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Asphalt. Of Still Lives and Circulation

Germain Meulemans

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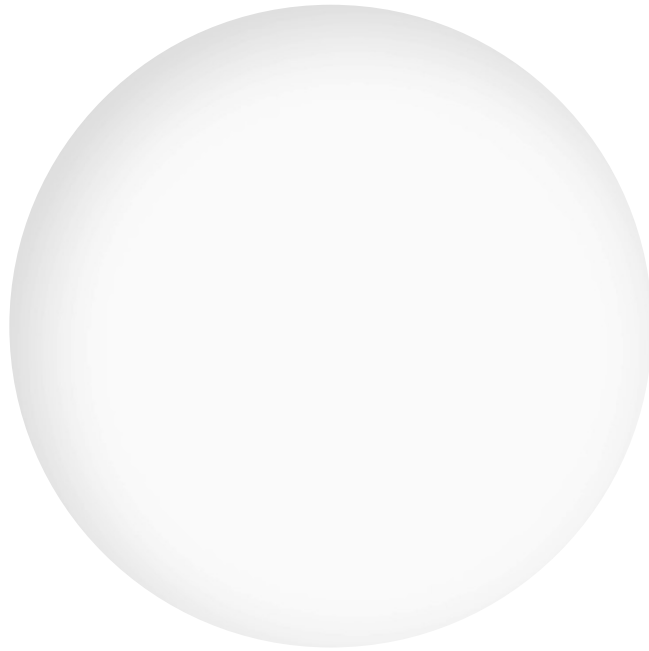
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ASPHALT
Of Still Lives and Circulation
Germain Meulemans

Asphalt is the residual fraction obtained by the distillation of crude oil. This means that it is oil's heaviest fraction, and the one with the highest boiling point. Asphalt is in itself a fold of the organic and mineral worlds, as its origin rests in organisms that were living in the Cambrian and Tertiary periods. However, its origin in thriving life is easily forgotten as it serves to counter life too. Be it in the form of tarmac when combined with gravel, or in the coating of Egyptian mummies, it has been used across millennia to set things outside of the ongoing forces of weathering, decay, decomposition and disaggregation.



Egyptian mummy band stained with asphalt,
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Originally coming from the Accadian 'asphaltu' or 'sphallo', meaning 'to split', the Homeric Greeks then adopted the word as an adjective meaning 'firm, stable, sure.' In its early usage, the term already reflected that the properties of asphalt had to do with an enduring, stable separation: a split between the solid and the liquid, between elements in flux and elements in

stasis. Sumerians and Babylonians used it for centuries to waterproof baskets, floors, masonry, tunnels, and even the great gardens of Babylon, while the Greeks collected it on the shores of Lake Asphaltite (the Black Sea) to coat the inside of their wine casks. For centuries, asphalt served as a waterproofing agent and mighty immortalising substance for important buildings, the flavour of refined wines, or the bodies of kings.

Today, asphalt is mostly used in combination to gravel and crushed stone to produce tarmac, the material most commonly used for building roads and many other urban hard surfaces in western countries. The properties of this mix were discovered by serendipity in 1849 by Merian, a Swiss engineer at the asphalt mine of Val de Travers. Merian noticed that small quantities of asphalt often fell from transport carts on the road between the mine and the village and was then compressed under the wheels of the carts. He observed the strength and elasticity of the surfacing thus formed, and in 1854, the first compressed asphalt road was constructed in Paris following Merian's marketing of the process (Abraham, 1918).



Close-up on gravel in asphalt coating,
G. Meulemans

In the 19th century, the making of smooth, waterproof surfaces had become crucial to the ways western humans think about movement. In the same way that the upright position of humans was thought to have liberated the hands of our species and so allowed for a major evolutionary step towards 'civilisation', the defenders of hard surfacing believed that it would bring the human condition a step further by allowing



Still life with gravel, dust and asphalt, G. Meulemans

us to liberate eyes and mind from concentrating on slippery mud and treacherous cobblestones (Ingold, 2011). Urbanites could now concentrate solely on their business and trade, unencumbered by concerns for where they were putting their feet. Enlightenment and smooth surfaces surely came in a pair.

From around 1820, in Western Europe, the preferred material for roads and sidewalks had been macadam, a system of layered, egg-sized rocks that compacted under traffic load. But the advent of the motor car changed the rules of the game, as macadam's unbounded materials meant sideslips and clouds of dust on the roads, dirty facades, and even tuberculosis. Various 'Leagues Against Street Dust' lobbied for the adoption of a road surfacing that would produce less mud, dust and noise. This is how, towards the end of the 19th century, tarmac – shortened from 'tar-bound macadam' – came to participate in what might be recognised as the final and most durable step in the Modern chronicle of soil impermeabilisation in cities. Asphalt-bound gravel now covers streets and roads all over the world. It has become banal, almost invisible to our eyes. It manifests a kind of cosmic insouciance in which the complexity and unevenness of the ground is cancelled, as urban soils become a technical closet where to hide our infrastructure of water pipes and sewage networks.

Through its alliance with gravel, asphalt has also become crucial to the development of modern roads. But again, one has to think of this story with the watery world in mind. When emergent modern states started to trace new roads in the 17th century, they aimed at transforming a convoluted space into one of straight connections. Engineers turned to principles of maritime navigation to decide on the straight route of these new roads. The straight line therefore made its appearance as a means to navigate surfaced lands with the building of royal roads (Guillermé, 1996). Roads of stone, macadam and asphalt are the actualisation of the lines traced by geometers of this time.

Even in our era of mass travel, asphalt retains a sense of this early emulation of the maritime: to many, it speaks of a sense of freedom once strongly associated with the sea. One can think of the hitchhikers of the Beat Generation, or of motorway builders who sometimes claim that eastern bloc regimes have always favoured the development of rail over that of roads: tarmac comes to be a symbol of freedom of movement and trade, whereas steel rails represents the control operated by socialist states (Dagognet, 1996). The maritime also reappears is some new 'asphaltic' sports, such as when boards designed to surf the waves are fitted with wheels and transformed into skate-boards that can surf the tarmac.



Surfacing with a smooth dark finish, G.Meulemans

Few people think of how the roads they ride on are made. Today, tarmac is manufactured in asphalt mix plants. It is then transported in heat-proof trucks and set in place at the temperature of 150° C using machines called 'finishers' that can spread in the desired thickness of layers. The tarmac layer is laid on a compacted base course made of several other layers. It rests on a subbase of coarse sand bound with cement, which spreads the load evenly over a subgrade made of compacted native material. It then has to be compacted again before cooling by a repeated passage of rollers. To road workers, working with asphalt is hard and dangerous. Depending on its chemical composition and the temperature conditions, asphalt demonstrates a complex range of behaviours that oscillate between viscosity and elasticity. To be workable, the material must be at a mid-point between grain and liquid. Working with hot tarmac is to be amid a scene replete with the smouldering mouth of a truck's tipping trailer, and of helmeted workers sweating around the furnace, in

a sea of machine noise and warning horns. An intense heat emanates from the sticky ground just laid, irradiating through shoe soles. The compaction of the roller allows workers to get rid of all the air and water. There lies another ambiguous aspect of asphalt: it is used to waterproof city soils, but fears water and rain when hot. Once cold, tarmac is only rock and solid glue, it becomes a closed up material without any voids. Pitched against the utmost vitality of water, which takes particles away and invites life everywhere it flows, engineers have chosen asphalt and its millenary history of waterproofing and stabilising to coat road gravel. A layer of asphalt coated gravel is one into which no mole or worms will dig a burrow, in which no rainwater will soothe, no fungi or bacterial colony will develop. As in the coating of ancient mummies, asphalt suspends the work of life.



Anthropogenic parent rock, G.Meulemans

Of course, the skin of roads and streets also ages. From being a glossy black when it is just laid, it soon turns to a dust grey colour as particles stick to its surface. Broken down by frost, traffic loads, or gas drips, its interlaced wrinkles resemble the hide of a crocodile, and soon make space for water to soak the layers beneath it, and for plants to grow in its cracks. Under the combined forces of traffic and weather fluxes, if neglected, our sandcastle against the rain soon returns to the cycle of the elements and becomes parent rock for new soil to grow. Yet, a damaged piece of tarmac can be melted again, a new section can be pasted on top of it to effectively patch it, as the many fixes and black stitches on roads and sidewalks can attest to. In fact, asphalt can be recycled and refined again to the point that one could easily get it back to crude oil state (Dagognet et al. 1996). From fluid to solid, and vice versa, asphalt is transformable. Despite dreams of permanence and stability, it persists only in its reworking, and it is precisely the material's versatility that

allows this reworking. From the geological depth where it is mined to road surfaces, asphalt is always tangled between stone and fluid, between the glue that holds together and the coating that separates, between stillness and extreme circulation.

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