Abstracting Money: Cryptocurrencies, Cybernetics and Contradictions

Timothy Erik Ström

T HE GLOBAL HISTORY OF MONEY CAN BE INTERPRETED AS MANIFESTING IN INCREASINGLY abstracted social and material practices. For most of human history, most people lived either largely or entirely outside the reach of money systems, with anthropology revealing a tremendous diversity of means of exchange being used by people to organise the distribution of goods (Mauss). These practices were generally informal, place-based relations, mediated by face-to-face interactions and bound within kinship structures, with barter being only reserved for outsiders. Money, as broadly understood, came about initially with the rise of the first states, being imposed by conquering armies, and the imperial social forms they embodied (Graeber). Unevenly since then, money—as the dominant and dominating medium of exchange—has repeatedly transformed, with a general tendency towards increasing abstraction: from coinage forged of precious metals (then later coins forged from common metals to prevent debasing), to credit notes, paper money, before the rise of networked computing-machines and all the complexity that goes with electronic money, from credit cards to crypto-currencies.

Plainly, enormously complex historical processes are compressed into the above sentences, with each of these shifts in practice needing to be understood in relation to the dominant social forms. One way to make sense of these transformations can be to analytically separate these modes of exchange into

layers of increasing abstraction within social practice (Steger). Behind this theoretical move is an argument that abstraction is a material process—not just a mental activity—but rather a lived relation of the world shaped by patterns of social practice (Sharp). Building on this, the various modes of exchange exist in layered structures, with various dominant, residual and emerging social forms evident at any time (Hinkson; Williams, 31-49). Such a schema is important, for less abstract layers don't simply disappear; they can be suppressed, resurgent, or reconstituted, with much contesting, complimenting and contradicting going on between them at the level of lived experience in the world. For instance, embodied kinship, especially in its looser family-based sense, can still be an important factor, albeit a residual one, in making exchanges mediated by the abstractions of electronic money.

Georg Simmel famously showed that the rise of monetary transaction involved a major process of abstraction visible across the half-millennia of capitalist modernity. This is in part because money is fundamentally quantifiable, subject to precise calculation. Anything that can be expressed in its terms can be treated as an equivalent: $X for a bushel of wheat, $X for one hour of work, $X for one tonne of carbon dioxide equivalent, $X for one click on an online advertisement, etc. In this way, money functions as a layer of impersonal, calculative rationalisation that is projected onto social relations, with this cold and calculative function being put forward as an argument in favour of capitalism before its full industrial transformation (Hirschman). Again, this is far more than simply calculative abstractions in the mind, but rather *practical abstractions* at the level of the social; a different set of material practices and relations are deeply embedded in whole systems of social being and doing. Money enabled an extension of the capitalist mode of practice and the institutional power structures that compose it, with them proceeding to abstract the world, putting a price on almost everything. Generalised money suppressed the complexity of embodied and reciprocal relations of circulation, overlaying them with layers of disembodied and object-extended abstraction that serve to overlay, obscure and subordinate other layers of less abstracted social relations (Sharp; James, 133-57). These material and social abstractions were integral to the intensive and extensive spread of capitalism around the globe and deeper into people's lifeworlds. Thus the 'leveling domination of abstraction', to use Adorno and Horkheimer's phrase (13), involved levelling in two senses; levelling as in crushing—such as the colonial dispossession of deep social relations and place-based practices—and levelling as in adding a new layer upon—with the reconstitution of social relations by more abstracted practices. Nevertheless, money as the dominant and dominating mode of exchange furthered, in Lewis Mumford's words, capitalism's 'quest of power by means of abstraction' (24).

At present, the money-as-cash that Simmel and Mumford analysed is being pushed into the pile of residual modes of exchange as it is overlaid by electronic traces of money, or 'e-money'. There the abstracting power of the general equivalency of money is intensified to the point of a qualitatively transformation when it is drawn into networked computing-machines. 1971 was a crucial year in the ascent of e-money as the dominant mode of exchange, with the establishment of NASDAQ, the first electronic stock market, followed by the 'Nixon shock' and the beginning of a global regime of free-floating fiat currencies. Using this year as a key threshold, the dominant form of money began to go cybernetic; it began existing as data-representations on networked computing-machines, devices first designed by and for the conquerors. Beginning in the military-industrial complex of World War II, computing-machines were the result of techno-scientific inquiry, capitalist extraction and control, imperial state violence and disembodied communication, with all these forces being bound up in the cybernetic reconstitution of capitalism (Ström). Of course, this era also opened up a new round of financialisation whereby money was empowered to breed money without a foundation in productive activity (Arrighi), with this development merging with spiraling inequalities, collapsing ecosystems, and sprawling systems of control into the current generalised existential social crisis.

E-money exists as data-representation of cash inside of computing-machines, hence it is both data and money. This transition from analogue to digital technology is significant, with multidimensional consequences spilling from the transformation of materiality (Hassan). As money can act as a general equivalency, computing-machines provide an even more basic general equivalency: almost anything can be represented inside the universal machine's engines of abstraction. A few common file types—DOC, MPEG, MP3, etc.—can stand in for how digital traces of a tremendous amount of the human endeavor can be encoded within computing machines. As money functions as a general equivalency for exchange, computing-machines go far further, enabling a general equivalency across the modes of practice; production (for example, 3D printing), exchange (for example, high-frequency trading), communication (for example, WhatsApp), organisation (for example, enterprise resource planning software) and inquiry (for example, pattern recognition). Data traces of life are not simply drawn into computing-machines, the process of digitisation reconstitutes the mode of practice, with far reaching social transformations, political, ontological and ecological. Under conditions of cybernetic capitalism, these transformations often intensify the tendency towards concentration and centralisation of decision-making power and wealth.

Within the overarching category of e-money and its intense practical abstractions, various residual, dominant and emergent forms can be seen. Applying this schema, an electronic bank transfer is residual, with the dominance of credit cards being

challenged by emergent mobile payments, crypto-currencies, and other block-chain enabled fin-tech. Again, within e-money, a tendency towards greater abstraction is evident, with credit cards processing being less materially abstract than Bitcoin. Using this analytical schema does not mean that the emergent layers will necessarily become the next dominate layer, this is certainly not inevitable, with the historic process to be determined by social struggles and ecological limits. It must be noted that while powerful, this process was not absolute; for at less abstract levels many things remained 'priceless' and irreducible to dollar symbols, e- or otherwise. This is the importance of using a theoretical method that can analytically distinguish between different layers of abstraction in modes of exchange, rather than blithely assuming that everything is flattened into the latest moment, as many breathless pundits of cryptocurrencies blithely assume.

Another important benefit of using the layers of abstraction approach is its ability to tease out contradictions. For example, classic cash-based capitalism was, at a level, highly rationalised and disenchanted, doing away with the thick social ties of reciprocal, place-based exchange in favour of calculative self-interest *über alles*. Yet of course, within the abstraction of the currency-lubricated market exchange lurks commodity fetishism; the irrational, pseudo-magical moment in the heart of the machine (Marx, 163-77). It is within the practical abstractions of the commodity, and the flattening of the general equivalency of money, that the social relations of classic capitalism were constituted. In this way, the concept of commodity fetishism can be interpreted as an example of a process of disenchantment on one level and re-enchantment on another. Another classic expression of this came in Adam Smith's famous metaphor of 'the Invisible Hand,' which was—and is still—interpreted by many as meaning 'God's Hand', putting a supernatural and indeed divine twist on the secular institution of the capitalist marketplace. These kinds of contradictions are currently playing out at an even more abstracted level with the rise of e-money. At one level, computing-machines are extraordinarily rational: they are the convergence of multiple engineered systems, a complex combination of minerals, plastics, and electricity melded into networked circuitry which runs layers of code, abstract architecture governed by standardised protocols and algorithms. The great complexity of these systems is the result of intellectually-trained workers amassing technoscientific knowledge, with this labour being largely locked up behind intellectual property rights, as well as the layers of exploited manual labour and absurd ecological 'externalities'. In such conditions, contradictions come to the fore, perhaps none more striking than the mining of Bitcoin, the most famous of the cryptocurrencies (Dodd). At the emergent end of the e-money spectrum, the mining of cryptocurrencies like Bitcoin is exceedingly rational on one level—logical functions playing out across networks of powerful computing-machines, all grinding away at arbitrary proof-of-work algorithms in order to exchange records and to bring new coins into being. This process is so rationalised that it is notoriously difficult for those who

have not been intellectually trained in the abstract world of computer science to grasp.

This supremely rational process is, on another level, superbly irrational. Not only does it require obscene quantities of wasted energy and ecological destruction—with epic scales of extraction and toxification—but the whole process is also highly fetishised and ideological, tapping into a 'digital sublime' of transcendence, redemption and salvation (Mosco; Noble). The possibility of an exciting, pseudo-apolitical techno-fix that claims to avoid the centralised powers of the state and banks, combined with a get-rich-quick investment, drew a stunning number of people into the volatile world of Bitcoin. Among other things, this led to the formation of a speculative bubble—one that notably sits atop of the even bigger speculative bubble that is the tech sector more broadly—hence allowing for the dead weight of finance to extract profit from the future (Durand). Thus, what is exceedingly rational at one level—the science that goes into designing and creating such systems—becomes highly irrational when put into the social world under conditions of cybernetic capitalism and its quest for infinite accumulation within finite nature. When this experiment was unleased upon the world, it became intensely irrational, being a notable contributor to the planetary ecological catastrophe as well as adding much volatility to the unstable global financial system (Cubitt).

Life under such a dominant and dominating system shall continue to be increasingly unsettled. More concrete ways of being and doing are set to continue to come under intensifying pressure from power systems—from the cybernetic convergence of capital, science and the state—with their attempts to concentrate, centralise and automate social control. In this context, social practice and being is reconstituted by a deep subjective material abstraction that seeks a general equivalency. As an expression of this systemic change, the functioning of cryptocurriences is so drawn away from everyday life and phenomenological experience that their operation is almost entirely unintelligible to the vast majority of people on the planet. Indeed, the machinations of blockchain technologies are even more abstract, arcane and altogether distant than those of a more traditional central bank, which was already very abstract, even before computing-machines. Under conditions of cybernetic capitalism, such distant, unknown and automated powers are set to become further obscured. This may well serve to continue to intensify the already spiralling levels of social inequality—and all the ills that accompany such unjust and unsustainable ways of organising decision-making power and resources—as well reconstituting ways of being and relating to one another and the world in ways that are altogether far more abstract.

TIMOTHY ERIK STRÖM

Timothy Erik Ström is an independent writer based in Melbourne, Australia precariously employed at the University of Melbourne, RMIT and Western Sydney University. He is the author of *Globalization and Surveillance* and the founding editor of Arena Online. His writings can be found at his website: *The Sorcerer's Apparatus*: <www.sorapp.net>

Works Cited

Adorno, Theodor, and Max Horkheimer. *Dialectic of Enlightenment*. Trans. John Cumming. London: Verso, 1997.

Arrighi, Giovanni. *The Long Twentieth Century: Money, Power and the Origin of our Times*. London: Verso, 2010.

Coole, Diana, and Samantha Frost, eds. *New Materialisms: Ontology, Agency, and Politics*. Durham, NC: Duke UP, 2010.

Cubitt, Sean. *Finite Media: Environmental Implications of Digital Technologies*. Durham, NC: Duke UP, 2017.

Dodd, Nigel. 'The Social Life of Bitcoin.' *Theory, Culture and Society* 35.3 (2018): 35-56.

Durand, Cédric. *Fictitious Capital: How Finance is Appropriating Our Future*. Trans. David Broder. London: Verso, 2017.

Gleick, James. *The Information: A History, A Theory, A Flood*. London: Fourth Estate, 2012.

Graeber, David. *Debt: The First 5,000 Years*. New York: Melville, 2012.

Hassan, Robert. *The Condition of Digitality: A Post-modern Marxism for the Practice of Digital Life*. London: U of Westminster P, 2020.

Hinkson, John, Paul James, Alison Caddick, Simon Cooper, Melinda Hinkson, and Dan Tout, eds. *Cold War to Hot Planet: Fifty Years of Arena*. Melbourne: Arena Publications, 2016.

Hirschman, Albert O. *The Passions and the Interests: Political Argument for Capitalism Before Its Triumph*. Princeton: Princeton UP, 2013.

James, Paul. *Globalism, Nationalism, Tribalism: Bringing Theory Back In*. London: Sage, 2006.

Marx, Karl. *Capital: A Critique of Political Economy*. Vol. 1. Trans. Ben Fowkes. London: Penguin, 1976.

Mauss, Marcel. *The Gift: Forms and Functions of Exchange in Archaic Societies*. London: Cohen and West, 1966.

Mora, C., R. L. Rollins, K. Taladay, K. et al. 2018. 'Bitcoin Emissions Alone Could Push Global Warming Above 2°C.' *Nature Climate Change* 8 (2018): 931-33.

Mosco, Vincent. *The Digital Sublime: Myth, Power, and Cyberspace*. Cambridge, MA: MIT Press. 2005.

Mumford, Lewis. *Technics and Civilization*. Oakland: Harbinger Books, 1963.

Noble, David F. *The Religion of Technology: The Divinity of Man and the Spirit of Invention*. Penguin, 1999.

Sharp, Geoff. 'Constitutive Abstraction and Social Practice.' *Arena* 70 (1985): 48-82.

—. 'Extended Forms of the Social: Technological Mediation and Self-Formation.' *Arena* 1 (1993): 221-37.

Simmel, Georg. *The Philosophy of Money*. London: Routledge, 2011.

Smith, Adam. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Chicago: U of Chicago P, 1977.

Steger, Manfred B., and Paul James. *Globalization Matters: Engaging the Global in Unsettled Times*. Cambridge: Cambridge UP. 2019.

Ström, Timothy Erik. *Globalization and Surveillance*. Lanham, MD: Rowman and Littlefield, 2020.

Wiener, Norbert. *Cybernetics: Or Control and Communication in The Animal and The Machine*. New York: The Technology Press, 1948.

Williams, Raymond. *Culture and Materialism: Selected Essays*. London: Verso, 2005.