or simple ways. The history of light therapy's acceptance and appeal is thus complicated by its visual culture: damaged, overexposed, and heavily retouched photographs; saturated, hand-coloured pamphlets of suntanned bodies that appear more fluorescent orange than 'bronzed'; and montaged lamp advertisements that confound the boundaries between the invisible and visible.

These images are productive agents that communicate, and contributed to, practitioners' ambivalent and competing perceptions about light's benefits and risks. Using light therapeutically may have materialised at the forefront of modern medicine to widespread acclaim, but the therapy's emergence and legitimisation was not a straightforward process. Light therapy's 'discorded facts', as one author described them in 1925, deserve teasing out, as do the role of images amidst this discord.[37] The many images produced by the therapy's practitioners, manufacturers, and populists allow us to understand, in a far more nuanced way than texts alone, how much its legitimisation was dependent upon producing visual results and, to do that, by controlling light. The majority of light-therapy images are photographs, and photography is a *medium of light*. That the method of cure and its means of representation were dependent upon the same source makes light therapy a special case in the history of medicine.[38] With this in mind, I have written this book equally for medical historians and for scholars of visual culture.

In this book I focus especially on before and after photographs, documentary photographs of light clinics, and lamp advertisements, which provide alternative points of access into a contentious medical past. Selecting these particular images,

as opposed to others, leads, however, to a simple but fundamental question: what exactly *is* an image of 'light therapy'?

Let us return to the heliotherapy images in the *Times* supplement (Figs. 1.1–1.2). Readers were presented with figures on holiday in the sunshine, both abroad and in Britain, or in the midst of physical culture exercises in the open air, involving adults and children, male and female. Boy scouts, beach-goers, well-to-do campers, families, hospital patients, Italian peasants, and German nudists were among the people pictured. Are they all equally practising the art of heliotherapy? And does that make all of these reproduced photographs images of light therapy? What did 'light therapy' mean during this period to its practitioners and enthusiasts, and what did it actually look like in practice?

The image from the Royal Orthopaedic Hospital's country branch in Middlesex depicts four child patients dressed only in loincloths, casually lying in the hospital gardens, one atop a large toy horse (Fig. 1.2). Aside from its stated location and the children's standard hospital apparel, there is little to suggest this depiction could be defined as 'medical photography'. Yet it is a typical representation of children undergoing heliotherapy during this period. The Treloar archives, for example, have hundreds of photographs like this one. When placed alongside the image of a mother and her three children, also outdoors in an English garden, in Figure 1.1 (lower left-hand corner), the similarities confound any clear separation between therapy and leisure, of heliotherapy as opposed to popular sunbathing. Yet the supplement's opening article forthrightly declared, 'Sunlight treatment is medical treatment in the strictest sense of that term and ought to be given only by physicians who have devoted special study to it.'[39] In Figure 1.2, the conspicuous absence of medical authorities (whether out of shot or acting as photographer) presents a rather different version of light therapy than the one encountered in the written word, a treatment strictly timed, monitored, and individualised to each patient.

The sheer variety of images in the supplement does little to clarify, and this is a crucial point. In its range and diversity the supplement challenges us to consider how light therapy and its rich visual culture were historically defined and articulated. Throughout its pages, discussion and visualisation of light's medical use was mixed – jumbled even – with its leisure use. Articles on Swiss sanatoria, rickets, and phototherapy departments in hospitals and clinics were interspersed with those on French and Spanish resorts, motorcar drives, and cruise ship voyages. Indeed, with its broad title, 'Sunlight and Health', the supplement playfully toyed with, and contributed towards, light's multivalent meanings.

At this point, I invite you to spend some time looking at the many images throughout this book.

What are your first impressions about the visual material? Through dissemination to various audiences I have learned that viewers find the images variously frightening,

bizarre, charming, glamorous, silly, and pornographic. I acknowledge all of these descriptions, and feel it pertinent to mention that it is rare to come across a collection of images that can simultaneously delight and disturb, provoke guffaws of laughter and awaken sexual – even paedophilic – desire (see 'Exposing Children', below).

Images of radiant smiles, glowing tans, and revitalised bodies are juxtaposed with those of eerie 'séances', goggled nudes, and glaring lamps. The supplement's photograph of the Bethnal Green 'ultraviolet ray clinic' serves as an excellent example of depicting phototherapy (Fig. 1.3): patients arranged and posed, their goggled eyes face-forward and their flesh exposed; the nurse unassuming but characteristically present, the physician absent; and the lamp, given prominence in the composition as a piece of progressive and impressive technology but, significantly, not turned on. (Doing so would overexpose the negative, a curious problem in photographing light therapy discussed in Chapter 3.)

Undergoing a phototherapy session was described by some as a frightening experience, especially for children exposed in the nude to large carbon arc lamps, which erratically buzzed, smoked, and spluttered hot ash as the carbons burnt away. But while such scenes of séances – and practitioners did refer to exposures as *séances* ('sessions' or 'sittings') – may strike us as odd, novel, or downright weird today, many contemporaneous viewers, practitioners, and patients would have regarded them as normal, familiar, and even banal, however imposing the technological equipment.[40]

For those suppressing giggles or snorts at some of the more outrageous depictions (I am thinking particularly of the lamp advertisements, which feature heavily in Chapters 4 [Plate 1] and 5 [Plates 2–5]), I urge you to pay even closer attention to them. Carolyn Thomas de la Peña, analysing contemporaneous popular devices such as galvanic suspensory belts and prostate massagers marketed to men fearing sexual inadequacy, has perceptively cautioned against dismissing these seemingly ridiculous novelty items too lightly.[41] We might say the same for early forms of vibrators, as parodied in the film *Hysteria* (2011), or John Harvey Kellogg's treatments in the film *The Road to Wellville* (1994). Both films anachronistically trivialised and poked fun at popular medical devices intended to treat a range of mental and physical disorders that held considerable social currency at the time. Since one of light therapy's many applications was the treatment of sexual dysfunction, these other examples are not far off the mark. As for its images and objects, consider that their amusement value is a poignant indicator of the problematic nature of hindsight. Why else would they amuse? Simon Carter put it best in his 2007 book, *Rise and Shine*:

> At various points during my research for this book I became acutely aware that some of the material I was examining lends itself to mild ridicule or humour. When using archives I would sometimes come across an advertisement, photograph or description of a practice from the 1920s or 1930s that

> required the suppression of a guffaw to avoid the disapproving eye of a librarian. In the main body of this text I have tended towards sobriety. Historians of medicine have long warned about reinterpreting old maladies through a perspective provided by modern diagnostic categories, and in a similar way our re-interpretation of past practices using a modern humour idiom would not be in the spirit of a 'symmetrical' study – Latour may have urged us to 'follow the actors' but it's probably a bad idea to snigger while doing so.[42]

Perhaps we might describe them less as amusing than delightful or even *titillating*, since many of light therapy's images feature joyful nudes taking pleasure in being 'kissed' by the light (Figs. 5.13–5.16). Why in these images bodily exposure to light stimulates erotic pleasure, for the figures represented as well as for the viewer looking at them, is integral to historically contextualising the link between sunlight and sexuality, the focus of Chapter 5.

The 'art' of light therapy

There are long-standing art-historical precedents for imaging nudes in the sunlight, of mythical goddesses and biblical figures in pastoral or idyllic settings from the Renaissance onwards. Artists from Titian (1477–1576) to Pablo Picasso (1881–1973) treated the nude in the open air as standard aesthetic fare. By the early twentieth century, cultured British audiences and artists would have been familiar with the painted nudes and sunny landscapes of the Impressionists, the Neo-Impressionists, the Fauves, and the contemporaneous work of British artists such as Henry Scott Tuke (1858–1929) and Dame Laura Knight (1877–1970).[43] Biographers and art historians have repeatedly noted Tuke's primary interest: painting sunlight on nude male flesh out of doors, especially in Cornwall. He was referred to as a painter of sunshine, in his own time and today, and titled his works *Sunbathers* (1927, Collection of Sir Elton John), *Lovers of the Sun* (1923, private collection) and *To the Morning Sun [The Sunworshippers]* (1903, Hugh Lane Art Gallery, Dublin), which bear important similarities to the Symbolist art of German naturist, Fidus (Hugo Höppener, 1868–1948), especially the many versions of his *Lichtgebet (Prayer to the Light)*, *c.* 1894–1924.[44] Artist colonies based in Brig O'Turk and Cocksburnpath in Scotland, Newlyn in Cornwall, and Staithes in Yorkshire formed from the 1880s onwards, their members united in their passion for picturing the light, local colour, and open air of their environs.[45] Furthermore, as Linda Dalrymple Henderson, Pascal Rousseau, and Gavin Parkinson have shown, vanguard art of the early twentieth century was marked by a fascination with 'rays'.[46] Marcel Duchamp (1887–1968), František Kupka (1871–1957), and László Moholy-Nagy (1895–1946) were among many modern artists who explored visualising transparency, relativity theory, and the Fourth Dimension (Figs. 4.12–4.13).

But there were also artists who engaged directly with light therapy's visual dissemination. These included photographers Edith Tudor-Hart (1908–73, Chapter 3 Fig. 3.1), Bertram Park (1883–1972) and Yvonne Gregory (1889–1970, Fig. 5.14), illustrator Robert Gibbings (1889–1958, Fig. 5.10), and painter Beatrice Langdon (1898–1986, Plate 8). They feature in Chapters 3, 5, and 6, respectively. But if there was a formal or 'high' art of light therapy, it existed most dramatically in stone. Commemorating the work and life of light therapy's founder, the Danish physician and Nobel laureate Niels Finsen (1860–1904), is the sculpture *Mod lyset* (*Towards the Light*; 1904–9) by Rudolph Tegner (1873–1950; Fig. 1.7). It is not a representation of Finsen per se but one impregnated with Symbolist meaning about his therapeutic practices and achievements with light. Four figures – a man, two women, and a

Figure 1.7 Rudolph Tegner, *Mod lyset (Towards the Light)*, 1904–9
Granite and bronze.
Corner of Blegdamsvej and Tagensvej, Copenhagen.
Author's photograph.

young boy (hidden behind) – enmesh in a tangled composition. The figures dramatically tilt their faces upwards with eyes closed to the sun, their poses reverent and even desperate for its benevolence to shine down on them. In their act of sun worship, the figures show clear affinities with those in Fidus's *Lichtgebet*, the Swedish Axel Emil Ebbe's *Solrosen* (*Sun-Rose*) sculptures (*c.* 1892 onwards), the German statues *Der Mensch* (*Man*) and *Gläserner Mensch* (*Transparent Man*) from the Dresden Hygiene Exhibitions of 1911 and 1930, and Roger Broders' poster *Le Soleil toute l'année sur la Côte d'Azur* (1931).[47] In their gesturing, Tegner's sculpted bodies go 'towards the light', an expressive metaphor for how Finsen's patients referred to attending their phototherapy appointments.[48]

The majority of the images that make up light therapy's visual culture, however, were produced by anonymous photographers, usually in the employment of a physician, institution, or press.[49] In some cases it was the physician or nurse who acted as photographer, taking casual snapshots of facilities, patients, and therapies. For me, the most interesting photographs are the ones that would normally be described as being of 'poor' quality, especially overexposed negatives and obviously retouched prints. They are the photographs hiding in archival boxes or reproduced in medical textbooks that are easily dismissed as damaged goods, marked by lens flare and 'black suns' (Figs. 3.10, 3.12–3.16). But it is the *damage* done to these material remnants that is of relevance here: they present to us photosensitive surfaces, akin to skin, burnt by the therapeutic light they sought to picture (Chapter 3). As physical objects made and marked by light, they make materially present the benefits and risks that light exposures could bring.

If, as Jennifer Tucker noted, 'Visual images are the stuff of science and an important way that science has defined itself … for hundreds of years', its definition through visual representation has not necessarily been stable, uniform, or fixed.[50] Revisiting the many images in the *Times* supplement and the question of what an image of light therapy exactly is, my answer is that in its definition there was nothing exact about it. Despite evident strategies of representation, for example particular lighting conditions, locations, patient poses, retouching, etc., the open and multivalent meanings of picturing bodies in the light lent this therapy tremendous scope for, and interest in, its visual dissemination. This is a rich and diverse collection, on par with the widespread, related popular and medical visual cultures of X rays, radioactivity, and electricity (see Chapter 4). Light therapy was imaged in specialist medical textbooks and journals, populist handbooks, illustrated newspapers, closed hospital records, tourist postcards, and avant-garde oeuvres. The same image could be found in these various sources, indicating that popular and medical audiences for the images were not always demarcated or fixed. That Ajax's advertisement (Fig. 1.4), Gauvain's patient portraits (Fig. 1.6), and Tegner's Finsen monument (Fig. 1.7) all fall within light therapy's visual culture indicates that its many proponents conceptualised what it was

in many different ways – and that light's healing powers were at once medicalised, commodified, spiritualised, sexualised, and aestheticised.

The main images in this book (re)present light therapy's many faces, varying in medium and spanning four decades (Figs. 1.1, 2.1, and 3.1, and Plates 1, 3, and 8). The images' formal qualities and contexts provide new insights about the ambivalent meanings of sunburn, solarisation, radiation, and suntan among the medical community and their dissemination to the British public, *c.* 1890–1940.

Being methodical

Light therapy's invention, legitimisation, successes, and failures had as much to do with light's abilities to visualise as to heal. In fact, I argue in Chapter 3 that light therapy could not have existed without photography, both as an art (as a medium for visual representation) and a science (contributing significantly to the development of chemistry and light physics). The therapy's visual culture, which is predominately photographic, exemplifies the pivotal role played by photography as a means of modern image-making *and* knowledge-making, particularly for modern medicine.[51] Suggesting such things, and conducting the research to prove them, would be impossible without the influence and work of many excellent scholars. After all, publications, Ludmilla Jordanova poignantly wrote, are 'parts of elaborate conversations with other historians, living and dead'.[52]

The British history of light therapy has received little attention from medical historians, its visual culture none. The most thorough scholarly examination is sociologist Simon Carter's 2007 book, *Rise and Shine*. Exploring the emergence of a modern photophilia during the early twentieth century, Carter argued that a range of practices, technologies, and 'socio-technical artefacts' (sunlamps, sun creams, etc.) mediated the British body's relationship with sunlight, and continues to do so today. He stated that,

> the various associations between the sun and the body were then, as they still are, in a constant state of flux, and … [w]hile these associations often may have unravelled, at the same time this unravelling leaves its own traces that can continue to define our present relationship to the sun.[53]

Like Carter, I enjoy picking at these loose ties and finding these traces. Unlike Carter, I focus heavily on the visual material as well as the primary medical literature, giving far more weight to the medical profession's role in driving and normalising perceptions of sunlight as essential to health among the British public.[54] As Roger Cooter and John Pickstone asked, 'has any other profession [during the twentieth century] acquired such far-reaching influence in the governance of human life?'[55]

Scholars studying light therapy's history pay surprisingly little attention to its specific – and contested – methods, practices, and theories, preferring instead to examine its popular public appeal.[56] I propose that one cannot fully appreciate the latter without in-depth knowledge of the former. Above all, the historic role of images and objects has not undergone serious and methodical study. To carry out that study I have looked to influential scholars of art history and visual culture, especially those with interests in the history of medicine and the medical humanities.[57] Championing visual approaches to enrich our understanding of medicine, as Jordanova has called for, *Soaking Up the Rays* urges scholars with an interest in medical history to pay closer attention to its visual culture. This book approaches medicine's ephemera not as simple vessels reflecting established medical beliefs but as complex mediating agents that complicate, nuance, and contribute to the production of those beliefs.[58] It does not position interdisciplinarity as a smooth co-mingling or happy interaction between distinct disciplines: the intersection of art and medicine need not be seamless, smooth, or easy. As the main images driving the chapters make evident, their intersection was more fraught than fluid.[59] These images are fascinating precisely because they are *problematic*: confounding, ambiguous, and downright odd. Resistant to interpretation, resistant to their intended function (as 'documents' for dissemination, as 'evidence'), the images require close looking, critical analysis, and much contextualisation.

Like the history of photography, the history of light therapy is marked by frustrated attempts to harness and master the light. 'Volatile and unpredictable', according to Melissa Miles, light's destructive force is perpetually written out of, yet always leaking through, photography's history.[60] Light therapy's contradictions and injurious effects are hidden away in the primary literature and yet underpin its nascent development. In asking the question, 'What do pictures want?' W. J. T. Mitchell explained that, 'We need to reckon with not just the meaning of images but their silence, their reticence, their wildness and nonsensical obduracy.'[61] Wily and stubborn, the images I analyse are powerful because they refuse to 'clarify' or 'illuminate' (words describing light as a source of knowledge and revelation, Miles notes) what light therapy was in a uniform, intelligible way.

I am certainly not the first to privilege the use, meaning, or materiality of 'things' to analyse the past. Carter viewed bottles of sunscreen as social, cultural, and technological artefacts that actively mediated how British bodies interacted with sunlight, as relevant as any medical text.[62] And Mitchell stated,

> Images matter in more than one sense. That is, they make a difference, are important, and make demands. But they are themselves matter, in the sense that they are always embodied in material objects, in things, whether stone, or metal, or canvas, or celluloid, or in the labyrinth of the lived body and its memories, fantasies, and experiences.[63]

Inasmuch as I write of 'images', I recognise they might more appropriately be described as material remnants, as *objects*, often damaged or hidden away in archival boxes. Alongside these objects and guided by studies in material culture, I also discuss light-therapy lamps and goggles, including how they were ambivalently represented in advertisements. Ellen Lupton, in *Mechanical Brides* (1993), stated that,

> the material remnants of everyday life … do not have a stable meaning, decreed by their makers and frozen in their formal structure (materials, style, technique). Instead, meaning emerges through social practices, including an object's representation in various media, its connection to shared customs, and its significance to the people who own or operate it.[64]

Once considered invaluable to public health, since the late twentieth century ultraviolet lamps – now in the form of sunbeds – have been perceived by many to be dangerous devices for purely cosmetic ends. Yet they also live on in the form of lamps for Seasonal Affective Disorder (SAD), daylight alarm clocks, and contemporary phototherapy lamps for dermatological conditions. Gracing this book's cover is a 1936 advertisement for the 'Vi-tan' mercury vapour lamp, manufactured by the Thermal Syndicate (see also Plate 1). As I discuss in Chapter 4, the 'Vi-tan' was promoted as a technologically advanced substitute for natural sunlight, even surpassing the sun's powers by offering higher quantities of ultraviolet radiation. Historically, these devices 'harnessed bodies to the sun' (see epigraph) – their users encouraged to climb aboard Apollo's golden chariot, with great aspirations for perfect health. However, as objects, their modern design, shiny components, and intended use in the home did not sway or comfort practitioners unanimously, as Russ's warnings above make clear. Public cases of burns, electrocution, and even death roused considerable concern, suggesting that these objects simultaneously signified the hope of health and the possibility of peril.

Like Joel Howell's study of X-ray machines, my interest in light therapy's technology (its devices, practices, and user knowledge) is a useful avenue into examining practitioners' desires to see it as systematic.[65] Seeking to become a legitimate form of medicine – a science and not 'merely' an art – light therapy relied on the latest technological apparatus, attempted to standardise dosages and exposure methods, and produced qualified experts to operate and administer them. Amidst the chaotic jumble of competing views over the optimum light source, duration of treatment, intensity of exposure or skin reaction, these experts fought to present light therapy at its most 'scientific', modern, and effective.

Surely we might consider that this chaos, this messiness, be conceptualised as productive in so far as it led to more research, more discussion, and more imagery. It continues to do so today, with seasonal rounds of medical and popular articles

on light's benefits during the winter, which emphasise its use for SAD, and its dangers during the summer, driven by the promotional use of sunscreens. The history of vitamins presents important similarities. Rima Apple argued that the perpetual puzzlement over the necessity of vitamin supplementation only led to further dependence upon science's 'ambiguous authority'.[66] Since their discovery in the 1910s, vitamins have excited and confounded pharmacists, physicians, and the public. Apple explained that 'Increasingly sophisticated studies produced more questions than they answered', so that the scientific evidence has been, and remains, 'inconsistent and in dispute'.[67] She perceptively observed that such ambiguity propels more and more scientific input. Pharmaceutical companies use science to promote their vitamin products, newspapers discuss the worth and worthlessness of taking vitamins to the public by quoting from scientific authorities, while laboratories conduct endless studies and trials to ascertain (in)conclusive results.

Bodily exposure to light, whether for therapeutic or aesthetic ends, likewise persists as a contested subject to this day: does it kill or cure? Yet the tenuous place light exposure occupies, both within the medical community and in the imagination of the general public, is not a new phenomenon.

Vers la lumière

My interest in the history and visual culture of light therapy began through my art-historical research on the Côte d'Azur, one of the earliest locations of heliotherapy. There, ill modern artists such as the Impressionist Pierre-Auguste Renoir (1841–1919) and the Neo-Impressionist Henri-Edmond Cross (1856–1910) spent their last years painting and alleviating their bodily pain in the southern sunshine.[68] Maurice Denis (1870–1943), in his heartfelt obituary for Cross in 1910, described the artist's journey to the coast as both an aesthetic and therapeutic quest for light: a new palette and a '*cure de soleil*' for his chronic degenerative arthritis.[69] Only two kilometres away from Cross's remote home in Saint-Clair was a sanatorium at La Fossette offering '*cures de soleil et d'air*'. One of Cross's most well-known paintings, *La Plage ombragée* (1902), was based on the beach of La Fossette.[70] The sanatorium was not an isolated example. Heliotherapy was rapidly adopted and institutionalised at sanatoria along the Côte d'Azur by the first decade of the twentieth century. In fact, there are references to sunlight as therapeutic in French medical dissertations from as early as 1799.[71] By the 1910s, the therapy held tremendous significance for the French nation amidst fears of degeneration and international war.[72]

No history of light therapy is complete without reference to its development in Switzerland and its most famous practitioners, Drs Oskar Bernhard (1861–1939) and Auguste Rollier (1874–1954).[73] At Samaden, Bernhard began using sunlight to

treat wounds from 1902, and Rollier opened his first sanatorium in Leysin a year later, the first of thirty-six. Both studied under the well-known surgeon and Nobel laureate Theodor Kocher (1841–1917).[74] Indeed, Bernhard and Rollier came close to being Nobel laureates themselves; between 1920 and 1933, the former was nominated five times, the latter three, for their work with heliotherapy.[75]

Alongside Tegner's Finsen monument, the photographs of Rollier and Bernhard present light therapy at its most aesthetically polished (though see also Chapter 6 for contemporary images of light therapy by Danish photographer, Nicolai Howalt, b. 1970, Fig. 6.1).[76] Their heavily illustrated publications provide an impressive visual archive of heliotherapy patients (Figs. 5.7, 5.15–5.16). As early as 1912, Rollier's photographs were receiving press in the *BMJ*. A special correspondent, attending a paper given by one of Rollier's staff, perceptively remarked on their aesthetic qualities, while still being convinced by the 'striking' effect:

> Dr. F. Morin (Leysin) made a short but excellent communication on the treatment of tuberculosis of glands, joints, bones, and skin by exposure to sunlight. It was illustrated by lantern slides, and a large number of photographs. In most cases the treatment extended over months, even years, but there was no question that the improvement was great. A most striking photograph was that of a young patient with arrested disease of the tibia ski-ing [sic] stark naked over Alpine snow [...] Here the effects of the light treatment were shown, but it was curious that while all photographs of the patient before the treatment were printed on bright, glossy paper, whereby details were accentuated, the after-results were invariably printed on dull matt paper, no doubt for artistic effect.[77]

It was not the last occasion Rollier employed strategic aesthetic tactics to disseminate light therapy as simultaneously an art and a science. He photographed his patients well into the 1940s.[78] Rollier considered his before and after photographs 'more eloquent than words' in demonstrating the regenerative powers of sunlight.[79] Their persuasive power moved influential British physicians, including Sir Alfred Fripp (1865–1930, Guy's), surgeon to King Edward VI and King George V (the latter receiving treatment for pleurisy in 1928 with mercury vapour lamps).[80] Fripp was convinced of the necessity of using sunlight to treat tuberculous children after viewing these photographs in 1921, which 'persuaded and delighted him on the spot'.[81] Fripp later attended the opening of Britain's first public sunlight clinic, in St Pancras in 1925, and was an honorary consultant to the London Light Clinic.[82] So great was Rollier's fame that the London County Council discussed the merits of sending soldiers and convalescents to his facilities in Leysin at their own cost.[83]

Thus, while this book concentrates on the British development of light therapy, it necessarily references other nations. British practitioners were keenly aware of the work and imagery of foreign physicians, citing them, visiting their facilities, and translating their key publications into English. As is apparent from the *Times* supplement, the British public were also kept informed of a range of international interests in therapeutic light through words and images, from Finsen's Light Institute in Denmark to Rollier's famous sanatoria in the Swiss mountains, from the fashionable beaches of the Côte d'Azur to Hans Surén's (1885–1972) *Nachtkultur* (Naked Culture) movement in Germany (Fig. 1.1, central image). Light therapy developed globally, used throughout Continental Europe, North America, North Africa, Russia, India, and New Zealand.[84] In these varied locations the political meaning and value of bodily exposure to light also varied considerably, Paul Overy explaining:

> The concerns with sunshine and the open air which had been a major feature of the social-democratic lifestyle of the 1920s and early 1930s also played an important role in the *Wohnkultur* of Nazi Germany, as they had earlier in fascist Italy, and in the ideology of the Soviet Union.[85]

Individual and national investments in light, therefore, were not apolitical – they did not transcend competing politics – but rather were readily absorbed into them. In Britain, bodily exposure to light was promoted by members of Labour and Conservative governments throughout the early twentieth century and taken up by social reformers like the eugenicist and campaigner Dr Caleb Saleeby (1878–1940), social elites such as Nobel laureate and playwright George Bernard Shaw (1856–1950), and social outcasts, not least nudists (Chapter 5).[86]

'British' light therapy

In contrast to other nations during the same time period, Britain's heavy investment in light therapy was marked by conflicting, even confounding, views towards its benefits and risks. Unlike in France, Switzerland, and the United States, for example, Britain's relationship with light was (and remains) particularly fickle.

There are early references to sunlight's curative value in nineteenth-century British medical literature. In 1830, the surgeon and writer James Johnson (1777–1845) wrote of sun-deprived patients as akin to etiolated celery – blanched and lifeless – necessitating a change of air.[87] In the 1850s, nursing legend Florence Nightingale (1820–1910) noted that the sun cured bodies physically and mentally

with the skill of an artist, impressing its effects upon the human form much as it did onto photographic film:

> It is the unqualified result of all my experience with the sick, that second only to their need of fresh air is their need of light; that, after a close room, what hurts them most is a dark room. And that it is not only light but direct sunlight they want [...] People think the effect is upon the spirits only. This is by no means the case. The sun is not only a painter but a sculptor. You admit that he does the photograph. Without going into any scientific exposition we much admit that light has quite as real and tangible effects upon the human body.[88]

Nightingale's poetic depiction is but one of many representations of the sun's painterly, sculptural, and photographic effects on the beauty, contours, and skin of patients' bodies.

In 1877, the chemist Thomas Blunt (1842–1929) and physician (later Sir) Arthur Downes (1851–1938) demonstrated that sunlight is bactericidal, publishing their findings in the proceedings of the Royal Society of Medicine.[89] Several years later, in 1890, the medical missionary Dr Theobald Palm (1848–1928) argued that rickets was the result of lack of sunlight. He advocated sunbaths as a routine preventive and curative practice for mothers and children and later became a vice-president to Saleeby's Sunlight League.[90]

When, in the mid-1890s, Niels Finsen began experimenting with light in Copenhagen, British medical practitioners were already primed and open to thinking about light as a powerful, natural therapeutic. Like his international contemporaries, Finsen was well aware of the bactericidal and irritating properties of actinic light, in particular the blue, violet, and ultraviolet rays, and he experimented with both natural and artificial light. His 'Finsen lamp', a modified carbon-arc lamp, had telescopic arms and quartz glass lenses that filtered light down onto the infected lesions of lupus vulgaris patients (Fig. 2.6). Targeting lesions one by one, his lamps destroyed the tubercle bacilli and enabled smooth scarring on patients' skin. So effective was the treatment – which he proved, as Rollier would, by means of powerful before and after photographs (Fig. 2.4) – that Finsen became internationally renowned, and by 1896 he opened an institute in Copenhagen that was privately and state funded.[91] He and his Finsen Institute won a number of awards, including a Grand Prix at the Art Nouveau *Exposition Universelle* of 1900, which also showcased escalators and talking films for the first time to the public.[92] Most prestigiously his development of phototherapy earned him a Nobel Prize in Medicine in 1903, the same year the Curies and Henri Becquerel won their joint Prize in Physics for the discovery of radioactivity (Chapter 4).

Finsen's publications were translated into German, French, and English, enabling global dissemination. And the world took notice. By 1900, Britain imported

phototherapy into its best hospitals, primarily through the intervention of fellow Dane, Queen Alexandra (1844–1925), then Princess of Wales.[93] Having visited the Finsen Institute in 1899, the princess was so impressed that she purchased a Finsen lamp and donated it to the London Hospital, effectively creating its light department. The department's regular appearance in the press was due in no small part to the hospital's chairman, Sydney Holland, who doggedly appealed for more and more funds to cover its significant running costs. As founder of the *Daily Mail* (1896) and owner of *The Times* (1908–22), Alfred Harmsworth (Lord Northcliffe, 1865–1922) had a major part to play in the public awareness of the hospital's phototherapy facilities as well; the newspaper magnate was one of their main benefactors, having donated the department's second Finsen lamp.[94] Anne Jamieson argued that greater attention should also be paid to public demand in driving the dissemination of phototherapy:

> When the Light Department at the London Hospital first opened, they were inundated by an 'endless stream' of [lupus vulgaris] sufferers and, within a few days, the waiting list was more than two years. Would-be patients came from around the country and from the colonies too, as far afield as New Zealand and Newfoundland.[95]

Following Finsen's lead, the light department's medical officer, dermatologist James Sequeira (1865–1948), ensured that patients were photographed before, during and after treatment, with case records still extant in the hospital's archives.

The London Hospital treated lupus patients initially with natural sunlight, setting up Finsen's focusing lenses on the tennis grounds (Fig. 2.9).[96] But heliotherapy did not initially have quite the same impact that phototherapy did, despite Finsen using both at his institute. The *BMJ* and the *Lancet* followed developments in heliotherapy early on, with sporadic reports from the 1890s to the 1910s. Some held it in high esteem and predicted its bright future.[97] Sir Henry Gauvain claimed he began using heliotherapy at Treloar Hospital from its opening in 1908, influenced by the *hélio-marin* (sun and sea) treatment at Berck under Drs François Calot (1861–1944), Jacques Calvé (1875–1954), and Henri Cazin (1836–91).[98] Later on he championed Rollier's method in Britain, and, along with Saleeby, wrote a foreword for Rollier's English publication, *Heliotherapy* (1923).

Though enthusiastic about natural sunlight's therapeutic charms, British practitioners expressed uncertainty that they could access and harness it on home soil. A recurring theme throughout the British history of light therapy is a lamentation towards the island's regrettable climate and consequent envy for the ready, unobstructed sunshine of France's southern coast and Switzerland's mountains. *The Times*' medical correspondent bemoaned in the 1928 supplement that, 'From October till March Great Britain is

a sunless country.'[99] Some doubted heliotherapy could be practised in Britain at all. The physicians Eleanor H. Russell and William K. Russell wrote in 1925 that,

> it is very difficult and almost impossible to practise heliotherapy in this country, owing to its low altitudes and its climatic conditions. The moisture-laden atmosphere and the smoky air filter out practically all the therapeutic rays of the sun, particularly in our large cities, and especially in winter, so that the sunlight we get is almost free from these rays.[100]

For the Russells, reliance on artificial sources was a necessity, and certainly the primary medical literature and visual material attest to Britain's enthusiastic employment of phototherapy. The sheer speed at which it entered into hospitals, including the London Hospital, Guy's, St Thomas', and the Manchester and Salford Hospital for Skin Diseases, indicates Britain's medical profession was ready and willing to welcome phototherapy's technologically impressive paraphernalia.[101]

Other practitioners argued that there were excellent opportunities to practise heliotherapy in the country, particularly during the spring and summer in the south of England, where, Gauvain attested, 'abundant sunshine for therapeutic purposes is available, sometimes largely in excess of the patient's needs'.[102] Saleeby's book, *Sunlight and Health*, was advertised in *The Times*' 1928 supplement, declaring that 'our English sunlight is good enough if used aright', while that same year Hill stated more emphatically that, 'It is noteworthy that on clear days readings of ultra-violet in England may be as high as in the tropics.'[103] This was not a case of heliotherapy being in rivalry with phototherapy, even if some practitioners expressed preference for natural over artificial sources or vice versa: Gauvain, Saleeby, and Hill promoted and employed both in clinical practice and for the public, and entrepreneurs fostered public access to both.[104] In Poole, for example, the Branksome Chine Solarium functioned as a solarium during the summer with the aid of 'Vita' glass in the lounge, while one of its halls provided phototherapy during the winter.[105] In the *Times* supplement, readers encountered a mix of images of natural and artificial exposures, with little sense that one was necessarily better than the other (Figs. 1.1–1.4). It makes for complicated (visual) reading and resists the temptation of writing what Jordanova called a 'seductive' and 'glamorised' narrative.[106] Her choice of words is fitting, since the history of bodily exposure to light is bound up with both sex and fashion.

Off the beaten (narrative) path

The history of bodily exposure to light is enmeshed with the history of leisure. With images such as Fig. 1.2, it is not surprising to see why: beaches, gardens, and open fields were ideal locations for heliotherapy; nudity was encouraged since the skin

needed unfettered exposure to light; and physicians were convinced of the light's psychological benefits, making the sight of smiles at sanatoria commonplace. Yet historians consistently overlook the early medical history of using light to treat diseases, instead following a well-worn narrative path on popular sunbathing that begins in the 1920s with the glamorous fashionista Coco Chanel (1883–1971). Physicians, stumbling with eagerness in her wake, are positioned as providing the much-needed 'justification' for an already-prevalent 'fad'. Sally Dunne Romano stated, for instance:

> In the early twentieth century, as the idea gained widespread popular acceptance, the medical profession played an important, though supporting role in promoting the connection between sunlight and good health. Medical and scientific theories and opinions reinforced and gave 'expert' backing to popular ideas about sunlight, health and tanned skin.[107]

Previous to the 1920s, we are told, tanning was associated only with the lower classes, especially manual labourers stuck outdoors all day roasting in the sun. Carter fleshed out this narrative by discussing the intertwined nineteenth-century histories of class, race, and travel – of skin colour and colonial conquest.[108] He also explained how beliefs about the beauty of pale skin and of tanned skin coexisted by the turn of the century, the former eventually outmoded as an 'aristocratic code of beauty' associated with sickliness and vice by 'an emerging aesthetics of middle-class bodily health and beauty'.[109] I tackle the subject of skin colour and race in Chapter 5, and throughout the book I add further context to light therapy's emergence by bringing in the histories of light chemistry, photography, electricity, and radiation.

Instead of positioning medical understandings of light as something separate from public ones – of viewing medicine and leisure as operating at opposite ends of a spectrum – I make the following three assertions:

First, that during the nineteenth and early twentieth centuries the former enabled the latter. Having been established by the nineteenth century in specific medical institutions, the therapeutic use of light predated and subsequently drove widespread public use during the twentieth century.

Second, that by the 1920s medical perceptions effectively naturalised the concept of light as fundamental to well-being, health, and happiness. Martin Edwards stated that by the 1930s and 1940s light therapy fizzled out.[110] But primary evidence makes it clear that going to light clinics, using home-use lamps, and sunbathing were still popular practices, encouraged through national fitness campaigns as well as during the Second World War (see Chapter 5).[111] I argue it was less a fizzling out than a *soaking in*, the increasingly familiar sight of bodies exposed to the sun or sophisticated lamps absorbed into the public consciousness like sunlight on skin.

Third, that this was less a 'trickle down' process, from authoritative physician to naive public, than a messy intersection of, and active struggle between, competing practitioners, patients, and members of the public, complicated additionally by image makers, manufacturers, and the popular press.[112] As individuals took on responsibility for (and pleasure in) their own exposures, medical practitioners fought even harder to retain their authority as experts on therapeutic light, to warn the public (as Russ would do), and to emphasise that, however beneficial, light equally was dangerous and mysterious. This was fundamentally an issue of control. Indeed, as I show in the chapters that follow, throughout its history light therapy has been perpetually 'out of control', a medical practice struggling to fix dosage standards, visualise its methods, prove its efficacy, and define itself. As I stated earlier, whether light therapy really worked is not my concern here. Instead, it is imperative to understand that the widespread interest in light's therapeutic potential at this time produced a myriad of theories, practices, images, and technological paraphernalia, whether mainstream, popular, commercial, or 'quack', and that unravelling their messy intersection to produce an easily digestible narrative is beside the point: light therapy's tensions, complexities, and failures communicate far more about its past – and present – than its successes.[113]

My three assertions are in keeping with both Carter's argument that physicians (and especially dermatologists) continue to act as keen mediators between bodies and sunlight, and Apple's argument that the history of vitamins is similarly marked by a self-perpetuating cycle of enduring deference to scientific authority – a back-and-forth game of 'benefits' versus 'risks' that only creates more and more competing and contradictory documentation, without ever presenting a satisfactory resolution one way or the other.

It is not just secondary literature that follows prescriptive narrative patterns in telling light therapy's 'story'. The primary literature played a major part in shaping its history through legitimising tactics that, consciously or not, were employed to make light therapy 'durable', to quote Carter.[114] These included locating the therapy's origins in ancient history while also making it modern and scientific, as well as establishing a hagiography of its 'pioneers'.

The therapy's proponents waxed lyrical about its illustrious heritage in ancient Egypt, Greece, and Rome, and even further back in human history. Bernhard opened his 1926 translation, *Light Treatment in Surgery*, by declaring:

> The beneficial properties of sunlight, the increased metabolism to which it conduces, and its vitalizing influence on body and mind have been known by instinct to the inhabitants of the earth from the oldest times [...] The sight of the sun has awakened religious sentiments in all peoples. Out of these

> sentiments grew the idea of a personal Sun God, and from this idea again sun-worship has developed. This was really the first religion.[115]

Practitioners such as Bernhard provided a 'natural' and logical justification for the use of heliotherapy, grounded in the medical wisdom, religions, and instincts of ancient civilisations. This is exemplified by the consistent, if not formulaic, structure of primary texts, which almost invariably began with a chapter on history featuring sun deities Ra and Apollo as well as Graeco-Roman enthusiasts Hippocrates, Celsus, and Galen. It was, of course, also produced through dramatic visual representations of figures worshipping the sun (Figs. 1.1, 1.7). This narrative pattern is so 'durable' it can still be found in secondary sources introducing the subject.[116]

At the same time, and particularly with early twentieth-century medical texts about phototherapy, there are introductions on the nature of light and electromagnetic forces, citing the work of contemporaries Wilhelm Röntgen (1845–1923), Sir Oliver Lodge (1851–1940), and William Thomson (Lord Kelvin, 1824–1907).[117] For practitioners, the 'primitive' uses of therapeutic light were not antithetical to modern, 'scientific' ones. By 'folding' the time of the ancients onto that of scientific progress, Carter argued that the therapy 'could simultaneously point both to the past and to the future'.[118] Lastly, they located 'modern' light therapy in 1890s Denmark, building its modern hagiography on the genius of Finsen. Finsen did not just 'invent' or 'discover' phototherapy, he positively unearthed it from the dark, smoky oblivion of the Industrial Revolution.[119] Jamieson argued that Finsen's influence was so great that his institute successfully perpetuated a Finsen 'brand': a Finsen technique, Finsen standards, and Finsen equipment.[120]

The major players and the big leagues

After Finsen came Bernhard and Rollier, then in Britain Sequeira, Gauvain, Hill, and Saleeby.[121] These were British light therapy's leading actors, and they fought to make it scientific, progressive, and 'systematic' (Chapter 2, and see Chapter 6 on its overlooked *others*, its 'invisibles': nurses, patients, and artists). Together they formed a tight circle and constantly cited each other's work and visited each other's facilities.[122]

Gauvain's sanatoria in Hampshire specialised in treating children with external forms of tuberculosis, especially of the bones and joints (Fig. 1.8). For this reason, Treloar Hospital (Alton) was known as a 'Cripples' hospital, later college, and provided work opportunities for those who, because of their physical disability, could not undertake normal paid work into adulthood.[123] In 1919, a branch was opened on Hayling Island to provide sea-bathing treatments as aids to the light and open air (Fig. 1.9). In 1920, Gauvain received a knighthood for his work with ill children at Treloar's, and he was considered Britain's leading heliotherapist. Hill was a physiologist specialising in the circulatory and respiratory systems, and in 1914 became

Figure 1.8 'Out on the terrace', Treloar Hospital, undated.
In *Alton 1908–1929–1937* (London: Treloar Hospital, 1937),
p. 13. Wellcome Library, London.

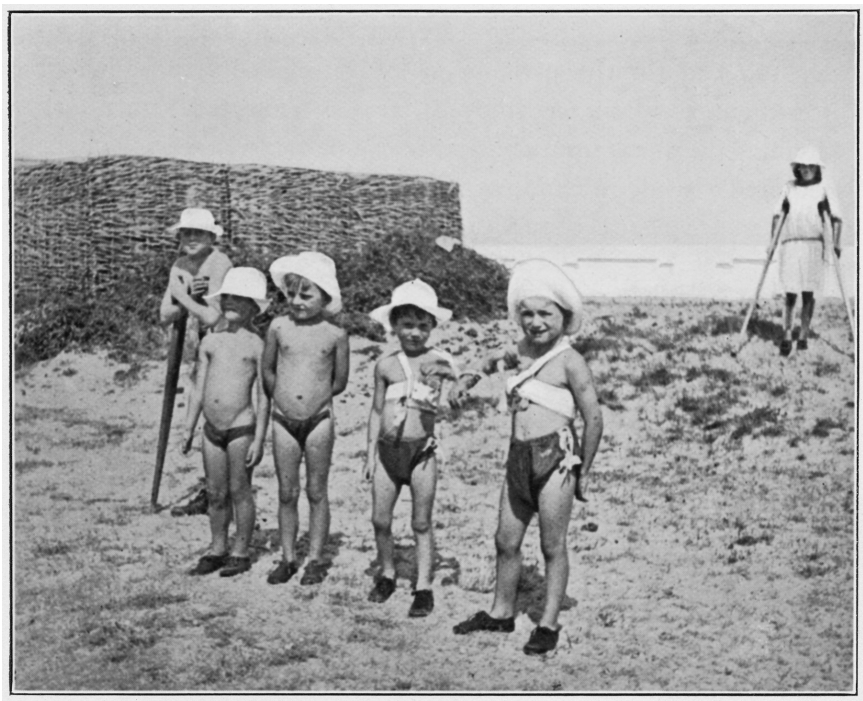

Figure 1.9 'A glimpse of Hayling', Treloar Hospital's seaside branch
on Hayling Island, undated.
In *Alton 1908–1929–1937* (London: Treloar Hospital, 1937), p. 15.
Wellcome Library, London.

head of the applied physiology department at the NIMR, run by the MRC. He was knighted in 1930.[124]

Gauvain and Hill were members of the MRC's CBAL, and, along with Saleeby, they helped found the People's League of Health (in 1917). The league campaigned for issues such as housing and sanitary reform, better nutrition, open-air living, and sunbathing, and was succeeded by the New Health Society (f. 1925) of William Arbuthnot Lane (1856–1943). Combatting the perceived degeneration of the British 'race', the leagues, John Stanislav Sadar explained,

> promoted the primitiveness of naturism and extant nineteenth-century practices of holidays, sport and leisure, sun-tanning and open-air living, looser and less clothing, hygiene, vegetarianism and temperance. They also advocated the new consumer products appearing under the guise of particular health claims, such as vitamin pills, artificial sunlamps and irradiated foodstuffs, as possible antidotes to a needy body. The membership propagating the needy body was its various antidotes included those at the forefront of British public life: prime ministers Asquith (1908–16), Lloyd George (1916–22), and Chamberlain (1937–40); Medical Research Council Tuberculosis Committee Chairman Charles John Bond; industrialist Henry Wellcome; zoologist Julian Huxley; and the progeny of Charles Darwin.[125]

Saleeby, initially involved in the Eugenics Education Society (f. 1907), acted as chairman for the National Birthrate Commission during the First World War and created the Sunlight League in 1924 under the patronage of Queen Alexandra.[126] Saleeby's aim was to banish what he termed the 'diseases of darkness' – rickets, tuberculosis, alcoholism, depression, and suicide – primarily through smoke abatement laws. For Saleeby, the smog of coal fumes rendered the sunlight's therapeutic and visualising powers inert; it sullied the lungs, blocked off ultraviolet radiation to needy citizens, and obscured the light authorities needed to monitor them.[127] Beyond the clinic, laboratory, and hospital, then, these physicians engaged directly with the government and the public to encourage the consumption of therapeutic light. In addition to giving public talks, Saleeby published under the pseudonym of 'Lens' in a regular column in the *Statesman*, while Hill frequently provided ultraviolet radiation readings for *The Times*.

The Sunlight League published the journal, *Sunlight* (f. 1924), and organised the opening of several light clinics in London, the first in St Pancras in 1925. It was overseen by Dr William Beaumont (d. 1967), who by 1930 became the medical director of the Institute of Ray Therapy in Camden. The institute offered phototherapy free to the poor and charged other patients according to their income and number of dependents.[128] The London Light Clinic opened in 1925, expanded in 1927, and was run by the British Humane Association.[129] Its medical superintendent was Dr Edward Deck (see epigraph) and its general supervisor Hill. The London Light Clinic ran

along similar lines to the Institute for Ray Therapy and in 1932 professed to have 120,000 patients. Both clinics also acted as training centres for practitioners wishing to specialise in the subject, the examinations overseen by the Chartered Society of Massage and Medical Gymnastics from the 1920s.[130]

Another well-known light clinic was run by the Bermondsey Borough Council, having opened already by 1924. It expanded in 1936, a pamphlet by the major lamp manufacturer, Hanovia, explaining that the clinic now had facilities to treat fifty patients at once, providing 1,600 treatments per day. Hanovia supplied the lamps, as it did to many other clinics, hospitals, health centres, factories, to the public directly, and even to the National Gallery to examine artworks.[131] But two health centres took the lead in terms of integrating the latest light-therapy facilities with innovative architectural design: the Peckham Health Centre (Peckham Experiment, 1935), designed by British modern architect Sir Owen Williams (1890–1969), and the Finsbury Health Centre (1938), designed by socialist Russian émigré Berthold Lubetkin (1901–90). The centres were at the forefront of preventive care for the working and poorer classes, incorporating light therapy as part of a larger health programme that included swimming, dancing, and physical culture.[132] Overy has characterised modernist architecture of the interwar period as marked by a fascination for 'light, air and openness', heavily influenced by sanatoria design.[133] Le Corbusier (1887–1965) is repeatedly mentioned for his preoccupation with sunlight, as is British architect Edwin Maxwell Fry (1899–1987), who built his 'Sun House' in 1935 and designed an open-air school for tuberculous children at Papworth (Cambridge) with Bauhaus founder Walter Gropius (1883–1969).[134]

The most public expression of this Art Deco love of the sun, however, was surely the lido. Standing in for the beach within the urban sprawl of the city, the lido provided an open space mixing genders, classes, and ages, united in their bodily exposure to the sunlight, air, and water. The Serpentine Lido ('Lansbury's Lido', 1930), in particular, was built following the urging of the Sunlight League to radical politician George Lansbury (1859–1940).[135] It was one of the League's many campaigns, a product of its aim to be 'above party, class or creed'.[136] The sight of sunbathers was encountered high and low by the 1930s, in the visual arts and in popular media; 'sunbathers were everywhere', Christopher Wilk stated, 'shown in mass-circulation magazines and in newsreels, in design publications, in art galleries and in public exhibition spaces'.[137] The desire for fit and healthy bodies became a national imperative, in Britain and elsewhere. As I explain in Chapter 5, the individual who consumed light was performing no less than an act of citizenship.

Exposing children

Problematically, such ennobling acts by individual citizens were not necessarily voluntary. Here we arrive at a difficult topic, that of exposing children, the therapy's

main target group. Many thousands of children received heliotherapy and phototherapy during the early twentieth century, in Britain and abroad. They were used to treat a variety of childhood illnesses and conditions, chief among them anaemia, malnourishment, and rickets. The discovery that ultraviolet light could stimulate vitamin D production and hence cure rickets had a profound effect on child health provision. Saleeby declared in 1929 that half of all three-year-olds in the country suffered from rickets.[138] Little wonder public authorities and physicians placed such faith in light's beneficial powers, with the photographic material showing such remarkable recoveries (Figs. 1.5–1.6, 5.7). Russ, in a public radio broadcast of 1928, stated that 'it is no exaggeration to say that the children are literally nourished by sunlight'.[139] Dr Katherine Gamgee, specialising in maternal and child health, explained it was the duty of local health and education authorities to provide children with suitable access to light, as 'Such a clinic as a Light Department taps very widely the child population of any area, and, if it prove successful, it will be found that very soon all the feeblest and illest children in the neighbourhood will flock to it.'[140] Parents, especially mothers, were encouraged to bring their children to these clinics, on referral by their general practitioner or medical officer of health, as well as to expose them independently under a watchful eye (Fig. 1.1).

As this book's reproduced images show, many children were photographed receiving treatment, or before and after it, to disseminate light therapy's methods and results. The identities of these children remain unknown – they are very rarely mentioned in archives, and often further anonymised by having their names appear only as initials in case studies or their faces obscured by wearing goggles in the images. In a time before formalised patient consent laws, it is doubtful they gave their consent to receive exposures or to be photographed doing so (or, furthermore, for those photographs to be distributed), which I find both professionally and personally distressing.

'Exposing' is an apt choice of word, calling to mind the act of irradiating itself (treating the patient) but also the acts of subjecting (endangering), opening to the light (photographing), uncovering (laying bare), and displaying (exhibiting). Therefore, by discussing the exposing of children I mean putting vulnerable children in front of or under light sources, capturing their likenesses onto the photosensitive film of the camera, showing their nude bodies to receptive medical and public audiences, and reproducing such images once again throughout this book (and online, no less, through the Open Access version). These exposures – to the light of the lamp, to the camera, and to the gazes of primary and secondary audiences – deserve critical contextualisation, ethical considerations, and sensitivity.[141] I cannot control the life of the photographs any more than their original producers, even with restrictive licensing laws, and how viewers choose to react to these images remains uncertain.[142] That many of the images represent anonymous, vulnerable, nude children makes my position all

the more precarious. Being in this position, however distressing, presents me with an opportunity, as well as a responsibility, to be ever mindful of the power of images.[143]

The Treloar archives, held at the Hampshire Record Office in Winchester, make an ideal case in point. Treloar's medical superintendent, Gauvain, published images and films of his child patients in various medical and popular venues (Figs. 1.7–1.8). As a result, Treloar's was well known to the general public and to the social elite, the latter pictured frequently as benevolent donators and privileged visitors on its annual founder's day. In photographs and films, wealthy patrons draped in furs mix uneasily with nude child patients, both on public display to various ends. In these representations, the institution was conveyed both as a space of modern, scientific medicine and intimate, loving care (Figs. 1.8, 1.10). Constantly monitored and intensely observed, some patients were involved in long-term controlled trials at the sanatorium, for example concerning ultraviolet light's effects on mental retardation (Chapter 5).[144] This is but one example of many experiments involving child patients as 'guinea pigs' for light therapy research and forms part of a larger history involving children as research subjects as Susan Lederer has shown.[145]

Figure 1.10 'In the hay', Treloar Hospital, undated. In *Alton 1908–1929–1937* (London: Treloar Hospital, 1937), p. 7. Wellcome Library, London.

Now carefully closed to public view, Treloar's archival photographs, illustrated publications, and case records remain hidden to all but 'bonafide medical researchers'. The images of Treloar Hospital reproduced here are from alternative sources. Permission requests to reproduce images from the Treloar archive have been ignored or denied to me by their current rights-holder.[146] Its reasoning for doing so has not been explained, but I suspect the matter rests with the subject of exposing children, revolving around issues of patient consent and anonymity, child nudity, and the ethics of display. Though I have viewed its archive in person, the photographs remain invisible in this book.

The silent, resistant nature of these representations retains their power and exemplifies ambivalent and contentious perceptions – already in place at the time of their making – towards exposing (photo)sensitive patients to actinic light among the medical community and the popular press. These two kinds of 'exposure', concerning not only the irradiating of the children but their requisite bare flesh recorded and displayed via photography, are inextricably intertwined and have made the choice whether or not to reproduce images of these child patients a difficult task.[147] At the same time, it is not my place to celebrate or denigrate the use of light therapy, in the past or today, or portray its practitioners as either saviours or villains. Its patients, similarly, cannot categorically be viewed as victims, even its most vulnerable and powerless patients. The complexity of this subject matter is embedded within its very representation, and the images in this book allow, if not demand, us to think through the complexities of light therapy as a medical practice, their own rich meanings and manner of production providing a unique entry point into the therapy's contentious history.

The chapters

Soaking Up the Rays contains four main chapters, each driven by an image, or set of images and objects, that leads a discussion on a specific theme in light therapy's history. Just like *The Times*' supplement, a variety of representations of light therapy, both visual and textual, is encountered throughout the book.

Chapter 2 tracks the ambivalent role of sunburn in the dosage standardisation of ultraviolet light through documentary photographs of *c.* 1893–1940. These photographs are particularly difficult to read ('illegible'), both literally and figuratively, beginning with a photograph of Finsen's irradiated, sunburnt forearm (Fig. 2.1). It is one of the earliest images, if not the first, of modern light therapy. This now lost, poorly reproduced photograph presents the results of Finsen's self-experimentation with a carbon arc lamp. Assessing ultraviolet light's impact upon the body, Finsen concluded that one's own skin acted as a registration device for dosing therapeutic light. Significantly, he relied on another light-sensitive registration device, namely

photography, to communicate his findings and to legitimise phototherapy to an international medical community. This chapter questions British physicians' conflicting perceptions towards sunburn (solar erythema) in the therapeutic process, as a physiological marker at once feared and desired during the cure. Both the visual sign of damage *and* therapeutic success, the solar erythema's value was hotly contested among practitioners. British physicians and researchers came to convey enormous conceptual weight onto the visual production of solar erythema, a phenomenon known to be visibly transient, latent, and variable according to the individual, and thus a particularly uncooperative visual anchor on which to standardise exposures. The chapter argues that the very desire to 'fix' sunburn (to photographically record it and to pin it down according to measurable qualitative and quantitative data) betrays deep-seated anxieties on the part of practitioners to wrestle control over light therapy as a purportedly 'systematic' form of medicine. It deals with the troublesome nature of visual evidence, especially photographs, through a focused study of light therapy's clinical history.

Chapter 3 takes the relationship between light therapy and its photographic representation further by thinking through the complexities of these intertwined 'light technologies'. Practitioners made frequent analogies between photographs and skin, and they looked to photographic processes and larger developments in photochemistry in order to understand how and why light therapy worked on patients. But what began as a natural alliance between photography and light therapy soon became an uneasy, incestuous relationship between the visualising and therapeutic powers of light. Damaged and overexposed photographs offer poignant examples of this uneasy relationship, especially those attempting to capture a particularly difficult subject: open arc light therapy in process, which splayed blinding, excessive actinic light onto any and all exposed to it. By contrast is an unusually 'good', if obscure, photographic negative of a session taking place at the South London Hospital for Women and Children (Fig. 3.1). It was taken by the émigré photographer Edith Tudor-Hart, who produced many photographic representations of light therapy during her intriguing and secretive career. Counterpoints to Tudor-Hart's photograph are damaged attempts, marked by lens flare and 'solarisation'. Chapter 3 argues that light therapy was encountered and represented photographically as an *obscure* practice, in which these light technologies do not so much converge as collide.

Through particularly striking advertisements, Chapter 4 focuses on risk, damage, and injury through the art of visualising the penetrating rays of invisible light. It situates ultraviolet lamps and their advertisements as modern objects communicating ambivalent messages about risk and safety. The chapter argues that manufacturers and practitioners relied heavily on montage as an adept, vanguard medium for representing the emanating invisible rays of natural and artificial light (Plate 1). Manufacturers encouraged British consumers to expose their bodies to lamps

designed for independent use and self-surveillance during which the individual became simultaneously operator and patient. Sunburn and suntan were both desirable outcomes of these vitalising exposures to ultraviolet radiation, represented in advertisements with 'radiant' bodies. The advertising of these lamps intensified during the 1920s and 1930s, despite growing awareness of ultraviolet light's carcinogenic properties. Chapter 4 contextualises physicians' use of infrared and ultraviolet rays in relation to the contemporaneous development of radiotherapy, including X rays and the beta, alpha, and gamma rays of radium. Burns, lesions, and skin cancers from all of these rays are investigated, as well as the similar ways in which these risky, invisible rays were visualised, ingested, and marketed. The complex relationship between these different wavelengths – sometimes perceived as allies, sometimes enemies – in the therapeutic process elucidates surprising tensions in light therapy's past, connecting the tanning lamp to the atom bomb.

Through colour advertisements that convey the glowing tans of healthy mothers, thriving babies, and virile men, Chapter 5 discusses the politics and aesthetics of suntan (Plate 3). It analyses practitioners' perceptions of the suntan as the external sign of stored solar energy in the body, of the body visualised as literally 'photogenic' (light-generating). Practitioners, government officials, and eugenicists greatly desired tanned flesh for the British public, and lamp manufacturers and tourist companies offered light for consumption in the battle against 'sun starvation'. Rich and poor alike received therapeutic exposures of light in hospitals, clinics, and at home, and, as they internalised and consumed the penetrative rays of light, their bodies were perceived to gain unparalleled vitality and regenerative force for the benefit of individual and nation. Sunlight and artificial light were directed onto nursing mothers' breasts, 'backwards' children, and injured soldiers. In the regeneration of these highly valued subjects, physicians and politicians perceived light as an aid to national salvation. Yet in encouraging citizens to emulate the dark skins of 'primitive' races, they conveyed ambivalent attitudes towards the merits of suntanned skin. Through dramatic colour representations of suntanned bodies, Chapter 5 investigates suntan as simultaneously a visual marker of recharged health and a troubling act of racial transgression during a period of heightened eugenic fervour in Britain and Europe.

By way of conclusion, Chapter 6 discusses the concept of the 'dead point' in light therapeutic practice. For some physicians, too deep a suntan could inhibit further curative effect, a 'dead point' or plateau during treatment. From this point, treatment would stop, and the patient's skin would be allowed time to rest and recover. Once the skin lost its tan, the treatment would start again, creating cycles of 'dead points' and recoveries. As an initial inhibitor to progressing forward, the 'dead point' finds resonance with light therapy's numerous historical dead ends. Contained within the closed stores of the Wellcome Library, for example, is an unusual painting about light therapy, made by a now-obscure British artist, Beatrice Langdon (Plate 8). In

1938, she painted the light department of the Royal London Hospital, a work commemorating the impact of the Finsen lamp in the battle against lupus vulgaris. The exact reasons for Langdon's painting are, however, unknown, and Chapter 6 leads off from the mysteries and loose threads surrounding the work to discuss the many other silences, absences, and dead ends in the history of light therapy.

I view such dead points/ends as opportunities to ask different kinds of questions, to use different kinds of approaches (especially visual), and, therefore, to acquire different kinds of knowledge about medicine's past. The key images discussed in each chapter could be viewed as 'failures' or 'dead points' – as being unable to legibly communicate light therapy as a progressive treatment in an easily digestible, visual form. Yet, by failing to do so, they succeed in communicating the deep-seated anxieties, confounding perceptions, and ambivalent socio-political investment of practitioners and enthusiasts in 'harnessing' British bodies to natural and artificial light.

Notes

1 Edward J. Deck, *The Sun and How to Use It* (London: The Sunlight League, 1926), p. 3.

2 *The Orientation of Buildings* (London: Royal Institute of British Architects, 1933), p. 3. My thanks to Simon Carter for this reference.

3 In factories, miners could receive artificial sunlight after a shift. On farms, vegetables and animals were irradiated to increase crop growth, milk supply, and egg production, see *Sunlight*, 1:8 (1929), 30. Early examples of heliotherapy and phototherapy available in hotels and sanatoria include: Nordrach-on-Dee (near Balmoral), advertised in *British Medical Journal* (hereafter *BMJ*), 30 December 1911, p. 42; Glan Ely sanatorium (near Cardiff) by 1915, see 'A Combined Attack against Tuberculosis in Wales', *BMJ*, 14 August 1915, p. 263; and Peebles Hotel-Hydropathic, see the archives at Scottish Borders Council Archive and Local History Service, Hawick. It was also available at spas, see 'Where the Sun Is on Tap: Five Shillingsworth of Artificial Sunshine at Harrogate', *Yorkshire Evening Post*, 17 March 1925, p. 7. Local councils provided both too, by funding clinics and designating open spaces for sunbathing. Hastings even published printed instructions for sunbathers, see *Sunlight*, 2:3 (1930), p. 120; in 1932, it had a medical offer on the beach to give advice to sunbathers, reported in *Sunlight*, 2:6 (1932), p. 188. The opening of sunlight clinics was frequently remarked upon in local and national presses, often accompanied by photographs. See, for example, 'Artificial Sunlight at Plymouth: Amenities of Cornwall Resort', *Western Morning News*, 24 February 1926, p. 1; and 'Burnley Children to Have Artificial Sunlight Treatment', *Burnley Express and Advertiser*, 25 February 1928, p. 11. There were privately run centres offering phototherapy too: see 'Gloucester's "Sun-Ray" Centre', *Cheltenham Chronicle and Gloucestershire Graphic*, 28 April 1928, unpaginated, and an advertisement for the Midlands Sun Ray Clinic in *Nottingham Evening Post*, 20 August 1927, p. 4. One centre could cater to different classes and clientele: centres in the borough of Greenwich treated maternity and child welfare patients, patients referred from the tuberculosis dispensary, fee-paying adults in the evening, and secondary school students; see M. Macdonald, 'Artificial Sunlight Treatment in Greenwich', *Sunlight*, 2:11 (1934), 295–6.

4 'Sunlight: Extensive Use by Public Authorities', *The Times*, 16 May 1928, p. 13, as cited in Anne Kinloch Jamieson, 'An Intolerable Affliction: A History of Lupus Vulgaris in Late Nineteenth- and Early Twentieth-Century Britain' (Ph.D. dissertation, University of Leeds, 2010), p. 132.
5 'A New Science', *The Times*, 'Sunlight and Health' special supplement, 22 May 1928 (hereafter *Times* supplement), p. x.
6 'A New Science', *Times* supplement, p. x.
7 On Celanese fabric see the advertisement for British Celanese Ltd (London), *Times* supplement, p. xxxv. On 'Vita' glass, see John Stanislav Sadar, 'Unpacking the Latent Bodies of Interwar Ultraviolet Health Glass' (Ph.D. dissertation, University of Pennsylvania, 2010) and *Through the Healing Glass: Shaping the Modern Body through Glass Architecture, 1925–35* (London and New York: Routledge, 2016).
8 Allen and Hanburys Ltd (London) advertisement, *Times* supplement, p. vii.
9 'A New Science', *Times* supplement, p. x.
10 'The Coming of the Sunlight: Influence on the Nation's Health', *Times* supplement, pp. x–xi, at p. x.
11 'A New Science', *Times* supplement, p. x.
12 A. Webster, 'Ergosterol: Parent Substance of Vitamin D', *Times* supplement, p. xi.
13 Sidney Russ, 'The Story of the Rays: The Magnetic Theory of Light', *Times* supplement, p. xix.
14 Quoted in 'Light Treatment in Hospitals', *Times* supplement, pp. xxxi–ii, at p. xxxii.
15 Quoted in P. H. Oakley Williams, 'A Day's Work at "The London"', *Pall Mall Magazine*, May 1903, pp. 68–78, at p. 73. See also Sir Henry Gauvain, 'Organisation and Work of a Light Department in a Hospital for Surgical Tuberculosis', *Lancet*, 4 July 1925, pp. 10–16, at p. 11.
16 See, for example: 'Spreading Fame of the Leeds "Sun Ray" Centre', *Yorkshire Evening Post*, 27 October 1927, p. 8; Leonard Hill, G. B. Dixon, and Dora C. Colebrook, 'Discussion on Influence of Sunlight and Artificial Light on Health', *BMJ*, 12 September 1925, pp. 470–7, at p. 477; and Martin Edwards, *Control and the Therapeutic Trial: Rhetoric and Experimentation in Britain, 1918–48* (Amsterdam and New York: Rodopi, 2007), p. 76.
17 Quoted in 'Light Treatment in Hospitals', *Times* supplement, p. xxxii.
18 Edwards, *Control*, p. 74.
19 Though the *Times* supplement titled its lead article 'A New Science', Gauvain stated in 1934, 'In the present state of our knowledge heliotherapy is an art rather than an exact science.' Sir Henry Gauvain, 'Reflections on Sun Treatment: the Theory of Varying Stimuli and Varying Response', *The Practitioner*, 132 (February 1934), pp. 1–12, at p. 6.
20 Light apparatus was frequently housed with X-ray equipment, including at the London Hospital. See G. Allpress Simmons, 'The Constitution and Organization of the X-Ray Department of a General Hospital', *BMJ*, 27 August 1910, pp. 535–7; and Anne Kinloch Jamieson, 'More than Meets the Eye: Revealing the Therapeutic Potential of Light, 1896–1910', *Social History of Medicine*, 26:4 (2013), 715–37.
21 Hanovia advertisement, *Times* supplement, p. xxxiii.
22 See the advertisements for the 'Uvral' Junior twin carbon arc lamp, available via Bower Electric Ltd (London), *Times* supplement, p. xxxvii, and the Marion therapeutical multi carbon arc lamp, by the Amalgamated Photographic Manufacturers Ltd (London), p. xxxviii.
23 The conversion was used with the following website: www.thisismoney.co.uk/money/bills/article-1633409/Historic-inflation-calculator-value-money-changed-1900.html (accessed 17 February 2016).

24 Raymond Williams, 'Advertising: The Magic System', in *Problems of Materialism and Culture: Selected Essays* (London and New York: Verso, 1997), pp. 170–95, at p. 182. Katy Price explained this shift is termed the 'Northcliffe revolution', after Lord Northcliffe (Alfred Harmsworth); Katy Price, *Loving Faster than Light: Romance and Readers in Einstein's Universe* (Chicago, Ill.: University of Chicago Press, 2012), p. 6; and Ernest Turner, *The Shocking History of Advertising* (Harmondsworth: Penguin, 1965), p. 140.

25 Lupus vulgaris is not the 'lupus' we are more familiar with today, systemic lupus erythematosus.

26 Edwards, *Control*, p. 70.

27 See, for example, Albert Eidinow, 'Observations on Some of the Principles of Artificial Sun Treatment', *British Journal of Tuberculosis*, 19:3 (1925), 113–26, at p. 114; Myrtle Vaughan-Cowell, *Artificial Sunlight: Its Use and Application* (London: H. Edgar Smithers, 1928), pp. 17–18; and *Actinotherapy Technique* (Slough: Sollux, 1943), pp. 21–2. See also Richard Hobday, *The Healing Sun: Sunlight and Health in the 21st Century* (Forres: Findhorn Press, 1999), p. 15.

28 Erythemata, beyond solar erythema, have been used historically to diagnose, visualise, and reveal symptoms, brought out at the visible level of the surface/exterior of the body. They have acted as 'registers' in Charcot's 'skin writing' (hysterical dermography), in allergy scratch tests, tuberculosis tests, and even product testing on the inner forearm. My thanks to Mary Hunter for this.

29 'Sunlight and the Skin', *Times* supplement, p. xiii. See also Martyn Evans, 'Wonderful Treatment', in Pekka Louhiala, Iona Heath, and John Saunders (eds), *Medical Humanities Companion*, vol. III: *Treatment* (London: Radcliffe, 2013), pp. 17–32, at p. 18.

30 Hugo Bach, *Irradiation with the Alpine Sun Quartz Lamp*, ed. R. King Brown (Slough: Sollux, 1931), p. 36.

31 Vaughan-Cowell, *Artificial Sunlight*, pp. 17–18; and Auguste Rollier, *Le Pansement solaire: héliothérapie de certaines affections chirurgicales et des blessures de guerre* (Lausanne and Paris: Librairie Payot & Cie., 1916), pp. 67–8.

32 See Sir Henry Gauvain, 'The General Principles of Treatment in Tuberculous Disease of the Bones and Joints in Children', *BMJ*, 26 November 1921, pp. 876–84, at p. 881; Niels R. Finsen, *Phototherapy*, trans. J. H. Sequeira (London: Edward Arnold, 1901), pp. 54–5; and *Times* supplement, p. xii.

33 Edwards, *Control*, p. 16.

34 This will be no revelation to scholars of art history and visual culture. Howell points out, along these lines, 'A danger of writing for many audiences is that what is seen as radical by one may be seen as obvious by another.' Joel D. Howell, *Technology in the Hospital: Transforming Patient Care in the Early Twentieth Century* (Baltimore, Md.: Johns Hopkins University Press, 1996), p. 9.

35 See the articles in *Medical Humanities*, special issue, 'Patient Portraits', 39:1 (2013).

36 See Caroline A. Jones and Peter Galison (eds), *Picturing Science, Producing Art* (London and New York: Routledge, 1998), pp. 1–23, at p. 6.

37 Eidinow, 'Observations on Some of the Principles', p. 126.

38 The only comparable case is that of X rays, which could be used to diagnose a cancerous tumour, for example, and also treat that tumour by continued exposure.

39 'A New Science', *Times* supplement, p. x.

40 I thank Natasha Ruiz-Gómez and Mike Sappol for prompting me to think of the images in these different ways.

41 Carolyn Thomas de la Peña, *The Body Electric: How Strange Machines Built the Modern American* (New York: New York University Press, 2003), p. 138.

42 Simon Carter, *Rise and Shine: Sunlight, Technology and Health* (New York and Oxford: Berg, 2007), p. 8.

43 See Elizabeth Knowles, *Laura Knight in the Open Air* (Bristol: Sansom & Co., 2012).

44 Catherine Wallace, *Catching the Light: The Art and Life of Henry Scott Tuke, 1858–1929* (Edinburgh: Atelier Books, 2008); and Michael Hatt, 'A Great Sight: Henry Scott Tuke and His Models', in Jane Desmarais, Martin Postle, and William Vaughan (eds), *Model and Supermodel: The Artist's Model in British Art and Culture* (Manchester: Manchester University Press, 2006), pp. 89–104.

45 Frances Spalding, *British Art since 1900* (London: Thames & Hudson, 1989), p. 20.

46 See Linda Dalrymple Henderson, 'X Rays and the Quest for Invisible Reality in the Art of Kupka, Duchamp, and the Cubists', *Art Journal*, 47:4 (1988), 323–40; Linda Dalrymple Henderson, *Duchamp in Context: Science and Technology in the* Large Glass *and Related Works* (Princeton, NJ: Princeton University Press, 2005); and Linda Dalrymple Henderson, 'Francis Picabia, Radiometers, and X-Rays in 1913', *The Art Bulletin*, 71:1 (1989), 114–23; Gavin Parkinson, *Surrealism, Art and Modern Science: Relativity, Quantum Mechanics, Epistemology* (New Haven, Conn.: Yale University Press, 2008); Edward Juler, *Grown but Not Made: British Modernist Sculpture and the New Biology* (Manchester: Manchester University Press, 2015); Pascal Rousseau, 'Radiation: Metabolising the "New Rays"', in Angela Lampe and Clément Chéroux (eds), *Edvard Munch: The Modern Eye* (London: Tate Publishing, 2012), pp. 161–9.

47 See Tania Woloshyn, 'Regenerative Tanning: Pigmentation, Neo-Lamarckian Eugenics and the Visual Culture of the *Cure de Soleil*', in Fae Brauer and Serena Keshavjee (eds), *Picturing Evolution and Extinction: Regeneration and Degeneration in Modern Visual Culture* (Newcastle upon Tyne: Cambridge Scholars Publishing, 2015), pp. 193–216. An image of *Solrosen* by Ebbe (1868–1941) features on the cover of Jørgen Peter Müller, *My Sun-Bathing and Fresh-Air System* (London: Athletic Publications, 1927).

48 My thanks to Nicolai Howalt for informing me about this phrase. For a discussion of the multiple meanings of 'towards the light' in a French context, see my thesis: '*Vers la lumière*: Painters and Patients on the Côte d'Azur, *c.* 1887–1910' (Ph.D. dissertation, University of Nottingham, 2008).

49 This is common in the visual cultures of science and medicine, Hentschel remarking that, 'The establishment of scientific photography notwithstanding, astronomers, chemists, physicists, and spectroscopists alike depended on others to get their drawings or photographs into print. And these too often completely obscure artists are indeed historiographic aliens.' Klaus Hentschel, *Mapping the Spectrum: Techniques of Visual Representation in Research and Teaching* (Oxford: Oxford University Press, 2002), p. 8.

50 Jennifer Tucker, 'The Historian, the Picture, and the Archive', *Isis*, 97:1 (2006), 111–20, at p. 114.

51 Similarly, Ellenbogen argued that Marey's chronophotographic data enabled the study of human kinetics; without photography, such a study could never have existed: Josh Ellenbogen, *Reasoned and Unreasoned Images: The Photography of Bertillon, Galton, and Marey* (University Park, Pa.: Pennsylvania State University Press, 2012).

52 Ludmilla Jordanova, *History in Practice* (London: Arnold, 2000), p. 1.

53 Carter, *Rise and Shine*, p. 11.

54 See Carter, *Rise and Shine*, pp. 9, 39, 46, in which Carter positions medical authority as following the public interest in sunlight, an afterthought to justify the public's 'independent' interests, and an establishment that needed to be 'enrolled' to legitimise light therapy.

55 Roger Cooter and John Pickstone (eds), *Medicine in the Twentieth Century* (Amsterdam: Harwood Academic Publishers, 2000), pp. xiii–xix, at p. xiii.

56 See Kerry Segrave, *Suntanning in 20th Century America* (Jefferson, NC: McFarland & Co., 2005); Daniel Freund, *American Sunshine: Diseases of Darkness and the Quest for Natural Light* (Chicago, Ill.: University of Chicago Press, 2012); John Stanislav Sadar, '"Vita" Glass and the Discourse of Modern Culture', in Grace Lees-Maffei (ed.), *Writing Design: Words and Objects* (London and New York: Berg, 2012), pp. 103–17; Sally Dunne Romano, 'The Dark Side of the Sun: Skin Cancer, Sunscreen and Risk in Twentieth-Century America' (Ph.D. dissertation, Yale University, 2006); and Ina Zweiniger-Bargielowska, *Managing the Body: Beauty, Health, and Fitness in Britain, 1880–1939* (Oxford: Oxford University Press, 2010). Exceptions include Meghan Crnic, 'Seeking the Salubrious Sea: The Health and Environments of Urban American Families, 1870–1930' (Ph.D. dissertation, University of Pennsylvania, 2013); and Jamieson, 'An Intolerable Affliction'. Jamieson's Ph.D. dissertation devoted two chapters to light therapy for the treatment of lupus vulgaris in late-nineteenth- and early twentieth-century Britain. In her examination of the early literature, Jamieson discovered that the British medical profession was strongly invested in phototherapy, becoming pivotal to dermatology's development.

57 These include Anthea Callen, Ludmilla Jordanova, Tanya Sheehan, Kelley Wilder, Mary Hunter, Mechtild Fend, Fae Brauer, Keren Hammerschlag, and Natasha Ruiz-Gómez.

58 Jordanova, *History in Practice*, pp. 189–90. See also Kirsten Ostherr, *Medical Visions: Producing the Patient through Film, Television, and Imaging Technologies* (Oxford: Oxford University Press, 2013), p. 17; and José van Dijck, *The Transparent Body: A Cultural Analysis of Medical Imaging* (Seattle, Wash.: University of Washington Press, 2005), p. 11.

59 My thanks to Keren Hammerschlag for the wonderful phrase, 'more fraught than fluid'.

60 See Melissa Miles, *The Burning Mirror: Photography in an Ambivalent Light* (North Melbourne: Australian Scholarly Publishing, 2008).

61 W. J. T. Mitchell, *What Do Pictures Want? The Lives and Loves of Images* (Chicago, Ill.: University of Chicago Press, 2005), p. 10.

62 Carter, *Rise and Shine*, pp. 1–2, 6.

63 Mitchell, *What Do Pictures Want?* p. 108.

64 Ellen Lupton, *Mechanical Brides: Women and Machines from Home to Office* (New York: Cooper-Hewitt National Museum of Design, Smithsonian Institute, and Princeton Architectural Press, 1993), p. 10. See also Margarete Sandelowski, *Devices and Desires: Gender, Technology, and American Nursing* (Chapel Hill, NC: University of North Carolina Press, 2000), pp. 29, 31, 42.

65 Howell defines 'technology' in three ways: as physical artefact (e.g., machine), as an activity, and as a form of knowledge (Howell, *Technology in the Hospital*, p. 8).

66 Rima Apple, *Vitamania: Vitamins in American Culture* (New Brunswick: Rutgers University Press, 1996), p. 3.

67 Apple, *Vitamania*, p. 179.

68 Tania Woloshyn, 'Health and Consolation in Renoir's Late Southern Works, *c.* 1895–1919' (MA dissertation, Queen's University, 2004); and Tania Woloshyn, '*Vers la lumière*'. See

also Tania Woloshyn, 'Aesthetic and Therapeutic Imprints: Artists and Invalids on the Côte d'Azur, *c.* 1890–1910', *Nineteenth-Century Art Worldwide*, 11:1 (2012).

69 Maurice Denis, 'Henri-Edmond Cross [1910]', in *Théories, 1890–1910: Du Symbolisme et de Gauguin vers un nouvel ordre classique* (Paris: Bibliothèque de *L'Occident*, 1912), pp. 156–60, at p. 157.

70 Paul Joanne, *Les Stations d'hiver de la Méditerranée* (Paris: Librairie Hachette et Cie, 1906), p. 47; Isabelle Compin, *H. E. Cross* (Paris: Quatre Chemins – Editart, 1964), p. 194.

71 Michel Bertrand, *Essai touchant l'influence de la lumière sur les êtres organisés, sur l'atmosphère, et sur différens composés chimiques* (Paris: HY, 1799).

72 Tania Woloshyn, '*Le Pays du soleil*: The Art of Heliotherapy on the Côte d'Azur', *Social History of Medicine*, 26:1 (2013), 74–93.

73 Bernhard's key publication, *Sonnenlichtbehandlung in der Chirurgie* (Stuttgart: Ferdinand Enke, 1917) was translated and published as *Light Treatment in Surgery* (London: Edward Arnold, 1926). Rollier's was *La Cure de soleil* (Lausanne and Paris: Baillière & Fils and Constant Tarin, 1914), translated and published as *Heliotherapy* (London: Henry Frowde and Hodder & Stoughton, 1923). Earlier, in Switzerland, Germany, and Austria, proponents of natural therapies, such as Arnold Rikli (1823–1906), Sebastian Kneipp (1821–97), and Vincent Priessnitz (1799–1851), had been advocating the healing benefits of bodily exposure to light and air since the early nineteenth century.

74 Hobday, *The Healing Sun*, p. 99.

75 Christopher Wilk, 'The Healthy Body Culture', in Christopher Wilk (ed.), *Modernism: Designing a New World, 1914–1939* (London: Victoria and Albert, 2006), pp. 248–67, at p. 253; and Sadar, 'Unpacking', p. 76.

76 Perhaps this is not surprising considering their associations with the art world. Rollier employed the dancer Margaret Morris at Leysin and treated Adolf Loos' partner, the dancer Bessie Bruce. Bernhard knew the artist Giovanni Segantini. Likewise, the photographer Jacob A. Riis wrote a tribute to Niels Finsen upon his death (1904), Caleb Saleeby's mother-in-law was the poet Alice Meynell, and Sir Leonard Hill moonlighted as an artist and was the first president of the Medical Art Society. On Rollier's photographic archive, see Tania Woloshyn, 'Patients Rebuilt: Dr Auguste Rollier's Heliotherapeutic Portraits, *c.* 1903–1944', *Medical Humanities*, 39:1 (2013), 38–46.

77 'The International Tuberculosis Congress at Rome (Continued)', *BMJ*, 27 April 1912, pp. 960–3, at p. 962.

78 See Auguste Rollier, *Quarante ans d'héliothérapie* (Lausanne: F. Rouge & Cie, 1944).

79 Rollier, *Heliotherapy*, pp. 6–7.

80 Edwards, *Control*, p. 67.

81 Caleb Saleeby, 'The late Sir Alfred Fripp, KCVO', *Sunlight*, 2:1 (1930), pp. 38–9, at p. 38. See also Guy Hinsdale, 'The Sun, Health and Heliotherapy', *Scientific Monthly*, 9:3 (1919), pp. 253–62, at p. 260; and Auguste Rollier, 'The Share of the Sun in the Prevention and Treatment of Tuberculosis', *BMJ*, 21 October 1922, pp. 741–5.

82 *The Times*, 22 May 1928, p. 5; Carter, *Rise and Shine*, p. 44.

83 London Metropolitan Archives, LCC/PH/GEN/04/141, 'Treatment in Switzerland, Leysin and Davos Platz Sanatorium, General Question of Sunlight Treatment, London County Council, 1921–48'.

84 This is not specific to light therapy: 'No technology in the twentieth century has evolved in national isolation. Ideas and skilled minds moved with the great migrations and carried new

technologies across national borders.' Bettyann Holtzmann Kevles, *Naked to the Bone: Medical Imagine in the Twentieth Century* (Reading: Helix Books, 1998), p. 6. On the international use of light therapy, see 'The Present Position of the Light Treatment of Lupus', *BMJ*, 4 January 1902, pp. 44–7.

85 Paul Overy, *Light, Air and Openness: Modern Architecture between the Wars* (London: Thames & Hudson, 2007), p. 116.

86 On Shaw, see Freund, *American Sunshine*, p. 107; Richard Hobday, *The Healing Sun*, p. 128; and Richard Hobday, *The Light Revolution: Health, Architecture and the Sun* (Forres: Findhorn Press, 2006), p. 3.

87 James Johnson, *Change of Air; or, The Pursuit of Health and Recreation* (London: S. Highley, 1837), p. 7.

88 Florence Nightingale, *Notes on Nursing: What It Is, and What It Is Not* (London: Harrison, 1859), pp. 47–8. See also Nightingale, *Notes on Hospitals* (London: Longman, Green, Longman, Roberts, & Green, 1863), pp. 18–19. Saleeby similarly described the sun as a sculptor, vitamin D its chisel, 'which works from within, and builds not lifeless forms of marble but the living, breathing and sentient bodies of children and men and women'. Caleb Saleeby, 'Mother and Baby Week', *Sunlight*, 1:9 (1929), pp. 12–16, at p. 14. Photographers also described the sun as an artist, see Miles, *Burning Mirror*, p. 84.

89 Arthur Downes and Thomas P. Blunt, 'Researches on the Effect of Light upon Bacteria and Other Organisms', *Proceedings of the Royal Society of Medicine*, 26 (1877), 488–500. Koch demonstrated that sunlight could kill the tuberculosis bacilli in 1890: Robert Koch, *Ueber bakteriologische Forschung* (Berlin: Hirschwald, 1890), cited in Philip E. Hockberger, 'A History of Ultraviolet Photobiology for Humans, Animals and Microorganisms', *Photochemistry and Photobiology*, 76:6 (2002), 561–79, at p. 577. See also Hobday, *The Healing Sun*, p. 91.

90 Theobald A. Palm, 'The Geographical Distribution and Aetiology of Rickets', *Practitioner*, 45:4 (1890), 270–9 and 45:5, 321–42, at p. 342; and Jadesola Ekpe, 'The Chemistry of Light: The Life and Work of Theobald Adrian Palm (1848–1928)', *Journal of Medical Biography*, 17 (August 2009), 155–60. See also Carter, *Rise and Shine*, pp. 40–1; and Hobday, *Light Revolution*, p. 52.

91 Finsen, *Phototherapy*, p. iv; and Georg Bröchner, 'An Apostle of Light: Professor Finsen at Home', *Pall Mall Magazine* (June 1904), 202–8, at p. 204.

92 Jamieson, 'An Intolerable Affliction', p. 97.

93 Jamieson provides details on the introduction of Finsen lamp into particular hospitals throughout the UK, see 'An Intolerable Affliction', pp. 119–21. In her research she has uncovered evidence suggesting that the London Hospital was not, in fact, the first to employ phototherapy in Britain: St Thomas' Arthur Barry Blacker and internationally renowned dermatologist (later Sir) Malcolm Morris both claimed to have been used phototherapy earlier.

94 Jamieson, 'An Intolerable Affliction', p. 158.

95 Jamieson, 'An Intolerable Affliction', pp. 122–3.

96 'The "Light Treatment" at the London Hospital', *BMJ*, 30 June 1900, pp. 1595–7, at p. 1596.

97 'The Fifteenth International Congress of Medicine', *Lancet*, 5 May 1906, pp. 1267–74, at p. 1268.

98 See the letters exchanged between Gauvain and Treloar about travelling to Berck in 1908, Treloar Archives, Winchester, 8A11/1. See also G. S. E. Moynihan, *The Lord Mayor Treloar Hospital and College* (Southampton: Paul Cave, 1988), p. 18.

99 'The Coming of the Sunlight', *Times* supplement, pp. x–xi, at p. x. See also W. Annandale Troup, *Therapeutic Uses of Infra-red Rays* (London: Actinic Press, 1936), p. 74; Eleanor H. Russell and William K. Russell, *Ultra-violet Radiation and Actinotherapy* (Edinburgh:

E. & S. Livingstone, 1925), pp. 40–1, 44; Victor Dane, *The Sunlight Cure: How to Use the Ultra-violet Rays* (London: Athletic, 1929), p. 11. It continues today, see Hobday, *Healing Sun*, pp. 18–19.

100 Russell and Russell, *Ultra-violet Radiation*, p. 44.

101 Manchester and Salford Hospital for Skin Diseases Archive, John Rylands Library Special Collections, University of Manchester, MMC/9/18.

102 Gauvain, 'Reflections on Sun Treatment', p. 8. See also Müller, *Sun-Bathing*, p. 78.

103 Advertisement for Saleeby's *Sunlight and Health* in *The Times*, 22 May 1928, p. 10; Leonard Hill, 'Sunlight and Sunburn', *The Times*, 14 July 1928, p. 15.

104 Gauvain, 'Organisation and Work of a Light Department', pp. 10–16; Saleeby in Hanovia, *Get Back in the Sun with a 'Homesun'*, pamphlet, 1940, p. 7; on Hill, see Chapter 2.

105 See *Sunlight*, 2:6 (1932), p. 188.

106 'The use of familiar, seductive narratives becomes an issue for historians if, in writing up their research, they seek to trade on or reconstruct stories uncritically. However delicious, they should not be glamorised, or used as substitutes for analysis.' Jordanova, *History in Practice*, p. 187.

107 Dunne Romano, 'The Dark Side of the Sun', pp. 51–2. See also Freund, *American Sunshine*, p. 37; Mary Blume, *Côte d'Azur: Inventing the French Riviera* (London: Thames & Hudson, 1992), p. 74; David B. Morris, 'Light as Environment: Medicine, Health, and Values', *Journal of Medical Humanities*, 23:1 (2002), 7–29, at p. 9; and Carolyn J. Heckman and Sharon L. Manne (eds), *Shedding Light on Indoor Tanning* (London and New York: Springer, 2012).

108 Carter, *Rise and Shine*, pp. 11–12. See also Charlotte Mathieson, '"A Brown Sunburnt Gentleman": Masculinity and the Travelling Body in Dickens's *Bleak House*', *Nineteenth-Century Contexts*, 36:4 (2014), 323–34.

109 Carter, *Rise and Shine*, p. 31.

110 Edwards, *Control*, p. 84.

111 See Zweiniger-Bargielowska, *Managing the Body*; and Ken Worpole, *Here Comes the Sun: Architecture and Public Space in Twentieth-Century European Culture* (London: Reaktion, 2000), p. 47.

112 On public appropriations of medical concepts, see Matthew Lavine, *The First Atomic Age: Scientists, Radiations, and the American Public, 1895–1945* (New York: Palgrave Macmillan, 2013), pp. 7, 9; and Nancy Tomes, *The Gospel of Germs: Men, Women, and the Microbe in American Life* (Cambridge, Mass.: Harvard University Press, 1998), p. 13.

113 See Thomas de la Peña, *The Body Electric*, p. xv.

114 Carter, *Rise and Shine*, pp. 39, 43.

115 Bernhard, *Light Treatment*, p. 1.

116 See, for example, Freund, *American Sunshine*, pp. 1–2; and Edwards, *Control*, p. 68.

117 See Russell and Russell, *Ultra-violet Radiation*, Chapter 2, 'Radiant Energy', pp. 27–39.

118 Carter, *Rise and Shine*, pp. 58, 64–5.

119 See Hobday, *Healing Sun*, p. 92; and Hobday, *Light Revolution*, pp. 75–6. The history of radiotherapy presents similarities. Lavine explained 'in newspapers and textbook hagiographies alike, [Marie Curie] did not so much isolate radium as give birth to it, labor in a chilly shack standing in rhetorically for labor pains'. Lavine, *First Atomic Age*, p. 55.

120 Jamieson, 'An Intolerable Affliction', p. 134.

121 'Heliotherapy: Disease Treatment by Sunlight', *Times* supplement, p. xii; Franz Thedering, *Sunlight as Healer: A Popular Treatise* (Slough: Sollux, 1926), p. 5. In a US history of light therapy, Augustus James Pleasonton and John Harvey Kellogg would be included, see Dunne

Romano, 'The Dark Side of the Sun', pp. 57–8. In Denmark, Axel Reyn continued Finsen's work at the Institute, while Louis Lortet, Philibert Genoud, Jean Saidman, Hubert Jausion, Paul Armand-Delille, Paul Carton, Alexandre Aimes, and Charles Brody were important figures in France.

122 Hill wrote the preface to Bernhard's *Light Treatment in Surgery*, Reyn and Sequeira began incorporating full-body phototherapy on lupus patients after Rollier (Jamieson, 'An Intolerable Affliction', p. 132). Gauvain refitted his phototherapy rooms at Treloar's after visits to the Finsen Institute and Sequeira's success at the London Hospital (Jamieson, 'An Intolerable Affliction', p. 134) but was also heavily influenced by Rollier's methods.

123 Roger Cooter, 'The Disabled Body', in Roger Cooter and John Pickstone (eds), *Medicine in the Twentieth Century* (Amsterdam: Harwood Academic Publishers, 2000), pp. 367–83, at p. 371; and Roger Cooter, *Surgery and Society in Peace and War: Orthopaedics and the Organization of Modern Medicine, 1880–1948* (Basingstoke: Macmillan, 1993). See also Seth Koven, 'Remembering and Dismemberment: Crippled Children, Wounded Soldiers, and the Great War in Great Britain', *American Historical Review*, 99:4 (1994), 1167–1202.

124 H. H. Dale, 'Hill, Sir Leonard Erskine (1866–1952)', *Oxford Dictionary of National Biography*, http://dx.doi.org/10.1093/ref:odnb/33872 (accessed 18 January 2016).

125 Sadar, '"Vita" Glass', p. 108.

126 G. R. Searle, 'Saleeby, Caleb Williams Elijah (1878–1940)', *Oxford Dictionary of National Biography*, http://dx.doi.org/10.1093/ref:odnb/47854 (accessed 18 January 2016).

127 See Carter, *Rise and Shine*, pp. 67–76; Sadar, '"Vita" Glass', pp. 107–8; and, more generally, Zweiniger-Bargielowska, *Managing the Body*; Dan Stone, *Breeding Superman: Nietzsche, Race and Eugenics in Edwardian and Interwar Britain* (Liverpool: Liverpool University Press, 2002); and Chris Otter, *The Victorian Eye: A Political History of Light and Vision in Britain, 1800–1910* (Chicago, Ill.: University of Chicago Press, 2008).

128 See William Beaumont, *Fundamental Principles of Ray Therapy* (London: H. K. Lewis & Co. Ltd, 1931), pp. 7, 106; William Beaumont, 'An Institute of Ray Therapy: A Voluntary "Light" Clinic for London', *BMJ*, 25 January 1930, pp. 163–4, at p. 163. The institute commissioned the artist Frank Brangwyn (1867–1956) to design their insignia, included on their stationery. See London Metropolitan Archives, A/KE/463.

129 See *The Times*, 22 May 1928, p. 5; 'London Light Clinic', *The Times*, 5 April 1932, p. 16; 'The London Clinic', *Sunlight*, 1:10 (1929), 32.

130 Beaumont, *Fundamental Principles*, p. vii; Vaughan-Cowell, *Artificial Sunlight*, pp. 98–9.

131 Hanovia, *The New Light Treatment Department (Solarium) in the Public Health Centre, Bermondsey* (Slough: Hanovia, 1936), p. 19. My thanks to Justin De Syllas for this reference. On the National Gallery's use of Hanovia lamps, see 'X-ray Test for Pictures', *The Times*, 29 June 1935, p. 8. On the Bermondsey Borough Council, see the Wellcome Collection's exhibition, *Here Comes Good Health*, 2012. Hanovia still exists, continuing to provide ultraviolet radiation apparatus to disinfect water sources.

132 Carter, *Rise and Shine*, pp. 90–1; Worpole, *Here Comes the Sun*, pp. 57–9, 64–5; and Esyllt Jones, 'Nothing Too Good for the People: Local Labour and London's Interwar Health Centre Movement', *Social History of Medicine*, 25:1 (2012), 84–102.

133 Overy, *Light, Air and Openness*, p. 29.

134 Hobday, *Light Revolution*, pp. 96–7, 104. Earlier examples include Port Sunlight, the garden-city movement, and the Papworth Village Settlement; see Carter, *Rise and Shine*, pp. 85–9. Carter also noted that Hill and Gauvain were involved in RIBA's committee on building orientation during the early 1930s, *Rise and Shine*, pp. 91–2.

135 On lidos see Carter, *Rise and Shine*, pp. 93–4; and Worpole, *Here Comes the Sun*, pp. 113–15. On the Serpentine Lido, see *Sunlight*, 1:9 (1929), 17.

136 Stated on the inner back page of each *Sunlight*.

137 Wilk, 'The Healthy Body Culture', p. 250. Vanguard depictions include, for example, Alexander Rodchenko, *Sun-Lovers*, 1932, gelatin silver print, private collection.

138 Editorial Foreword, *Sunlight*, 1:8 (1929), 3.

139 Sidney Russ, 'A Broadcast Talk on the Ultra-violet Rays', *Lancet*, 10 November 1928, pp. 1006–7, at p. 1007.

140 Katherine Gamgee, *The Artificial Light Treatment of Children* (London: H. K. Lewis & Co. Ltd, 1927), p. 86.

141 These issues were explored in the symposium, 'The Ethics of Display: Exhibiting Vulnerable Bodies', University of Warwick, 21 March 2016; and the Florence Nightingale Museum exhibition, *The Kiss of Light: Nursing and Light Therapy in Twentieth-Century Britain*, May–November 2015. Van Dijck has pertinently written, 'In a culture that increasingly concedes private grounds to public cameras, medical-ethical issues are media-ethical concerns as well; the ethics of representation, therefore, are part and parcel of the aesthetics of display.' Van Dijck, *The Transparent Body*, p. 14.

142 This is all the more distressing in the recent wake of the Jimmy Savile child sexual abuse scandal in the UK (2012 onwards) and ongoing justifiable concerns about online child pornography. See also the American photographer Sally Mann's autobiography, *Hold Still: A Memoir with Photographs* (New York: Little Brown & Company, 2015), in which she discusses the paedophilic responses and accusations her family portraits of her young, nude children received and even the experience of a stalker.

143 See Mieneke te Hennepe, 'Private Portraits or Suffering on Stage: Curating Clinical Photographic Collections in the Museum Context', *Science Museum Group Journal* (spring 2016), http://dx.doi.org/10.15180/160503 (accessed 18 September 2016).

144 'Light as Brain Food', *The Times*, 29 May 1925, p. 5; and Gauvain, 'Organisation and Work of a Light Department', p. 13.

145 Susan E. Lederer, *Subjected to Science: Human Experimentation in America before the Second World War* (Baltimore, Md.: Johns Hopkins University Press, 1995).

146 We were similarly denied use in the *Kiss of Light* exhibition, the museum's director, Natasha McEnroe, explaining that the rights-holder wished to remain 'whiter than white' when it came to avoiding potential upset to viewers, the original patients, or their heirs. It is a curious and meaningful phrase, since the act of exposure intentionally and conscientiously made (primarily) white children turn brown. See Chapter 5 for a discussion on tanning in relation to dirt, race, and the 'infectability of being black'.

147 Relatedly, see Marguerite S. Shaffer, 'On the Environmental Nude', *Environmental History*, 13:1 (2008), 126–39. The editor, Neil M. Maher, pointed out in a note that one of the nudist photographs, of a family camping in the 1950s, was cropped to exclude a front-facing young girl, 'because of her age and her positioning in the photograph' (p. 126).