



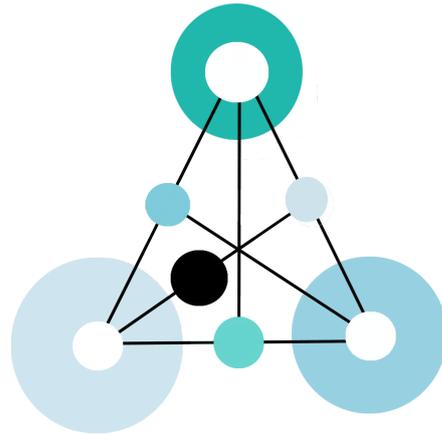
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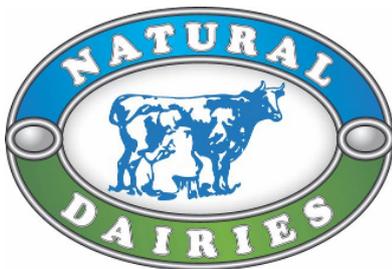


The Meaning of Milk: Journeys of Lactic Abstraction

Milk and beginnings

Milk is a primal substance. Milk is the first fluid to enter our mouths, to touch the tongue, to fill the belly. Our first words form around it and it flows into our language: in our thoughts and actions we skim, condense, homogenize, express, churn, curdle, culture, sour, combine and separate. Milk, the milk of human kindness, is there with mammalian life from its beginnings and is essential for its continuation. For a pre-modern order, milk was life-giving and productive. Life, milk-sustained life, links to fate and destiny. The land that flows with milk and honey was a specific reference to the homeland of a herder people — Canaan. This bountiful pasture became the model of a life sweet and fulfilled. Contemporary idiomatic speech is replete with spilt milk, milksops, milk-livers, Milch-cows, cash cows, sacred cows, the milk hearted, running dry, milk for free, milking it for all it's worth — all expressions of negativity, weakening and exploitation. These phrases signal something of our contemporary dis-ease with anything that evokes dependency. Dependency is an abject state in an age dominated by a capital form that despises welfare, but thrives on precarity. There is a milky language that speaks to our emotions, our socialization and our hopes. If we disrupt milk's turbid surface, it may be mobilized it as a 'filter' through which to explore the contradictions of the present.

Milk is primary, but also multiple. It is liquid, solid, powder, emulsion. It is poured, pressed, moulded, cast, extruded. It is formless, but can take on any form, even becoming indexical. It adopts shapes, of vessels or the shapes made of it or in it, when in solid form. Milk is a substance prone to mimesis and abstraction, a duality which is echoed in the ebullient packaging that places it before us as an industrial staple. For pats of butter or rich creamy milks, there are countless hand-drawn bucolic scenes, realistically formed, which essentialise the gift of nature, of the mother, Mother Nature. Equally, milk is prone to abstraction through technical processing into powdered formulas or constituent parts. This abstraction is reflected in the aseptic geometries of plastic cartons, milk sticks and Tetra Pak pyramids. The representations on the packaging and the forms of the container either reinforce sentimentalized versions of the chains that lead from cow to humans via commodification or they bask in the alienation foregrounded by the technologies of production and the industrial triumph of invariant standardization.



Milk is a complicated liquid. It lends itself to reformulation and innovation, just as it reinforces existing social orders as natural. Milk articulates the rules of the Nanny and the boss, as well as the technologist and the venture capitalist: It adapts to every kind of flow that the economy demands. Milk participates in a busy activity of human and bovine transformations. In frozen, liquid and powder forms, it is the matter of infinite innovation. Milk is refined, monetized, mechanized and modernized. It is processed and recombined to extend its functionality.



The McFlurry, Mr Whippy, Dairy Queen Blizzard, Cheese String, Dreaming Cow, Laughing Cow, Skinny Cow, Happy Cow, Crusha, Marvel: These dairy icons perform health and the abuse of health; an array of high calorie, high fat, low calorie, low fat, high sugar, sugar-free, highly processed glimmer, with techno-scientific, multi-color, hedonistic appeal. These are the products of aggressive marketing, low margin, highly complex modes of manufacture. Seemingly transgressive yet utterly pervasive, these hyper-normative products are pitched at young people and children and they collaborate with a plethora of high energy animated avatars and mascots in ecstatic reverie, weaning children from the breast and the bottle, in a sugary lure. Dairy turns airy in ice creams that swell up with nothingness injected. Milk's propensity for animation, for shapeshifting and transformation teams it commercially with a bestiary of cartoon avatars and a dazzling spectrum of synthetic colors. Milk is frozen into colorful crystals with personality, in a teeming frozen treats market, whose products bear ever less tangible relations to milk. In this format, milk adopts any and every shape, that of superheroes or cartoon villains, baroque architectonics or body parts. The cow, used frequently as a metaphor of the passive, dumb and exploited, is replaced by wily, smart-talking animals and apocryphal consumers of milk – cats, rabbits, mice – leaving only a vestigial hint of the originating animality. The ontologies of donor species collapse as milk re-forms into consumable biomass.



Though we associate milk with the nursery, a liquid of our childhood, and the childhood of human life, milk is now increasingly a substance for adults. One of the most technologized liquids on the planet, it appears in recombination not only as foodstuff – most visibly in the current proliferation of corporate froth in milky coffee microfoams - but also in fertilizers, de-icers, bottle labeling adhesives, methane, ethanol, anti-wrinkle agents, shampoo, hand cream, floor leveling, leather finishing, paper coating, concrete and cement. It is in supplements and catalysts, emulsifiers and surfactants. Milk re-enters the human body surreptitiously, as concentrates and isolates, in the form of whey protein, to be incorporated into the muscle mass of male bodybuilders.



Milk and separation

Milk is versatile. One of its qualities is the capacity to separate or be separated. Milk is separated from cream, curds from whey. Its relation to separation extends in other directions. A form of physical separation is at work in the distancing or abstraction of milk from the female mammal's body. Separation abounds in the milk industry whereby calf is separated from the cow, and milk is extracted from animals for human consumption. Separation more broadly occurs between milk for use milk and as commodity for exchange. Separation is also part of the process of individuation – the separation of subject and object. Humans separate from caregivers, having passed through the nexus that milk provides.

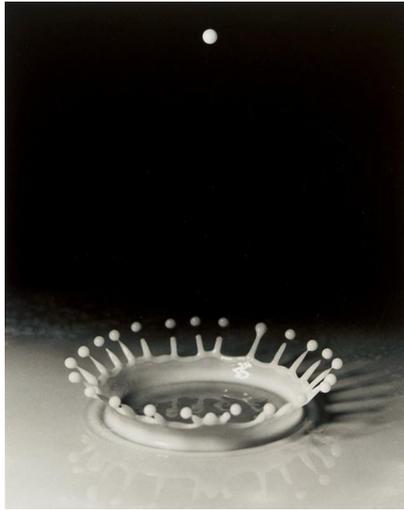
Milk extracted or abstracted is a liquid representation of an annihilation of nature over time. In producing cows' milk for humans, the seasonal cycle related to gestation is extended into the endless time of ever increasing and adapted milk yields. This is the time of the production and circulation. Production time is decoupled from the idea of limits and insists that what is profitable is available always. Milk flows across the political body, its stream an emblem of progress and the perfectability of modernity. Situating it as infinitely available, white, aseptic

and central to the adult Western diet was a quest of modernity. The mass industrialization of milk indicates a mode of industrial metaphysics: an abstraction from its associations with female human and non-human animal lactation and transformation into a de-gendered industrial staple. Luce Irigaray proposed that all western culture rests on the murder of the mother.¹ In milk and its replication, the efforts to replace or simulate, if not murder, the mother, or at least her milk, are evident. A human-centred philosophy of science assumes that its inventiveness and rationalisations can exceed anything that nature has produced, if simultaneously, something called nature is essentialised and rendered a source of specific value. According to Elizabeth Grosz, ‘women’s corporeality is inscribed as a mode of seepage’.² Dissociated from women’s messy bodies, formula milks and processed animal milks extract, separate, and attempt to recombine a problematic fluid into something more streamlined. Bodies become erased in the dynamic of technologically-realized reproduction and modes are sought of imagining milk that obliterate intimacy and bodily exchange. Yet it returns as pornographica and as excessively visceral fantasy. There is an ambivalence attached to milk’s visibility as a source of nutrition and comfort for babies, but as a seeping spurting image for adult sexual consumption, lactating breasts form their market niche in the pornographic index: Preggo/Milky.



¹ Luce Irigaray, ‘Women-Mothers, the Silent Substratum of the Social Order’ in Margaret Whitford (ed.), *The Irigaray Reader* (Oxford: Blackwell, 1991), p. 47.

² Elizabeth Grosz, *Volatile Bodies: Toward a Corporeal Feminism* (Bloomington: Indiana University Press, 1994), p. 203.



Seeing milk

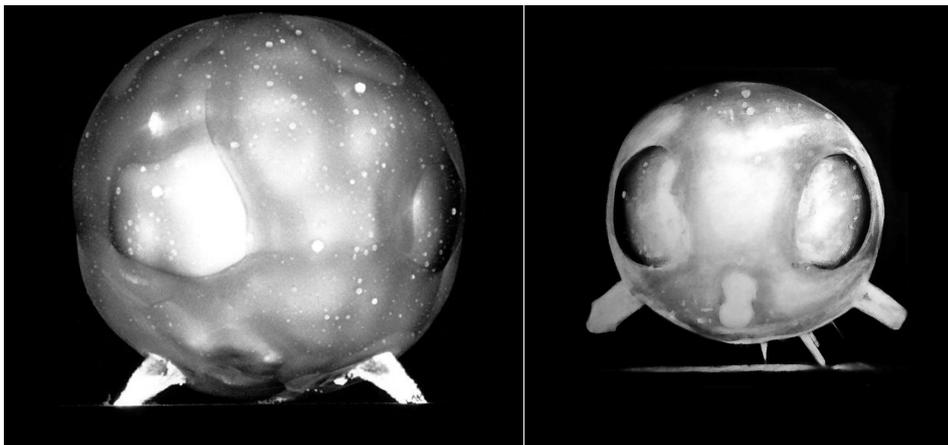
Pure white milk is an ideal-type. Cow's milk, for its part, exists in a range between blue and yellowy orange, depending on the fat and protein content. White milk is a product of fantasy, though industry plays its role in making it an actuality, through homogenisation. Milk's uniform white colour is achieved by separating and recombining its constituent molecules. This is the making explicit of milk, of illuminating and enlarging it as a white presence in the world. Photography has played a role in this.³ Photographic exposure of milky behaviours previously undetectable by the human eye were evidenced by Harold Edgerton in split micro-second stroboscopic shots from 1931 onwards. His images of the impact of the milk splash radiate shock and this technique became the advertising standard of imaging commodities. One of Edgerton's milk-drop photographs, titled *Coronet*, was included in the Museum of Modern Art's first photography exhibition in 1937. Papa Flash's dynamiting of time into image was spectacular and secured his celebrity status. It was also tethered in military research into ballistics.⁴

Edgerton's techniques later detonated and simultaneously photographed the H bomb. In the years immediately following the Second World War, he created extraordinary visions of the unseeable. Having invented a camera, the Rapatron, he photographed the massive expanding flash of the nuclear fireball in the first fractures of a second after discharge. The first micro-moments of an atomic explosion produce weird irregular baubles, stippled by discrepancies in

³ See Kenneth Hayes, *Milk and Melancholy* (Cambridge, Mass.: MIT Press, 2008).

⁴ Roozbeh Ghaffari, Ozge Nadia Gozum, Katherine Koch, Amy W. Ng, Hua Fung The, Peter Yang, *Harold Edgerton in World War II*, web.mit.edu/6.933/www/Fall2000/edgerton/EdgertonWW2.pdf

the density of the bomb's casing. If the hot force melted the support cables of the nuclear device, along with the surrounding desert sand and the eyes of any close-by onlookers, it also provided an image of melt, of frozen novelties caught at a moment of flux. The parameters of post-war culture might be set: between hot bomb and freezer dessert, from most deadly to most innocuous. There is the 'make anything you like' ice-cream dream of consumerism — emblemized in the boundless varieties of frozen dairy treats, colourful crystals with personality, dustings, aromas and toppings, proposing a rainbow panoply of infinite possibility and a palette of luscious colours that Willem De Kooning, for one, happily incorporated, straight from the twenty-eight flavours on the ice cream counter at Howard Johnson's restaurant.⁵ And there is the looming nuclear threat that, if activated, could liquefy it all, could dissolve every upturned eyeball, every pane of glass, making each human a puddle of once-was-ness. This bomb had its own creaminess, suggested in the testimony by William L. Laurence: 'The mushroom top was even more alive than the pillar, seething and boiling in a white fury of creamy foam, sizzling upward and then descending earthward, a thousand geysers rolled into one.'⁶



Milk and photographic representation meet again in the digital age. The affinity of the lens and opaque fluid is extended for the commercial screen where the desideratum of digital real world simulation is the convincing reconstruction of fluid dynamics. Computer generated imagery renders fluid simulations which delight in liquid rapture. Emulation of milk is reputedly the

⁵ See www.daviddavidgallery.com/artists/willem-de-kooning2

⁶ Calder M. Pickett, *Voices of the Past: Key Documents in the History of American Journalism* (Columbus: Grid, 1977), p. 344.

first thing everyone learns to do in CGI.⁷ Milk acts again as a kind of primal, or primary, fluid. Spilt milk becomes emblematic of both tragedy and of ecstasy. Captured by photographs or rendered digitally, milk takes on a body. It solidifies into forms that are in a state of suspension before collapse. CGI extends the capacity of milk to adopt any form. It exploits its presence as liquid and animate, while rendering it as solid and infinitely shapeshifting.



Milk acts like unfired clay in the digital world. The frozen coronet of Edgerton's milk is donated an illusory capacity for movement and plasticity, combining in its phantasms the liquid and the crystal aspects of contemporary screens. Milk becomes anything, substituting for bullets, charging horses or billowing dresses, but what it becomes specifically is a substitute for semen, for the ejaculate and its splash. This is something advertising also knew, when it played with milk-cum moustaches on young women's faces.



Milk's containers

Some of the earliest existing vessels were containers for milk, as fat particles found in their clay and on tools attest. Clay and milk have a longstanding affinity. Tablets found in ancient

⁷This popular truism can be found circulating on blogs and forums for CGI in education and training. See: <http://helloyoucreatives.com/post/3307413119/cgi-milk-we-think-its-the-first-thing-everyone>

Babylonia and Assyria with the earliest recorded writing, proto-Cuneiform, have pictographs of milk vessels pressed into them. But just as milk has been subjected to varieties of purification, so too clay has been edged towards whiteness and purity. Porcelain is milk's analogue: white, purified, numinous, idealised. Raw clay, like raw milk, is subjected to processes of refinement, to smoothing out, to making equivalent, to homogenising, to the market and its demands. It shares the same ability to take form and accept colour. The milk and milk jug are coupled in the imagination – and the jug in turn becomes a euphemism for the breast. The clay milk vessel is drawn towards representation. Marie Antoinette's Sèvres breast cup is a celebrated mimetic vessel still available on order from the factory at Sèvres in a cool contemporary white form. When commissioned by her it was flesh-colored, tipped by a pert nipple in pink, a rhyton designed to be cupped in the hands.⁸



Rumoured – falsely - to be cast from her own chest, it became a symbol of her suspect lasciviousness. Marie-Antoinette – known as Madame Deficit – had a pleasure dairy based on that of another queen of France, Catherine de Medici, who, childless and unpopular, had the first of her dairies built at Fontainebleau. Marie-Antoinette's was at Rambouillet and here she and her bosom friends could play at being milkmaids and consume milk products from a sixty-five piece Sèvres porcelain service, including porcelain buckets mimicking the wooden counterparts in use in the peasant economy.. In the pleasure dairies, women of the elite indulged in a fantasy of nurturing, a quality that France needed to regenerate itself without suffering the agonies of revolution. Madame de Pompadour, a courtesan of King Louis XV, sponsored pastoral festivals and set up dairies. But rather than be associated with the fertile, health-sustaining properties of milk, Madame de Pompadour was imagined as suffering from

⁸ See Meredith Martin, 'Dairy Cases', *Cabinet*, 'Hair', issue 40, Winter 2010/11. See also her *Dairy Queens: The Politics of Pastoral Architecture from Catherine de' Medici to Marie-Antoinette* (Cambridge, Mass: Harvard University Press, 2011).

‘fleurs blanches’, exuding a white vaginal discharge, her face covered by a white mask of make up, made of milk to cover her blemishes. The lover of the King, she was rumored to be frigid and sickly. To cure her ills, she consumed vast quantities of milk. Milk offers an emotional palate, against the hyper-rationalism of the guillotine. It is as emotional agent – for who has not been crying over spilt milk? And who has not dreamt of happiness in the land of milk and honey?

The commercial milk vessels of the late twentieth century and beyond resist mimesis, and clay and milk are de-coupled. In western markets, milk is now available only in one-use, autonomous, yet infinitely available, standardised forms. In throwaway cartons, milk signifies both a human ascendancy and the rinsed out, exploited and spent species of earth whose yields are optimized but whose bodies are secondary. After years of being promoted as an essential component of the diet, associated with health and wellbeing, cow’s milk is now a substance of controversy, linked with excess cholesterol, calcium loss, intolerance and obesity. A litre of milk currently retails at less than a litre of water.

Milk’s geometry

As liquid, milk can drip freely, but in our social practice milk is caught up, shaped, formed into standardized objects and directed along specific pathways. As milk flows, it maps out the geometrics of capitalist power. In Edgerton’s freeze-framed photographs of milk coronets, it is still possible to see something of milk’s unruly, exuberant self-shaping. The milk that sprays into the skies of pre- and early modern myths and paintings makes a heaven full of randomness. The milk that is made orderly within modernity is no less mythic, but it is presented as rationalized, a scientifically-permeated fluid.

Milk flows into the grid. In the grid, milk is conceived as an ideal substance in a generous grid that distributes to all and everyone. The grid is an abstraction that functions in a phase space, illusorily working within an impossible time-space conceived without contradictions. The metaform of the ‘Milk Grid’ is used specifically in relation to India’s national network of milk provision, established in the 1970s and which transformed India from a ‘milk-deficient nation’ into the world’s largest milk producer by 1998 (This program, also dubbed ‘the White Revolution’ and ‘Operation Flood’, was reanimated in 2015, as part of a project to stimulate liquid milk trade across South Asia, in order to push out the imports of milk powders from

overseas). The grid is a powerful image for a network that goes from cow to kitchen and covers an entire territory. It was modelled on the grid-like network of operations originally pioneered by the now defunct Milk Marketing Board in the UK, which oversaw an integrated structure, from mechanized milking sheds, to tankers, to railway distribution. The milk grid can be extended from a motif of milk management in modernity, enmeshed with ideas of ‘progress’, to the standardization of operations, from insemination, gestation, feeding, to extraction purification, bottling and processing to the precision of the bottling plant, the outputs of cubes or triangles of cheese. The grid produces geometric forms and the more all is standardized, the sharper the angles, the more Platonically ideal the shapes. Modernity involves the shift from hand-crafted processes (first technologies of clay to make sieves, and vessels) to wood and glass (churners and pats), to metal and mechanical processes in the nineteenth and twentieth century, to robotics and digitized operations of the twenty-first century. Robotic systems can now milk, clean and feed the milk-making beasts, process and package the produce. In the contemporary optimized dairy operation, there is no human contact between cow and human other than when milk enters the mouth. Geometries of milk have emerged to ascertain quality at the level of milk’s micro and macrostructure. In testing butter, penetration and compression tests deploy a range of geometries: cone, needle, cylinder, sphere and plate. Tetra Pak added an additional geometry with its white tetrahedral milk packs and their hexagonal geodesic supermarket stacks (The Tetra Pak is generated from an endless columnal stream of aseptic milk. The innovation that shaped their success was based on the observation that a tube of milk can be poured endlessly and bisected laterally to create this iconic pyramid form, never contacting air, hand or machine.



The cow's body

Capital's will to autonomy confronts material limits. Reciprocally, the material realm is shaped by forces of abstraction. The cow's body is overtaken by processes of 'optimization'. Such language pervades the industry, where 'yield' is increased by manipulating the cows' feed, medication, living conditions and genetics. There is a long history of destroying animals not deemed economically viable as part of national animal improvement plans. The United States Department of Agriculture still executes an 'animal improvement program' through genetic selection, rather than the culling programs of the early twentieth century. Genetic animal 'improvements' are tied into alliances of scientific/government/corporate policy, and particularly are targeted at humans who are identified as 'under-capitalized' and thus biopolitically 'backward'. Although these approaches are made through emerging technologies, the narrative is an historical one, with a racial basis. When Herbert Hoover made an address in 1923 on the milk industry at the World's Dairy Congress, he affirmed that 'Upon this industry, more than any other of the food industries, depends not alone the problem of public health, but there depends upon it the very growth and virility of the white races'.⁹

Industrialization produced the decline of the home dairy and the rise of the buttery and amalgamated dairies. In order to move beyond the capture of the cream by the wealthy, Sergei Eisenstein devised his cream separator sequence in *The General Line* [1929]. The nurturing qualities of milk are transferred to the actions of collectively operated and owned machinery. The cream is drawn off, not by the rich and not by hard graft, but by the machine, for the benefit of the workers. It spurts out ecstatically, another version of milk as cum shot, but conceived in a revolutionary context in which a redistribution of property or properties is imagined possible.

The other side of this, the extension of the milk machine under anti-solidaristic conditions goes into the body of the cow. Contemporary farming involves the invasion of the cow's body. As milk yields expand, life expectancy contracts. Big data has been implemented in dairy farming more than any other industry and is combined with the financialization of species and

⁹ *Proceedings of the World's Dairy Congress*, Volume 1, U.S. Department of Agriculture, 1924, p. 15.

individual worth pioneered in the field of animal science through quantitative analysis. Animals are given a value or Lifetime Net Merit in dollars. Factors used in the calculation include an estimate of how much a bull's genetic material will affect the potential revenue from a dairy cow. Fluid, fat, protein ratios of the milk, and quality of the ensuing progeny are predicted by gene markers and heritable traits and as well as pedigree records and market conditions. Body size, udder condition, feet leg and body ratios, cheese merit, fluid merit, daughter calving ease, productive life, daughter pregnancy rate and stillbirth rate are all deduced through complex calculations of big datasets. There is an air of rationality gone wild, cold logic mixed with hi-jinx whimsy and mythopoeisis: one bull who was scientifically calculated as possessing the highest net worth is named Badger-Bluff Fanny Freddie, and another, Ensenada Taboo Planet-Et.¹⁰

Current research aims to subsume the body of the cow entirely: as scientists attempt to generate 'real' milk without the cow's presence in the new field of 'cellular agriculture'. Based on the promise of taking milk cells as starter cells, but then regenerating milk synthetically, headlines ecstatically assert 'Animal lovers use biotech to develop milk made by man instead of a cow'.¹¹ The nexus of nature and technology offers a physical and imaginative emancipation of generative new materiality that defies bounded perceptions of body, gender and species. What seems to be a turning point is also a continuity that can be perceived in the changing forms of milk over time. Milk is a liquid latent with the power of annihilation as well as life giving, and its shapings are driven by the attempt to wrestle control of supply, as the mythic characters Hera and Opis knew.

Who is all this for? The ideal Platonic form of the milk carton emerges in a subprime market of milk. Western markets are turning against cow's milk as a degraded substance and favour plant milk or milk without the cow, supertech milk from cow's starter cells, the kind of milk men make in laboratories. Adult milk recapitulates the journey that formula milk made 100 years before it. Billions of one-use plastic vessels leech toxins into land and water. The Platonic forms and messages of health are now pitched elsewhere, 'Deeper In the Pyramid'.

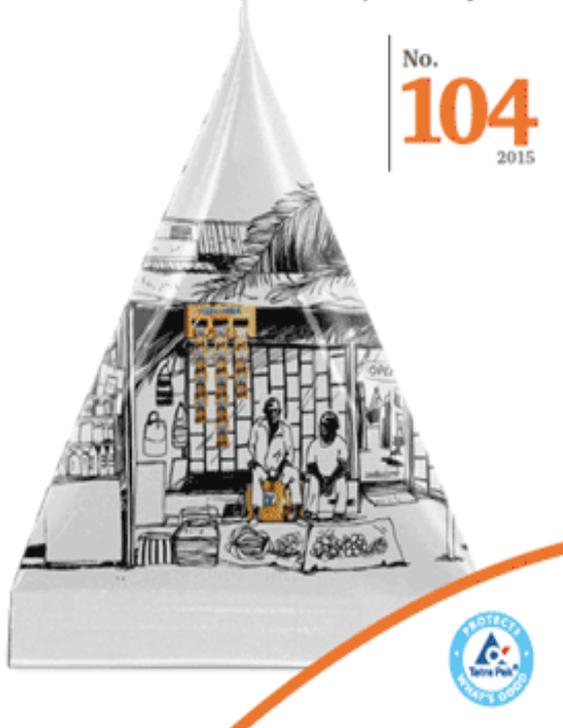
¹⁰ Alexis C. Madrigal, 'The Perfect Milk Machine: How Big Data Transformed the Dairy Industry', *The Atlantic*, 1 May 2012.

¹¹ Tuan C. Nguyen, *The Washington Post*, 21 July 2014.

Tetra Pak Magazine

Theme: Deeper in the Pyramid

No.
104
2015



Since the 1950s, Tetra Pak’s Brancusi-like pyramid cartons have morphed from solid form into conceptual strategy and economic principle. Tetra Pak currently sells 500 million packages a day. Its latest corporate strategy is labelled ‘Deeper In the Pyramid.’ A minimalist modernity is conceptualized as an economic principle that inserts its white arrows into the economic pyramid of developing economies for an asset-stripped return that is radically more pervasive than that creamed off an exclusive market. ‘A large proportion of Ali’s customers earn between Euro 1.80 and Euro 7.20 a day, putting them firmly in the Deeper in the Pyramid (DiP) consumer category that the Boston Consulting Group has identified as the “golden opportunity” for international companies’.¹²

Milk is messy and compromised. Milk is original and pure. Milk is troubled, a turbid substance whose representation is difficult, for it flows between purity and abstraction, purity and the bucolic, never settling, always spilling somewhere else.

¹² Tetra Pak 104, *Deeper In The Pyramid*, 2015: p. 3



Deeper in the Pyramid

Production still

Melanie Jackson 2016

This essay is draws on some material from a forthcoming book, which will launch with an exhibition in 2018, developed in conjunction with Grand Union Gallery, Birmingham and Primary, Nottingham.