未来的野餐：
一次野餐就是一次畅饮、宴会、休憩和冥思。
我们想知道，我们会在未来的野餐中吃些什么？食物从何处来？
有无可能拥有一次野餐，可以供养并关爱森林、水、土还有人类？

THE PICNIC OF THE FUTURE:
A PICNIC IS A TIME TO DRINK AND FEAST AND REST AND REFLECT.
WE WANT TO KNOW, WHAT WILL WE EAT AT THE PICNIC OF THE FUTURE? WHERE WILL IT COME FROM?
IT IS POSSIBLE TO HAVE A PICNIC THAT FEEDS AND CARES FOR THE FORESTS AND WATER AND SOIL, AND ALSO THE HUMANS?

KATALOG

世界文化遗产啤酒花园野餐

WORLD HERITAGE BEER GARDEN PICNIC

小即是美

SMALL IS BEAUTIFUL

WORLD HERITAGE BEER GARDEN PICNIC

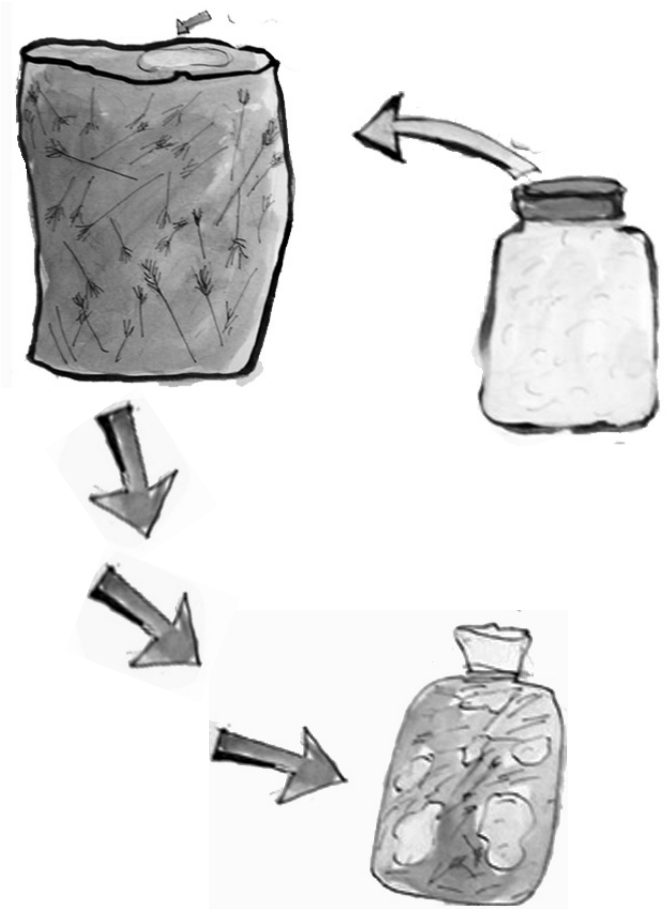
在拉市坝，我们调查了此地的土地利用、生态知识普及和资源保护。作为项目的一部分，我们试着种蘑菇并研究真菌修补来改进景观生物群落的容量，从而使生物健康生长。蘑菇能够进行生态重建，并且补充农业能量循环。它们帮助减少山坡上的土壤受到侵蚀（同时促进树木的生长），并且过滤流向湖泊和地下的水。它们还能将石油等有毒物质降解为无毒的成分，肥沃土壤。我们安放了两个装满农业垃圾及蘑菇菌丝体的篓子在海东，还有两个在海南。菌丝体在摄食玉米杆的过程中会缓慢生长，待明年降雨时，它们会长出蘑菇。我们希望农民食用这些蘑菇，而其菌丝体将改良周围的土壤并清洁流经它们的水源。

We have been researching landuse, ecological literacy and resource conservation in the Lashi Basin. As part of this, we experimented with growing mushrooms and studied myco-remediation to improve the capacity of the landscape biome to generate healthy growth. Mushrooms can be used for ecological restoration, and to supplement the agricultural energy cycle. They reduce soil erosion on hillsides (allowing trees to grow) and they filter water flowing into the lake and water table. They also can break down toxic materials such as petroleum into non-toxic components that contribute to soil fertility. We have left baskets filled with agricultural wastes and mushroom mycelia in two locations in Haidong, and two in Hainan. The mycelia will slowly grow as it eats the corn straw, and when the rains come next year, they might sprout mushrooms. We hope the mushrooms will feed the farmers, and the mycelia will improve the soil nearby and clean the water that flows through them.

世界文化遗产啤酒花园野餐

植物获取太阳能，并将其以糖分和碳水化合物的形式储存下来。对于捕获并转化的太阳能，农业是一种试图增加其产量的过程。然而，大多数农耕方式使依附于大地的生态系统趋于恶化，除非被抽离出地面的营养物质有等量或以上能够重新回到土壤中。农民的文化习俗也会加剧这种恶化，特别是当传统的生计行为（自己种植的庄稼，为日常之需而从土地中提取的资源）受到来自更大地理范围——地区、国家、全球的压力冲击时。

Agriculture is a process that attempts to maximize the output of this converted solar energy. Plants capture and store solar energy in the form of sugars and carbohydrates. Unless nutrients equivalent or greater to what has been taken out of the ground are returned to the soil, however, many agricultural methods lead to the decline of biosystems supported in the land. Farming practices often contribute to soil health, for example, when farmers use animal shit on their soil. When traditional subsistence farming is influenced by economics in the larger geographic sphere, farmers sometimes try to get too much out of the earth; this can lead to reduced fertility and damage to the soil.



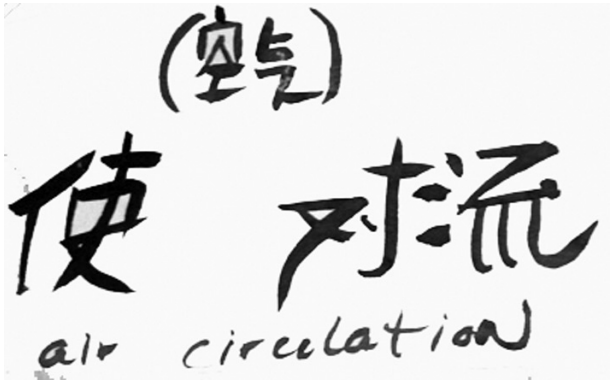
A VERY SMALL LANDSCAPE
小小景观

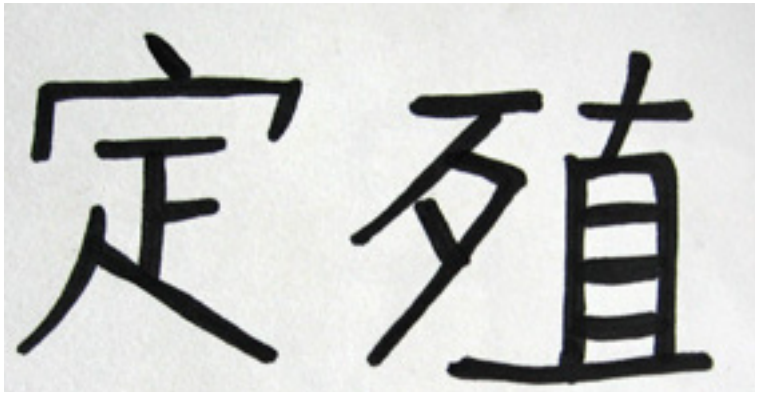
蘑菇可作为农耕的补充，它们能够从人类无法消化的废料中吸收更多的太阳能（生成糖分和蛋白质）它们摄食死去的植物物质、纸张和其他垃圾，并且在生长的过程中，改善过度耕作、过度放牧或过度喷药的土壤。他们会帮助减少山体的侵蚀（同时促进生成树和土壤），并且过滤流向湖泊和地下的水。

真菌是一种奇妙而独特的生命模式。人们对于其食用及药用价值较为熟悉，但可能并未意识到它们过滤、去除土壤和水质中有毒物质的能力。关于蘑菇如何激发一些物种长得更快，仍然有许多研究有待完成。甚至是蘑菇产生的“废料”也能改善环境。

Mushrooms complement farming by helping to extract more solar energy (as sugars and proteins) from waste indigestible by humans. They eat dead plant material, paper and other garbage, and, in the process of growing, improve the soil where it has been over-grazed or"over-permed"by agricultural chemicals. They help reduce erosion on hillsides (allowing regeneration of trees and soil texture) and they filter water that moves into the lake and water table.

Fungi are an amazing and unique life form. People are familiar with fungi as food and in medicines, but might not be as aware of their ability to filter and break down dangerous substances in the ground and water. There is still research to be done on how mushrooms can encourage some species to grow faster. Even the"waste" from growing mushrooms will improve the environment.





真菌个体由菌丝体构成，而冒出地面的蘑菇是其果实。有些真菌从不结蘑菇，但在地下会长得很大。真菌的每个部分都包含同一的遗传基因物质。在土壤中可见的白色细丝即所有健康土壤中所长有的菌丝网。它们以根茎的方式延展，朝任意方向分叉以获取食物。在摄入的营养允许的范围内，微小的菌丝可以生长得至为密集；条件良好时，它们相互包裹得极为致密，一克土壤所含有的菌丝体细胞总长可达一英里。这样的细胞团就像流水中一个无比细密的过滤器。菌丝体的妙处还在于它们分泌消化酶——好比你的胃长在你的嘴巴之外，使你能在吃掉食物之前就消化食物。这样一来效率显著——它们消化食物，继而准确吸取它们生长所需的营养物质，而它们所“浪费”的部分已分解为更简单的成分。

The body of a fungus consists of material called mycelia, while the mushroom is called the fruit. Some fungi never make mushrooms, but are huge underground. Every part of the fungus contains identical genetic material. The small white filaments you see in soil are the mycelial web that is in all healthy ground. Mycelia can move rhizomatically, branching in any direction, in pursuit of food. The tiny mycelial threads will grow as closely as nutrition allows them; a gram of soil might contain over 2 kilometers of mycelial threads. The mass of mycelial threads behave like a dense filter when liquids pass through, filtering out water impurities. Mycelia are also cool because they excrete digestive enzymes- as if your stomach was outside of your mouth, letter you digest food before eating it. This is efficient- they digest their food, and then take in exactly the nutrients they need to grow, leaving their“waste”already reduced to simpler components.

自己来种 • GROW YOUR OWN

云南是蘑菇培养的重要地区，许多人也会采集并晒干野蘑菇来增补收益。

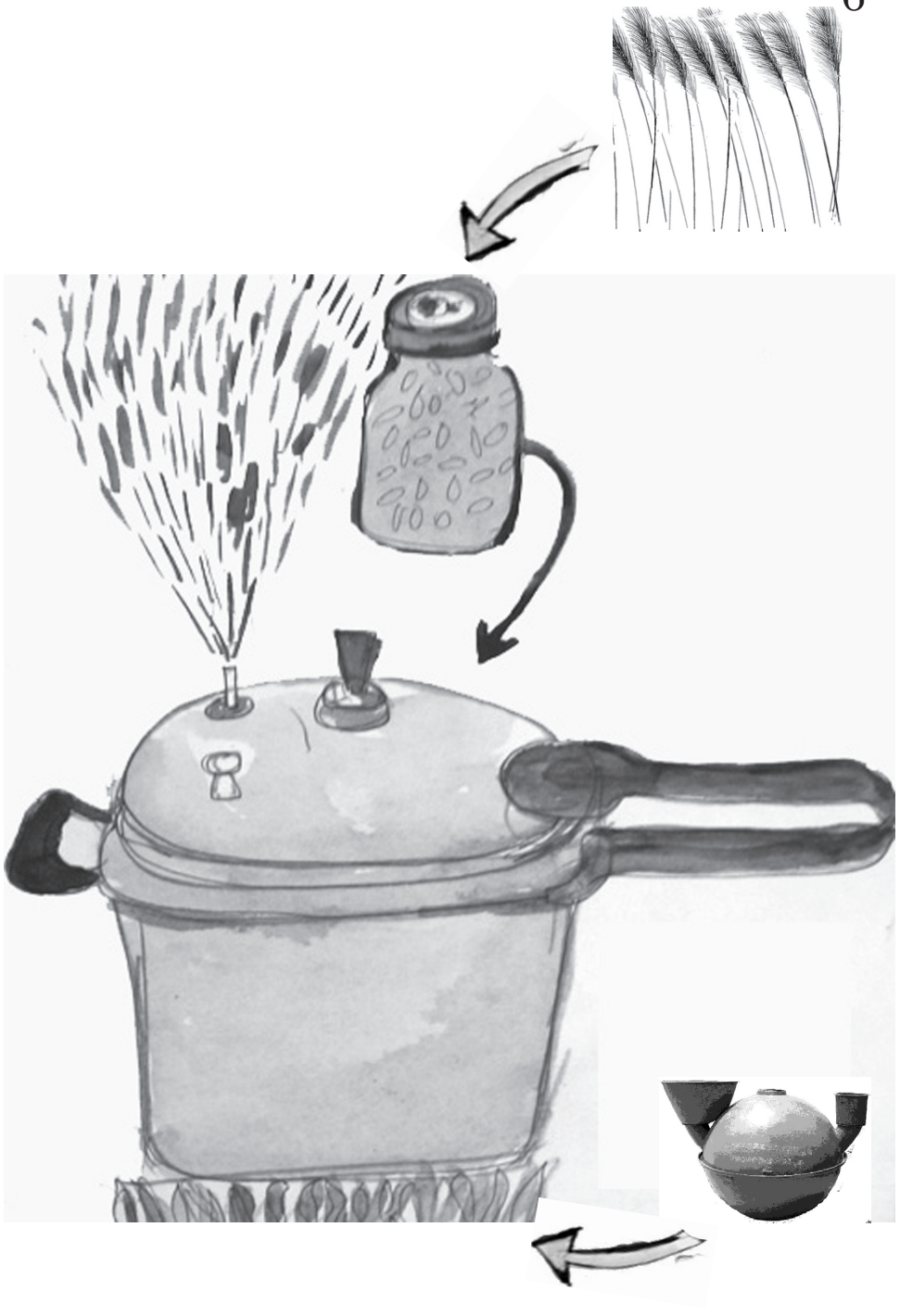
一个简单的太阳能烤箱可以快于烘干蘑菇而不用烧木柴。用硬纸板及反光纸即可制成。

蘑菇是一种美食，而它们还能清洁油污等有毒垃圾。我们种植的是糙皮侧耳（平菇）、金针菇（草菇）和鸡腿菇（毛头鬼伞），它们的商业价值均不高，但有记录表明它们在多种环境下都可用于生物修补。平菇尤其可以安全地消化汽油、柴油、杀虫剂、除草剂及其他工业和军用毒素，以及危及人类的病原体。在清理完所有这些有害物质后，蘑菇既然无害，而且美味可口！

Yunnan is an important place for mushroom cultivation and many people gather and dry wild mushrooms to add to their incomes.

A simple solar oven can dry mushrooms quickly without burning wood. It can be built with cardboard and reflective paper.

While mushrooms are great for food, they can also be used to clean up the toxic messes, like oil spills. We are growing Pleurotus ostreatus (Oyster) and Flammulina velutipes(straw mushroom). These have low commercial value, but have been documented as useful for bioremediation under different circumstances. Oyster mushroom specifically can safely digest petroleum oil, diesel, pesticide, herbicides and other industrial and military toxins, and dangerous human pathogens. They can do this becasue the structure of wood is not so different from petroleum. And after they have cleaned all the bad stuff up, they are still harmless, and delicious to eat!

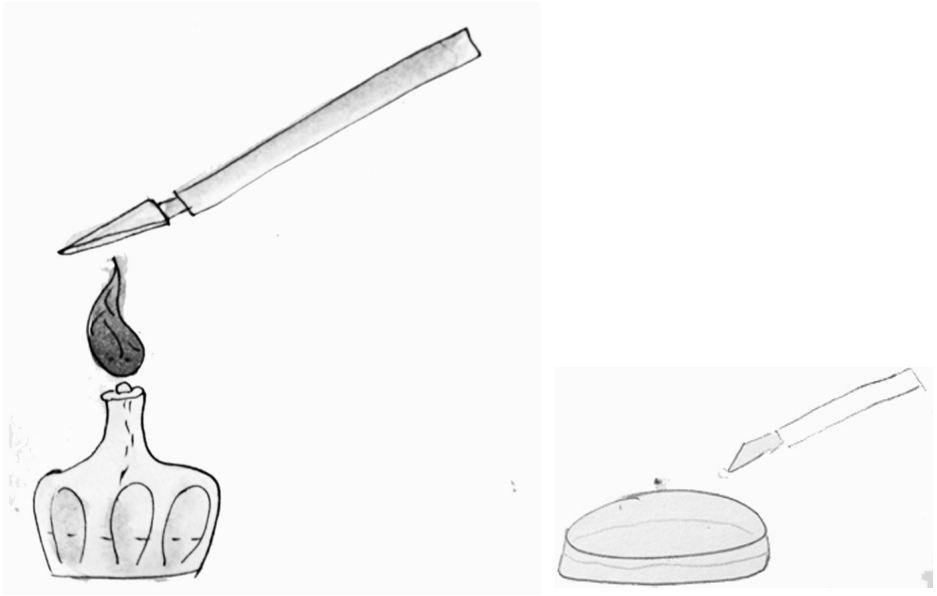


我们种植的样品有些是我们自己搜寻到的，也有些来自其他蘑菇种植户。由于蘑菇的所有部分都含有生物遗传物质，因而有可能用蘑菇的任意部分来繁殖新的菌丝体。问题在于新生蘑菇容易受到污染——各种生物体，细菌和其他真菌会企图吞食供蘑菇生长的营养物质。因此一个清洁室实属必需，同时所有的器皿、材料都得蒸煮。

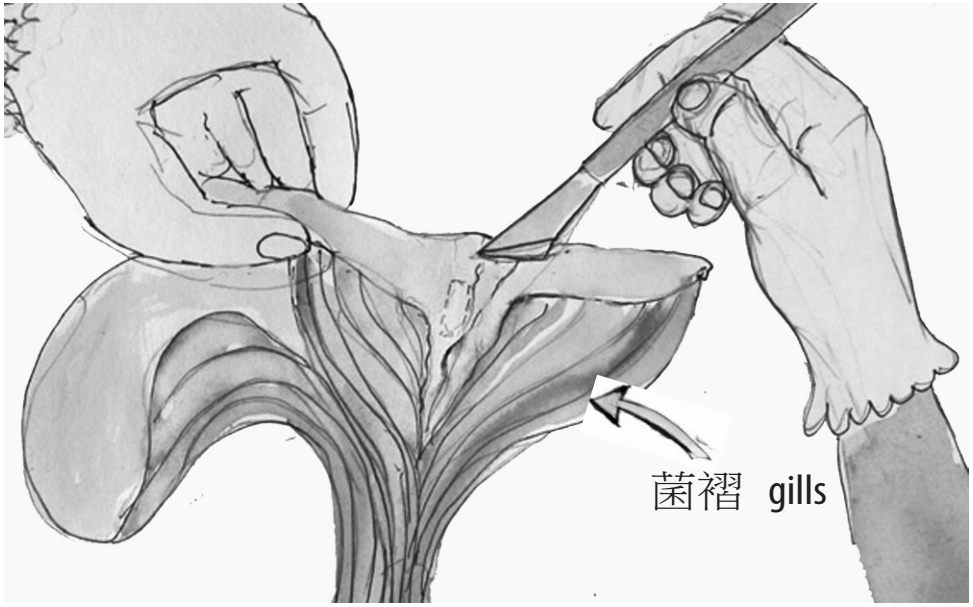
繁殖蘑菇，可将营养基如琼脂（海藻）同土豆和糖分相混合，取少量样品放在其中，置于黑暗中进行培养。当它们开始生长后，可以取下一块，移至于谷物上培养。这一过程我们使用罐子。当罐中的谷物覆满菌丝体后，将谷物撒在更大的原料（如玉米杆、木屑、稻草等）。将它们放在口袋或其他容器中。我们的菌丝体就长在装满废弃玉米和稻草的口袋中。我们在此讲述的仅仅是基本的种植法，大家可参阅如何种蘑菇的相关书籍。

The samples we grew came from foraging and from other mushroom farmers. Since all parts of mushrooms carry the same genetic material, it is possible to grow new mycelia off any parts of the mushroom. The problem is that it is easy to contaminate the new growth- all kinds of critters, bacteria, and other fungi will try to the nutrients intended for the mushrooms we are growing. This makes a clean room necessary, and also creates a need to boil all of our vessels and materials.

To propagate mushrooms, small samples are taken and placed to grow in the dark in nutritive medium such as agar (seaweed) mixed with potato and sugar. Once they start growing, you can cut a piece out and move it onto grain. We use old jars for this. Once the grain in the jar is covered with mycelia, the grain is sprinkled into larger material. Many things work; corn stalks, wood chips, straw. These are placed in bags or other containers. Our mycelia were propagated in bags of corn waste and straw. We only explore the basics here, but there are many books in Chinese about how to grow mushrooms.



Taking a sample from a mushroom. You can also start mushrooms from spores, the powder that falls out of the mushrooms gills.
取一份蘑菇的样品。亦可用孢子进行培养，孢子就是从蘑菇菌褶上落下的粉末。



SMALL IS BEAUTIFUL • 小即是美

在备受能源短缺及全球化凸现所冲击的1973年，英国经济学家EF Schumacher出版了一本名为《小即是美》的书，关注人类经济活动的水平。Schumacher说大并不一味就是好——“越大的机器，造成越大的经济权力的集中，并导　致越大的对环境的暴力侵害，这并非是进步。这是对智慧的否定。智慧需要一个新的科学技术方向，引向朴素，温和，非暴力，优雅和美丽。”他还质疑了用国民生产总值来衡量人类福利的方法：“目标应该是用最少的消耗来获得最多的福利。”这些理念鼓舞着人们去寻找一些合适的技术，以人为本，从效率出发，以此实现真正的福利。

In 1973, a year wracked by energy shortages and the emergence of globalization, a British economist named EF Schumacher published"Small is Beautiful,"a book that looks at the scale of human economic activities. Schumacher said bigger does not always mean better- "Ever bigger machines, entailing ever bigger concentrations of economic power and exerting ever greater violence against the environment, do not represent progress: they are a denial of wisdom. Wisdom demands a new orientation of science and technology towards the organic, the gentle, the non-violent, the elegant and beautiful."He also questioned the use of the Gross National Product to measure well being for humans:"the aim ought to be to obtain the maximum amount of well being with the minimum amount of consumption." These ideas inspired some to find technologies that are appropriate; human in scale, efficient in action, and productive of well-being down the line.