

# Commemorating industrial ruins – the case for the Tswaing salt works

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The article investigates the cultural and industrial history of the Tswaing salt works which were established and operated for a period of 50 years at the Tswaing (seTswana for ‘place of salt’) meteorite crater 40km north of the Pretoria CBD. After the 1960s the industrial activities ceased and the site was abandoned, leading to decay and vandalism of the remaining buildings. Whereas the meteorite crater as a natural phenomenon remains a tourist attraction, the socio-cultural heritage of the industrial ruins has been neglected and the question is put whether these industrial ruins warrant commemoration in some way or another. The argument is made that to commemorate the Tswaing crater, commemorating the Tswaing salt works’ industrial ruined remains becomes a necessary complementary approach. Various memorialisation options are explored and illustrated with case studies; ranging from demolishing any remains of the industrial ruins and perhaps allowing only a palimpsest, to leaving the ruin to further decay, to a range of conservation interventions and to a restoration, alteration and re-use option. The potential value of partly restored, conserved or re-used industrial ruins is discussed, i.e. ruins as nature reserves, heterotopias, tourist destinations, museums or places of recreation. The commemoration of these ruins however remains a disputed issue, with opinions ranging from removing all traces of industrial activities from the site of this natural phenomenon to recognising the importance of the socio-cultural influences on the natural environment and to allocating new values and uses to the now abandoned human activities, thus allowing the complete narrative.

**Key words:** Tswaing meteorite crater, Tswaing salt and soda works, industrial ruins, commemoration

## **Herdenking van industriële ruïnes – die geval van die Tswaing soutwerke**

Die artikel ondersoek die kulturele en industriële geskiedenis van die Tswaing soutwerke wat gevestig en bedryf was oor ’n 50 jaar tydperk by die Tswaing (seTswana vir ‘plek van sout’) meteorietkrater 40km noord van die Pretoria SSG. Na die 1960s is die industriële bedrywighede gestaak en die terrein is verlate gelaat wat tot verval en vandalisme van die oorblywende geboue gelei het. Waar die meteorietkrater as ’n natuurlike fenomeen steeds ’n toeriste-aantreklikheid bly, is die sosio-kulturele erfenis verwaarloos en die vraag word gevra of hierdie ruïnes herdenking in een of die ander vorm regverdig. Die argument word gevoer dat om die Tswaing meteorietkrater te herdenk, die herdenking van die soutwerke ’n noodsaaklike komplementerende benadering word. Verskeie herdenkingsmoontlikhede word ondersoek en met voorbeelde illustreer; wat strek van die sloping van alle oorblywende ruïnes en moontlik slegs die behoud van ’n palimpsest, tot die los van die ruïnes om verder te verval, tot ’n reeks van bewaringsingrypings en tot die restourasie, verandering en hergebruikopsie. Die potensiële waarde van deels restoureerde, bewaarde of hergebruikte industriële ruïnes word bespreek, insluitend ruïnes as natuurbewareas, heterotopias, toeristebestemmings, museums of plekke van ontspanning. Die herdenking van die ruïnes bly egter ’n omstrede saak, met opinies wat strek van die verwydering van alle spore van industriële aktiwiteite van die terrein van hierdie natuurlike fenomeen tot die erkenning van die belangrikheid van die sosio-kulturele invloede op die natuurlike omgewing en tot die toedeling van nuwe waardes en gebruike aan die tans verlate menslike aktiwiteite, om daardeur die volledige verhaal toe te laat.

**Sleutelwoorde:** Tswaing-meteorietkrater, Tswaing-sout-en-soda-werke, industriële ruïnes, herdenking

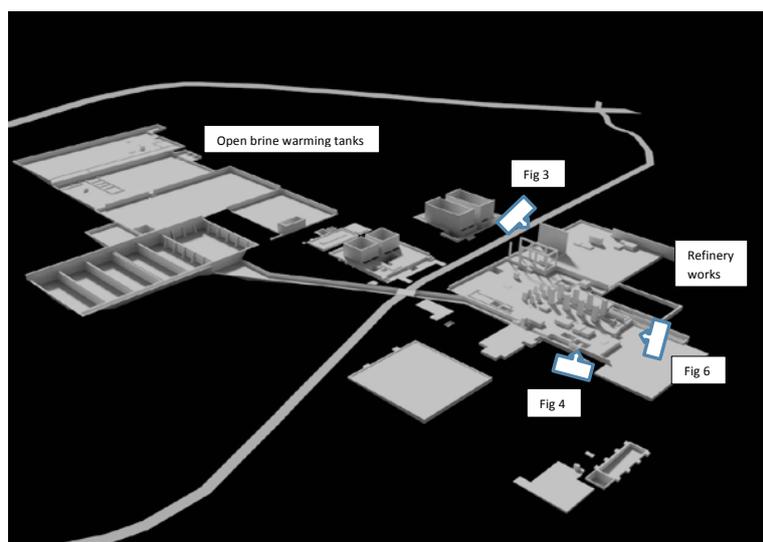
As place is sensed, senses are placed; as places make sense, senses make place.

Feld 1996: 91

**T**swaing (seTswana for ‘place of salt’), a meteorite crater, lies 40km northwest of the Pretoria CBD, adjacent to the Winterveld and Soshanguve informal and formal settlements on land owned by the National Department of Public Works. The crater and the Tswaing Nature Reserve have since 1992 been managed by the Ditsong: National Museum of Cultural History which forms part of an amalgamation of national museums collectively called Ditsong: National Museums of South Africa, a governmental heritage conservation body which was established in terms of the Cultural Institutions Act (Act 119 of 1998).

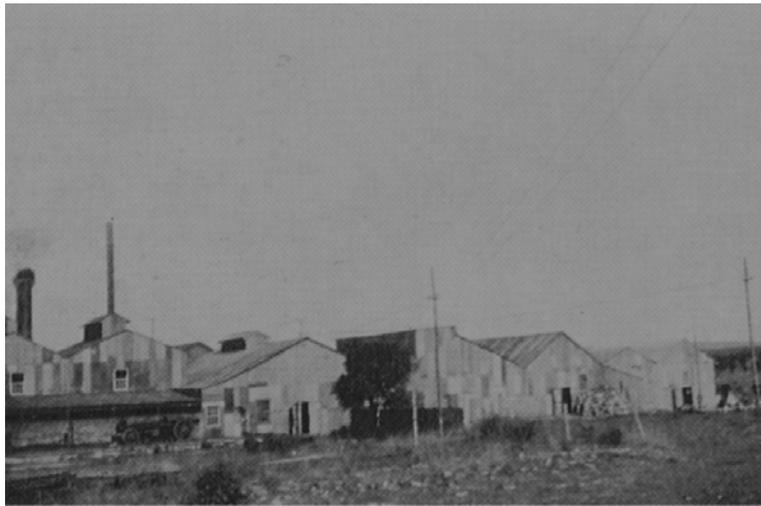
The Tswaing astrobleme occurred approximately 220 000 years ago and left a well preserved crater with a rim diameter of 1.13km. Over time brine-rich water accumulated in the lake in the centre of the crater. Local folklore considers the water in the lake spiritually significant and it has been used for certain rituals and visited by local peoples for hunting and salt collection since the Middle Stone Age 159 000 years ago (Reimold *et al.* 1999; Tswaing Crater 2015; Eales 2007; Bonner *et al.* 2007). Bredell (2009) and Reimold *et al.* (1999) find that local tribes have strong associations with storytelling and mythological beliefs associated with the crater’s unique topographical features, however Bredell (2009) suggests that there is limited written history of this aspect and expresses the concern that related oral traditions are rapidly being lost.

Up to the end of the 19<sup>th</sup> century the Tswaing crater served as the main source of salt for the greater Tshwane area (Reimold *et al.* 1999). The mineral rich brine and underlying trona (a solid layered form of soda ash), were exploited commercially between 1912 and 1956 during which the SA Alkali Ltd company was granted a mineral mining permit to extract the brine for the production of salt and soda-ash. Reimold *et al.* (1999: 96-106) describe the history of the factory and the refinery process in detail: Brine was pumped from the lake, temporarily stored in a large reservoir on the crater rim before flowing downhill, through the so-called Mauss’s Cutting to the salt refinery works about a kilometre south of the crater. There it was stored in large shallow open concrete storage tanks (still clearly visible today) to allow warming of the brine before being refined. In figure 1, a model of the surveyed ruins, the extent of the refinery works can be seen.



**Figure 1**  
A model of the Tswaing salt works ruins as surveyed in 2012,  
viewed from the south, northwards to the crater (source: Tenea & Viljoen 2012).

Trona was manually mined and hauled by ox wagon on a cart track which was constructed down the inner rim to the lake and which currently still remains the only vehicular access. For the production of calcined trona, furnaces were constructed and the remains of steel rails for a steam powered hauling engine can still be seen amongst the ruins of the now abandoned factory. As the trona deposits became exhausted, new technologies for the extraction of soda-ash from the mud layer covering the crater's lake allowed the soda-ash production to continue. These improved technologies and better extraction processes were developed over more than 40 years and led to the addition of many factory structures, refer to figure 2 which shows a section of the factory *circa* 1921.



**Figure 2**

**The Tswaing soda ash and salt factory in 1921 (source: P.A. Wagner, in Reimold *et al.* 1999).**

Today the corroded remains of the pumping equipment in the lake and decayed concrete structures at the factory site remain mute reminders of the industrial activities which were abandoned in 1956 when the company ceased operations due to financial constraints. Cheaper imports of soda-ash from abroad led the company to shift its focus from producing soda-ash, much of it used in the tanning of leather, to the leather industry itself. In 1954 the company acquired the Silverton Tannery and soon after leather tanning became SA Alkali Ltd.'s main business, it changed its name to the Silverton Tannery Ltd. Parts of the old factory were briefly used from 1958-1961 by another company which attempted to produce salt, but the only remains thereof can be found in a huge stockpile of whitewash (Reimold *et al.* 1999).

Housing for the workers were built in two areas east of the factory and along the southern crater rim, and ancillary accommodation such as a school, offices and laboratories was also provided. Most were demolished in the early 1970s (Reimold *et al.* 1999) and only foundations and floor slabs still remain.

The despoliation of the natural area surrounding the crater from continued industrial activities over a period of 49 years only ended in the early 1960s when the government cancelled the mining lease, took back control of the site and declared Tswaing a national museum within a proclaimed nature reserve.

The ruins of the abandoned salt works were picked clean of any valuable remains such as steel roof sheeting, timber, mechanical equipment, so that what remains today are mostly the corroded reinforced concrete structures which continue to decay rapidly due to the corrosive action of the salts on the reinforcing steel (see figures 3 and 4), and creating, what Reimold *et al.* (1999: 105) term “a picturesque ruin”.



**Figure 3**  
**Ruined concrete structures at the Tswaing salt works ruins. Refer to figure 1 to position image (source: Tenea & Viljoen 2012).**



**Figure 4**  
**Tswaing salt works ruins now overgrown with grasses and woody species. Refer to figure 1 to position image (source: Tenea & Viljoen 2012).**

Except for the area occupied by the salt works, the natural vegetation around, in and on the crater rim has remained largely unspoilt by human activities and as a result constitutes a good example of sour-mixed bushveld (Reimold *et al.* 1999). This portion of natural veld offers a popular reason for nature lovers and hikers to visit the Tswaing Crater conservation area, and

who, according to the curator, make up the majority of the annual visitors (Roelofse 2015 pers. comm.).

Whereas visitors currently mainly focus on the meteorite crater, their hiking trail there takes them past and through the industrial ruins, creating an opportunity to commemorate the socio-economic and cultural history of Tswaing together with its natural history.

### **The current commemoration dilemma: the crater as a natural vs the salt works as a cultural phenomenon**

The meteorite crater, an astronomical and geological natural phenomenon, and the long cultural history of salt collection and which includes the commercial salt production of the now abandoned industrial ruins are inextricably linked, both geographically and functionally, although it can be argued that the crater doesn't 'need' the salt works whereas the latter depended on the extraction of brine from the crater. Visitors to the Tswaing Crater Museum today do so primarily to view the meteorite crater in its natural surrounds, whereas the history of salt collection and commercial extraction remains largely untold.

In order to develop an approach that addresses the question of what, if anything, deserves to be commemorated in the case of Tswaing, the concepts of cultural heritage, heritage sites, museums and ruins need to be investigated. Heritage in this context is seen as the cultural ancestry, legacy or inheritance specific to the Tswaing site; a heritage site can therefore be described as being or containing artefacts of special cultural and/or physical significance. Since museums are generally defined as institutions where artefacts of cultural, historic and scientific interest are housed and displayed, the buildings that remain at Tswaing, although ruined, are themselves the artefacts of a historical and cultural past, thus the whole site, being a heritage site should be described as a museum and not only the crater as a geological natural phenomenon.

The only difference between the traditional museum where the displayed artefacts are often dislocated from their context, and what is proposed for Tswaing, is that the latter should be a living museum, where artefacts are displayed in their context thus allowing a narrative that tells the story of both a natural and a cultural phenomenon.

The Tswaing crater currently attracts on average only 14 000 visitors per year (Roelofse 2015 pers. comm.). These relatively low figures can be ascribed to:

- Very limited visitor oriented facilities such as a museum for smaller or loose artefacts, displays, restaurants and information kiosks. In this regard Stone (cited in Stone & Molyneux 1994: 16) points out that there is no empirical evidence that proves that a greater understanding of the archaeological (in this case more geological) history of a given site alone will ensure any greater level of protection and support for that site or for any other site, thus confirming that such sites require additional and supporting facilities to attract visitors.
- Limited directional signage to the crater itself for visitors after parking their cars.
- The public safety hazard that the salt works ruins currently pose (visitors are warned away).
- The close proximity of informal settlements and a tortuous and inadequate sign-posted vehicular access road from the nearby N1 highway to the Tswaing Nature Reserve.

One could argue that the crater should have far more visitors bearing in mind that the geologically well conserved Tswaing crater is the only meteorite crater within a radius of 200km and the site is relatively close to the large urban populations of Gauteng. The closest other meteorite crater

can be found in the largely eroded 300km diameter Vredefort Dome impact structure to the south. This is believed to be the world's oldest and largest known crater and was caused by a huge meteorite some 2020 million years ago (NRF-HRAO 2015; Eales 2007). The crater rim has however been eroded to such an extent that it is only discernible to the trained eye.

## Goal

Bredell's (2009) aim in her dissertation was to investigate the potential integration of the intangible dimension of meaning, memory and lived experience of the industrial ruins into the tangible components of landscape architecture and architecture, and as she states (2009: 3/01) it was "To investigate the potential of re-utilising existing structures to retain both the physical and metaphysical memory related to the site by means of an analysis based on the principles of the Burra Charter". This cultural heritage conservation charter, developed by the Australian ICOMOS Chapter, proposes three levels of repair for heritage structures (Government of South Australia s.a.), i.e.:

- *Preservation*- Conserving a historical site in its existing state and preventing further decay or deterioration.
- *Restoration*- To restore a site to a pre-determined earlier state or era by removing all additions built after the elected era or to reassemble existing elements without adding new materials.
- *Reconstruction*- essentially the same as for restoration but allowing new materials to be introduced.

If we accept that the industrial ruins are intrinsically part of the Tswaing site and its cultural history, should they then be either demolished and only a palimpsest kept, or their further decay halted (i.e. preserved), or conserved and restored, or recycled, i.e. given a new function and lease of life? It is proposed that a structuralist mode of reasoning be followed in responding to this question, where structuralism is described by Phillips (s.a.) as the theory or discourse that studies the underlying structures of signification and suggests that elements of human culture can only be understood in terms of their relationship to the larger, overarching system.

The goal of this article will therefore be to determine if and how the ruins of the Tswaing salt works should play a role in the commemoration of the natural and cultural heritage of the Tswaing meteorite crater.

To commemorate Tswaing as a place of memory today will require an approach that accepts the plurality of the natural and man-made histories of the site. By way of contrast and as an example of how memory of a cultural landscape can be deleted, Nadenicek (1999: 72) discusses the naturalistic approach which was taken at the picturesque and well known Minnehaha Falls in Minneapolis in the US where, while "...in truth it has been pretty difficult for poetic fiction to cover up all the disfiguring traces of man...", all remnants of old structures and ruins were removed in order to re-establish a 'wild, natural landscape undisturbed by man'.

## The nature of industrial ruins

The existence of industrial ruins and abandoned industrial sites are the unavoidable results of a capitalist system whose sole motive is the search for profit; abandoned factories lose their purpose and meaning in the wider socio-economic network of the time (Edensor 2005: 4, 64; Scott 2008: 17). Edensor (2005: 21, 68, 166) finds that industrial ruins are most often classified as 'scars on the landscape' or 'wastelands' of no value and are thus considered worthless by their

association with the economic decline of the erstwhile industrial activities and since they cannot now be accommodated in a new economic order.

He nevertheless contests the notion that "...ruins are spaces of waste, that contain nothing of value, and that they are saturated with negativity as spaces of danger, delinquency, ugliness and disorder." (*ibid.* 2005: 7).

When an account of an industrial ruin is to be made, it could focus purely on the history of the place, what was produced, by whom and why it was abandoned. An alternative and sometimes supplementary account would be to analyse and describe the ruin in a wider socio-cultural context and to capture the sensual immanence of the experience of moving through the ruin (Edensor 2005: 15). One such sense stimulated by being within a ruin is the muted soundscape, "...the peculiar quiescence of the ruined factory causes one to pay attention, and thereby the soundscape is haunted by an absence of noise" (*ibid.* 2005: 149). The olfactory sense is stimulated by the rich mixed aroma of mouldering decay, wild flowers and grasses and of specific previous manufacturing processes, contrasting with the deodorised smell-scape of contemporary buildings (*ibid.* 2005: 91, 92).

Depending on what level of conservation, restoration or re-use they are subjected to, industrial ruins can find new expression in many ways. Ruins as nature reserves, heterotopias, tourist destinations, and places of recreation or museums will be briefly discussed.

### ***Ruins as nature reserves***

Where ruins occur on large abandoned sites, whether they are urban, peri-urban or rural, Edensor (2005: 42) finds that these are also sites which teem with life forms and since such spaces are no longer policed or cleansed to minimise non-human intrusions, fauna and flora show their resilience by colonising abandoned spaces (refer to figures 3 and 4). Cloke and Jones (2002) point out that the agency of insects, birds, mammals, fungi, shrubs, flowering plants and trees are showcased in the constitution of the urban and its ruinous remains, despite their often wrongly assumed absence. Edensor (2005: 44) observes that:

...factories, which were devoted to the transformation of nature in the form of raw materials into manufactured goods, when ruined, return to nature once more, and are subject to its temporalities as the illusion of permanence dissolves.

He (*ibid.* 2005: 50) suggests that as a result of the foregoing, the ecological value of such post-industrial abandoned sites can be high. At intensively 'policed' sites where herbicides and pesticides are applied to discourage weeds and problematic fauna, the ecological diversity is often low, whereas at abandoned ruins the opposite holds. Plant succession is very obvious in ruins; weeds and grasses first colonise an abandoned place, preparing the environment for larger perennials and lastly woody species (see figures 3 and 4). With each succession stage comes an increased number of faunal species that can inhabit the ruins.

### ***Ruins as heterotopias***

The philosopher Michel Foucault perceived places like museums or cemeteries as heterotopias (from the Greek *héteros*: other, another, different and *topos*: place): spaces that have multiple layers of meaning or different relationships that are not always obvious at a first glance. He (1967: 6-7) refers to the heterotopia of place as being capable of "juxtaposing in a single real

place several spaces, several sites that are in themselves incompatible” and he uses a cemetery as an example of a heterotopia of time (or the “otherness” of time), where for the individual the cemetery is a manifestation of this strange heterochrony of the loss of life but also the beginning of the quasi-eternity of the tombstone. He also refers to museums, where objects from different places and times are enclosed in one space. These objects existed in their own time, but now also outside of time since they are kept and preserved from the ravages of time.

The question may well be put whether the Tswaing salt works ruins can be conserved, restored or redeveloped into a heterotopia of time and place; a place (a museum) where historical, functional and chronologically disjunctive characteristics are juxtaposed?

Edensor (2005: 42) argues that while in romantic times classical and rural ruins were typically represented in the work of painters and poets, the imagery and aesthetics of contemporary industrial ruins are mainly portrayed through cinema, albeit often in a negative sense as places where criminal activities prevail or as a glimpse into a dystopian future; thus an altered, restored and re-used ruin can serve as a heterotopia, juxtaposing past with future, old functions with new uses, failed enterprises with new endeavours.

### ***Ruins as tourist destinations and places of recreation and leisure***

Edensor (2005: 50) suggests that far from being vacant waste spaces, industrial ruins could be well woven into leisure practices, ranging from the carnivalesque to the experimental to the mundane, and he finds it (*ibid.* 2005: 10) ironic that the possible multiple uses of ruins and derelict land as playgrounds are not more often considered when land is identified for spaces of play. He shows that ruins often serve as alternative play spaces for children and adults and suggests (*ibid.* 2005: 82) that industrial ruins harbour a wealth of “possible niches, paths, stairs, openings tactile surfaces which invite physical exploration”. Such play or recreational activities attract the ‘urban explorers’ to the physicality and thrill of exploring ‘dangerous and unknown’ spaces such as tunnels, basements, shafts, drains, disused quarries, etc. Stanley (1996) suggests that the disordered movement of a *flâneur* in an abandoned ruined building also creates alternative spatial networks to evolve in the interstitial spaces between the dominant previous orderings and Edensor (2005: 87, 95) finds that ruins degenerate into labyrinthine structures which offer the visitor many paths to choose from; this in contrast with more formal tourism, which is typically staged, disciplined, regulated and focussed around familiar and famous sights and which provides the tourist with pre-packaged information along a pre-determined route.

### ***Ruins as museums***

Edensor (2005: 133) argues that:

The heritage industry tends to mobilise specific ways of remembering the pasts of places. In servicing the requirements of commodification and the need to tell a coherent, seamless story about the way things were, heritage banishes ambiguity and innumerable ways of interpreting the past to compile a series of potted stories and spatially regulated displays. Thus there is an associative imperative to arrest decay, hence to freeze time, best exemplified in the preservation of buildings and forms of urbanity or rurality which are believed to capture a specific and aesthetically championed period.

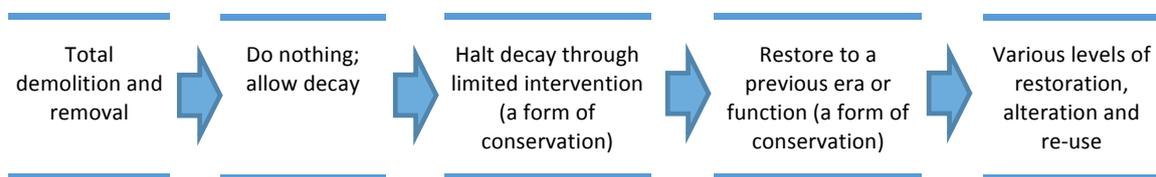
He then adds (*ibid.* 2005: 136) that “In the same way that visitors are expected to comport themselves ‘appropriately’ around ‘memoryscapes’, the museum encourages visitors ‘to comply with a programme of organised walking’”.

Should the Tswaing salt works become a museum, restored to the ‘golden age’ of its industrial past activities? Apart from the fact that so much of the built fabric has either been removed or in an advanced state of decay, one might argue that, seen in the context of the whole site, the importance of the meteorite event overshadows a mere 49 years of man’s interventions and thus the focus should be on commemorating the natural event, as is proposed by Naude (2014 pers. comm.). On the other hand a recognition, through a commemoration of the remainders of a cultural history and perhaps by means of preserving the ruins and providing a display of selected fragments of the industrial past would seem the most appropriate approach in the case of Tswaing.

**The continuum of dealing with ruins – from demolition to conservation to restoration, reuse and recycle**

Scott (2008: 47) suggests that the often contested views of how to deal with ruins can be traced back to the 19<sup>th</sup> century when contrasting approaches regarding restoration emerged, “The first appears to be an argument for license to alter, and the other is an opposite admonition against meddling”.

When dealing with ruins with the aim to commemorate the tangible and intangibles of the place, the approach needs to consider the options in a continuum of possible interventions that range from total demolition and removal, to conservation, or to varying extents of restoration, alteration and re-use; in Figure 5 this range of possible interventions is graphically illustrated. This continuum of options differs from the Burra Charter’s three level approach which neither considers total demolition and removal, nor restoration, alteration and re-use as possibilities.



**Figure 5**  
**A continuum of approaches in dealing with ruins.**

As some of the precedents will later show, the approaches followed to commemorate ruins are often a combination of the above interventions, or they lie somewhere in between on the continuum.

***Remove all traces of the ruin***

The most extreme way of dealing with a ruin, that of total removal and demolition, often also denies even a palimpsest of a previous order to remain. In the case of the Tswaing salt works there is compelling reason to remove, what is consider by some, a man-made blight on a unique natural phenomenon.

Naude (2014 pers. comm.) contends that the Tswaing crater is primarily a geological occurrence and not a manmade site and that this should guide the various approaches at the disposal of the designers and planners for any appropriate commemoration. He maintains that

any proposed “new work” or human interventions must remain sympathetic to the geological event and its physical and visual remains, “The crater remains the monumental element to be celebrated and not the manmade features”. However, should this approach be implemented, it may well lead to the disappearance of all traces of the socio-industrial legacy of Tswaing.

### ***Do nothing – allow decay***

The second option of no intervention and which leads to gradual (or accelerated) decay, holds the risk that the tangible aspects worthy of commemoration are gradually destroyed through weathering, corrosion or vandalism, losing its context and often becoming a public safety hazard. As can be seen from figure 6, the extent of decay at Tswaing’s ruins is severe.



**Figure 6**

**Decaying concrete structures at the Tswaing salt works ruins. Refer to figure 1 to position image (source: Tenea & Viljoen 2012).**

Edensor (2005: 114, 4) finds that “Things give up their solidity, their form, yielding to the processes which reveal them as aggregations of matter, erasing their objective boundaries...” and adds:

Some [ruins] are left to linger and decay for decades, turning into heaps of rubble over the years, whilst others stay for a while until the first signs of decay take hold and are then demolished, and some are eradicated shortly after abandonment. Often a ruined space is marked only by a vast expanse of concrete flooring...

The current conditions of the Tswaing industrial ruins reflect this, perhaps unintended, approach to conservation of the authorities. As can be seen from Figures 3, 4 and 6 only decayed ruins of concrete structures remain.

Edensor (2005: 24) cautions that as soon as entry is gained into an industrial ruin, the denizens of the informal economy go to work, removing anything of value such as metal and timber components; windows, doors and roofing, often leaving only the low value, difficult to extract components such as reinforced concrete. This selective ‘picking’ leaves the buildings vulnerable to accelerated weathering and decay, as may currently be seen at the Tswaing salt works ruins.

### ***Halt decay***

The third approach, that of stopping further decay by limited intervention, leaves the ruin as a partial recollection of a previous era, at best containing enough artefacts that can narrate the history in an understandable way and to later generations for whom the context may already be lost. At worst the partially preserved ruin becomes a meaningless museum conveying no history.

Scott (2008: 96) in citing Kahn, suggests that a ruin is a building “able to speak, to say how it is made. The common result of ruination is loss of enclosure. A ruin then has qualities of transparency...” and he then adds that “The ruin allows privileged views from previously inaccessible viewpoints, and from these it offers a fresh explanation of itself”.

In a cautionary note Edensor (2005: 141) however warns against allocating too much value to a ruin and he suggests that a ruin, as an allegory of memory, is at best “...fragmentary, imperfect, partial and thoroughly incomplete”. This view is contested by Venter (2015 pers. comm.) who suggests that the free attribution of meaning is more possible when some of the prescriptive meaning which goes with structure is absent; a visitor will not necessarily want to understand how the industry functioned, but will assign meaning to what remains.

Scott (2008: 58), ironically and somewhat provocatively, states that preserving a ruin is a very peculiar practice and asks “if the process of ruination should have produced such a valuable result, why would further ruination not increase the value?”

### ***Restore the ruin***

The fourth level of commemoration, that of restoring the ruin to a pre-determined previous era (often representative of the heyday of the site’s industrial activities) can be seen as the ultimate form of conservation; resulting in a physical recreation of a past era, frozen in time and contextually often now inappropriate. Scott (2008: 10) argues that the motivation for the conservation of a building is based as much upon “...commemorating lost social and political aspirations as upon the material preservation of architectonic form” and finds that in order to maintain the rituals of function after a building has become obsolete, would merely “promote the farce of repeated history, behaviour without conviction...”. Orbasli (2000: 1) contests this view and when emphasising that conservation is not merely an architectural deliberation but also an economic and social issue, cites Rogers (1982) who points out “we must realise that maintaining structures means maintaining the desirability or continuity of a culture – we are in fact conserving cultures not buildings”.

To illustrate the contested difference between conservation and restoration, Scott (2008: 63) postulates that the often encountered term in architecture of ‘making good’ is well thought to equate to conservation as a common-place procedure, both innocuous and unassuming, but cautions that “any attempt to return a building, if only a part, to any previous condition is not conservation but restoration”. He cites the continuous maintenance of an iconic building such as Le Corbusier’s Villa Savoye as continuous restoration.

### ***Restoration, alteration, recycle and re-use***

The opposite end of the commemoration continuum is occupied by an approach of restoration, not for the purposes of conserving a specific past era but of altering and recycling the site or building to a new function and retaining only selected reminders of the past.

Scott (2008: 124) suggests that restoration work requires an interpretation of the historical value and consequent judgement on what should be done and he finds that in all approaches to 'making good' "the delusion of the difference between conservation and restoration should be borne in mind. There is no difference." He furthermore (*ibid.* 2008: 11) suggests that alterations to an abandoned building constitute an alternative to preservation or demolition and will allow a building an extended life beyond their time; at the same time he cautions that the "...process of change to facilitate re-colonization will tend to usurp a building's initial integrity and create mongrel buildings." In this regard Edensor (2005: 131) suggests that in recent times the

traditional imprinting of memory on space has been expanded latterly by the evolution of a politics of conservation...where status is expressed through the possession and occupation of renovated offices, or formerly industrial or commercial buildings converted into upmarket accommodation. With signatures of the past encoded into lamp-posts, signs and other street furniture, the apparent age-value of location is central to the rehabilitation of such places and the cities in which they occur.

Following on this he (*ibid.* 2005: 131-132) questions how decisions are made about which fragments or artefacts from the ruin are kept, refurbished, re-used or commodified versus which spatial and material debris is neglected, dumped or buried. He believes the answer lies in for whom (the new users) the ruin is refurbished or the memory manufactured but cautions that this approach may lead to the removal of so many fragments that that the landscape as palimpsest can be difficult to decode in its remanufactured appearance.

Scott (2008: 79) postulates that

introducing new life into an old building is in many ways like translation, the carrying over of the host building from one age to another. As suggested before, the undertaking of making good and new works, including the inevitable incipient restoration, may be thought of as akin to transcription or translation, the carrying across of a building ...from the past to the present.

However, as he points out (*ibid.* 2008: 81), the obvious difference between translation and rehabilitation is that with translation the original literary work can be left behind entirely untouched, whereas with rehabilitation the interventionist works directly on the original and possibly alters it irrevocably. William Morris (cited in Scott 2008: 17) maintained that if new work was to be done in an old building, then it should be in a contemporary style; nevertheless he insisted that all insertions were to be reversible, that is, could be removed without leaving a trace. Edensor (2005: 98) advances the notion of while recognising the need for redevelopment of an industrial ruin, the history of the site should be respected and emphasised.

To preserve some or to restore and re-use other of Tswaing's industrial ruins will require a major architectural and structural intervention due to the extent of decay and vandalism. Some of the concrete components will probably require supports or props. In this regard Scott (2008: 118), in referring to the writings of Ruskin and Morris on the legitimacy of a prop or a crutch to conserve the structural integrity of a building, and who suggested that the prop should merely maintain a spatial relationship of the parts under threat of collapse in a straight forward and honest manner, nevertheless suggests that the prop or support should have an integrity and distinction of its own that is separate from the parts it supports.

Scott (2008: 144) cautions on the scale of intervention or restoration, referring to the significance of context in an urban scale or in a collection of ruined buildings of which only one survives in a restored state; as an example he refers to the incongruity of a restored St. Giles and the Barbican in London now surrounded by modern high-rises.

Scott (2008: 153) finds that “Buildings are taken over in the recurrent victory of the living over the dead, new ways of life replacing the old. The object of alteration is to translate a building into the present, in so doing making it suit a modern way of life.” In the same vein he finds that restoration projects which attempt to reinstate the life once lived there, or make good industrial processes once followed there, are delusional, seen in the light of alteration being a form of translation. He holds (*ibid.* 2008: 153) that:

In the pursuit of the recolonization of an altered building, it is easier to understand that, within limits, function will fit to space in a way that is an inversion of the founding law of functionalism, of form following function. The imprecision of fitting space to use is of course a necessary condition of any change of use being visited upon the built environment.

If the ruin can be restored, altered and re-used in a manner that neither clings to a past that has no current context, nor takes on a new form that offers only tokenism to its past, Scott (2008: 126) suggests that the ruin should then be seen as the means by which a building addresses its past, recognises the present and guides future uses.

## **Precedents**

Five case studies are discussed to illustrate some of the interventions that can be made to commemorate industrial ruins.

### ***Do nothing, allow decay***

The Santa Laura nitrate refining works (established in 1872) lie 48km east of the town of Iquique in the Atacama desert in northern Chile and is a telling example of an approach where the main architectural features, i.e. the sheds which housed the saltpeter refinement and packaging works are left to decay, albeit in an environment where the wind and sun are the only weathering factors; rain is effectively non-existent (see figure 7). Loose artefacts remaining from its operational life, such as furniture, small tools and appliances are however kept in a partly restored office building which now serves as a museum. The nitrate refinery ceased operations in 1929 when the development of synthetic ammonia in Germany led to the collapse of the natural nitrates industry which, up to that stage had supplied most of the world’s nitrates used in fertilisers and explosives. By 1960 Santa Laura had become a ghost town but was declared a National Monument in 1970 to protect the buildings from further looting, demolition and decay and in 2005 the site was declared a UNESCO World Heritage Site.

A more recent example of the ‘do nothing, allow decay’ approach can be found in Motor City in Detroit in the USA. These, now 60 years old abandoned ruins of the erstwhile hub of the American automotive industry, tell the story of an industry which collapsed due to changing world markets and new technologies. The production of automotive parts for a world market shifted to other countries, mainly in the Far East and developing countries where the cost of labour was more affordable and the USA’s dominance in this industry was thus challenged.



**Figure 7**  
**The Santa Laura nitrate refinery, near Iquique, northern Chile**  
**(photograph by the author).**

***Halt decay through limited conservation***

Humberstone, the nitrate refinery village established in 1862 and adjoining Santa Laura was also declared a National Monument in 1970 and a World Heritage Site in 2005 (see figure 8). It served as the centre from where refined nitrates, – sourced from nitrate works such as Santa Laura and many others, were taken by rail to the export harbour of Iquique, and is an example of an approach where the main architectural features, i.e. the civic and commercial buildings, including schools, hospital, market, swimming pool and town theatre were restored to a specific era of its history and which now serves as a museum town (see figure 9). Humberstone’s decline is linked to that of Santa Laura in terms of chronology and causal effects.



**Figure 8**  
**Entrance to the Humberstone nitrate refinery town, near Iquique, northern Chile**  
**(photograph by the author).**



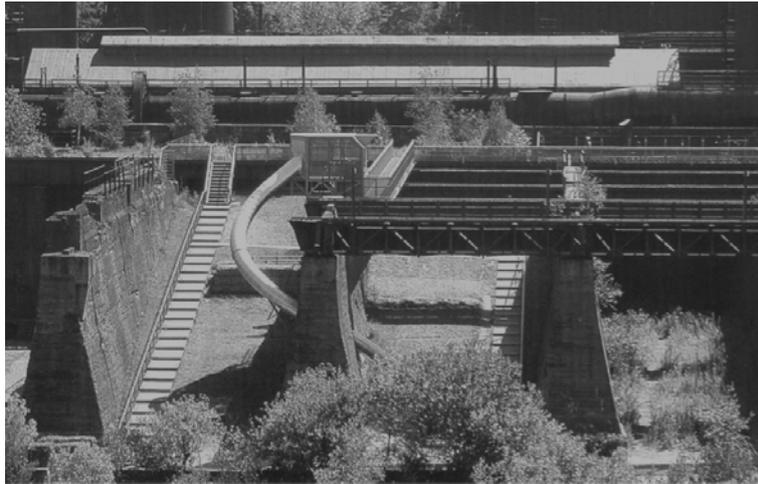
**Figure 9**  
**Market square in the Humberstone nitrate refinery town, near Iquique, northern Chile**  
**(photograph the the author).**

### ***Restoration, alteration and re-use***

Pilgrim's Rest is a village in Mpumalanga, South Africa which developed during the gold rush of 1873 and, when the gold reserves were economically depleted by the late 1960s, the village faced the risk of falling into a ruinous state; only for the then provincial government to take ownership and restore the rich architectural and industrial heritage. The village was declared a National Monument in 1986 and in 2004 was added to the UNESCO World Heritage Tentative List. However, in order for the historical village to remain economically viable, many of the buildings were recycled to house new functions such as shops, museums, tourist information centres and the like. Pilgrim's Rest has now become a popular tourist destination; thus an example of total restoration, alteration and re-use. Gold mining commenced again in 1998 in the hilly area around the village.

Edensor (2005: 35) describes the Duisberg Nord landscape park, part of the Emscher Exhibition Park development in the Ruhr valley in Germany (designed by landscape architects Peter and Michael Latz and completed in 2002) as an impressive example of the commemoration of an abandoned industrial landscape where steel coke plants, blast furnaces and ore bunkers have been transformed into giant sculptures, usable spaces, play equipment and recreational areas (see figure 10). He quotes the brothers Latz (2005: 35) who said "fantasy should allow us to use the abstraction of the existing structures in new ways, and so adapt the present system of organization to the appearance of chaos" This case study is an example of partial restoration and alteration with many new interventions which enabled the ruins to be re-used in a new context. Edensor (2005: 35) concludes his critique of the Duisberg Nord landscape park by finding that:

By allowing the reclamation of ruined space by plants and animals to simply occur in certain areas, by decontaminating blighted spots, and through the deliberate fabrication of ponds, meadows and spectacular gardens, the designers have created a hybrid melange in which some places have been creatively transformed whilst others have been left alone.



**Figure 10**  
**Duisberg Nord, Emscher Park: new pedestrian scale steps and walkways between large scale redundant structures of the industrial past (source: Spens 2003).**

### **Future options for Tswaing**

To commemorate the Tswaing crater, commemorating the industrial ruins becomes a necessary complementary approach. Various options exist for this approach; ranging from demolishing any remains of the industrial ruins and perhaps allowing only a palimpsest, to leaving the ruin to further decay in-situ, to a range of conservation interventions and to a restoration, alteration and re-use option. Hunt (1999: 21) calls the *genius loci* of a place, or telling the story of some place, a fundamental element of all design interventions, ranging from conservation to alteration, restoration and re-use, “If the designer draws out, reaffirms the meaning of a site – whether that theme or narrative is ideological or geomorphological, general or site-specific – he celebrates a site’s identity.”

Treib (1999: 82) argues that:

Humans imbue landscape with memory using several vehicles...The most direct action maintains the historical form of the land: preservation... . A second means of commemoration retains the noteworthy elements of the original landscape, ... perhaps a building typology... .

Wolschke-Bulmahn (1999: 5) asks: “Might new generations that have no personal experience of the events commemorated need a more distinctive, more clearly explanatory, and perhaps more provocative design” to understand or experience the commemorative qualities of the site? When this question is directed at Tswaing the answer should be affirmative: the Tswaing meteorite crater, set in the mostly natural landscape of its own conservation reserve but also impacted on by the man-made interventions of the abandoned salt works, constitutes a worthy case for commemoration. A well-considered and sympathetic conversion of the derelict industrial ruined spaces into a viable tourist destination will assist in the commemoration of a natural event and the associated human activities that benefitted from this event. Commemoration of the crater as such is ostensibly clear-cut due to its size and extent of the crater rim which has survived centuries of natural erosion. The commemoration of the cultural landscape can be enhanced by making access to the crater easier through interventions such as dedicated walkways, footpaths, viewpoints, appropriate signage, displays and visitors’ infrastructure such as toilets, refreshment centres and overnight accommodation for hikers. However, in any approach to

the commemoration of Tswaing as a living museum, the three core functions of a museum or heritage site should be achieved:

- Research, to determine the site's cultural significance,
- Conservation, to determine the most appropriate strategy to retain and manage the site, and
- Communication, to determine the best ways the site is presented to the visitor.

The spectacular cantilevered Grand Canyon Skywalk in the USA, commissioned and owned by the local Hualapai Indian tribe comes to mind as a good precedent of a natural phenomenon conversion and reuse. The fact that the tribe benefits financially hugely from this project can furthermore motivate the development of the Tswaing crater and the surrounding cultural landscape. Some efforts have been made by the National Cultural History Museum to engage with the surrounding settlements; this has resulted in the establishment of the Tswaing Forum in 1993 and whose mission statement reads (Reimold *et al.* 1999: 117):

The Tswaing Crater museum is a non-aligned independent people's project for the conservation and sustainable utilisation of the environmental (natural, cultural, human) resources of the Tswaing area. Resources will be provided for environmental management and education, training, research, tourism, and recreation. This is done in a democratic, participatory manner to enrich the quality of life of people in a healthy environment.

Whereas many initiatives have since then been taken to achieve these lofty ideals, a visit to the site indicated that the local surrounding communities seem to be indifferent to this tourist resource; this is despite their historical connection to the crater. The Gauteng Provincial Government has nominated Tswaing as a possible UNESCO World Heritage Site and it is hoped that should this be awarded, more resources will be made available to fully realise the potential of this natural and cultural phenomenon. Nadenicek (1999: 55) finds that the commemoration of landscapes, in its broadest sense, is made easier on sites such as conservation areas or reserves which have been secured, protected by legislation and thereby made accessible to future visitors.

Another approach to the sustainable commemoration of Tswaing's natural and cultural heritage would be to consider the concept of culture houses, or in a South African context referred to as cultural villages as a means to attract more visitors. Janse van Veuren (2004: 139) finds that 'cultural tourism' constitutes a significant portion of the tourism market but points out that despite the assumption that local peoples that originate and maintain a culture should derive the most benefit from cultural tourism, a number of international studies have noted the trend of outsiders capitalising on indigenous cultural resources. This holds true particularly where the local communities are marginalised as is the case with Tswaing surrounded by informal settlements.

Ucko (1994: 244-256) describes the establishment and success of culture houses in Zimbabwe since 1980. These centres, established or supposedly in the process of being established in each of Zimbabwe's local administrative districts, will provide a focal setting for a local museum, library, arts and crafts and multi-functional activities. Material and other artefacts of local interest are to be gathered and displayed in these culture houses by local people who will then become the custodians of their historical and traditional heritage. Ucko (1994: 246, 248, 250) finds that while in all but one of the 55 local administrative districts the support for the concept of a culture house was originally overwhelmingly positive, the implementation of the programme had by 1994 however only resulted in the establishment of the Murewa culture house near Harare. This project, at first criticized for its lack of sufficient consultation with the local populace, is however now described as being successful in many aspects; the lack of adequate

quantities of locally relevant artefacts in the museum and the absence of commercial activities such as restaurants and craft shops are still seen as restraints in achieving original goals. Insofar as ‘cultural villages’, which have much the same objectives as those in Zimbabwe, have been established in South Africa, Jansen van Veuren (2004: 140) found that by 2004 there were 27 such cultural villages and she suggests that apart from township tours, tourism to these cultural villages constitute the main form of cultural tourism in South Africa. Whereas few would argue that the *raison d’être* for cultural villages or culture houses is the conservation of indigenous culture, the success and long term sustainability of these enterprises are determined by other factors such as access to funding, financial profitability, job creation, skill sets of the local community employed at such sites and which includes their ability to communicate in English and their knowledge of the history commemorated. Tswaing’s history of salt collection, first by local indigenous people since the Middle Stone Age 159 000 years ago to the commercial salt and soda-ash production of the 20th century could well be best preserved and displayed in a local museum as a supplementary attraction in such a cultural village.

Andah (1990: 152) looks forward to time when “The museum can begin to be transformed from a reservoir of folklore for tourists thirsting for exotics, to a living image of the past, a source of culture, crossroad for ethnic culture, a symbol of national unity”. In this regard he envisages a museum to serve the function of the traditional African market where informal and formal education and indabas can be hosted, and where commerce, the production of arts and crafts and recreational activities are encouraged.

The commemoration of the industrial ruins however will remain a disputed issue, with strong opinions ranging from removing all traces of human activities to recognising the complementing importance of the socio-cultural influences on the natural phenomenon and to allocating new values and uses to the now abandoned human interventions, thus allowing a complete narrative. This latter approach, and which is described in figure 5 as “Various levels of restoration, alteration and re-use” is therefore proposed when an appropriate form of commemoration of the Tswaing salt works is contemplated. This approach can also be termed structuralist; in that the designers of any commemorative works at Tswaing should identify the relationship between tangible and intangible elements and consider the social structures that can contribute to the design. The following quote from Damisch (1980: 86) supports such an approach:

One of the clearest tenets of Structuralism is that it is possible to recognize a philosophical system – or at least the main elements of its structure – from any one part and the way that part reacts to the other constituent unities and defines itself in relation to them...A single expression, one element of [a] narrative, has no intrinsic value – or even meaning unless it is in its rightful position in the system.

Museums are important vehicles to represent the past, not only from the parochial view of only one aspect of history or of the dominant society’s values, beliefs and norms, but rather to record and display a full and comprehensive narrative of the biophysical and socio-cultural history. Museum displays can influence the public perceptions of history (Mazel & Ritchie 1994) and the use of realistic ‘reconstructions’ and ‘living’ history museums will make history ‘come alive’.

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