

聲音是貨幣嗎？

劉窗

2019 亞洲藝術雙年展參展藝術家

Can Sound be Currency?

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國立台灣美術館
National Taiwan Museum of Fine Arts

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〈比特幣礦與少數民族田野錄音〉 *Bitcoin Mining and Field Recordings of Ethnic Minorities* 截幀，由藝術家和天線空間 (Antenna Space) 提供。

景王二十一年，將鑄大錢。

——《國語·周語·單穆公諫景王鑄大鐘》

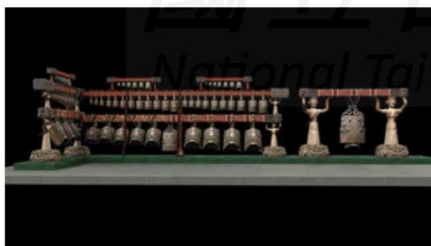
景王二十三年，王將鑄無射而為之大林。

單穆公曰：“不可。作重幣以絕民資，又鑄大鐘以鮮其繼。若積聚既喪，又鮮其繼，生何以殖？且夫鐘不過以動聲，若無射有林，耳弗及也。夫鐘聲以為耳也，耳所不及，非鐘聲也。”

——《國語·周語·單穆公諫景王鑄大鐘》

譯文：景王二十三年，周景王為了鑄造無射（wúyì）樂鐘而打算先造個大林樂鐘。單穆公說：“不行啊。鑄造大錢已經奪去了民眾的資財，又要鑄大鐘來加重民眾的負擔。如果民眾的積蓄都被奪走，又加重他們的負擔，他們怎麼活下去？鐘不過是用來奏樂的，如果無射按大林鐘這樣的大鐘來造，耳朵無法聽到它的聲音。鐘聲是讓耳朵聽的，耳朵聽不見，就不算鐘聲了。

景王二十三年，即公元前 522 年，東周崇尚禮制的皇帝周景王想要製造一件名為無射的編鐘，可是缺少鑄造樂器的材料銅，周朝的貨幣是用銅鑄造的，於是景王進行了歷史上第一次貨幣改革，其操作手段是減少單個貨幣重量同時增加幣值，類似今天央行的貨幣超發。



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編鐘是由很多不同大小的鐘組合而成，敲擊它像敲擊鋼琴的琴鍵一樣會發出不同的聲音，景王所要鑄造的這套編鐘裡面有一件單體的鐘叫大林鐘，它是體量最大的一個，負責低音的部分，之前從未有人製作過。文中提到它所發出的聲音耳朵聽幾乎聽不見，可以想像其低音之低，可能是一種超低頻率的振動，引發的實際上是一種身體的觸感，而非聽覺。公元前 500 年的地球相對於今天來說是非常安靜的，當時的人類還不具備大規模製造低頻聲音的能力。這種極低頻率的振動只有大自然裡有，例如火山噴發、打雷、地震、隕石撞擊等等。周景王為了模仿這種感受而試

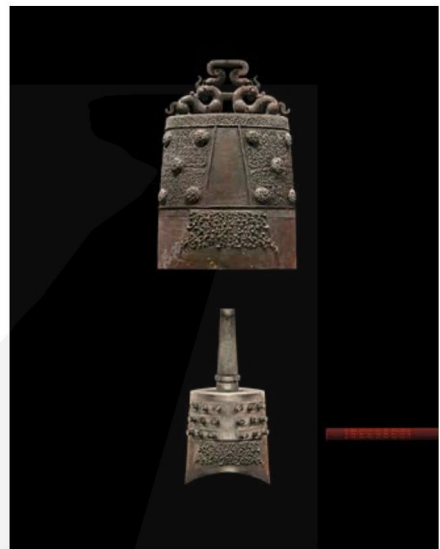
圖製作樂器這件事遭到了大臣單穆公的反對，於是他去諮詢樂官伶州鳩，伶州鳩是當時主管祭祀的官員，他從政治的角度來闡明這一做法違反了天地宇宙的秩序。

伶州鳩答道：夫政象樂，樂從和，和從平。聲以和樂，律以平聲。金石以動之，絲竹以行之，詩以道之，歌以詠之，匏以宣之，瓦以贊之，革木以節之，物得其常曰樂極，極之所集曰聲，聲應相保曰和，細大不逾曰平。

《國語·周語·單穆公諫景王鑄大鐘》

譯文：伶州鳩回答說：國政就像樂章，施政就像奏樂，二者都是以和諧為主導為取向。和諧的政治局面、和諧的音樂作品，都取決於是否合乎律定，是否依律均平。各種聲音元素，都要服從於音樂的和諧；而律定音樂的規制，就是確保聲音的均平。金鐘石磬等打擊樂，奏出樂音，並以節奏賦予音樂動感；琴瑟蕭管等管弦樂，走出去掉，並以旋律確保音樂流暢；詩文吟誦，用來宣明主題；歌曲詠唱，用來表達情志；共鳴腔較大、聲音綿長明亮的匏類樂器，用來渲染氣氛，共鳴腔較小、聲音古朴渾厚的陶類樂器用來增強效果，聲音短促沉悶的蒙皮類樂器、木質類樂器用來節制、指揮整個樂曲的演奏。各種物質製作的樂器所奏出的樂音，只有符合其自身的規律屬性，才稱得上是極致的樂音。極致的樂音集合到一起，便構成了各種色彩的聲音元素。這些聲音元素彼此應和，相互維系，就是所謂的和；尖細的高音與粗獷得低音各依其律，互不逾越，就是所謂的水平。

關於這件樂器的具體樣子目前沒有任何資料，根據館藏於湖北省博物館的編鐘，我想像了一下它的樣子，其中最右側的大林鐘，應該會採用疊鐘的形式，一大一小兩個鐘套在一起，當我們敲擊小鐘，它的聲音會被蒙在裡面，有了一層物質的阻隔，只有低頻率的振動能傳導出來，也許這就是景王想要的效果。



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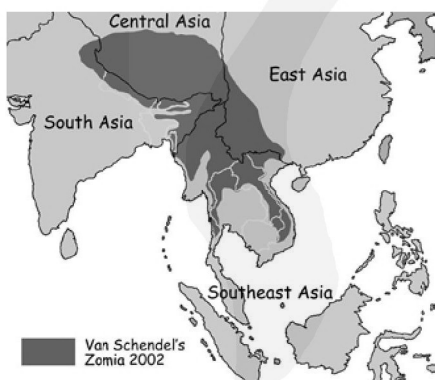
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通過這張地圖我們可以看到西方對亞洲區域的劃分，東亞、東南亞、南亞和中亞，在這四個區域的交匯處——地圖上標有四個點的位置，它們分別屬於亞洲的四個不同的區域，但地理上他們是不可分割的，這個邊緣地帶我們怎麼定義？因為每個區域的劃分都有一個共同的特徵，有時候是基於文化，有時候是基於共同的歷史，不管是東亞，南亞，東南亞還是中亞，都基於之前的歷史以及相對明確的特徵，但是在這四個點所標示的區域，我們怎麼定義它？它們處於四個區域的邊緣，某種意義上說它們不屬於任何一塊，這種問題其實帶有某種普遍性，例如伊斯坦布爾處於歐洲和亞洲的分界線上，它既是邊緣又是中心。



圖片來自網絡，由劉窗工作室提供。



申德爾的贊米亞地圖，圖片來自網絡，由劉窗工作室提供。

以上問題的提出者申德爾（Willem Van Schendel）是一位德國學者，它後來用贊米亞（Zomia）命名這塊區域。這塊區域海拔超過三百米，超過四百種不同語言的族群混居在一起，人口接近一個億。



申德爾的贊米亞地圖，圖片來自網絡，由劉窗工作室提供。

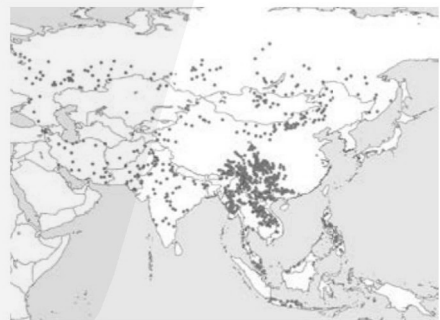
申德爾把贊米亞的概念地圖拓展到了中亞。贊米亞一直是一個有爭議的概念。其關鍵並不在於它提出了傳統亞洲區域劃分的難題，我們知道跨國界的民族在世界上很多地區存在著，贊米亞這個概念的獨特之處是讓我們用新的眼光和觀點去觀察和思考這些跨地區的族群。

詹姆斯·史考特（James C. Scott）的贊米亞地圖在前者的地圖上做了刪減，古代的吐蕃王國作為一個等級複雜的社會被排除在贊米亞之外。在《不被統治的藝術中》，詹姆斯明確定義了贊米亞地區這種規模非常小的，有時候是移動的，自組織的族群的混居狀態，在古代，它們一直處於非國家狀態，然而贊米亞與它周圍的國家並不絕對隔絕，更多時候是一種共生狀態。如果我們深入探究亞洲的歷史，這種逃逸文化即使是在各個王朝的內部也都非常普遍。



詹姆斯·史考特的贊米亞地圖，圖片來自網絡，由劉窗工作室提供。

我們從新聞簡報、比特幣礦機的銷售信息以及水電站的地理信息中挖掘數據，然後繪製了 2017-2018 年的比特幣礦的分布圖。我要強調一下靜態地圖所不能體現出來的信息，比特幣礦的地理位置是變動的，比特幣礦往往要追逐更廉價能源，它會隨季節遷徙，冬季枯水季節它會搬遷到風力更為發達中亞，然後在春季當風力枯竭之時再搬到火力發電充足的內蒙，等到雨季來臨之時再遷回水電發達的贊米亞區域。對比之前的贊米亞地圖，我們發現有這兩者有很多重疊之處。其內在的關聯形成了這個項目的核心。這個項目試著探討這種高科技的全球部署與當地土著智能的關聯。



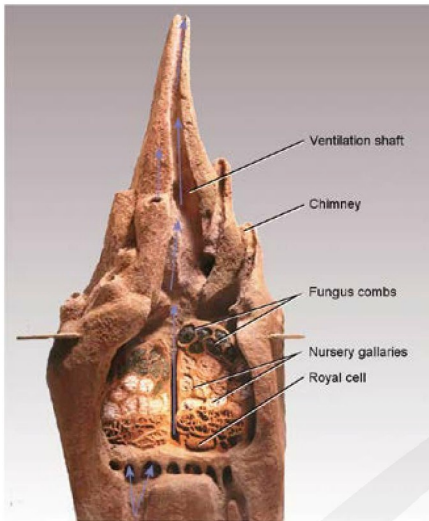
2017 年比特幣礦分布圖，王梓繪製，由劉窗工作室提供。

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阿瓦隆（Avalon）是第一款比特幣礦機，這是它的一張廣告招貼圖，圖片的右上角是阿瓦隆的標志，圖的中央巨大的堡壘是非洲白蟻的巢穴，我接下來說明為什麼比特幣礦機為什麼會持續用到螞蟻的形象。

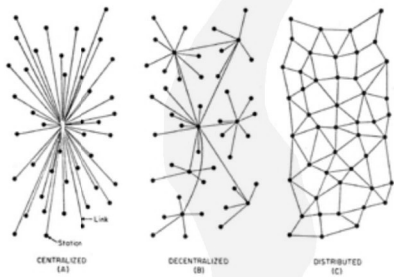


阿瓦隆礦機的廣告畫，由劉窗工作室提供。



圖片來自網絡，由劉窗工作室提供。

白蟻巢穴的構造非常精巧，它的不同部分具有不同的功能，建築內部可通風，可隨著外部環境的變化自動調節溫度和溼度，這一點啟發了非常多的建築師。白蟻之間信息交換的方式非常簡單，同頻共振，但是如此簡單的信息交換也能建造如此複雜的簡直，科學家對此進行研究後歸結為共識主動性 STIGMERGY 的結果，其實類似一種生物界的自組織，或者類似人類部落的直接民主的形式，據說比特幣的基礎區塊鏈技術就是受此啟發。所以比特幣礦機經常會以螞蟻來作為自己的形象，目前最主流的比特幣礦機就叫螞蟻礦機。



圖片來自網絡，由劉窗工作室提供。

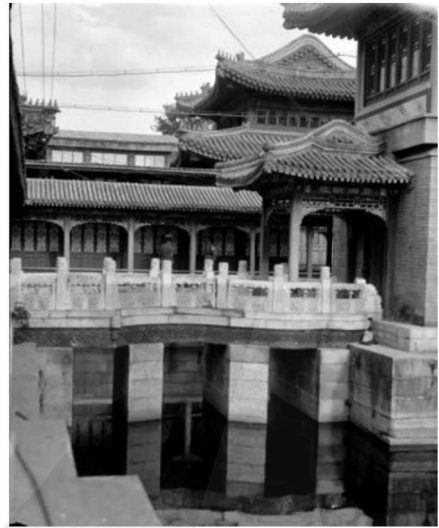
這張圖說明了幾種不同的網絡模型，左邊是中心化的網絡，中間是一個多中心化的網絡，右邊是去中心的、分布式的網絡。比特幣的基礎設施區塊鏈理論上來說就是分布式的，意味著信息是分散在網絡的不同節點中，很難篡改和丟失。但是在線下的世界中，信息網絡的基礎設施是三種模式並存，海底和陸地上的電纜是仍然不能擺脫歷史的糾纏，它更是一種多中心化的分布模式。



圖片來自網絡，由劉窗工作室提供。

我們來回顧一下全球信息網絡的基礎設施的歷史，這是一張早期全球電信網絡的線路圖，我們可以看到在海洋上的海底電纜的鋪設軌跡，遵循的是早期殖民探險活動開發出來的海洋航道，所以說全球信息網絡的基礎設施和殖民活動之間的關係非常緊密，可以說殖民活動的主權構架被移植到了信息網絡的基礎設施上。陸地上的電纜的鋪設軌跡可以一直追溯到古代的郵政驛站網絡，這些古代的郵政驛站在被鐵路和高速公路網絡取代的同時，也在其上架設了電纜和現在的光纖。從這張圖我們可以覺察到海洋帝國和大陸帝國的主權網絡的形變。

電報技術成熟很早，但是真正跨洋的遠距離通訊出現的較晚，當丹麥的大北公司在東南亞發現一種耐腐蝕的橡膠之後，海底電纜才成為現實。具體到東亞地區，清政府由於懼怕電報網絡被洋人掌握，所以一直以各種理由來拒絕這項技術，當日本侵入臺灣，清日戰爭爆發之時清政府才意識到信息傳導的重要性，於是架設了第一條穿越臺灣海峽的電纜，之後，電報網很快鋪設到了全國。電報網絡的出現很快導致了報紙和新聞的出現，以及大眾輿論的產生加速了清帝國的崩潰，這是近現代亞洲重大的歷史事件。美國攝影師甘博（Sidney D. Gamble）於 1920-30s 年代在中國拍攝了大量照片，從這些照中我們可以找到最早的信息網絡的一些痕跡。



甘博攝影集，由劉窗工作室提供。

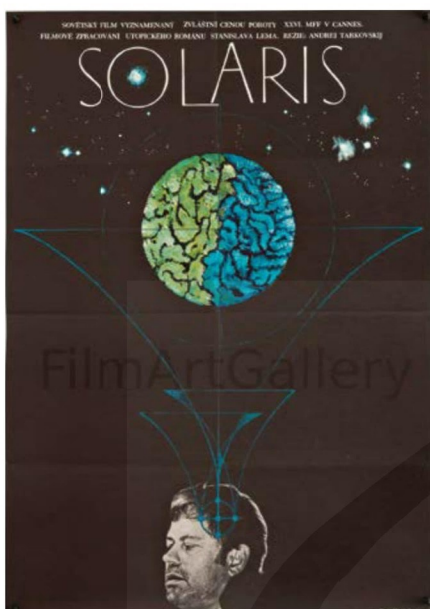
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我在片中引用了一個詞叫「前人」（ex-man），原本是西班牙文 ex-hombres，出自阿根廷作家基羅加（Horacio Quiroga）（1878-1937），在短篇小說集《被放逐的人們》（1926）中，他描繪了一批滯留在阿根廷東北方的白人殖民者，在米西奧內斯省（Misiones），這些白人，他們幾乎都從事與科學工程相關的工作，大多是化學家、生物學家和工程師。前不久剛上映一部電影叫《薩瑪的漫長等待》（Zama）（2017），主題和基羅加的有點類似，我猜導演受到了基羅加的啟發。《薩瑪的漫長等待》講的是一個白人殖民者在殖民地等待宗主國的調令，這個地方風景優美，但相對於宗主國——西班牙帝國，米西奧內斯省就是世界的邊緣，這裡充滿了各種神秘的種族和鬼魂，隨著時間的流逝，這些歸國無望的殖民者了變成酒鬼，有些完全喪失了理智，變成了瘋子，這些人被基羅加稱為前人。這些殖民者帶有各種現代性的知識和技術，他們被派往帝國疆域的邊緣——世界的終點進行探測。最終他們在與當地部落文化的接觸中失去了心智，喪失了他們原本在殖民秩序中的身份和角色。

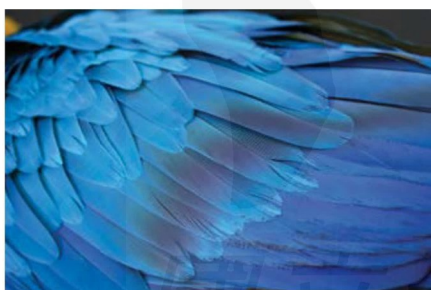


《薩瑪的漫長等待》，由露柯希亞·馬泰 Lucrecia Martel 執導的影片，圖片來自網路。

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由塔可夫斯基（Andrei Tarkovsky）導演的《索拉里斯星》海報，圖片來自網絡。



尼康 520 相機的樣張，由劉窗工作室提供。

這些「前人」（ex-man），讓我想起了萊姆（Stanislaw Lem）在他的小說《索拉里斯星》（*Solaris*）（1972）中描繪的宇航員，我認為在基羅加和萊姆的這兩部小說之間有非常多的相關性。迷失在米西奧內斯省的白人殖民者和在探索索拉里斯星的過程中陷入精神崩潰的宇航員，他們是兩種不同類型的殖民者，但都可以被看作前人，兩者都在與他者的文化和自然的接觸中迷失了。帶有現代工業技術的歐洲殖民者來到米西奧內斯省進行探測和採礦，萊姆的宇航員帶著地球科技去索拉里斯星做研究，兩位作者都探討了兩種不同宇宙論的相遇，他們都遭遇了一個絕對的他者，索拉里斯星和米西奧內斯省對殖民者來說是無法理解的，他們是現代性和殖民活動無法理解的領域，任何探測和發現的活動都注定讓自我陷入深淵。

5

我把這張圖作為結尾。這是尼康（Nikon）520 相機的一張樣張，在網絡攝影論壇上經常被拿出來討論。仔細看照片的中央有一道摩爾紋（moiré pattern），摩爾紋是攝影師經常遇到的問題，我們在生活中也經常遇到，例如拍照時候如果穿有條紋的衣服，摩爾紋就可能產生。這張照片中的摩爾紋是數碼相機的感光元件 CCD 和羽毛的排列之間相互干涉形成的。摩爾紋的發生原理對我做田野研究的方法有很多啟發。我們發現，當作為觀察者的人類學家過於切近自己的對象時，有時候得到的是一個幻覺。這種幻覺體驗其實很普遍，因為作為觀察者的人類學家總是用自身所有的一種現代性的技術去觀察另外一種技術，這種技術可以說是一種在地技術，這種接觸不可避免會獲得一種幻覺體驗。

Can Sound Be Currency ?

LIU Chuang

1

In the 21st year of his reign, King Jing of Zhou minted many coins...

In the 23rd year of his reign, King Jing of Zhou planned to forge a set of Wuyi Bells, and among them was a Dalin Bell.

Shan Mugong said: "That will not do. Minting a vast amount of coins has already exhausted the wealth of the people. Forging great bells on top of this will increase the people's burden. If the people's savings are all seized and their burden made even heavier still, how will they survive? Bells are only for playing music. If the Wuyi Bells include a Dalin Bell, there will be no ears left to hear them. Bells are meant to be heard by ears. Without ears, bells cannot toll.

—"Shan Mugong Forges the Great Bells for King Jing," from "Discourses of Zhou," *Discourses of the States*

King Jing of Zhou was a strong advocate of the traditional court rituals of the Eastern Zhou Dynasty, and in the 23rd year of his reign (522 BCE), he decided to create a set of chime bells (bianzhong), which he called the Wuyi Bells, to use in the musical rites of the court. However, he did not have enough bronze to make the bells. The coins of the Zhou Dynasty were made of bronze, so King Jing initiated history's first currency reform. His method was to decrease the weight of each unit of currency while simultaneously increasing the currency's value – similar to the way central banks will over-issue currency today.

Bell chimes are made up of many bells of different sizes. Striking them produces different pitches, just like playing the keys of a piano. One of the bells in this set that King Jing wanted to have forged was called "Dalin." It was the most massive bell, used to play the lowest notes, and no one had ever made one before. Texts related that when it was struck, the sound was so low that the human ear could barely hear it. One can imagine just how low that bass note was, perhaps a super low-frequency vibration, producing a tactile sensation that could genuinely be felt by the body, not heard. Compared to today, the world of the sixth century BCE was very quiet. The people of that time were still not equipped with the ability for large-scale production of low-frequency sounds. Only nature



Still from *Bitcoin Mining and Field Recordings of Ethnic Minorities*, courtesy of the artist and Antenna Space.



Still from *Bitcoin Mining and Field Recordings of Ethnic Minorities*, courtesy of the artist and Antenna Space.

had such extremely low-pitched vibrations – for example, from volcanic eruptions, thunder, earthquakes or meteorite impacts. King Jing’s attempt to make an instrument that could imitate this kind of sensation met with the opposition of his minister, Shan Mugong. Therefore, he went to consult with his musical instrument maker, Ling Zhoujiu, who at the time was also the official in charge of rituals. He explained that from the perspective of governance, such an act would violate the order of the universe.



Still from *Bitcoin Mining and Field Recordings of Ethnic Minorities*, courtesy of the artist and Antenna Space.

Ling Zhoujiu answered him: “State affairs are like a musical composition; governance is like playing music. Both are directed by harmony. Both a harmonious political situation and a harmonious composition depend on whether they are in alignment with the laws of nature, whether they are balanced. The many sonic elements must all be subservient to the harmony of music, and the laws that regulate music ensure the equilibrium of the sounds. Such percussion instruments as metal bells and lithophones play musical notes and also give the music a sense of rhythm. String, wind and other orchestral instruments tend to flow, and by producing melody they keep the music moving. The recitation of verse serves to elucidate the theme. The incantation of lyrics serves to express feelings. Gourd instruments, with greater resonance and longer, brighter tones, serve to color the atmosphere. Vessel flutes, with with lesser resonance and simple, strong tones, serve to enhance effect. Instruments made of animal skins and wood, with short, muted tones, serve to regulate rhythm and direct the cadence of the entire musical performance. Only when the music played by each instrument made of its respective material conforms to its own nature can the music be called perfect. Perfect music unites and forms aural elements in a spectrum of colors. When these aural elements work in concert and support one another, this is known as harmony. When the sharp treble and the rumbly bass follow their own laws, neither overpowering the other, this is known as balance.

–“Shan Mugong Forges the Great Bells for King Jing,” from “Discourses of Zhou,” *Discourses of the States*

We have no information about exactly what this set of bells looked like. But based on the chime bells housed in the Hubei Provincial Museum, I can imagine how they might have appeared. The Dalin Bell, positioned on the far right, probably came in the form of two stacked bells, one big and one small.

If we were to strike the little bell, its sound would be muffled within the larger bell. There would be a layer of matter cutting high-frequencies off, and only the low-frequency reverberations would be transmitted. Perhaps this was the effect King Jing was seeking.

2

This map shows how the West has divided up Asia: East Asia, Southeast Asia, South Asia and Central Asia. The four points where these areas converge – the positions marked by four dots – belong to four different regions of Asia, yet geographically they are indivisible. How do we define this marginal zone? The boundaries of each region have special features in common, sometimes based on culture, sometimes based on shared history. Be it East Asia, South Asia, Southeast Asia or Central Asia, all are joined together by past history and relatively clearly defined features. But how do we define the area demarcated by these four dots? They belong to the borderlands of four regions, and at a certain level, they do not belong to any region. This question is a somewhat universal one. For example, Istanbul sits on the dividing line between Europe and Asia—it is both on the margin and at the center.

The first person to discuss this question was the German scholar Willem Van Schendel, who later termed this region of the world “Zomia.” It sits at over 300 meters above sea level and is home to over 400 ethnic groups, with a total population of nearly 100 million.

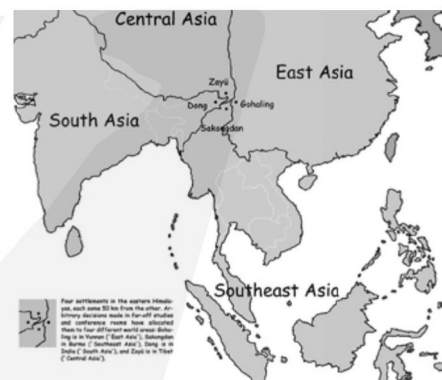
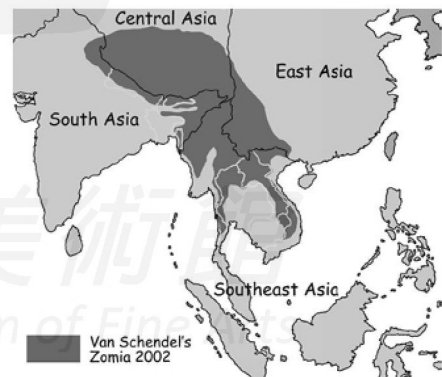
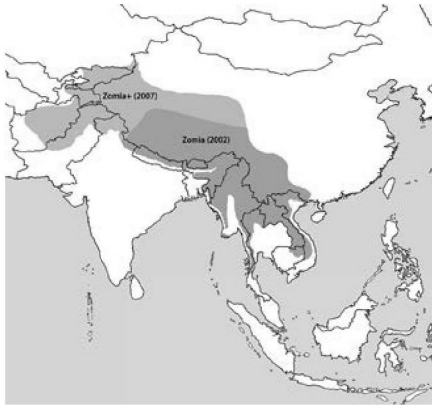


Figure sourced from the internet, provided by the Liu Chuang Studio.



Willem Van Schendel's map of Zomia. Figure sourced from the internet, provided by the Liu Chuang studio.



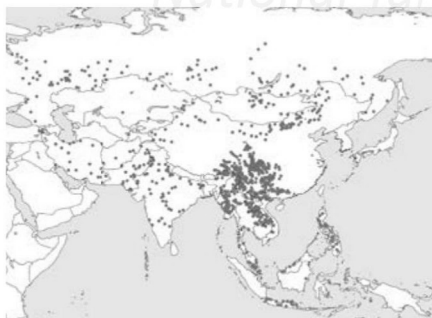
Willem Van Schendel's map of Zomia. Figure sourced from the internet, provided by the Liu Chuang studio.

Willem Van Schende extended the conceptual map of Zomia to Central Asia. Zomia has always been a controversial concept. The central problem is not that it questions the conventional division of Asia. We know that cross-border nationalities exist in many parts of the world. The uniqueness of the Zomia concept is that it allows us to observe and ponder these cross-regional ethnic groups from a fresh perspective.



James C. Scott's map of Zomia. Figure sourced from the internet, provided by the Liu Chuang studio.

James C. Scott created a new map of Zomia by deleting portions from the maps of his predecessors. For example, he excluded the ancient Tibetan Empire, a complexly stratified society. In *The Art of Not Being Governed*, Scott clearly defined Zomia as a very small area whose boundaries sometimes shift and which exists in a state of mixed habitation among self-organizing ethnicities. In ancient times, they remained in a perpetual state of anarchy. However, no absolute partition existed between Zomia and the kingdoms that surrounded it, and they more often maintained a state of symbiosis. A careful perusal of Asian history reveals that, in fact, such cultures of escape were very common in many dynasties.



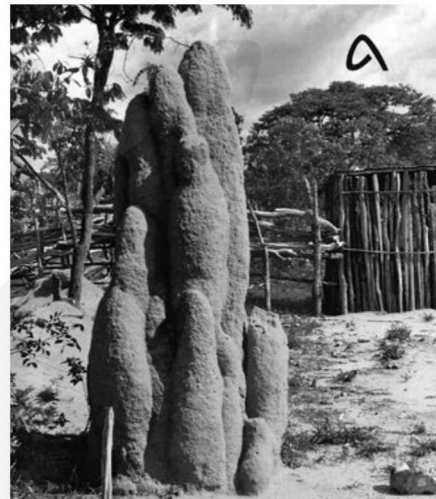
2017 Bitcoin Mine Distribution Map, created by Wang Tze, courtesy of the Liu Chuang Studio.

After uncovering information from news reports, Bitcoin mining machine sales data, and geographical data on hydroelectric power stations, we created a Bitcoin Mine Distribution Map for 2017-2018. I want to stress that a static map cannot convey certain information. The geographical locations of Bitcoin mines are in constant flux. They migrate seasonally in search of cheap sources of electricity. In winter when water levels are low, they migrate to Central Asia with its strong wind power. Then in summer, when winds dissipate, they return to Inner Mongolia, with its ample supply of thermal power. With the arrival of the rainy season, they return to Zomia with its well-developed hydroelectric power. When compared to previously mentioned maps of Zomia, we find a large degree

of overlap between the two. Their internal associations form the core of this project, which attempts to consider the connections between the global deployment of high technology and localized indigenous intelligence capacity.

3

Avalon was the first Bitcoin mining machine. This is an advertisement poster for it. The Avalon logo is in the upper right corner. The huge mound in the center of the picture is an African termite colony. Next, I will explain why Bitcoin miners continue to use the image of termites.



Print ad for the Avalon Bitcoin miner, sourced by the Liu Chuang Studio.

Termite mounds have very elaborate structures. Different parts have different functions. The interior architecture has ventilation and can automatically regulate temperature and moisture according to changes in the external environment. This characteristic has inspired many architects. The way termites exchange information is very simple, a form of simultaneous resonance. Yet this simple form of communication enables them to create complex structures. Scientists who have studied this phenomenon consider it to be the result of stigmergy – a form of self-organization in the animal world similar to direct democracy among human tribes. It has been suggested that this was the inspiration for Bitcoin’s basic blockchain technology. That is why Bitcoin miners often adopt the image of termites for themselves, and currently it is popular for Bitcoin mining hardware to be referred to as “ant miners.”

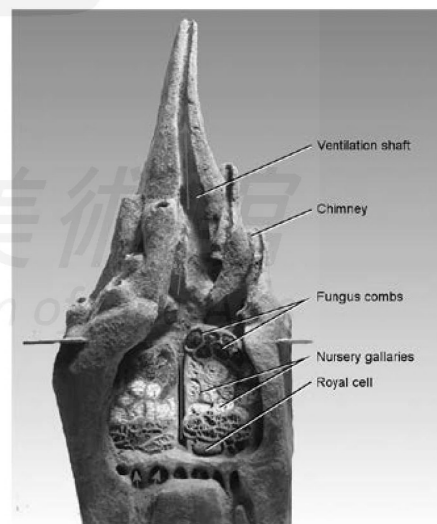


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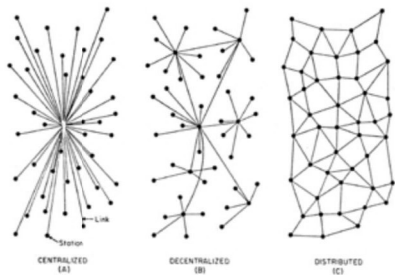


Figure sourced from the internet, provided by the Liu Chuang Studio.

This diagram illustrates three different network models: centralized (left), decentralized (center), and distributed (right). In theory, Bitcoin's blockchain infrastructure has a distributed network, suggesting that information is spread throughout the network's different nodes, which makes it difficult to tamper with or lose. But in the offline world, the infrastructure of information networks is a comingling of all three models. Communications cables, both submarine and terrestrial, have never freed themselves from the entanglements of history, and operate according to a centralized distribution network.



Figure sourced from the internet, provided by the Liu Chuang Studio.

Let's revisit the history of the global information network infrastructure. This is a circuit diagram of the early global communications network. If we look at the lines along which both marine and submarine cables were laid, we can see they follow the shipping lanes developed by early colonial exploration. Thus, the global communications network infrastructure and colonialism are closely connected. One might say that the sovereignty framework of colonialism has been transplanted to the communications infrastructure. The lines along which terrestrial cables have been laid can be traced back all the way to the postal courier stations of ancient times. These were replaced by railroads and highways, and then communications cables and optical fiber cables were also installed along these same routes. This illustration reveals the shifting shapes of the sovereignty networks of both maritime and terrestrial empires.



Photo from the Sidney D. Gamble collection, sourced by the Liu Chuang Studio.

Telegraph technology matured early on, but genuine transoceanic, long-distance telecommunications appeared relatively late. It was only after the Great Northern Telegraph Company of Denmark discovered a kind of corrosion-resistant rubber that submarine cables became a reality. Specifically in East Asia, the Qing Dynasty rejected telegraphs under a variety of pretexts, out of fear that this technology would be controlled by Westerners. It was only when the Japanese invaded Taiwan during the First Sino-Japanese War that the Qing government became aware of the importance of transmitting information electronically and laid the first cable across the Taiwan Strait to Taiwan. Afterwards, telegraph networks quickly spread all around China. The appearance of telegraphs quickly initiated the appearance of newspapers and news, and mass public opinion resulted in the rapid collapse of the Qing Dynasty,

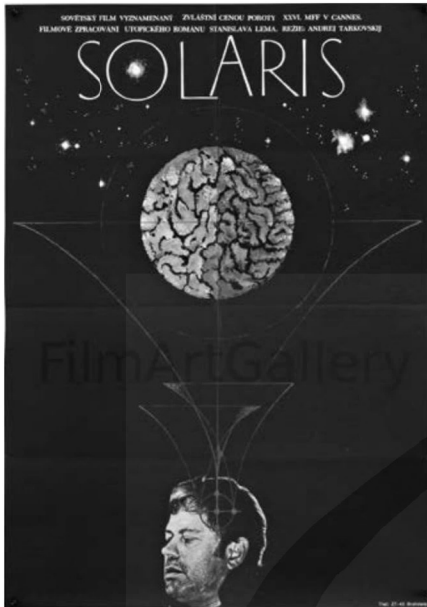
a momentous event in modern Asian history. The American photographer Sidney D. Gamble took many photos of China during the 1920s and 1930s, and in these pictures we can find some evidence of China's earliest information network.

4

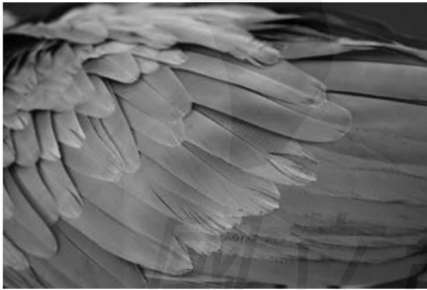
In my film (or work), I appropriated the term “ex-man.” Originally, it came from the Spanish term “ex-hombres,” coined by the Argentinian writer Horacio Quiroga (1878-1937) . In his short story “*The Exiles*” (1926), he depicted a group of white colonists stranded in northeast Argentina, in the province of Misiones. Nearly all of these white people engaged in work having to do with science. Most were chemists, biologists and engineers. Not long ago, a film titled “*Zama*” (2017) was in the theaters, and its theme is a little similar to those of Quiroga. I suspect that the director has been influenced by Quiroga. “*Zama*” tells the story of a European in a colony awaiting transfer orders from his mother country. The land he is in is beautiful, but within the Spanish empire, Misiones is the edge of the world. It is full of mysterious races and ghostly spirits. With the passage of time, the main character and his fellow colonists despair of returning home and become drunkards. Some completely lose their reason and become madmen. These are the people Quiroga calls ex-men. They possess an array of modern knowledge and technology. They have been dispatched to the fringes of the empire – the end of the world – to conduct surveys. Ultimately, as they make contact with the local tribal culture, they lose their minds, their identities, and the roles they originally had within the colonial order.



Still from the film *Zama* (2017), directed by Lucrecia Martel. Figure sourced from the internet.



Poster for the 1972 film *Solaris*, directed by Andrei Tarkovsky. Figure sourced from the internet.



A sample photo taken with a Nikon P520 camera. Sourced by the Liu Chuang Studio.

These ex-men remind me of Stanislaw Lem's depiction of space travelers in his novel *Solaris*. I feel that the two stories by Quiroga and Lem have a great deal in common. The European colonists lost in Misiones and the cosmonauts who fall into psychological collapse in the process of exploring the planet Solaris are two different varieties of colonizers, but they may both be seen as ex-men. Both groups become lost when they interact with other cultures and come into contact with nature. The European colonists use modern industrial technology to engage in surveys and mining when they arrive in Misiones. Lem's cosmonauts use earth's technologies to explore Solaris. Both writers discuss encounters between two different conceptions of the universe. They both encounter an insurmountable other. For these colonizers, both the planet Solaris and the province of Misiones are incomprehensible. They are realms beyond the ken of modernity and colonization, and any attempt to investigate or discover them is doomed to plunge into an abyss.

5

For the conclusion of my lecture, I will refer to this picture. This is a sample photo taken with a Nikon P520 camera, and it shows a phenomenon often discussed in photography forums. If you look closely at the photo, you will see a moiré pattern. This is a problem that photographers often encounter, and we also encounter it in life. For example, if you're taking a photo of someone with striped clothes, a moiré pattern might occur. In this photo, a moiré pattern appears due to interference between the digital camera's CCD image sensor and the row of feathers. The principle leading to moiré patterns has given me many insights for my field survey methods. We have discovered that when anthropologists act as observers and get too close to their subjects, what they perceive are sometimes illusions. Such misperceptions are actually very common, because the observing anthropologist always uses their own modern technology to observe a different kind of technology – that is, local technology. And contact of this kind inescapably leads to an illusory experience.