The Tulip Individual Coin Offering:

An Early Harvest*

THE ARTIST †

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*https://thetulip.auction

†0x3064d4956d41912e7455454b782a32ad0c4e20e2

ABSTRACT

Earth's increase, foison plenty, Barns and garners never empty,
Vines and clustering bunches growing, Plants with goodly burden bowing —
Spring come to you at the farthest In the very end of harvest.
-William Shakespeare

`An Early Harvest` is a first of its kind offering of one and only one, individual crypto token known as `The Tulip (TLP)`, based on the `EIP-20 standard`, and made available over the `Ethereum` blockchain[17][18]. `The Tulip` will be sold at auction to the highest bidder over a period lasting the length of the life of a forced tulip bulb of the `(Tulipa kaufmanniana 'Early Harvest')` variety[16] which form a genus of spring-blooming perennial `herbaceous bulbiferous geophytes (having bulbs as storage organs)`[15]. Flowering in the spring, tulips become dormant in the summer once the flowers and leaves die. They emerge again as a shoot from the underground bulb in early spring after a winter chilling period. To *force* a bulb means to create an environment where the bulb grows when it naturally wouldn't, bypassing its natural order and flowering in the winter. The tulip bulb will enter a period of simulated winter at which point the auction will begin, following the early flowering during the winter the flower will die and the auction will end.

Contents

I. Overview

A. *Introduction*

A mania? A revolution? or both? This artwork seeks to ask these questions about the current state of affairs in cryptocurrencies and their many derivatives of late. One such interesting phenomenon is the rise of ICOs (Initial Coin Offerings) also known as *token sales*. Tokens are issued on an indelible distributed ledger known as a *blockchain*. That means they can easily be traded, and they typically are designed to serve some practical utility for the product or service their sale is being used to fund. Unlike ownership shares of a company, investors are hoping that the value of these tokens will increase as the the project becomes successful and the tokens gain utility.

Bitcoin was the first cryptocurrency and inspired dozens of hybrid *alt-coins*. This involved creating a whole new blockchain. However, through the advent of the EIP-20 standard on Ethereum (a rival blockchain) issuers could simply write a *smart contract*, such as the one highlighted in this work, to mint their hybrid alt-coins in exchange for *ether* (the currency of Ethereum). Issuers then publish whitepapers, such as this one, and market their widgets to the world[14].

This has led to the sprouting of thousands of these hybrid alt-coins. Some of these projects have raised the equivalent of hundreds of millions of dollars in a very short period of time. In the second quarter of 2017 alone, close to a billion dollars have been raised through this funding model[1]. However, the claims made by these groups, mostly, have not been officially examined. Regulators have already started to act and many worry they will come down too hard on these organizations, slowing growth or suppressing innovation all together[3]. For instance, as of now, China has banned these token sales completely [6]. Before ICOs can fulfill on their promises, of which there could be many of authenticity, they may well have to endure the natural life cycle of boom and bust. As prices continue to rise to record highs we must stop and smell the roses, or perhaps tulips in this case.

B. *Background*

In the early 17th century a rare and exotic flower burst onto the scene in Western Europe. Nowhere was its impact more apparent than in the Dutch Republic. The novelty of the new flower made it widely sought after. Botanists and gentlemen scholars were enthralled that after some time certain bulbs suddenly went from producing blooms of a single color to flowers with beautiful patterns involving multiple hues. These hybrid breeds were prized

and competition emerged amongst the breeders around producing even more of these hybrid varieties known as *cultivars*.

Cultivars began to be exchanged among a growing network of interested parties. As the network grew and the scholars started receiving requests from people they had never met they began trading them for money. The expanding interest in tulips coincided with an especially prosperous time which allowed for all parts of society to be able to spend on these luxuries. As more people piled into the market, after hearing stories of acquaintances making unprecedented profits, prices skyrocketed.

Tulips began to be used as a form of currency in their own right. In 1633, real estate was sold in exchange for rare bulbs. That same year, Semper Augustus bulbs, the most prized variety were worth an astonishing 5,500 guilders each. A few years later the price had almost doubled. This was more than the value of some of the most treasured homes in all of Amsterdam, some of the most expensive homes in the world.

Tulipmania reached its peak at the start of 1637. Thousands had participated in the tulip trade by then, to a point where some bulbs had changed hands up to 10 times during the course of a single day. Prices had risen so high that most speculators could no longer get in on the action. Demand disappeared, the market collapsed, and many were left in financial ruin. Ironically, unbeknownst to the tulip traders of the 17th Century, it was later discovered that the coloration effect of the cultivars was actually the result of disease[13].

II. Mission

Figure 1. Tokuō Ryōkō (1649-1709) hanging scroll, 168cm × 35cm A depiction of one of the most recognizable symbols in Zen calligraphy, *ensō*, a circle drawn in one uninhibited brushstroke to express a moment when the mind is free to let the body create[10][8].

For hundreds of years Zen Buddhist artists inscribed words of wisdom on large scrolls. They conveyed their ideas with such artistry that the words themselves were physically beautiful. It was art playing a double role as decorations, but also helped Zen wisdom be immersed in everyday life [11]. Similarly, the mission of this work is in a way to decorate the blockchain itself with wisdom that can live on forever as part of our lives. We can look to this transaction and bulb as a symbol of the possibilities as well as a reminder of the pitfalls to ensure that we do not cut ourselves off from the possibilities of growth.

III. Technical

A. Trust

`The Tulip Token (TLP)` is an EIP-20 token that is minted into existence with a fixed total supply of a single, indivisible token. Guaranteed transfer of the `1 TLP` to the winner is secured by the token contract that powers the auction via the Ethereum blockchain (III.B). Before diving into the details of the contract and exploring the functionality and security behind the auction, it is worthwhile to acknowledge the way in which blockchain technology helped redesign trust.

Trading goods and services has historically relied heavily on mutual trust. While fiat currency such as the United States dollar made it easier and more consistent to trade, it also deepened dependence and faith in central banks and the financial system. The dollar has value only insofar as merchants trust the federal reserve that guarantees it. When a large scale economic crisis comes around, faith in the dollar is tested and its value adjusts accordingly.

Nakamoto consensus, a decentralized consensus protocol that many consider to be Bitcoin's core innovation and the key to its success, relies on solving difficult challenges in cryptography rather than trust between peers and authority figures[4]. The protocol provides an economic incentive to participants by offering currency in return for dedicating resources to solving these challenges, also known as mining.

While this rewards-based system introduces a novel solution that does not require trust between peers to execute transactions and transfer currency, it requires consuming increasingly greater amounts of energy to remain competitive. Blockchain platforms such as Ethereum are working on alternative security schemes that scale more efficiently while preserving the spirit of inherent distrust. Proof of stake is one such proposal that forgoes rewards for penalties[5]. Instead of solving increasingly difficult and expensive challenges, participants lock up some of their currency into a deposit and risk economic loss in the case of bad actors.

There are many members of the crypto community who have various ideas about where blockchain technology is headed and what kind of consensus algorithms can help take us there, but one thing remains for certain. We no longer need to trust each other to execute legitimate transactions.

B. *Contract*

The smart contract is accessible at `0x5d269f0280ff406c61535623ee37a45cd22f4dd7`. Using Etherscan's Verify Contract Code, the contract source code can be confirmed to match the compiled contract running on the network and is publicly auditable[9]. The contract consists of two main parts: the token and the auction.

The token part inherits from OpenZeppelin's `StandardToken` to provide an ERC-20 (now EIP-20) compliant token[12], while the auction part is slightly more involved and exposes various states, events, and functions to place bids, handle withdrawals, and guarantee the transactional transfer of the `TLP` token when the auction ends. This part of the contract is modeled as a state machine to simplify transitioning between different states and provide functionality only available to particular states. For example, the auction begins at the `Setup` state at which point bidding is not yet allowed. Once the `startAuction()` transaction is executed the contract will transition to the `AcceptingBids` state and participants will be able to start placing their bids.

```
enum States { Setup, AcceptingBids, Paused, Ended }

modifier atState(States state) {
  require(currentState == state);
  _;
}

function startAuction() onlyOwner atState(States.Setup) {
  currentState = States.AcceptingBids;
  AuctionStarted();
}

function bid() payable atState(States.AcceptingBids);
```

For security reasons, previous bids are not automatically returned to their original addresses. Instead, bidders are provided with a `withdraw()` function which they can execute at any point (even after the auction has ended) to withdraw an aggregate of all their previous bids that have been overbid.

The final part of the contract is ending the auction, which has several important items it needs to guarantee:

1. The `1 TLP` token should be transferred to the `highestBidder`.
2. The `highestBid` amount should be transferred to the contract owner.
3. The auction state should be set to `Ended`.
4. Atomicity. Either all of the items above take place or none of them do.

The last item concerning the atomicity of the transaction is where the novelty of Ethereum's decentralized transaction ledger and the consensus algorithm that guarantees its security really comes through. It allows us to keep the contract implementation as simple as a list of straightforward expressions and function calls and have the blockchain guarantee its transactional nature.

```
function endAuction() onlyOwner notAtState(States.Ended) {
  currentState = States.Ended;

  transfer(highestBidder, 1);
  owner.transfer(highestBid);

  AuctionEnded(highestBidder, highestBid);
}
```

A positive consequence of this design is if the contract owner decides to cheat and transfer the `1 TLP` token to another account before ending the auction and collecting the `highestBid`, the entire transaction will fail because `transfer(highestBidder, 1)` will not succeed, and the owner will not be able to receive the `highestBid`.

IV. Roadmap

September 13, 2017: Landing page goes live and whitepaper released

September 25, 2017: Auction site goes live

October 2, 2017: Bulb enters simulated winter phase and auction begins

~December 25, 2017: Bulb begins to sprout signaling the end of the winter phase

~Jan 8, 2017: Flower emerges signaling the final forcing phase

~Jan 22, 2017: Flower dies and the auction ends

~Jan 29, 2017: The artwork ships

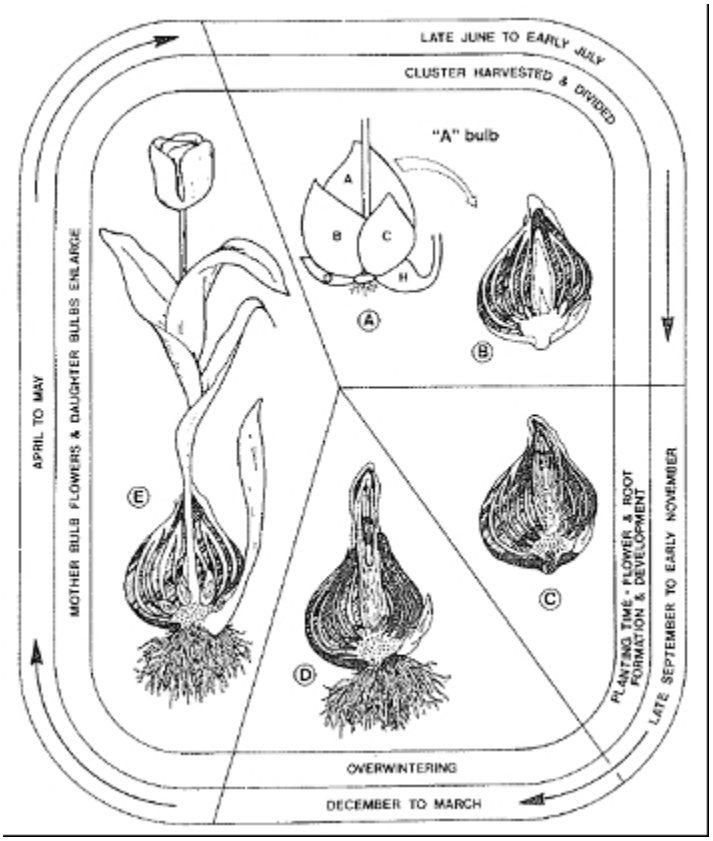

Figure 2. Typical annual growth and developmental cycle of a flowering tulip[7]

V. Token Auction (ICO)

A. How it works

The online auction will take place according to the scheduled roadmap(IV). Please be advised that some milestones may occur prior to the listed dates or be delayed due to the climate sensitivity and the unpredictable nature of bulb forcing. If you have provided us with an email address you will receive periodic updates about the different stages.

To participate in the auction make sure you follow all the on screen instructions. You may be required to install the MetaMask chrome extension if you do not have it already. Once the auction is live you will be able to see the current highest bid and place your own bid directly through a form on the site. Make sure to check back frequently to see if you have been outbid. If you have been outbid you will be able to withdraw your ether and/or place another bid. The flower can live anywhere from 1-2 weeks and it will be at The Artist's discretion to call the tulip dead and officially end the auction.

Once the auction has ended the winner will automatically receive the `1 Tulip Token (TLP)`. They will also be able to provide a mailing address for the commemorative and original work of art by The Artist, that will include the physical forced tulip bulb. The address will be cryptographically signed using MetaMask to ensure valid association. Any losing bids will be able to be withdrawn indefinitely.

B. Funds Breakdown

There is only one indivisible `Tulip Token (TLP)` of which 100% ownership will exchange hands. In the aftermath of the ICO, initially funds will be used for the creation and shipping of the commemorative physical artwork. Surplus funds will then be divided 80/20 between The Artist and the **Hand in Hand Hurricane Relief Fund** respectively. The Artist will use these funds to produce future works.

VI. Conclusion

News today is overwhelmingly focused on information gathering wrongfully assuming that if it is significant then it will resonate with our hearts and minds. However the reality is that the facts are rarely enough. Abstract statistics look clever and serious. But so often they just wash over us. For ideas to become powerful in our souls, they need to be anchored in experience. We need to feel them, see them. This is what art does, makes the facts enter our imaginations. To do justice to the material, news needs to become a little more like art.

In 1816, French newspapers reported on the Méduse naval disaster where only a few survivors made it out alive after days at sea on a raft. It could have just become another forgettable moment in time if not for the artist, Gericault, who had made it live on through his painting, *The Raft of the Medusa*[2]. Similarly, this artwork hopes to accomplish the same, act as an inventive technique for making the wisdom we have more prominent, and more readily available. We must tell ourselves a little more of the truth as we pay the price of true growth through our lies and deceptions.

A bulb is small, surrounded by darkness, but still it knows how to reach for the light, and it pushes despite the darkness enveloping it, it keeps growing toward the light – until one day, it breaks the surface of the ground. The bulb has in it the potential of a beautiful flower. The key is that the bulb takes its time, you can't scream at it to hurry up and grow. We must simply wait for the right timing, and one day find the blooms where the previous days there was only soil. Just remember, be cautious of diseased hybrids.

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