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Citation for final published version:

Galazka, Anna and O'Mahoney, Joseph 2023. The socio-materiality of dirty work: a critical realist perspective. *Work, Employment and Society* 37 (2) , pp. 432-448. 10.1177/09500170211011321

Publishers page: <https://doi.org/10.1177/09500170211011321>

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The socio-materiality of dirty work:

A critical realist perspective

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Abstract

New materialist applications in 'dirty work' studies have rightly emphasised the importance of materiality alongside symbolism. However, these approaches have neglected important themes irreducible to the material world, such as temporality, reflexivity and social structure. This article develops an alternative critical realist perspective on socio-materiality in dirty work which emphasises these themes. It draws on 2016-2017 ethnographic data on the work of clinical photographers of wounds in a UK specialist outpatient wound healing clinic. First, it shows how photographers' reflexivity mediates the relationship between their embodied materiality and their agency in the physical domain. Second, it highlights the temporal dynamics between reflexive agents, their material environment, and the context of their operation. Finally, it emphasises the non-conflationary relationship between the social structures of the medical hierarchy and photographers' agency in dirty work. Together, these contributions highlight the utility of an emergent, realist ontology in understanding the dynamics of dirty work.

Keywords

Clinical photography; critical realism; dirty work; morphogenesis; reflexivity; socio-materiality; temporality; wound healing

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Introduction

Since Hughes et al.'s (2017) influential analysis of the symbolic and physical dimensions of waste removal, dirty work scholarship has seen more interest in 'new materialist' approaches that view the material and discursive aspects of work as co-constituted and inseparable (Coole and Frost, 2010). New materialism is a broad theoretical church, which has entered the dirty work scholarship under approaches such as agential realism (Hughes et al., 2017), technology-in-practice (Hansen and Grosen, 2019) and actor-network theory (Hipkiss et al., 2019). However, the ontological conflation of materiality with its social constructions has attracted criticism for its lack of explanatory power (Mutch, 2013). An alternative critical realist approach has been proposed that holds the social and the material as separate to analyse their interplay (Mutch, 2013). However, the consequences of this development have not yet been evidenced in the dirty work scholarship.

This article critiques new materialist dirty work analyses from a critical realist perspective using insights from Mutch's (2013) evaluation of Barad's agential realism, Elder-Vass's (2015) appraisal of actor-network theory, and Archer's (1995, 2000) theory of morphogenesis. It argues that socio-material conceptualisations of dirt would be enhanced by

an approach which considers time, reflexivity, and social structure as present and irreducible to discourse or materiality (Wolkowitz, 2007). The explanatory benefits of this approach are evidenced in an analysis of clinical photographers of wounds who work with both dirt (unsightly, weeping and smelly chronic ulcers) and cleanliness (sterile equipment in a hospital environment) (Twigg et al., 2011). This affords three contributions to understanding the dynamics of dirty work.

Firstly, the article highlights the *temporal dynamics* of interactions between different materialities, such as wounds, bodies, and technologies, according to their differing properties, but also between different social and material interactions. Understanding the temporal dynamics of different phenomena, such as wound deterioration or skill acquisition, provides a more powerful explanation of what happens and why in photographers' dirty work. Secondly, using Archer's (1995, 2000) morphogenetic approach, it emphasises the reflexivity of clinical photographers in choosing between the causal potentials of materialities to pursue their personal projects, including constructing their own profession as 'clean'. Reflexivity is shown to mediate the social and the material, for example in reflecting on their experiences and training when selecting different technologies. Finally, the importance of social structures, such as roles and medical hierarchies, is important in understanding clinical photographers' relation to the material dirt of photographing wounds and its discursive context. Throughout, it is argued that such theorising is problematic in conflationary approaches.

The dirty work of clinical photographers of wounds

The concept of 'dirty work' (Hughes, 1958) refers to physically, socially or morally ungraceful tasks (Ashforth and Kreiner, 1999). Despite Ashforth and Kreiner's (1999: 416) emphasis that what designates work as 'dirty' are people's visceral reactions of disgust, much research focuses on the symbolism of dirt and on cultural and discursive strategies to protect dignity threatened by dirty work stigma (Simpson and Simpson, 2018). However, although 'disgust' has social and linguistic qualities, it is grounded in a sensorial response to biological threats from "the wounded, wronged body" (Twigg, 2000; Wolkowitz, 2007: 16, 24).

An example of 'dirt' that may provoke visceral disgust at work is unsightly, smelly, rotting, weeping ulceration, often linked with vascular disease, diabetes, or mechanical pressure (Galazka, 2020). One occupational group that deals with ulcers but is unresearched in the dirty work literature are clinical wound photographers. Dirty work scholars *have* mentioned photographic work in relation to 'paparazzi' (Vines and Linders, 2016: 1066), morally tainted for using "methods which are deceptive, intrusive, confrontational" or for defying "the norms of civility" (Ashforth and Kreiner, 1999: 415). However, for healthcare photographers, the designation is more contested because their position is framed by discourses that are both 'dirty' and 'clean'.

On one hand, the objects of clinical photographers' work include impairments to patients' physical bodies – malodorous leg ulcers, 'bed sores' or slow-healing, post-surgical cuts. Sayers and Brunton (2019) show that photographing decaying bodies may attract dirty connotations because it troubles "the cultural norms of aging, which require that older adults are kept hidden" (p.21). On the other hand, clinical photographers might be freed from any involvement with 'dirt' through their professional affiliation with compassionate medical healing (Cohen, 2011) For clinicians, wound photography:

‘... remains the most significant part of wound documentation as it is the best record of change ... The adage of “a picture paints a thousand words” is so true in this circumstance as it is difficult, when seeing so many patients, to remember how the wound looked ... It is of utmost importance as the photograph is often used for measurement of the wound dimensions and computation of its area as a measure of wound status with time.’

(Queen and Harding, 2020: 5)

Dirty work and socio-materiality

Wound photography is an apt setting to study the discursive struggles around meanings of ‘dirty’ and ‘clean’ and their relation to the material work context. Dirty work scholarship has long argued that the material (as opposed to discursive) body has been overlooked (Ackroyd and Crowdy, 1990; Dant and Bowles, 2003). Hughes et al. (2017) have made a seminal turn in recognising the coexistence of the social and material. Drawing on Barad (2007), they argue that there is no separable subject/object or indeed object/object and that the epistemological *and ontological* distinctions between them are created through scientific observation – as the observer is materially entwined with what is being studied. Their ‘new materialist’ approach (Coole and Frost, 2010) has since been followed by other dirty work writers (Hansen and Grosen, 2019; Simpson and Simpson, 2018). However, some theorists argue that the conflation of the social and material in new materialism creates challenges around a ‘loss of a sense of ‘material reality’ (Conrad, 2004: 428; O’Mahoney et al., 2017). The *ontological* (rather than epistemological) interpretation of quantum physics has also been called into question and a critical realist alternative proposed (Norris, 2000).

Critical realism and dirty work

Critical realism frames people as embodied physical beings who are ontologically distinct from, but enter a reciprocal causal relationship with, the social systems into which they are born. Social phenomena have a real existence, even if our knowledge of them is discursively influenced. While the material world is present at all stages of social (re)production, none of the stages can be *reduced* to materiality because they are *emergent* from the material, i.e. unilaterally dependent upon on materiality (e.g. bodies) but irreducible to that level. This is not simply an analytical distinction (i.e. that one cannot provide adequate explanations of an emergent level by describing the more basic level) but an ontological one: the mind is irreducible to the atoms which comprise the brain (O'Mahoney and Vincent, 2014).

Emergence is fundamental to the critical realist morphogenetic approach (Archer, 1995, 2000), which emphasises the ontological distinction between social structures, a reflexive agent conditioned by those structures, the social interactions of reflexive, conscious agents, and the reproduction (or modification) of social structures: “reflexive agents have to diagnose their situations, they have to identify their own interests and they must design projects they deem appropriate to attaining their ends” (Archer, 2003: 9). Emergence, reflexivity and the temporal relations between agents and social structures are important in distancing critical realism from the charges of determinism that social constructivists and new materialists have aimed at traditional Marxist ‘historical materialism’ (Fox and Alldred, 2016) and may have potential in addressing the criticisms levelled at new materialist approaches.

Critical realism’s slow entry into dirty work scholarship has been more implicit than explicit. It underpins Ackroyd and Crowdy’s (1990) analysis of the dirty work of slaughterhouse men whose behaviour was mediated by their ties to each other within an occupational culture, and to their wider social class. It emerges in Dant and Bowles’s (2003) study of car mechanics

dealing with dirt by taking decisions based on individual interpretations of organisational resources, making judgements based on their past training and experiences, and reflexively considering the consequences of their actions for people's health. Finally, it is arguably visible in Deery et al.'s (2019) account of how workers resist the internalisation of stigma by proactively crafting their work to establish a sense of satisfaction, meaning and dignity in dirty jobs. These explanations of how dirt is countered recognise that the maintenance of self-esteem is underpinned by the "powers, strategies and constraints available to different social groups" (Wolkowitz, 2007, p.16): "'dirtiness' and 'cleanliness' are real social objects and do not exist only within discourse" (Wolkowitz, 2007: 24).

Dirty work: Problems of new materialism and solutions of critical realism

First, new materialist approaches have neglected the role of time. Social/material and material/material dynamics at all levels occur over time and time has different effects on different materialities in differing contexts (Archer, 2000). This is especially evident in embodied forms of dirty work. For example, in waste removal, it takes time for the body to desensitise to dirt, as Hughes et al. inadvertently admit in their new materialist analysis:

'Not surprisingly given our "beginner" status, the effort of lifting hundreds of bags and the monotony of the work exhausted us. It was with great relief that we left the team in the early afternoon so as not to slow down their work. Our aching muscles got considerably worse by the end of the second day.' (2017: 113)

The researchers' 'beginner' bodies impacted their physical performance and its discursive representation. Therefore, physical and discursive work encounters can change over time:

heavy bins are lifted repeatedly and muscles tear and re-grow stronger. This is central to changing workers' social status from 'beginners' to 'veterans.' This dynamic relationship between time, materiality, embodiment, work and social roles cannot easily be analysed when conflated into an amorphous social-material melee. Dirty workers' engagement with the materialities and discourses of their work operate diachronically. A realist analysis of such interaction would be capable of decomposing their past, present and future actualities and potentials (Archer, 2000).

Second, new materialist approaches challenge the study of reflexivity in dirty work. As Archer argues (2003), reflexivity and agency are distinct and tied to specific projects that individuals pursue. If the social and material are one, then one cannot explain the impact that individuals' personal reflexive projects have on their material and social environment, and vice versa. The inability to express this comes through a study of the introduction of wash-and-dry toilets in care homes. Here, Hansen and Grosen (2019) argue for the co-constitution of body work and technology; what matters for the latter's functionality are its features, mobility of clients' diverse bodies and carers' professional, empathetic assessments of the former two, "with or *without the use of wash-and-dry toilets* [emphasis added]" (p.64). Therefore, carers' reflexive professional empathy is not only crucial; it is distinct from the materiality in question.

Third, new materialist accounts struggle to show how invisible *apriori* social structures can influence the material interactions of dirty work (Mutch, 2013; O'Mahoney et al., 2017). One example is the power relationship between roles, visible in Hipkiss et al.'s (2019) vignette of school garden education where a pupil refuses to put on dirty gloves; "[t]he glove box serves the function of her understanding that being in the garden is something entailing 'dirty' work that she does not wish to engage in" (p.357). The reading of the girl's agency stops at the

level of (in)action with the glove because actor-networks focus on the *how* of social phenomena (what happens) rather than the *why*, which requires an understanding of the roles and rules (Elder-Vass, 2015). In contrast, critical realists see the materiality of dirt as embedded in social relations (Wolkowitz, 2007) and recognise the features of objective contexts that emerge from actions but cannot be reduced to these actions. Hipkiss et al. (2019) overlook the existence of institutionalised teacher-pupil relations as independent of this pupil's (in)actions and disregard explanation through the historical conditions that enabled this reaction; for example, of how dirty gloves can inscribe class relations of dirty cleaning work (Mahalingam et al., 2019).

The explanatory purchase of critical realism comes from an emphasis on the *transfactual* and *immaterially emergent* causal powers of entities. Regarding the former, muscles, wash-and-dry toilets and pupil-teacher relationships have enduring potential powers but produce different (and sometimes no) outcomes depending on their contextual interactions with other entities (Williams, 1999). Concerning the latter, some causal powers are not material: individuals' reflexivity, memory or perception are emergent from but irreducible to the materialies (neural networks, cells, atoms) upon which they depend (Archer, 1995). The remainder of the article applies critical realism to explaining *how relations between discourses and materiality emerge and change over time in the context of the dirty work of clinical photographers of wounds*.

Context and methods

Given the limitations of the new materialist understanding of dirty work, wound photography in a UK hospital was approached as a qualifying case for theory development (Vincent and Wapshott, 2014). As part of broader exploratory research into wound healing conducted between June 2016 and April 2017, the 45 hours of observation selected for this article

constituted a rapid case-based ethnography (Vindrola-Padros and Vindola-Padros, 2018). Following a critical realist approach, the focus was not only on subjective understandings and experiences of dirt, but the structural contexts that influence these (Rees and Gatenby, 2014). Although this article's interest in theoretical generalisations about socio-materiality and dirty work resembled Yin's (2018) theory-building explanatory case study logic, it went beyond Yin's (2018) empiricist perspective to search for deeper levels of explanation in the interaction of stratified causal powers.

The data were collected by the first author in a specialist wound healing clinic that ran weekly in a teaching hospital and regularly used photography. Each clinic was attended by two medical photographers from the hospital's Multimedia Department, who either worked for the Department or were completing their postgraduate certification in clinical photography there. The photographers waited outside the consultation rooms until called in by the nurse to take the photographs only for the patients' notes or for additional use for teaching and research publications, depending on the level of patient's consent received by the nurse. When one clinical photographer was invited to an interview, he redirected the first author to the director of the Multimedia Department. The director then established a schedule of 30-minute-long interviews with ten clinical photographers. The relatively short duration of interviews, some scheduled back-to-back and all within photographers' working hours, required choices about what information to seek and when. The interviews were undertaken after sufficient ethnographic familiarisation with photographers' work to focus questions specifically on photographers' bodily experiences of work. Photographers' involvement in other visual services of the Multimedia Department, such as medical video print and graphic design for teachers and clinicians across all hospital units were set aside. Participants' details are shown in Table 1.

Table 1 here

In this article, field observations are implicitly present in analytical descriptions of the spatial conditions and embodied practices of the photographers' work and explicitly visible in the first author's recollections of her embodied fieldwork experience. The latter is a response to Vindrola-Padros and Vindrola-Padros's call for short-term healthcare ethnographers to be more reflexive on their position vis-à-vis data collection and interpretation (2018: 327). It is also a nod towards the critical realist call for researchers to be reflexive about the influence of their pre-existing assumptions on data collection and theory development (O'Mahoney and Vincent, 2014).

Data analysis

The analysis of verbatim interview transcripts and sections of fieldnotes pertaining to photographers' work was shaped by a critical realist explanatory logic of abduction:

“... abduction re-describes the observable everyday objects of social science (usually provided by interviewees or observational data) in an abstracted and more general sense in order to describe the sequence of causation that gives rise to observed regularities in the pattern of events” (O'Mahoney and Vincent, 2014: 17).

Accordingly, empirical observations on photographers' work were combined with theories on socio-materiality and dirty work to explain the relations between discourses and materialities in the dirty work with wounds. The clinical photographers' proximity to wounds' smell and decay was framed in terms of professional socialisation and hierarchical roles in medicine. Their professional talk about photographs as clinical and taken with sterile equipment was explained through the power of clean and dirty discourses in relation to changing biological wounds. Photographers' bodily movements vis-à-vis room architecture, other people and

technologies were clarified via recourse to compassion, reflexivity and role expectations.

These explanations are further unpacked in the following mid-length thematic and contextualised vignettes of ideas (O'Mahoney and Sturdy, 2016).

Vignettes

Embodied materiality: wounds on the body

Wounds, which were the primary focus of photographers' activities, were usually products of temporal, material (bodily) dynamics, influenced, though not determined, by class, reflexivity, personal projects and access to knowledge. Leg ulceration is often a manifestation of high blood pressure, common in older adults due to the stiffening of arteries over time. This can cause blood to accumulate in the legs, leading to swelling and skin breakages. As time passes, bodily cells are damaged through toxins, radiation-induced free radicals or chance mutations. Skin then loses its elasticity and moisture, breaks more easily and heals more slowly. Sustained periods in beds or wheelchairs due to illness or disability can also cause pressure-related ulcers.

However, social factors matter for challenging wounds, too. Access to clinicians with expertise in wounds influences patients' expectations and informs their health behaviours. People's opportunities around diet, exercise, alcohol and tobacco consumption, experience and management of stress and poor sleep can contribute to developing hypertension, obesity or diabetes. Diabetes increases blood sugar levels, which can cause blood vessels to (further) stiffen and thin, decreasing blood-flow to the feet, resulting in cells getting insufficient oxygen and nutrients for repair. The accompanying nerve damage can mean that people do not feel the pain and risk damage to tissue, which can turn into chronic ulcers. Therefore,

ulcers are not a diagnosis but, rather, a physical manifestation of underlying bodily processes interacting with social factors.

However, these underlying temporal conditions were not always visible. What was visible in clinic were ulcers that often wept yellow, white or green fluid, smelt bad and were painful for the patients. Other ulcers were dry, hard or coated with black, dead tissue around the edges. Some were deep, to the bone, others shallow and large. Ulcers were sometimes surrounded by a thick yellow, creamy or greyish tissue, called slough, or covered with biofilm – slimy bunkers hosting and protecting groups of bacteria that ‘collaborate’ against healing interventionsⁱ. The first author’s fieldnotes registered her visceral reactions to the foul sights and smells, which she tried suppressing outside of the ethnographic diary:

““Oh, cranky, that’s wet!””, says the nurse as she takes off the dressing ...
The smell hits me, I twitch but remind myself to look professional’
(fieldnotes, August 2016)

Clinical photographers had their own language for wound discharge that divulged their own visceral reactions to wounds:

‘If there is loads of ... “gook” ... you can’t actually see the wound edge, so ideally we’d ask someone to clean it first.’ (Lauren)

‘Gook’ (a neologism) compromised the quality of the photograph and had to be physically removed for the photograph to capture the wound edge (a medical term). This task was performed by nurses, who did “a lot of the dirty work when it comes to cleaning people” (Alistair). Nurses were regularly seen changing soiled bandages, cleaning wounds, debriding the surrounding dead tissue, touching patients’ legs to feel their temperature and applying ointments. Clinical photographers, on the other hand, only entered consultation rooms after the wounds had been cleaned and used their cameras to capture ‘gook-free’ wounds:

‘... it’s quite clean and quite clinical ... It’s more photography as it is, rather than ... making people look nice...’ (Tammy)

There was also a division of labour when it came to smell. Wounds could emanate intense smells, from sweet aromas of almonds through chemical smells of ammonia to putrid stench of decomposing flesh. Nurses were often seen ‘smelling’ wounds to aid diagnosis of an infection. However, despite the olfactory ‘visibility’ of wounds, photographs could not capture its value. Smell was thus a ‘presently-absent’ material feature of photographers’ objective work context in clinics. On one hand, clinical photographers evocatively shared their initial visceral memories of “retching a little bit when going into wounds” that smelt “very much like rotting meat” (Paula). On the other hand, a complex of time, professionalism and understanding adjusted this response to a more matter-of-fact attitude that overrode bodily impulses:

‘I have seen plenty now and nothing sticks with me. When I first started, stuff would stick with me ... now it doesn’t stay with me. The smell is bad, the smell is obviously there, but it doesn’t bother me. It’s part of the job.’

(Alistair)

Materiality in the production of wound images

Decisions about how to best photograph the appearance of wounds were influenced by other socio-material arrangements. For example, photographers used blue paper to cover bodily areas that did not need to be photographed to protect the patient’s dignity. Paradoxically, the material intended to protect the patients’ dignity could also depersonalise them through the separation of wound from the person. Blue paper hid elements of the clinics’ architecture, such as electric sockets, couches, or the floor that could distort the professionalism of the image. However, the lack of physical reference points sometimes created ambiguity of wound

size in the photograph compared with what the patients were used to (if they could see the wound). For clarity, the photographers placed paper scale stickers near the wound. As infection protocols required photographers to keep the camera sterile for use across the hospital wards, placing scales was sometimes delegated to nurses. Photographers also sanitised their work by erecting additional material barriers between the camera and the wound:

‘It’s ideal for the photographer themselves to do it... If you’re a photographer on your own, I know there’s one who will double glove or even triple glove one of his hands so he can place the scale on and then take the glove off, come back to the camera.’ (Lauren)

Next, the professional requirement on clinical photographers was to create standard representational photography – wound images that were clear, replicable and systematic. The standard protocol was to aim for a diffused light, rather than bright, background. However, as Mats explained, the difficulty of the work from a photographic point of view was that even though sometimes they would be able to “see the wound with the eye”, they did not, necessarily “get a clear picture with the camera”. The combination of wound properties (colour, position, size, dampness, texture) prompted a selection from a variety of camera settings and lenses as well as positioning of the patient, the camera and the photographer.

Such choices depended in part on the photographers’ abilities, experiences, training and judgement, but also on what was possible with the constraints of the room and the patient’s mobility. Taking a shot at an angle or sideways risked producing a “trick of the eye” (Alistair), such as a distorting elongation of the wound. Photographers often chose to focus on areas of the wound that would be hard to detect with the human eye, for example using a lens with a focal length of at least 105mm. This potential augmentation often prompted

photographers to warn patients that the material photograph may appear worse than the bodily reality:

‘... you do try and tell them, “look, because we are using specific equipment which can help them magnify things, things might appear bigger than they actually are.”’ (Mats)

The permanence of photographs, as Mats explained, could provide a challenge for some patients as the photograph “just stays there and it is stored on the record”:

‘When you look at your hand, for example, it is just a few seconds and then your eyes are off to someone else. But with a photograph of, it is something that is representative of it in that moment of time. But it is still, it is something that is there for a bit longer, it is more than just a quick glance.’

Conversely, patients sometimes asked to see the pictures and realised that the wound was “not as bad as they had imagined it to be” (Leighton). Therefore, the quality of photograph could mask some aspects of wounds and augment others, changing patients’ perception of the wound. The outcome depended on patients’ prior knowledge, but also on photographers’ ability to ‘think clinically’ using various techniques. To inform their thinking, the photographers would sometimes seek advice from the clinic’s consultant doctor.

Corporeal materiality of the body: patients, clinical photographers and others

‘The patient’s wheelchair is facing away from the door. The clinical photographer enters accompanied by her assistant ... she gently places her hand on the patient’s arm, introducing herself. The space between the wheelchair and the wall is narrow, so to get to the front of the patient, the photographer walks sideways. She then asks the nurse whether she wants

the photos of “fronts” and “sides.” The patient tries lifting both her legs, but the nurse and the photographer rush in to tell her to “pop her feet down.” The photographer asks her assistant to prepare the background for the photographs. “The glamorous part of the day!”, the clinical photographer joyfully utters, as she kneels on the floor and then rests her body weight on the back of her calves. The nurse and the photographer’s assistant hold up the blue sheets as the clinical photographer clicks the camera.’ (fieldnotes, October 2016)

For the photographers, positioning patients appropriately required a compassionate consideration of multiple physical bodies within in the architecture of the treatment room: those of the photographers, nurses, and the researcher, each with their own capabilities.

‘The photographer is called in to photograph the patient’s now healthy feet, while I am asked to hold up a photograph of the same feet with necrotic tissue for comparison. In June, I would have wanted to look away, but now I’m well accustomed to all colours of ill or dead tissue and can control my bodily reactions better.’ (fieldnotes, December 2016)

The fieldnotes above highlight the spatial and bodily enablers and constraints, which required creative and reflexive embodied responses to ensure the standardization of the environment in terms of the angle of capture, lighting or calibration markers.

First, patients’ limited mobility was a ‘photographic complication.’ It meant that the photographer needed to test their own bodily limits, kneeling on the hospital floor (a potential contamination hazard).

‘We are working in very confined spaces and there is often a lot of people in the room as well. And the patients very often have mobility issues as

well. So, to take a good photograph we need to be parallel to the lesion. And quite often they are on their bottom or on the backs of their legs, or just in quite tricky places to get to. So, you try and move the patient if you can. But also, you have to sometimes move yourself.’ (Emma)

The subordination of photographers’ corporeality was not just to the patients, but also to the nurses who had their own physical requirements:

‘The nurses are the ones who roll the patients, move the patients, therefore the bed has to be at a height that’s suitable for them, not for us. Certainly, being a slightly older person, I’m more aware of my back than some others might be.’ (Paula)

Therefore, the position of the bed in the room and the space around patients enabled, and more often, constrained photographers’ work. To get the best possible shot, they needed to perform thinking that was simultaneously technological and embodied:

‘There are occasions when I use a 60mm lens but still I’m very close to my subject, so I needed to be underneath the desk in order for me to actually catch the picture.’ (Evan)

Albeit skilled, the manoeuvring came with a distortion to the quality of the picture:

‘... a 60mm lens... which will give us slight, slight fisheye, slight barrelling effect. But we know that we need that because the space that we need isn’t possible to get.’ (Alistair)

It was not just mobility and physical space limitations that prevented the patients from getting into the required positioning, but also the amount of pain the patients were in. Focus on documenting the patient’s material ill body imbued photographers’ work with some moral taint from using (consensual) methods that put patients’ bodies under physical strain:

‘... sometimes, patients are crying when they’re being rolled over ... but you’ve got to get the best shot you possibly can.’ (Paula)

Whilst photographers did their best to maximise the dignity accorded to patients, the mechanics of revealing impairments, often in typically ‘private’ areas of the body, and having these captured for posterity, was not just undignified for many patients, but by association, also for the photographers:

‘... you’re never going to get away from the fact that medical photography is an undignified profession. You’re doing an undignified thing to a person ‘cause you’re photographing sick people. And they don’t want to be photographed.’

(Alistair)

Through legitimately concentrating on fully exposing wounds normally kept private, clinical wound photography could bear traces of moral taint. The photographers recognised the risks it held for patients’ emotional states. They responded with kind and professional communication:

‘... as a professional we see a patient for a very short period of time [s]o to go straight into patient and ask them to underdress and to show them an area that is sensitive and they’re possibly embarrassed by. We have to form that relationship immediately ... have lots of eye contact with the patient [and] put them at their ease as soon as we can ... They’re more inclined to undress and if you put it across in a bit of no-nonsense “this is what I need” ... If you go in a bit sheepish and you just sort of, “just pull that down a little bit”... you can be forever going, “a little bit further, and a little bit further.” (Paula)

With time and experience the photographers became highly professional, matter-of-fact and unembarrassed themselves as they coped with the challenges of their work drawing on the resources of social relations between patients and healthcare professionals.

Analysis: Turning back from new materialism in dirty work

The vignettes reveal that wound photography work holds a tension between the clean, scientific discourses of a skilled professional occupation and dirty, corporeal discourses associated with creating records of bodily decay through photographing unsightly ulcers. The interplay of these discourses is mediated and constrained by transfactual and immaterial realities concerning temporality, reflexivity and social structure. The following interpretation of the findings using Mutch (2013), Elder-Vass (2015), and Archer (1995, 2000) unveils the value of a critical realist understanding the dynamics of dirty work.

Temporality of the socio-material in wound work

The perception of wound photographers' work as dirty links with their proximity to, and 'undignified' role in permanently documenting, 'dirty' wounds. However, justifying this taint only through cultural meaning misses the significant explanatory power of recognising the dynamic properties of the wound itself as temporal, embedded and emergent from other materialities. An adequate ontological framework for explanation (rather than mere description) of these dynamics requires that different things (entities) have properties that possess different temporal dimensions.

Wounds are not static: they have properties modified by other entities, such as bacteria, antiseptic or blood nutrients, and operate within bounded temporalities, such as how fast they heal or worsen in different contexts. Wounds can heal and become 'clean' over weeks or months. In contrast, a camera, set to 1/100 shutter speed, captures its image almost

instantaneously, transforming real dirt to a more sanitised two-dimensional representation for the evaluation of wound healing. Such arguments are not limited to the technological and biological. Wound photographers cannot acquire their skill and knowledge immediately. It takes time, which is in turn contingent, in part, on the quality and quantity of education and experience and the learning abilities of the photographer. Indeed, discourses themselves appear to shift within temporal frames.

The boundaries of the speed of change are dependent upon the differing properties and potentialities of various living and non-living materials and their interactions. To conflate materiality with meaning, or even to over-emphasise the role of meaning, in socio-material interaction, can mean losing sight of these important constraints to material dynamics. If, as O'Mahoney et al. (2017) argue, discourse and semiotics are kept at the level of epistemology – influencing our understanding and interpretations of the material rather than *constituting* the material – the potentialities and limitations of the temporal dynamics of material change can be more easily understood. Digital cameras can capture images nearly instantaneously, wounds can take weeks to heal, and it can take years to become a skilled photographer. To emphasise an obvious point, the answer to the question of why wounds do not heal instantaneously is not to be found in the realm of discourse.

Consequently, some entities have the potential to change over time in some ways but not others. A wound photograph cannot get infected, but a wound has the *potential* to do so, regardless of whether it does or not. This is obvious, but for conflationist ontologies potential powers cannot exist as they are transfactual (Elder-Vass, 2015) and thus have no materiality in the present. Potentiality is not the same as teleology though. The potential of a wound to heal, or a photographer to learn, does not mean this *will* happen. The processes are mediated not only by the historical context, but also the reflexive choices of agents themselves, selecting actions in part based upon their perceptions of their potential consequences.

Reflexive embodiment in clinical photography of wounds

One potentiality of the embodied person (that wounds or camera lack) is the power to be reflexive and interact with discourses of dirtiness and cleanliness. The focus on the mediating role of reflexive embodiment distinguishes this article from extant studies of embodiment (e.g. Dale and Latham, 2015) and new materialist dirty work research (e.g. Hughes et al., 2017) that favour the ontology of co-constitution. Reflexivity is emergent from, but irreducible to, the physical body which produces it.

Photographers undertake professional training, which allows them to engage with the material markers of science in photographic good practice, such as sticky measures, expensive lenses and lighting. In their personal projects (Archer, 2003), wound photographers attempt to construct ‘clean’ discourses that align their profession to science and to treat patients with empathy. Moreover, photographs are depersonalised ‘data’. Photographs of holistic people, with agencies and histories, as frail and decaying cause moral outcry (Sayers and Brunton, 2019). In contrast, photographs of wounds lose some moral taint not only through masking identity-revealing features behind blue sheets but also because their properties (such as the lack of smell) make them a qualitatively different entity to that of the wound itself. Thus, proximity to dirt need not necessitate a designation as dirty (Ashforth and Kreiner, 1999; Hughes, 1958) providing that the properties of the proximate entity can filter out some of the features of dirt.

The photographers’ reflexive choice of actions is often a complex balance between competing projects of professionalism, practical necessity, empathy, and other projects related to careers or training. Reflexivity allows photographers to reorder and prioritise their concerns in interaction with patients into a *modus vivendi* through which photographers construct imaging of wounds as relatively clean. Likewise, the researcher new to wounds’

sights and smells might feel queasy at first but repeated physical exposure and professional socialisation to wound care interact through their reflexivity to produce professional bodily reactions. Crucially, this reflexivity, like time, is invisible. It is emergent from, but irreducible to its material base of the brain. For new materialists, the invisibility of thoughts, reflections, and motives is problematic, and one reason for shifting the spotlight from human to non-human agency (Hipkiss et al., 2019), and from the mind to events (Hughes et al., 2017).

However, reflexivity, like the potential of materials, is bounded. Instinct, enculturation, training or even compassion influence the thinking of the agent, often in a non-conscious way. The reflexive reordering of priorities would not only depend on the personal projects of the photographer but would incorporate other factors, including their training, experience, personality and even tiredness. Thus, the generation of the apt 'scientific' photograph is a complex relationship between bounded reflexivity, other mental phenomena, and the materialities of the patient, photographer, nurse, researcher, equipment and room. In a highly skilled setting, like professional wound photography, mediation in use and selection of materials is, perhaps, more obvious than the gloves of a refuse collector (Hughes et al., 2017), but there is no reason to think that reflexivity and skill do not mediate in any setting where materialities are used by workers (see Hansen and Grosen, 2019).

Between dirty and clean: photographers' role on medical hierarchy

While barriers between cleanliness and dirt have been studied in dirty work (Twigg, 2000), the emphasis has mainly been on the symbolic and less on the material separation of actors from dirt (Dant and Bowles, 2003). In contrast, an emergent critical realist ontology accepts the material underpinning of all social action, crucially seeing social hierarchies as embedded in and emergent from the physical world (Wolkowitz, 2007) but irreducible to it. Wound

photography is in a symbiotic, structural and historical relationship with the medical profession, encouraging a reflection on the meaning of their separation from physical wounds for reinforcing social divisions at work.

The *role* of wound photographer in the organisational hierarchy of the clinic has explanatory value in understanding that position of wound photographers vis-à-vis ‘dirty nursing’ and ‘clean doctoring’ (McMurray, 2012). Nurses’ roles as carers vindicate their physical proximity to ill bodies (Cohen and Wolkowitz, 2018). Consultants’ hierarchical positions grant them the power to choose wound treatments (Galazka, 2020) or endorse the use of photographic techniques. There is also a power relationship with the patient whose healing partially depends on their co-operation with the medical establishment, despite the pain they are often in.

Therefore, the classification of clinical wound photographers’ work as dirty or clean cannot be separate from a consideration of roles. Photographers’ limited physical interaction with patients makes their cleaner, professional and scientific discursive claims more credible. The converse is true of nurses’ more physical interactions. Photographers maintain distance from the material work of nursing and provide useful information for doctors to inform treatment decisions. The application of a critical realist concern with social structures in explaining photographers’ dirty work shows that the perception of work as dirty or otherwise is partially a function of its embeddedness in social hierarchies. This takes us beyond both the symbolic representation of dirt and the new materialist insistence on visible socio-materialities.

Conclusion

The article has adopted a critical realist approach to understanding how relations between discourses and materiality emerge and change over time in the context of the dirty work of clinical photographers of wounds. The emergent and stratified ontology of critical realism

allows a consideration of transfactuals and absences which support a consideration of time, reflexivity and social structure. As such, agents are not only constrained by the material and social context in which they work, but also by the properties, dynamics and emergent potentialities of the materials and bodies that they work with. These predispositions structure photographers' work, but also their interactions with patients and the agency they exert that (re)produces the social structures which they inhabit. These crucial themes of temporality, reflexivity and social structure in dirty work are invisible in new materialist approaches (see Mutch, 2013; Elder-Vass, 2015; O'Mahoney and Vincent, 2014; O'Mahoney et al., 2017). In contrast, this article has argued that they are crucial in understanding the dynamics of constructing professions that cannot escape close contact with dirt as 'cleaner' through situational responses to socio-material and structural arrangements.

For reasons of space, in considering the explanatory power of social structures, we focused on socio-material aspects of photographers' dirty work in relation to roles and medical hierarchies, setting aside important issues of class, gender or ethnicity. Future research could, for example, explore in greater detail the position of clinical photographers vis-à-vis socially stigmatised patients with wounds and consider how nurses', rather than photographers', involvement in body work is associated with normative assumptions about feminine care. Moreover, the morphogenetic approach to understanding the dynamics of dirty work represents a change in work perception over time. Building on the insights from this ethnography, future research could use historical methods to trace the evolution of the dirty photographers' occupation becoming cleaner.

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Table 1. Details of clinical photographers interviewed in the study

Clinical photographer	Background
Alistair	Background in photographic art
Paula	Worked mostly with inpatients on hospital wards, approximately 20 years of experience in clinical photography
Roman	Background in photographic art, experience in clinical photography in ophthalmology
Lauren	Background in photographic art, in clinical photography training
Tammy	Training in clinical photography
Emma	Background in photographic art
Leighton	Photographing wounds for six years
Mats	Senior clinical photographer, background in photographic art, 10 years of experience in dental photography
Evan	Trainee in clinical photography, one year of experience
Fernando	Background in medical photography, 20 years of experience, including 15 years of experience in photographing wounds

ⁱ Readers may notice at this point physical signs of disgust: upper lip retracting, throat constricting, nose wrinkling, eyebrows lowering and eyes narrowing.