Quarterly Letter

Q3 2021

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Amid much recent success, we are:

1. Reminded of the importance of heightened humility in times like these;
2. Continuing to take advantage of market conditions while cautiously cataloguing an excess of excesses;
3. Defensively alert to signs, sounds and cues of cracks in the system, while preparing our team and our companies for dislocations with deep reserves and strong balance sheets;
4. Offensively prepared to pounce on opportunities for industry consolidation in existing companies—and for exciting and ambitious new ventures launched by rebel founders finding and riding directional arrows of progress and inevitability that others may deem impossible. Most importantly, the archetype of the founder we back—like life itself—"finds a way".

We recently sent an internal team memo **acknowledging that our team had spent roughly 16 months far apart** with all kinds of entropy and hardship—yet comparably to most, we are fortunate, our families nearly all healthy and safe, our companies nearly all benefiting from roaring markets. The pace of dealmaking and bell-ringings at Lux has been dizzying and our entire team across all functions has been in lock-step executing extremely well. We have had vaccinations, vacations, celebrations, and the return of routines and reassembling of our teams in person—with roughly 12 weeks to finish 2021 strong with focused intensity and strategic planning for 2022.

You may find it surprising (though perhaps emblematic, given the primacy of our primate humanity) that the Lux team has dismantled a few of our fancy Zoom setups, insisting on interacting with live humans, trading the flat compressed screen for the multidimensional matrix of others who contain multitudes. **While *telepresence* helps us connect with far-flung entrepreneurs the world over as never before, *true presence* helps our team connect and get closer in ways like never before.**

In hindsight, over the past two years **we've endured sequential moments of surprise and suspense with a consensus of concerns centered last year on** health, ethics and politics (infection, national reflection, election, insurrection, inoculation) and this year on markets and economics (speculation, taxation, inflation).

In just the last 18 months, our portfolio companies have been responsible for $27 billion of enterprise value in exit activity, including mergers, acquisitions and public listings. This volume comprises around 25 individual companies with nearly half each creating substantially over $1 billion of enterprise value. While recent successes compound our reputation and increase our odds of winning the right to partner with the next set of great entrepreneurs, **they also make us more—not less—humble and cautious of what may go wrong.** Having helped our companies complete 8 successful SPAC transactions, with an aggregated $3.5 billion of cash to those companies' balance sheets (with a median amount of $478 million and median market cap of $1.6 billion), our counsel to our companies is to husband the cash wisely, and use cash and stock currency to consolidate suppliers, competitors and coveted talent. **Most of these outcomes are the result of both endogenous processes, from decisions made by our team many years ago in the past and from exogenous market conditions we have no control of in the present.** While we enjoy the many tailwinds and NYSE and NASDAQ celebrations, we are always on the lookout for new headwinds and bellwethers that may mark a change

in the current market moment. As a **thought experiment: time travel with us a year hence reflecting back on the year that was**. Which Q3 2022 letter do you deem more probable to be reading a year from now?

Option A) Most of the time the near future resembles the recent past…

2022 has been...*another remarkably incredible year* and a reminder of what profound achievement humankind is capable of in cooperation, collaboration and a chorus of optimism striking a chord of hope for a better future. With the virus eradicated, America went back to work in record numbers, unemployment hit historic lows, consumer sentiment and domestic unity reached record highs, wage increases were offset by growing global demand, trade deals, record profits and the Fed nipping inflation in the bud. No wonder LPs saw another 50% year of returns. Crypto continued to rise nearly triple digits as a new generation saw it as a preferred mathematically-sound alternative to gold and fiat currencies, and the foundation of a decentralized financial system. And yet 2023 looks like it may be even better, unless we take for granted this past year's breakthroughs in Cancer and Alzheimer's treatments and the rapid drafting and signing of the 2022 Elemental Energy Pact to double the amount of zero-carbon nuclear power, along with the Switzerland Accords locking in peace treaties on cyber, space and nuclear missiles signed by China, the U.S., North Korea, Iran, Israel and Russia. Can it get any better?

Option B) Failure comes from a failure to imagine failure…

2022 has been...*a punch in the face*. We are reminded of the importance of humility and avoiding early touchdown dances—and how small events can trigger giant consequences. This was widely appreciated when the source of the "Black Wednesday'' stock exchange hack that crippled global capital markets for 72 hours was found to be the result of a viral challenge on TikTok "won" by three 17-year-olds in the Philippines. Investors sustained heavy losses from a rush to the exits and demand for liquidity and gaping bid-ask spreads with most stocks down 40%. The shock and paralyzing fear that was evident in low volume trading activity in the following weeks was also stark contrast to the record number of retail participants adding to liquidity in prior years. It also underscores the importance of not overreacting as U.S. Cyber Command, following tips from Twitter that this was a coordinated attack from IP addresses originating in Russia, China and Iran, was led to advise the Pentagon to send additional carrier groups to Taiwan to fend off what was an anticipated diversion tactic as prelude to invasion of adjacent islands. This only escalated tensions, resulting in port shutdowns controlled or operated by China that choked off global trade, shutting not just capital markets but the flow of goods. In causes still being investigated, major utilities were fighting waves of rolling blackouts and prohibiting crypto mining, sending bitcoin down 50% with protests in the streets for coal to come back online so HODLers could access their digital accounts to get currency out for basic necessities. Following the playbook of the siege of the Capitol by Trump supporters, and the recent siege of Barclays Center by Kyrie Irving's anti-vax vanguard, Occupy Fed protestors comprising both crypto-maximalists and goldbugs stormed the steps of the Federal Reserve Board chanting "End the Fed''.

Our own forecast is that our Q3 2022 letter will likely fall between these two extremes of imaginative possibility. One may have strong views of how the present will progress. All views progress via conjecture and criticism—suppositions on the basis of incomplete information that meet judgments of

the merits and faults. These extreme conjectures, speculative flights of fancy pose possibilities for postures aggressive or defensive, bullish or bearish.

To that key constant question seeking to resolve uncertainty of scenarios: what may be? We can only say with certainty "maybe". The point is one never knows. Bad events have at times been good for Lux family companies. And good events have at times been bad. **What all our companies have in common is a shared ethos to do big, bold, contrarian things premised on rebel founders and competitively advantaged often-futuristic technology.** And yet with a diverse portfolio across so many stages, sectors and geographies, it's unlikely that every Lux family company will outperform or underperform in synchrony with each other.

So, is now the time for caution, or throwing caution to the wind? The case for the latter is nearly everything that has worked for the past few years: indiscriminate investing in Fed-fueled abundance of liquidity chasing returns in frenzied, fundamental-light, far-out and—sometimes observably in others—a few outright fraudulent companies. The case for the former is the absence of quotes like this: "*Never in my investing career have I seen such incredible bargains"*—a quote heard as scarcely as its subject is found. **We contend the one steadfastly scarce source of bargains are those that don't have a price, as they don't exist until Lux and our network of scientific founders actually create them.** We have a long history of incubating these *de novo*, newly created companies, where we are founder or first dollar investor. Throughout Lux's history, we have helped found *de novo* and build companies in a wide range of areas from vaccines to nuclear waste to targeted CRISPR delivery (**Genocea** to **Kurion** to **VNV**); from LIDAR and generative neural nets to neurodegenerative disease (**Aeva** to **Cajal**); from real-life outlier people with outlier traits in outlier parts of the world, to Nobel prize-winning techniques in optics for seeing out of this world, inverted to see inside of cells (**Variant** to **Eikon**); and from novel chip architectures to render digital twins to digital twins rendering physical construction spaces (**Flex Logix** to **OpenSpace**). These incubations are characterized by small capital at risk, large ownership, low entry points and high potential for fund-making returns. Many of these companies will be soon announcing very large financings at robust valuations, significantly rewarding us for risks we took and reduced, far ahead of new investors.

Generally: valuations have risen, diligence has fallen and excess is in excess. The corrective to high prices is a heavy dose of discipline to de-emphasize auctions and re-emphasize finding founders earlier and earlier, being first-check-in partners of choice, hatching more early-stage incubations and doing more *de novo* company creation across all sectors. Dry powder is most valuable when liquidity, currently a flood, sloshing and abundant, turns a drought, dripping and scarce. **Preparing for this turn—when it comes—is wiser than predicting when it may.**

For Lux, curated company creation will continue to be a unique strategy when the investment world is trending toward increasingly indiscriminate indexing of existing companies. This trend has been true in public markets, first with the shift from active to passive, and now increasingly in private markets. The move to de facto indexation in private markets began with a widely quoted observation, which was unintentionally pernicious: that only a handful of private companies each year mattered, so in hindsight the price you paid for those extreme winners didn't really matter as they would grow even

bigger. While true of those vaunted few in hindsight, it proved a prescription for high prices and less disciplined valuations for the rest. Nearly 10 years ago, there were under 40 unicorns, private companies valued at or over $1 billion. Today, two unicorns are minted a week and once rare, they now number over 800. Either there are deservingly 20 times the number of highly valued companies and society, despite all its dysfunctions, has ushered in an unprecedented era of innovation—or (or, and) other forces are at work.

An Excess of Excesses

What follows is exploration of an excess of excesses we see, an exercise that encourages the Lux team to navigate this current reality with eyes-wide-open, so that we neither suffer fatal blows by falling victim to them by making regretful errors of commission (investing too much too fast at too high valuations), nor by being overly critical or cynical (knowing the price of everything and the value of nothing) making errors of omission in singular companies that can weather and emerge from storms or volatility or illiquidity, or—to paraphrase Ray Bradbury—what things wicked may this way come.

We have certainty about which wicked things have uncertainty: inflation—is it here and now? Or now and later (persistent)? Or now and gone (transitory)? Notably as consensus forms of prices accelerating, many forget the very forces championed by allocators are also accelerating, such as: innovation (and in more sectors than ever from healthcare to government to banking, that have not yet benefited from the deflationary force of technology and productivity as others earlier adopters of tech); to say nothing of demographics (declining and aging populations) and debt burdens (ultimately requiring defaulting or divesting of one asset to pay another) and labor (under pressure from technology productivity on the one hand, and constricted supply for a variety of reasons). Other wicked things many know of: tightly coupled supply chains and rippling waves or shocks across increasingly interconnected industries (when autos were more steel than silicon, a shortage from a chip foundry thousands of miles away wasn't a bottleneck for meeting demand for new cars); rising fuel and energy prices at a time when transit of goods, food production and so much else depends still on fossil fuels (as they are disowned and disavowed)—notably one China sovereign wealth fund controls more assets than all U.S. university endowments combined, should the latter divest and the former invest, they may be less than indifferent to obtain the oil and the spoils; dependence on and independence from China (the leverage economically, geopolitically, militarily, culturally that a rising 21st century peer competitor is having on world affairs).

We have contended in many past letters that inflation has long been here—evident not in consumer prices but asset and securities prices. The Fed's balance sheet has expanded to over $8 trillion (it grew 10x from $870 billion in 2007), including securities purchases it has made pouring capital into investor hands, lowering the cost of capital and discount rates and raising valuations everywhere. Combinations and consolidations are underway, trading at record numbers with global M&A valued at $1.5 trillion in Q3 totaling up to over $4 trillion this year, ahead of the record set in 2007. Banks have had record profits, rates are low, job openings abound, wages are rising while volatility and defaults have fallen.

As the Fed and other central banks dole out this dramatic distortion of discount rates, duration and the "true" cost of capital into markets, we are reminded of a scene from *Deadwood* where the

machiavellian marionettist protagonist Al Swearengen chastises the newspaper printer, whom he had asked to print lies just not so obviously that readers would find them (expletives extricated): ***"...don't you agree that the truth, if only a pinch, must season every falsehood, or the palate rebels? And mustn't the novice chef be mindful not to ladle out his concoction by the unseasoned ton, lest before he perfect his art—he lose his clientele?"*** Central banks have cooked up a smorgasbord buffet and invited all to gorge and feast. What could go wrong?

In just the last 12 weeks, during Q3, startups raised more cash than startups did during the entire 1999-2000 dotcom boom and bust. The total was nearly $160 billion, double last year's Q3 and more than any full-year amount ever before 2018. What is driving it? Giant rounds of over $100 million (which was nearly 60% of dollar volume, though less than 5% of total number of deals) at median valuations of over $1 billion, hence the herd of unicorns being bred by firms with fund sizes numbering in the $5-10 billion range each, striking one or more deals every other day—with diligence periods on average as short.

While many investors say they won't participate in auctions where the highest price may yield an accepted term sheet—and a winner's curse—investors also must decide to opt in or out of races, where the winner is not the highest price (or just the highest price) but the quickest to move. These pacing investors—often outsourcing diligence to consultants—are observably causing other investment partnerships to laxen diligence, shorten decision cycles, and compete with term sheets with half-lives intentionally and competitively set to expire before others' regularly scheduled partner meetings.

It was common for founders to fake it before they made it, with bluffing and bluster. But in the current moment, founders' focus is preempted with pitches *to them* from investors of why they should take more money, open or extend rounds or do secondary transactions. We like to say that chips on shoulders put chips in pockets. Character is built through adversity and hardship and steep slopes. Yet today, the hero's journey: climbing cliffs, clinging to crags in adrenaline filled moments, has given way to flattened slopes, navigating with ease and negotiating with entitlement—at least from a financing perspective.

An entire generation has not seen a downturn, has not experienced widespread loss from widespread leverage across sprawling interconnected systems, has not run back to safe haven occupations or embraced tomes of value investing or timeless classics warning of rampant speculation, of devils taking the hindmost or of the madness and delusions of crowds. Jonathan Swift said reason is a very light rider and easily shook off.

Thus far: all news has been good news—which is to the realists amongst us, bad news. As with Sherlock Holmes' "curious incident of dog in the night-time," it is the sound unheard—the absence of negative news, as any parent knows of the unseen child—that may portend peril. The sound missing from our weekly partner meetings are reports of broken syndicates, coups on management teams, failed financings. **Not lulled into a false sense of security, our ears are piqued, listening closely...**

Companies are only as strong as their cultures, which are only as strong as their leaders and how they prepare for and behave in tough times. The foundational structures they erect now—(in things like balance sheet strength, honest internal communication, doubling down on customer loyalty)—to buffer against whatever may batter them later, might erode without energy and attention on what might go wrong. **We say: failure comes from a failure to imagine failure. And good times let guards down, making companies vulnerable to, as one of our nation's noblest statesmen would have put it, the silent artillery of time.**

Venture capital firms and funds were once segmented by sector or stage: early or late, biotech or consumer. When times were good and funds were flush, they expanded into new areas, lost differentiation and faced more competition, then lost discipline and faced more compression of returns as valuations rocketed higher. Higher valuations justified larger funds to hit target ownership, which also in positive feedback effect raised valuations further, both increasing paper returns and inducing more pools of capital and rising liquidity.

A visual metaphor of pool-plunging perfectly evokes the evolution of alternative investor strategies. Before: a photo representing markets just a few years ago, depicting neatly delineated swim lanes, each containing a disciplined, focused singular swimmer crisply making practiced strokes orderly on a mission. After: an adjacent juxtaposed photo of a marathon mass of people, a trampling crowd of utter chaos splashing and thrashing into the sea.

While we like our engineers and founders to have technical and intellectual moats often evidenced by years, earning a byline in a prestigious scientific journal or signified by a PhD, no such sophistication is needed to know this market moment is aberrant and abnormal and whatever can't go on forever will eventually stop. Tellingly, one LP keeps a whiteboard writing names of GPs coming back to market. What was once a few names jotted cleanly in a column in a corner is now frenzy-filled, like a scene from *A Beautiful Mind.* Another shared they were trying to be very disciplined. We asked when was the last time they said no to a re-up: they hadn't—afraid of being cut out of future funds. And that may be a key clue to how this market moment ends—not with a bang but a whimper.

Consider: indigestion of LPs and the pace of new commitments might no longer match the pace of new raises. The supply of new funds exceeds not the demand to allocate, but the ability. A few extreme LPs may even borrow against public holdings to make commitments lest they lose their coveted spot in a zero-sum fund (with many others eager to take their spot), taking the long view that even one underperforming fund may be a small price to pay for being in the future with a high-performing franchise. Perhaps a few LPs tell a few more GPs we want to invest with you but wish you could delay for a few quarters—as by the end of one calendar year they may already be committed for the entirety of the next. Initially that may unintentionally prod GPs to rush back to market motivated not so much by the flood of great opportunities but by a desire to fill the LP dance card before their competitor GPs do. This allocation indigestion from LPs may slow new funds which may slow GP investment pace, which may get seized upon by shrewd or lucky and flush GPs who take advantage of the pause of a few to hit the accelerator and push them to sidelines of relevancy. A few GPs may then bow out of the frenzy and

signal that their slower pace should be seen as a heightened selectivity for quality, and in turn, a more valuable imprimatur—as 1,000 great companies cannot exist in a year.

Meanwhile, big funds get bigger as a few (likely 10 in number) race to raise several billion annually and with assets under management between $50-100 billion, taking a page from the playbook of private equity a decade ago, turning once cultivated intimate partnerships into calculated intentions to go public becoming institutional corporations, fully diversified as supermarkets from local to global, from early-stage to late-stage, across private and public and credit. This approach will find favor with retail and public plans and pensions funds, and fall out of favor of other LPs with historically preferred access (who see the effects such structures have on cultures and incentives and bow out of being part of those GPs' plans, ceding their allocations as they instead opt to spend their time cultivating relationships with intimate partnerships partnering with founders at the earliest and riskiest stages, and thereby reaping the unfair returns that follow). **It is this latter position where Lux has intentionally sought and will continue to seek to stand apart.**

The Hemingway Hinge

It's as important to take stock of the singularity of the present moment and our recent past, as it is to prepare for the suspenseful suddenness of what surprises may come. Private investors used to be stuck with illiquidity and long holding periods with companies staying private longer. In recent years, all that has changed: public market investors are holding longer, already the structure of the market has shifted to increasingly passive, but those with active portfolios have concentrated positions with longer duration and lower turnover, allowing the ascendancy of large cap companies to continue compounding within portions of their portfolio. Meanwhile high growth stocks have skyrocketed, public market funds have gone into private funds and private funds (including Lux) are holding many public companies. LPs may redeem from public funds, exacerbating what has already been a shift in market structure and investor behavior from active to passive. Just a few years ago there was a race among tech megacaps to be the first to $1 trillion, yet today it's a milestone long passed and forgotten with Apple and Microsoft at $2.5T, Amazon at $1.8T and Google at $1.9T. At the same time, the face value of outstanding high yield debt also exceeded $1.5T for the first time, a record 26 new issuers came to market as this quarter ended, a number last reached in 2005, a prelude to the 2007 crisis. Deals are getting done in a single day, with investors perhaps forgetting that defaults too can happen in a single day. As Hemingway wrote on going broke (or dying), slowly then all at once. **Let's call it the "Hemingway Hinge"—things that occur "gradually, then suddenly." The creaks of the hinge are audible.**

Earlier this year speculative stocks, many highly correlated and passively owned by passive vehicles (thematic ETFs, mutual funds) and most untethered to fundamental valuation metrics, got routed when 10-year yields temporarily spiked. Should tapering of central bank bond purchases (demand) not be offset by a decrease in new issuances (supply), rates could again spike. This is at a time when record levels of speculation, retail participation, fractional ownership and leverage have combined into a combustible concoction fueling the rise of nearly all assets. Net purchases of U.S. stocks have been around $20 billion every month alongside record numbers of brokerage accounts opened and options purchased.

Before 2016 and since 1951, when the government began tracking the figure, the ratio of household wealth to GDP never exceeded 5.0—today it is 6.25 and U.S. households have an allocation of nearly 50% to equities. This is at a time where various measures of equity duration (which classically doubles as a measure of sensitivity of equities to interest rates) suggest 35 years for the S&P and 22 years for the Russell 1000. That implies a 1% move in interest rates could cause a 20% or more plunge in equities.

Two decades ago there were around 7,000 public companies in the U.S. Notably about the same number globally of languages remaining, species of amphibians existing and total number of endangered species around the world. **Survival depends as in those other instances on positive attention from others and adaptability when conditions change.** The long decline of publicly listed companies (from peak via acquisitions, buyouts, consolidation, delistings—going just alphabetically) now stands at around 4,000. New pools of capital, thematic ETFs and mutual funds have become buyers, in some cases indiscriminately of unseasoned companies and unseasoned management, entering at record rates. Over 450 SPACs completed listings with nearly as many waiting on the sidelines. Over a dozen people younger than 30 have been named as directors or executives at SPACs since June. **We have, of course, benefited from this unusual demand, just as we caution against its unlikely persistence in its current form.**

In prior letters, we have invoked Sturgeon's Law saying 90% of SPACs would be CRAPs and the 10% minority would attract high quality investors and have delivered the cash to execute their plans, consolidate peers and market share, and compound value for us and other shareholders. Months later, SPACs which previously had no redemptions and were seen as an alternative to cash yield by arbitrageurs, were soon seeing votes fail or cash redemptions reach between 60-90%. Other sounds of the creaking of Hemingway's Hinge come from signs of companies valued on growth who are making equity investments in companies (some of them risky SPACs with no obvious strategic partnership or connection) in exchange for sales **contracts reminiscent of late 90s telecom deals that proved less kosher than a kielbasa sausage smothered in Swiss cheese.** Eventually the shenanigans will have consequences and bad actors will face their fate.

There's a relevant beautiful short story, "The Appointment in Samarra". It goes like this: There was once a merchant in the famous market in Baghdad. One day he saw a stranger looking at him with surprise. He knew the stranger was Death. Pale and trembling, the merchant fled the marketplace and raced far away to the city of Samarra. For there he was sure Death could not find him. But when at last, he arrived at Samarra, the merchant saw, waiting for him, the grim figure of Death. "Very well", said the merchant. "I give in. I am yours. But tell me: why did you look so surprised when you saw me this morning in Baghdad?"—"Because," said Death, "I had an appointment with you tonight…in Samarra". **Fairness in fate depends on fellow humans. Human agency helps to reward good actors and punish bad ones.** At present, systems of sense-making and error correction are overloaded with credulity fueled by greed. Masses have thrown caution to the wind and diligence to the dogs. A once financially and morally bankrupt showman got elected President, set a record for lies told, was voted out of office and then launched a SPAC. Politics has always been a circus but the tent mostly contained it. Seeing what worked in politics, celebrity CEOs have similarly discarded decorum, traded truth for promotion and rallied crowds and supporters and believers that drowned out critics, and made them too big to

fail. A young generation has so far only been rewarded for following pied pipers and has not yet suffered any loss nor gained any learning that will protect them in the future.

Indefinitely Modified Paths (the wisdom of William James & Jurassic Park)
In the short-run in markets there is much uncertainty, guessing what other people are guessing other people may do. Following or forecasting the volatility and vicissitudes of investor behavior from investor emotions and expectations is hard. This is why Lux prefers following the directional arrows of progress in technology and the motive forces of agency from driven entrepreneurs. In the long-run, the reason the market goes up 70% of the time is in part because it is a measure of expectations and expectations are influenced by desires and the human condition pines for progress. People prefer to be liked instead of despised, sated instead of hungry, happy instead of sad and in safety instead of in danger. Those preferences are all to fight entropy of decline and decay of reputation, health and mood. Human ambition to move from one state to a more desirable one, especially human entrepreneurial ambition to find a better way is nature's infinite problem solver. As Jeff Goldblum's character in Jurassic Park says, **"life finds a way"**. As William James said, "Romeo wants Juliet as the filings want the magnet; and if no obstacles intervene he moves towards her by as straight a line as they. But Romeo and Juliet, if a wall be built between them, do not remain idiotically pressing their faces against its opposite sides like the magnet and the filings with the card in between. Romeo soon finds a circuitous way, by scaling the wall or otherwise, of touching Juliet's lips directly. With the filings, the path is fixed; whether it reaches the end depends on accidents. With the lover, it is the end which is fixed, **the path may be modified indefinitely."**

Healthcare
It is the push for endless paths modified indefinitely that Lux founders pursue. It is why lifesaving drugs being developed by Lux companies including **Recursion**, **Adimab** and **Plexium** are helping to extend lives and reduce suffering—because they *found a way*. When we were kids, weatherman Willard Scott would fly halfway around the country to spotlight a centenarian because of how rare they were. Today, people attend their grandparents' 103rd birthday with eye-opening regularity.

Space, Aerospace & Defense
It is why founders like Chris Boshuizen of Lux family company **Planet** *found a way* to launch hundreds of tiny satellites into space, before scoring a spot to launch himself into space with the real-life Captain Kirk on the Blue Origin rocket.

When we say life finds a way, it is because we have found life miles deep in the ocean in thermal trenches hostile to both most life and our previous assumptions of what could survive. It is why we are sending probes to space to investigate asteroids and our understanding of planet formations including our own. Using gravity and math, they may remain there for hundreds of thousands of years collecting information unless something stops them. Life finds a way and Lux has backed founders with focus, energy and ambition now fueling every facet of space exploration: rockets, robotics, launch logistics, satellite development and sensor capabilities, communications in space between crafts and to ground stations, positioning, repair and refueling of satellites, security and surveillance of 'star truth' (like 'ground truth' but orbiting) detecting and dealing with threats from space junk to competitor sabotage,

manufacturing in low earth orbit, space stations to support operations, experiments and humans and return vessels with increased frequency and accuracy. These include **Relativity, Hadrian, Varda, Kymeta, Epsilon3, Anduril, Astranis** and more.

The Space Race is as real as the tailwinds it gives Lux's existing and prospective investments. Over a dozen nations have astral aspirations. International competition and cooperation will evolve in interesting and uneasy alliances. It took humanity until 1961 to launch the first person in space. By 1995, there were a record number of 13 people in space at the same time—eight were Americans (seven on STS 67 Endeavour; and one on Soyuz TM21 with two Russians) and three more Russians on Mir space station. Last month, there were a record 14 people in space at the same time (four were on SpaceX Crew Dragon Resilience); seven were on the ISS (three Americans, two Russians and one European) and three Chinese astronauts building their own space station.

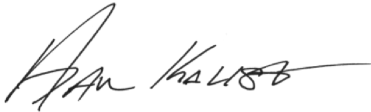
Tech of Science
It is why companies like **Gandeeva** and **Eikon** are able to *find a way* to see structures and functions of how life *finds a way*—at the atomic and molecular scale mankind has never seen.

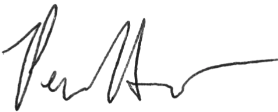
Automation, Manufacturing & Autonomous Systems
Our founders also find a way to route around incumbent systems. All kinds of clues and weak signals that portended larger ones are obvious after the fact: the ship stuck in the Suez in March as prelude to a crisis by September with container ships on coasts. People working from home out of necessity, then preference, and especially for manual labor jobs (from restaurants to trucking) leading to labor shortages and wage spikes. Both have directional arrows of progress for more, not less, technology in logistics, supply-chains and automation. Lux investments in autonomous systems in air, land, sea and space have tailwinds behind them. From **Desktop Metal** and **Shapeways** and **Tempo** which via additive manufacturing are bit-by-bit and atom-by-atom and circuit-by-circuit changing production and "shipping" (actually sending parts digitally by *email*, printed close to where they are needed, instead of by *"ship")*. Having funded **Zoox**, which Amazon acquired to power their future autonomous fleet, we also funded **Caper** with AI-enabled smart shopping carts to help the long-tail of non-Amazon/Whole Foods grocers compete (which at the time of this writing was acquired by Instacart for $350 million, a more than 10x return).

Light Finds A Way
At Lux, with an ever evolving investment and market landscape we cling to one constant: being the best partner we can be to our partners (LPs and entrepreneurs). And being the best partner of choice requires us to protect and grow our reputation. **That means doing wise things when others are doing provably foolish things; and doing what may appear to be foolish things that will prove to be wise.** Remember we love to find directional arrows of progress that follow arrows of inevitability (wherever and to whomever they may point) with high conviction that bisect with arrows of impossibility (the perception by others of implausibility and low conviction). This is where being believers in new sectors and new technologies before others understand has and will continue to reward Lux and our partners well.

We appreciate your support and guidance as we continue to invest. We're grateful for your trust and confidence in Lux. If you have any questions on the content of these quarterly updates, please do not hesitate to contact us.

Sincerely,





Adam Kalish Josh Wolfe Peter Hébert