1. Allegories of Capital

For *Capital*. Stock exchange to be rendered not as “a Stock Exchange” (*Mabuse, St. Petersburg*), but as thousands of “tiny details.” Like a genre painting. For this, see Zola (*L’argent*).

—Sergei Eisenstein

A view angled upwards at the glass curtain wall of a bank office, darkly silhouetted workers tackling a window on a construction site, a view from an elevator cage as it descends rapidly along the outside of a building, and the close-up view of a naked brick wall: four architectural details without commentary. These are the opening shots of a four-fold set of film installations by Zachary Formwalt, shot on the sites of three different stock and commodities exchange buildings in London, Amsterdam, and Shenzhen. We start, then, with a set of architectural details that reveal little of their surroundings. Here, we are not provided the standard establishing shot that equips the spectator with a comfortable sense of orientation, a foothold onto the diegetic space of the movie, but with a series of blank images, almost generic in quality—past and present sites of construction that will only slowly begin to speak of the labor objectified within their walls. These are, indeed, films with a deeply allegorical structure, but in a modern sense of the term that has very little to do with a classical notion of allegory, with its personification of certain concepts or events. In classical allegory, the individual figure represented a reality that transcended itself, but today it is precisely this connection between the specific and the whole, between lived experience and the totality of the social system, that has become difficult to imagine. Allegory, therefore, has not only assumed a highly self-referential character, acknowledging the arbitrary link of its figures to meaning, but it is concerned, precisely, with the insurmountable distance between lived experience and the abstractions of global capitalism.

In *Light of the Arc*, the third film in the series of *Three Exchanges*, juxtaposes, for instance, the shot of the workers in the interior of the Shenzhen Stock Exchange.
with an image, projected on the opposite wall, of a joint being welded by means of an electric arc. This seemingly arbitrary detail will, in the voice-over of Formwalt, open onto a fascinating meditation on the relations of light and darkness, visibility and invisibility, as they are distributed within the capitalist systems of industrial and spectacular production. Beyond its existence as a common tool—Formwalt could have chosen to focus on another element on the vast construction site—the electric arc begins to shed light on a different level of historical existence. It becomes emblematic of a capitalist organization of society that we must think of, above all, as a kind of media system which seeks to control what will appear and what will remain in the shadows. The electric arc produces a dazzling brightness that also has a blinding effect: in order to see the seam, the welder must wear a mask, making everything but the immediate task invisible. On the construction site, the brilliance of arc welding is a pure excess, a waste of energy, but elsewhere this searing light becomes productive. Arc lights not only provided artificial illumination in nineteenth-century factories, speeding up the process of capital accumulation, but they also, in the shape of klieg lights, lit up the first movie sets. In fact, klieg lights were not only intensely luminous, but also emitted harmful UV rays, causing the anonymous workers of early cinema to wear sunglasses—a historical index of early industrial labor would thus later become transformed into an empty symbol of the Hollywood star system.

The arc light is an allegory of (in)visibility, which provides Formwalt with an entry into the general theme of the Three Exchanges; namely, the opposition between the brightly lit surface of a so-called “efficient” and “rational” market place and the material sphere of production that it casts into a sheer, impenetrable darkness. One story that is presented by In Light of the Arc is how the radiant, unfocused brilliance of the arc light becomes, as it were, concentrated and directed into the fiber optic network of electronic trading. But the arc light also points to more than this division between the abstractions of capital—its seemingly autonomous movement—and the actual performance of labor and the physical movements of goods in the world. It provides as well a reflection on the notion of a radical potentiality that should not be confused with the capitalist’s obsession with risk-management and the calculation of probabilities:

Sparks are one thing—instantaneous flashes of light and heat, they seem to disappear as soon as they are formed. But an arc can be maintained, controlled—directed and used in a way that sparks, in their fleeting moments of existence, cannot. A spark may or may not be the beginning of something else, outside of itself. An arc, on the other hand, is itself something.2 Formwalt’s resonant commentary may bring to mind, among other things, Karl Marx’s curious metaphor of the worker’s potential to labor being consumed by fire, transformed into dead cinders, by the industrial act of production. But it may also remind us of another, classical figure of potentiality as that which is anterior to all illumination, a pure capacity to act that is associated with the realm of darkness and shadows. Light is what makes things appear, Aristotle writes in De anima, but only when we are in darkness and are not yet capable of seeing anything, can our vision be said to exist in a state of pure potentiality. In fact, Aristotle argues, we are able to perceive darkness; that is, we can always already distinguish between light and dark before anything is given to our eyesight to apprehend.3 In an ontological sense, therefore, potentiality should not be reduced to the level of a mere possibility: the potential is not a possible act, nor is the act an actualized potential. I shall return to this point below, but, for now, I want to emphasize the following: the Three Exchanges constantly, and in methodical fashion, approach the very threshold or outer limit of what can be represented. What lies in the shadows is, not just some kind of material substructure that is concealed below the surface of the market exchange, but a kind of latency, a constant background of noise, which the media system of financial capitalism seeks to suppress, but can never completely control.

Before taking up this question in full, I need to expand upon the procedure of the allegorical as it operates in Three Exchanges. As said, these films provide, at first, fragmentary views of their object. Clearly, these spaces of financial power resist easy access; they are not going to give up their secrets without difficulty. In the first film of the series, In Place of Capital, we gaze up at the bland, glazed facade of an office building in a business district while, on the soundtrack, Formwalt reads from a letter addressed to him by an employee of a hedge fund in New York City:

2. Unless noted otherwise, all quotes are from Formwalt’s voice-over of the Three Exchanges series.
To be honest, from the way you’re describing the documentary to me, it sounds like you are going to need some talented computer graphic design people. The truth of the matter is, the activity of finance is not particularly visual per se. It’s not like watching a car getting made on an assembly line. You can have a lot of charts and graphs to show movements of money and flows of things but I’m not sure you’re ever going to capture the movement of capital markets, because there’s not much to see, especially now that everything is electronic.

The theme is familiar, although now we get it from a first-hand source. The process of capital accumulation in the financial market cannot be represented in the same fashion as the productive activities of industrial labor. Not only is there no material product to show, but there is also very little physical activity to follow. Particularly since electronic trading began to replace the trading floor in the later 1980s, the boisterous, face-to-face activity of open outcry trading has been silenced and replaced by the humming of computer data centers. Algorithms, not human interaction, are what drive the high-volume, high-speed nature of contemporary financial markets.

There is, literally, almost nothing to see, and that which remains visible has become inaccessible. The heart of the contemporary stock exchange, as Formwalt notes in In Light of the Arc, consists of row upon row of black boxes, connected by miles of data cables, pulsing with infrared signals. What is there left to illustrate, Formwalt notes, if the actual trading occurs beyond the threshold of human perception? What the Three Exchanges dramatize, precisely, is this inability to obtain a complete overview of the capitalist system, to situate ourselves within its dynamic flows of tangible and intangible commodities.

This problem has been famously addressed by Fredric Jameson, in terms of our inability to draw a cognitive map of our position within this complex, global system of financial capitalism: “the truth of our social life as a whole—in Lukács’s terms, as a totality—is increasingly irreconcilable with the possibilities of aesthetic expression or articulation available to us... [we are] unable to insert ourselves, as individual subjects, into an ever more massive and impersonal or transpersonal reality outside ourselves.”

What Jameson argues is not that we are unable to “know” this totality of global capitalism on some abstract, conceptual level of comprehension, but that we are no longer able to represent it to ourselves, to situate or orient ourselves as individual or collective subjects in relation to the world space of financial capitalism. There is, in short, a crisis of figuration in relation to a rampant abstraction of our existence.

Today, Jameson asserts, the phenomenological level of an individual’s experience has become completely detached from the social and economic conditions that structure that experience. Already with the rise of imperialism, the individual was dispossessed, as it were, of a panoramic view of his/her own society. The individual had, at best, access to a “fixed-camera view of a certain section of London.” The truth of that subject’s experience cannot be said to coincide with the place in which the experience took place, as it was bound up with the whole colonial system of the British Empire. This abstract horizon could not be made visible from one’s limited perspective on a street corner. Or could it?

In Place of Capital will situate us precisely there, before a fixed-camera view of a certain section of London, namely the Royal Exchange. Originally founded in 1571, the Royal Exchange was twice destroyed by fire, until its current building was erected and trading started in 1845. Among the first images of this building are those of Henry Fox Talbot, and in the film Formwalt’s camera lingers over their grainy surfaces where the dim, ghostly outline of passers-by are visible—traces of human motion that photography, at this time, was unable to capture. Later, as Formwalt dryly observes, when photography did become synchronized with the speed of industrial society, it still lacked the capacity to picture the movement of capital taking place inside this building, but it would be able to decrease the amount of time capital was stuck in production. Assisting in time-motion studies, the medium of photography would support the Taylorization of production, allowing the process of accumulation to accelerate.

Meanwhile, the frozen, stone figures perched on the neoclassical pediment of the Royal Exchange would continue to celebrate the very movement of capital that eluded the grasp of photography. In Place of Capital magnifies these allegorical figures for our convenience. In the center of the group is the female representative
of Commerce, leaning against the hull of a ship with a cornucopia and a beehive, emblems of plenty and industry. Flanking this regal figure on both sides, are English merchants, who converse and bargain with foreign traders. And so, looking up at this ornate facade upon its completion in 1845, the contemporary viewer was provided with an allegorical scene not only to figure out his/her relationship to this specific place—the Royal Exchange—but also to establish his/her place within a wider scheme of things—the colonial system of the British Empire—represented by the foreign traders crowding together on the pediment. Yet the allegory could only do so in an indirect and distorted fashion.6

The bustling space of the exchange, which Karl Marx famously described as the “noisy sphere of circulation,” provided some early observers the intense illusion of standing at the epicenter of a cosmopolitan world.7 In 1711, for instance, Joseph Addison described how he loved to visit the Royal Exchange so that he might view London as “a kind of emporium for the whole earth.”8 Rubbing shoulders with the crowd, he excitedly describes how “I have often been pleased to hear disputes adjusted between an inhabitant of Japan and an alderman of London, or to see a subject of the Great Mogul entering into a league with one of the Czar of Muscovy.” And so the stock exchange is not only viewed as the umbilicum mundi of mercantile capitalism, but the market place is endowed by Addison with a power of appeasement, a par mundi established by trade. Merchants are the more useful members in a commonwealth, he maintained:

They knit mankind together in a mutual intercourse of good offices, distribute the gifts of nature, find work for the poor, add wealth to the rich, and magnificence to the great. Our English merchant converts the tin of his own country into gold, and exchanges his wool for rubies. The Mahometans are clothed in our British manufacture, and the inhabitants of the frozen zone warmed with the fleeces of our sheep.

All that commerce touches becomes golden: the Royal Exchange is a truly magical place.

Like the pediment relief of the Royal Exchange, Addison suggests that London is the central node of a global network of commerce. Yet the pediment also expresses the idea, if in an opaque fashion, that trade occurs on the margins of society in an encounter between two different cultures. The primal scene of trade is that of an encounter between two tribes in which we imagine some kind of barter taking place: the Englishman “exchanges his wool for rubies.” But how does one know the value of the wool in relation to the rubies? And how is it possible that capital continues to accumulate through all the transactions of exchange? These are the questions, of course, that Karl Marx addresses in Capital, in order to dispel the kind of delusions about the autonomous creation of wealth that Addison suffered from, but would become only more pronounced with the emergence of a modern system of financial capitalism.

What exactly transpires in the market place? The process of exchange does not establish a relationship between human actors, but dictates their positions in advance. They become the bearers (Träger) of an impersonal process, as Marx stated.9 We must conclude, therefore, that those men who exchange goods on the pediment can no longer act as allegorical personifications in the classical sense; that is to say, as individual characters that represent a greater principle. What comes alive in the market place, as Marx insisted, are inert things—commodities—that begin to exchange glances and recognize each other as equals. And so, he writes, commodities stage a kind of theatrical encounter between themselves that appears in no need of human actors: “Despite its buttoned-up appearance, the linen recognizes in [the coat] a splendid kindred soul, the soul of value.”10 And when the linen recognizes itself in the coat, it is by means of the general principle of the money form. It is this principle that animates these dead things, gives them a spectral semblance of life, while dissolving their substantial existence. Thumbing through a nineteenth-century guidebook to London, Formwalt happened upon the following anecdote: “It was discussed at the time whether a figure of Gresham himself [i.e., the founder of the Royal Exchange] should not have been substituted for that of Commerce; but perhaps the abstract figure is more suitable for a composition which is, after all, essentially allegorical.”11 Or, maybe, even the figure of Commerce was not abstract enough.

In the Three Exchanges, the Shenzhen Stock Exchange
forms the counterpart to the Royal Exchange. Here, the visual language of allegory appears to come up against the final limit of abstraction. For instance, in In Light of the Arc, Formwalt quotes from the website of OMA, the architectural firm that designed the structure in 2006: “It is a building that has to represent the stock market, more than physically accommodate it.”12 Due to electronic trading, the Shenzhen exchange has no need for a trading arena. All that remains is a purely ceremonial space where the entry of a new company onto the market might be celebrated in front of an assembly of the financial press. A bronze bell hangs in this hall that can be rung to start the trading day. “Perhaps the bell ceremony,” Formwalt suggests, “has taken the place of Mercury or some other god of commerce.” This hall is located in the most peculiar feature of this building: a floating base. OMA, it appears, wants to transform the whole building into an allegory of financial abstraction:

As if it is lifted by the same speculative euphoria that drives the market, the former base has crept up the tower to become a raised podium. Lifting the base in the air vastly increases its exposure; in its elevated position, it can “broadcast” the activities of the stock market to the entire city.13 For all its declamatory style, however, this is an architecture that wants to make itself invisible. The “robust exoskeletal grid” of the tower, we read in the same text, is “overlayed with a patterned glass skin... The patterned glass reveals the detail and complexity of construction while creating a mysterious crystalline effect as the tower responds to light.” A clearly articulated grid reflects its surroundings, but in doing so, Formwalt observes, it renders its surroundings mysterious: “a strange lighting effect replaces the structure.” And so we are asked to consider how this architecture is located in the gap between two boxes: one formed by the exoskeletal grid and one by the black box of the computer; one that we are permitted to see and one we are not. And, ultimately, this gap is nothing less than the fissure between “the world we inhabit and the prices that project it.”

2. Seams

The joint is no longer a problem, an intellectual issue: transitional moments are defined by stapling and tapping, wrinkly brown bands barely maintain the illusion of an unbroken surface; verbs unknown and unthinkable in architectural history—clamp, stick, fold, dump, glue, shoot, double, fuse—have become indispensable.

—Rem Koolhaas14

In January 1904, half a year after Hendrik Petrus Berlage’s stock exchange in Amsterdam opened to much controversy, the Dutch architect addressed an audience at the Museumsverein in Krefeld. Far from exuding a triumphant mood, Berlage expressed grave concerns about the current state of architecture in this rather meandering lecture, “Thoughts on Style in Architecture.” Berlage’s complaint was that contemporary society suffered from a fixation on the past that paralyzed its ability to conceive a different future. He echoed, therefore, Friedrich Nietzsche’s earlier attack on the “antiquarian” mentality that imposes “a certain excess of history,” populating the present with latecomers and gravediggers, who cause life to “crumble and degenerate.”15 This pathology of historical memory, Berlage argued, is apparent in the predominance of revivalist styles in architecture since the nineteenth century. As a result, we are doomed, the architect despaired, to live in a transitional period, a sterile and empty interregnum in which time seems out of step with itself. The world had become one protracted déjà vu, but he was not without hope. Indeed, he proposed to fight fire with fire, to oppose one form of anachronism with another.

Obviously, Berlage was not alone in expressing such cultural laments: others operating in the context of the Arts and Crafts movement or the incipient German Werkbund sounded similar warnings. What interests me here, however, is how Berlage provided a specific, architectural figuration of the historical seam that he experienced, his consciousness of a “present [that] resides between two conditions.” It is this same spatio-temporal figure of a fissure or hiatus, namely, that appears in different guises and on different levels throughout the Three Exchanges. Let me introduce this thematic by expending some more attention on Berlage’s architectural program for the

---

13. Ibid.
Amsterdam Bourse; a discussion that will lead us back to a consideration of the formal logic of Formwalt’s film.

Following Paolo Virno’s Déjà vu and the End of History, we might conjecture that Berlage conceived a discrepancy between an actual present or “now,” stuck in an obsessive repetition of past events, and a virtual “not-now” or potentiality of the present, which is not only related to an indeterminate past, but also to the horizon of a future that remains completely open. It follows that lacuna within the present will appear, on the one hand, as a symptom of cultural decline, but on the other hand, as opportunity. As Virno argues, it is the hiatus between the “now” and the “not-now” that allows the temporalization of history. That is to say, historicism buries this temporal fissure under a sham architecture of ornamental facades, whereas history can only change if this gap is not blocked off. And to Berlage, who had strong socialist sympathies, it was clear that the purpose of historicist styles was to dissimulate the social divisions within industrial capitalism. Indeed, he associated neo-historicism with the money-form of capitalism as such, suggesting that it relied on a similar principle of universal equivalence whereby one style might be exchanged for another, as neither had any communal basis in nineteenth-century society. What Berlage sought to establish, by way of contrast, was a functionalist honesty in design and a “unity in diversity”: architecture as a Gesamtkunstwerk whereby a free association of artisans would work together towards the prefiguration of a post-capitalist Gemeinschaft. Considering his political program, it is quite astonishing that Berlage was commissioned to design the Bourse. It is even more astonishing, however, that Berlage would seek to accommodate the new stock exchange to the socialist future he anticipated.

Berlage’s situation has a remarkable resonance with our own times. Even though he imagined that a future after capitalism was possible, he also accused his own epoch of holding to a delusional belief in the end of history. In more recent times, we have witnessed the emergence of a similar post-historical consciousness in the wake of the collapse of “really existing socialism” and the neoliberalist proclamation of a “free market” system as representing the best of all possible worlds. In fact, the stock exchange has become the model of the financial economy in general, seeming to provide, as one critic has observed, new support to the old hypothesis of efficient markets: “Unburdened by the complications of transport and production,” the financial markets are conceived as “ideal venues to set prices, to perfect competition, and to let rational (i.e., profit-oriented) and reliable actors interact.”¹⁶ But it is also clear that this hypothesis does not hold up well in light of the financial crisis that struck in 2007 and prompted Formwalt’s work on the Three Exchanges.

To a certain extent, there is nothing new here. A post-historical consciousness has been endemic to capitalism since the nineteenth century. Already in 1847, Karl Marx admonished bourgeois economists for believing that “there once was history, but there isn’t any more.”¹⁷ The brilliance of Paolo Virno’s Déjà vu and the End of History is to show why capitalism produces such a post-historical state of mind—an argument that I can here only briefly sketch.

Virno traces a split in time between the actual and the potential, a now and a not-now. This discrepancy, which he calls a “formal anachronism,” is the root of history in general. Potentiality is the “experience of the possible” that coexists with a perceived act, but is not cancelled out by this act. The potentiality of time (or what Henri Bergson called the “virtual”) does not limit what is perceived in the present: it does not fix the present as “real, complete, resolved in unambiguous given facts,” nor does it cast the present into the mold of some prior habitual mode of behavior or pattern of thought. The potentiality of time is a pure form of anteriority, a “memory of the present,” which is not located in a specific point of the past. But what exactly is this potential that is immanent to the past in general? Virno provides the example of language that must be grasped, not in its structural limitations as a language system (i.e., Ferdinand de Saussure’s langue) but as “the general disposition towards articulated discourse, the very fact that we can speak.”¹⁸ We have, in other words, a language faculty, a capacity to speak grounded in the infinite potential of language to signify. And alongside the faculty of language, we possess other such dispositions: to enjoy, to think, to work. Marx’s notion of labor power as the “aggregate of those mental and physical capabilities existing in the physical form, the living personality, of a human being”¹⁹ is precisely a potentiality in Virno’s sense of the word. The here and now thus bifurcates into two simultaneous yet distinct aspects: on the one hand, the faculty, and on the other hand, the actual performance, which consists of a particular utterance, enjoyment,
understanding, or work. And this difference between faculty and performance, past-form and past-fact, provides the fulcrum upon which the *true genesis of historical time* can take place, breaking out of a predetermined and invariant pattern of behavior.

In capitalism it is the human potential or faculty that is harnessed as a commodity. The potential of labor power is bought for its performance of effective labor. Therefore, capitalism installs an interval between the alienation of labor power, its selling on the market place, and its actual appropriation by the buyer in the workplace. After the buying and selling is past, no trace of labor power is left. Capital absorbs labor power; it “assimilates it to itself, imposes its own features on it, and becomes its legitimate representative.”

And thus it will appear that the labor conducted in the present is preceded only by a chain of already-accomplished labors—the “dead labor” concentrated in the hand of the capitalist. The other antecedent, the faculty for production, which is located in a non-chronological time, seems to have been wiped from the horizon. History, as a result, is stopped in its tracks.

*An Unknown Quantity*, which was shot on the site of Berlage’s Amsterdam Bourse, will introduce us to the contemporary, mathematical version of this emptying of time, but let me first take our reflections on the notion of potentiality a step further. One might think, namely, of the potential as the virtual ground of history, as a kind of *ur*-history. In a phenomenological sense, potentiality “coincides with the situation of disorientation and indecision in which we find the living body that does not dispose of a pre-fixed and immutable environment.”

In other words, potentiality coincides with a pre-individual state of deterritorialization, a state where types are not fixed and forms remain fluid. This original situation, Virno writes, is attested to by our generic faculties which make up for a lack of habits or specialized instincts. These faculties relentlessly re-affirm the archaic uncertainty and lacunae that precede any action we undertake. For Hegel, for instance, this would be a time before the fight for recognition between the slave and the master, before the emergence of the state. For Jameson, it would refer to a space for which we possess no cognitive map. But, in any case, it is clear that this virtual ground does not resemble what it grounds; it is, in fact, groundless in itself. Were this not the case than a generic “potential” would be reduced to a specific “possibility” that merely pre-

exists what is real. The present is then, once again, entered into a chain of objectified actions; it will only be “the working-out of what was already prefigured and envisioned as possible,” and we are back in a post-historical situation of déjà vu all over again.

In his design of the Bourse, Berlage would, as said, pitch one mode of anachronism against another, which is why most contemporary critics did not know what to make of his Amsterdam Stock Exchange. Indeed the building combined elements of Romanesque architecture—emblematic of the kind of *Gemeinschaftskunst* that Berlage desired—with a modern typology of factory construction. Furthermore, the stock exchange was not only designed to demonstrate its present, capitalist function in a clear fashion, it was also meant to prefigure its post-capitalist future as a socialist temple of the people. This futural aspect was borne out by the decorative program, which he had drawn up by the poet Albert Verwey. The decorative scheme contained not only many references to Amsterdam’s past as an international center of trade and finance, with pride of place given to Hugo Grotius as seventeenth-century theorist of free trade, but also to a utopian future in which money would no longer be necessary. In the future, Verwey prophesied, capitalism will be but a distant memory: “And when a new, free species shall see the temple that we have erected for a then-strange Deity... they will perhaps commemorate with sadness and admiration, a dead enemy whose glory made their own time possible.”

The Bourse, in short, was a montage of non-synchronous temporalities, a composite of past, present, and future.

Berlage even developed an aesthetic strategy whereby he sought not only to reorganize the chronological structure of the past, but to excavate the very *ur-history* of architecture; the formal potentiality of nature as such. In his 1904 lecture, Berlage refers to Semper’s foundational myth of architecture, as based upon nature’s unlimited potential to create “an infinite number of variously formed works of art.” Of course, unlike Virno’s potential as pure multiplicity, Berlage’s ground already contains, in embryonic form, its “possible” products. Nature, according to Berlage, works in a logical and economical fashion so that the crystallization of form is not an arbitrary process. There can only be a recurrence of archetypical motifs, art can only “recast the primal artistic forms.” And so,
nature as “great primeval creatress” always already speaks a kind of conventional language; it must obey certain compositional laws in order to reproduce itself. Apparently Berlage was sufficiently convinced of this idea to derive the design of the interior lamp fittings for the Bourse from the single-cell organisms portrayed in Ernst Haeckel’s well-known *Kunstformen der Natur* of 1899.\(^{25}\)

However, Berlage would adopt an even more fundamental principle of Semper’s architectural theory, namely that it is always necessary to show the seam (*Naht*) that holds a construction together. And here, a spatial and a temporal notion of the gap begin to coincide. The history of architecture commences, as it were, with the seam, whereas its history ended with the cancerous growth of ornamentation that hides the functional truth of the building. Berlage’s worship of the rationalist virtues of sincerity and purity, or what Sigfried Giedion called a “conscious asceticism,” compelled him to keep trimmings and decoration to a minimum in order that the “naked wall in all its simple beauty” might be displayed and the “clean white joints of the brickwork in the unplastered walls stand out sharply.”\(^{26}\) Nevertheless, An Unknown Quantity suggests that another history may be lodged within these joints; a history that diverges from the familiar narrative of modernist architecture, as recounted by Giedion and others. At the very beginning of An Unknown Quantity, the viewer is placed before an abstract grid consisting of the yellow brick wall of the Grain Trading Hall in the Bourse. But rather than referencing the conventional modernist discourse of flat surfaces, Formwalt delivers a surprisingly different emblematic reading of these stones, quoting from a historical text:

> The members of the diamond-cutters’ union… regarded their muscular union headquarters—built by Berlage— as emblematic of the strength of their movement. The bricks that Berlage used reflected the insignificant individuals who had been elevated to mass and power by the cement of intellectual solidarity… “Half in earnest, people pointed to a brick in the wall,” [as one union member recalled], “and said, that’s my brick.”\(^{27}\)

Positioned before the sheer physicality of the brick wall, the worker could still gain a glimpse of his part in a collective whole. Even in its abstraction, this elementary allegory is more concrete than the pediment of the Royal Exchange. Throughout *Three Exchanges*, Formwalt will continue to work the joints between things, building constellations of ideas and events that are both unexpected and revealing. Take, for instance, the inaugural shot of An Unknown Quantity that begins with a continuous, vertical tilt of the camera, tracing a 180-degree arch in space that spans the full length of the grain exchange. During this full sweep of the interior, three seemingly detached comments are made, separated by brief moments of silence. Yet, like the building blocks of a vault that are compressed together by their combined weight, these comments become imbricated with each other.

The first moment occurs while the camera faces the southern wall and introduces the allegory of brickwork as a proletarian figure of communality, which I discussed previously. The second moment happens while the camera is pointed at the ceiling and it concerns the fact that the glazed roof of the grain exchange is based on a factory prototype. The sawtooth profile of the roof, with its glass panels facing north, is normally meant to provide a uniform, natural light within a manufacturing space, yet here, in the grain hall of the stock exchange, Formwalt informs us, it made perfect sense:

> Light from the north is good at rendering forms in space in a way that allows for these forms to be scrutinized and evaluated. The northern light would help in the movement of goods from one merchant to another by making it easier to form prices based on the apparent quality of the goods to be exchanged. The glass roof would bring these qualities to light.

And so the same light is applied to different social purposes, whether to support the attentive gaze of the factory worker who is engrossed in mechanical activities or the analytic gaze of the trader who is evaluating the commodities displayed on the exchange floor.

But as the camera descends again, tracking down the far wall, another ghost of Marx is invoked—not those mystical things (i.e., commodities) that “transcend sensuousness,” but the specter of the worker’s movement whose unexpected reappearance at the beginning of the

523, n. 7.


twentieth century is announced by an ancient omen, a fiery comet falling from the sky. At least that is how Anton Pannekoek, the astronomer and social revolutionary, described the spontaneous uprising of the dockers and railroad workers in Amsterdam during the winter of 1903. Together, they would temporarily succeed in halting the movement of goods: “The everyday work situation of moving things along without questioning the trajectory these goods had taken to get there was suddenly interrupted. The paths each shipment had taken were now illuminated and open to evaluation.” In 1903, if only for a brief moment, it became apparent that one circuit of capital located within the Bourse, depended upon another, situated outside the Bourse.

At first the strike was successful, but the euphoria of the proletarian movement would be short-lived. The government drafted new labor laws that were rushed through parliament, and a second strike ended in a miserable failure, with several thousand workers being fired. So by the time that Berlage’s Bourse actually opened, later in 1903, Pannekoek’s fiery omen had been extinguished. Nevertheless, for a while Berlage might have thought that the future he longed for had already arrived. When the workers wanted to celebrate their first victory at the end of January, Berlage’s future House for the People was not yet complete. And so they showed up on the doorstep of the old stock exchange. Speaking of this event, Formwalt asks us to imagine two pictures. First, a photograph in the socialist newspaper, Het Volk, which attempted to capture the thronging multitude of workers as they gathered within the trading hall. Its caption stated: “We have attempted to photograph the large moving mass of people. We did not succeed entirely, but the result is printable. If one attempts to find themselves in the photo, and cannot, it is not our fault.” And, then, another photograph, taken a few years later, in the stock exchange hall of the new Bourse. But none of the stockbrokers are actually standing in the hall. It’s a composite image constructed from a separate portrait of each trader. The only thing binding them together in Berlage’s Exchange, Formwalt notes, is a printing technique. The joints, once again, have been sealed over.

As Formwalt’s commentary on the 1903 strike unfolds, articulating the two pathways of commodities, one internal and the other external to the stock exchange, the tilting motion of the camera in An Unknown Quantity comes to an end. Slowly, the camera view makes a descent down the northern wall of the grain exchange until it becomes stationary, looking out the windows of the Bourse onto the heavily ornamental facade of the central railway station, built during the 1880s in that Northern Renaissance style which Berlage had come to reject. Then, in three incremental steps, the camera view moves further outward until the interior of the Grain Trading Hall almost appears to merge with its exterior.

We are now almost a third of the way into the thirty-nine-minute film, and a new camera movement sets in, tracking the interior of the grain exchange in a different manner. Yet, the transition comes unannounced and is, at first, difficult to comprehend. Suddenly, the image loses all shape. All we see is a blurred, monochrome surface as if we are peering into that indeterminate ground of potentiality from which, as Berlage stated, the “primal artistic forms” emerge. At this point, Formwalt begins to describe the scenario of the famous documentary film, Powers of Ten, that Charles and Ray Eames shot for IBM in 1977, asking us to imagine this film in the mind’s eye as we continue to stare at the abstract surface, yet the imagined and the actual films will soon begin to coincide in both content and form.

Powers of Ten commences with scenes of a picnic near the lakeside in Chicago—“the start of a lazy afternoon early one October”—showing a man and a woman smiling at each other in a classical shot reverse shot sequence. If this opening of Powers of Ten elicits narrative expectations on the part of the spectator they will soon be dispelled. Rather than staying on the level of the characters, the viewpoint shifts into the vertical and, as Formwalt notes, the image of the leisurely couple is enmeshed within a purely abstract procedure. First, the camera view moves outwards...
Joseph Vogl provides the perfect formula for this new conception of the medium: “media possess, epistemologically, the character of a possible world.” 32 That is to say, media systems in our age of informational reproduction do not perform a mimetic function; instead, they consist of “programs of implementation: their axioms and practices dictate how reality can be programmed.” 33 And that this is not simply another version of technological determinism becomes clear when Vogl asserts that a media system does not realize any prior consistency, but answers rather to a technological demand to master the substantial randomness of the world, to tame the uncontrollable nature of time itself. A media system can only seem to assert such control over time by relying on a recursive principle of redundancy, which suppresses the disturbing presence of noise, yet crises will remain endemic to any such system and noise (i.e., the radical contingency of an uncertain future) will reassert itself in the end.

Vogl presents, therefore, a self-referential notion of the media system whereby “media communicate themselves in all their operations,” 34 which is precisely how, he argues, the modern financial system operates, in which certain political theories, business practices, mathematical models, and information technologies were combined, starting in the 1970s, and establishing itself as an operational media system in the 1980s; a configuration which, since then, has undergone even further mutations. Vogl is interested, therefore, in exploring a particular type of media history, which is also peculiar to our present, namely a “becoming-media of finance” and Formwalt’s Three Exchanges clearly share in this same genealogical project. Indeed, what is striking about the Three Exchanges is the manner in which the medium of film is not used as a mere support to the argument, illustrating the voice-over according to the standard documentary format of evidentiary editing, but media technology is shown to be implemented within the media system of financial capitalism. Only a slight “ghosting” around the edges, a momentary irruption of noise, reveals that the smooth, uninterrupted movement of surfaces in these films is itself an effect of fictitious capital. The apparatus of financial capitalism, to use an older term of film theory, “sutures” us into a diegetic universe where the movement of capital is abbreviated, all material resistance seems to be dissolved, and money seems to beget more money according to a fully autonomous

32. Vogl, p. 82.
33. Ibid.
34. Ibid.
Vogl dates the modern revolution within the financial system—the initial moment in its “becoming-media”—to the dissolution of the Bretton Woods Agreement in the early 1970s, ending the fixed exchange rates of the currencies of developed countries which were previously linked to the gold standard (by means of the US dollar as intermediary). For the first time in financial history, currencies were allowed to float freely, and there would be no more treasures stored in secret vaults to show to the public in times of panic. As a result, the financial markets became vulnerable to an increased degree of volatility and turbulence. To counter such instability, Milton Friedman, on behalf of the Chicago Mercantile Exchange, proposed that new financial markets should be created which would allow futures trading in foreign currencies. As Vogl paraphrases Friedman’s argument:

Floating exchange rates would be hedged with currency futures contracts—price differences insured with bets on price differences. [And, accordingly,] consistent expansion of the new speculative market based on the difference between current and future prices would create a balancing effect. 36

In sum, Friedman reasserted Adam Smith’s old metaphor of the “invisible hand of the market” by claiming that futures trading would neutralize all risk by spreading it thinly across multiple parties, and that monetary policy could be left to the internal dynamics of the market without governmental intervention.

The second section of An Unknown Quantity, which begins with a reference to Powers of Ten, recounts the emergence of this new type of market in Chicago, where hedging one’s risks depends on a rapidly expanding trade in futures and options. Futures and options are not new financial instruments; they are contracts according to which the prices of commodities in the future are predetermined so that one can insure oneself, for instance, against the contingent future of a bad harvest. Options had always been common devices in the grain trade, but in the 1970s as the trade in commodity futures was rapidly declining, the Chicago Mercantile Exchange, in what would become a very successful attempt to expand their business, opened a new exchange dedicated solely to the trade in options (the Chicago Board of Options Exchange). In this exchange, the options contract was given a new standardized form that made it possible to trade the option at any point between the first moment when the contract was sealed and the final moment when the contract became due. No commodities were actually exchanged during such transactions, and financial trade was liberated of all physical ballast.

As we follow this story, the camera has zoomed out, revealing that the blurred image at the beginning was, in fact, a close-up of the brick wall. The camera then begins to swivel, panning across the band of brickwork and ceramic tiles that runs like a decorative frieze across the Grain Trading Hall. The tiles, designed by Jan Toorop, show pre-industrial scenes of the sowing and harvesting of wheat and the baking of bread, recalling the use value of the merchandise that is transformed into capital on the exchange floor. However, “by the time,” Formwalt observes, that “IBM and the Eameses had visually situated Chicago in another world, a universe that extended from the largest to the smallest conceivable objects, in Amsterdam these bricks were about to become part of the world of options.” As a result, Toorop’s figures were to lose all connection to their immediate surroundings, and the socialist allegory of the brick wall with its seams exposed is transformed by the lateral movement of the camera into something else. As Toorop’s schematic images slide across the screen, Formwalt calls the scrolling movement of another set of ciphers to mind: the continuous stream of numbers on the ticker tape of a stock index listing. The ticker tape, one of the earliest electronic mediums, supplanted the actual movement of goods by the abstract fluctuations of monetary value. But what this formal analogy truly forces into the forefront is that, in the purely numerical universe of options trading, which supplanted the old grain exchange, rooted in an agrarian economy, Toorop’s and Berlage’s grain bushels seem completely out of place. 37

With the rise of the options market, the stock exchange became the model for financial economics, while the financial market became the model for all markets. 38 The financial market was imagined to be a frictionless
The Black-Scholes theory not only maintained, as Donald MacKenzie has shown, that the stock market would like to project; namely, that of total ruin as the randomness of the market fluctuations was hedged by options and futures: even if the stock prices followed a so-called random walk, like the Brownian movement of atomic particles, one could model this erratic process by means of probability theory, mapping it onto a “normal distribution,” making it possible to spread one’s risks and to balance one conceivable loss by a conceivable gain. One did not need to predict actual future events, but only to compute the average distribution of prices. However, this stochastic version of the old hypothesis of the efficiency of the market was based on a certain assumption: the past performance of the market. The real, therefore, is only grasped in terms of its pre-figuration in the possible. The media system of finance might have convinced itself that all noise, all randomness, had been suppressed, but as recent events have shown, this was but an illusion.

One type of noise, as Three Exchanges has shown, did vanish: the sound of the open outcry, the shouting on the trading floor, that was necessary to transmit a signal—the correct price—amidst the confusion. Yet disappearances, as In Light of the Arc maintains, are often just a form of displacement. Quite in contrast to the myth of an efficient market, which is based on a notion of total information, electronic trading has developed new strategies of concealment. Large trades, for instance, will be broken down, fractally, so that “no other trader shall see the whole,” which appears as “a thousand tiny reflexes rather than a single coordinated movement.” The problem then becomes how to distinguish signal from noise. The media system begins to run into its own limitations: the greater the resolution of the image, the more distraction or disinformation occurs. Thus, the camera in In Light of the Arc zooms ever further into a LED screen on display in the ceremonial hall of the Shenzhen Stock Exchange, until the very texture of the screen itself becomes visible. This texture, Formwalt notes, is but noise, but it is also what holds the image together.

Time and time again, Formwalt draws such analogies between the material substratum of medium technology and the representational surfaces of the “media system” of financial capitalism, demonstrating how both are linked in a stitching of the seams, a smoothing over of gaps, a suppression of the noise which is nothing but the groundless potentiality that may hold this particular image together, make it seem possible, but is also the threshold of its dissipation. Unsupported Transit, for instance, is shot with the use of time-lapse photography, a technique that is often used for the representation of construction sites, whereby a skyline seems to be altered in a matter of minutes. It is as if, Formwalt notes, the skyline builds itself and we may imagine the “irrational form of capital” in this way, whereby capital is taken as “logically anterior to its own reproduction process,” so that money will appear able to valorize itself, to pull itself up by its own bootstraps, like those construction workers in Unsupported Transit that we see dangling in midair, suspended in cages, that seem to move upward on their own accord. Whereas, in other shots, the construction workers almost disappear, reduced to smears across the surface—Henry Fox Talbot’s ghosts making a reappearance. This is precisely the kind of illusion that the stock market would like to project; namely, that of an “abbreviated movement of capital” in which the basic relation underlying economic growth disappears and capital is detached from the living labor of the present.
Another example of this focus on the intervals within the media system of capitalism is the discussion in Unsupported Transit of Eadweard Muybridge’s assignment to make a panorama of San Francisco for the railroad baron, Leland Stanford. The panorama, as Allan Sekula has noted, is a paradoxical mode of representation: it is topographically complete, yet always points to what lies beyond, to a desire for further expansion. Stanford gives full expression to this desire in a statement of 1875 that is quoted in Unsupported Transit:

> I shall hope to live to sit upon yonder balcony and look down upon a city embracing in itself and its suburbs a million of people. I shall see long trains of cars laden with merchandise and passengers coming from the East across the present Transcontinental Railroad... I shall see railroads bearing to and fro the produce and merchandise of each extreme. I shall look out through the Golden Gate and I shall there see fleets of ocean steamers bearing the trade of India, the commerce of Asia, the traffic of the islands of the ocean—steamers from Australia and the southern Pacific.

Yet, as Sekula has also pointed out, the panorama is an obsolete medium: its myth of completeness, has given way to a modern fetishization of details. That is to say, modernity is gripped by a fascination with the collection of discrete data, which allows the construction of possible scenarios and models of probability, rather than the linear narratives of the past.

However, the latest digital technology promises that we may have both, detail and panorama, effortlessly moving back and forth between both levels. No more need to choose between the photograph of the dockworkers and that of the stockbrokers. An Unknown Quantity employs so-called GigaPan technology, which is able to combine thousands of high-resolution images into one picture that is stitched together by means of software. All the spatial irregularities and temporal gaps that Muybridge’s panoramas could not avoid are smoothed over by the GigaPan system. And so, in the final section of An Unknown Quantity, we seem to pan across the decorative band of tiles with its various depictions of labor, and we are given to think of the Panathenaic frieze that was much admired by Berlage as an emblem of communal life, or the length of a ticker tape, as mentioned before, or simply a strip of film. We are not, however, looking at a film at all. The movement of the frame is the product of algorithms, a mapping of discrete data onto an arbitrary surface of projection. Like those differential equations of economists that project the fluid shape of bell curves or “normal distributions” onto the uncertain future of the stock market, all actual discontinuities have been erased within a pure geometric space of calculation. Sometimes, it is possible to see the slight traces of this process through a minor misalignment, a seam between images that creates a ghosting effect. But it is only at the end, as the camera seems to zoom out into the center of the space, that we see the full distortion of the image: a panoramic shot of the interior of the grain hall is warped in a weird, topological fashion. The flat walls of Berlage become bulging surfaces; everything that was straight has become bent. This space seems to be endlessly curving back on itself like some nightmarish story of J.G. Ballard, in which it becomes impossible to reach the exit of a city: one is doomed to endlessly return to oneself. This digitally rendered image, in sum, provides a suitable allegory of our current historical moment, in which economists seek to bracket out the potentiality of the world, to reduce it to a set of possibilities.

At the end of the film, Formwalt quotes Herman Gorter, a left-wing Dutch poet, who wrote shortly after the railway strike of 1903: “One year ago the situation appeared almost hopeless but the proletariat is an unknown quantity, all the powers of the future slumber in it.” Taken together, the Three Exchanges provide a sweeping panorama of the twentieth century which is shown to have been gripped by an intense passion to control this “unknown quantity”—to calculate and hedge this contingent future by separating it from the resistance of the world we inhabit. “But in this world,” Formwalt reminds us, “it is still impossible to determine the exact moment that lightning will strike from the clouds.”