mandarin // latin // spanish // japanese // danish // czech

SCHOLASTIC EDITION № 5 TWENTY NINETEEN TWENTY TWENTY

the view

the ripple effect

saint stephen's episcopal school x water is life

THE RIPPLE EFFECT

saint stephen's episcopal school x water is life

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Maria Erquiaga, *Editor-in-Chief*
Maria has worked with The View for the past two years. She has studied Latin for the last six years, and studied Spanish both at school for eight years and at home by connecting with her Cuban heritage. Although not planning to pursue language in the classroom, Maria hopes to increase her exposure to different languages through traveling and continuing to study vocal music.

Katie Lin, *Design Editor*
Katie has been studying Spanish for eight years, and has been designing The View for 2 years. At Saint Stephens, she's developed a love for photography and design. In addition to her artistic passions, she has studied Spanish abroad in Spain with a host family. She plans to study business, utilizing her design skills further in a company.

Annie Class, *Latin Editor*
Annie has been studying both Spanish and Latin for around five years, and began work as a Latin editor for The View this year. She has had a sincere interest in the Classics (specifically the classical languages) since joining the Junior Classical League in the seventh grade. Through her avid participation in the school's chapter, she has not only been given the chance to participate in testing and 'certamen' teams at the regional, state, and national levels, but in her sophomore year became a state officer for Florida. In college, she wants to pursue a major in Classics or Linguistics.

Kassandra Haakman, *Latin Editor*
Kassandra is in her sixth year of Latin. She has explored a higher understanding of Latin through her participation in the Saint Stephens chapter of the Junior Classical League. She developed an interest in Latin due to its ties to Roman culture, and is interested in further studying the connection between language and culture. Kassandra plans to continue studying languages in college, where she will pursue French and Dutch.

Augustus Bayard, *Spanish Editor*
Augustus has been studying Spanish ever since he came to Saint Stephens seven years ago, and is taking AP Spanish Literature and Culture this year. He has enjoyed being able to authentically practice his Spanish on two trips to the Dominican Republic with Outreach360. After being a Spanish contributor for The View last year, he now works as the Spanish editor for the magazine. He wants to continue pursuing his interest in languages in college, perhaps by learning another language or further exploring the nuances of literary translation.

Anna Zhang, *Mandarin Editor*
Born in Shenzhen, China, Ruoyu (Anna) Zhang is a senior at Saint Stephens. Anna has edited Mandarin for The View for the past three years. She grew up in China before moving to the U.S. for high school. Growing up in a very diverse family, Anna traveled to many different European countries at a young age. Deeply moved by the splendid cultures of different countries, she wants to help cultural exchanges between nations.

EDITOR'S LETTER

Dear Reader,

The View has always aimed to explore not only the differences between languages and cultures, but also our common ideals and human experiences. Few concepts or objects have had quite as universal a role in human development as water. Regardless of our backgrounds, water impacts us: it connects and divides us, exerting a power over civilization that can be traced through our past, present, and future. Inspired by this and by the 2020 "Water is Life" international conference, we at The View have explored how water has shaped our cultures over time.

Water has affected our literature, history, and art; our dependence on it spurs research and environmental advocacy. Within these pages, you will discover topics spanning all these areas. No student— no person— views water exactly the same way, and we hope that the different perspectives we present will bring you new insights on the world's most valuable resource.

This year, we've sought to create more ripples and perspectives by featuring more writers of varying nationalities, languages, and ages. We've published articles by four of our sister schools; our articles are written in seven languages; we've included pieces by intermediate and middle school students in addition to our core upper school staff.

We'd like to acknowledge our contributors and those schools that planned to participate in "Water is Life" this summer. As the conference has unfortunately been cancelled, it must be noted that life, much like the water it depends on, has its way of reordering the world. However, while it may divide us here, it nevertheless continues to connect us as we research and share ideas about our planet and future. With that connection in mind, it's our hope that our perspectives and discussions will broaden your understanding of how water influences culture, and how its ripples echo in society today.

Sincerely,
Maria Erquiaga
The View, Editor-in-Chief

Water is Life Participants:
Canterbury School of Florida
Centro Federal de Educacao Tecnologica de Minas Gerais
Collegi Mare de Deu del Carmen
d'Oultremontcollege
Detroit Country Day School
Dillmann Gymnasium
Framhaldsskolinn a Laugum
Hatfield Christian School
Hwa Chong Institution
John Monash Science School
IV liceum Ogolnoksztalcace im Mikolaja Kopernika w Rybniku
Makuhari Senior High School
Manatee High School
Maurick College
Nguyen Tat Thanh Lower and Upper Secondary School
Oak Bay Senior High School
Palmer Trinity
Raffles Institution
Riverview High School
St. Odulphus Lyceum
Saint Stephen's Episcopal School
Scotch College
Shibuya Senior High School
Sir Karl Popper Schule Wiedner Gymnasium
Vespucci College

MANDARIN 中文

The Inner Workings of Chinese Imports and Exports

中国进口和 出口的内部运作

By Angel Dai

As we know, many items in our lives are “Made in China”: clothing, shoes, toys, sports equipment, office supplies, computers, furniture, and electronics including phones. Therefore, it stands to reason that China has many factories and workers to provide products for the world. However, what exactly is China’s role in global trade? Does China import and consume as many items as it exports? How did China begin trading, anyway?

China has been trading extensively throughout the ages, but some of the earliest and most significant trading voyages of China were the Ming treasure voyages. For 28 years, Zheng He led ships over the Indian Ocean to trade and build relationships with faraway states. Due to their reliance on naval transportation, the Chinese were able to socialize with various coastal states that couldn’t be reached via land routes. From then on, China started to attract attention from the world. Zheng He traded Chinese materials like silk in exchange for fascinating goods such as giraffes, zebras, lions, and elephants. This contributed to the development of early menageries and zoos. Moreover, the treasure voyages created global connections for stable trade and exchange.

众所周知，我们如今的日常生活当中许多物品是产自中国。我们的衣服，鞋子，日用品甚至电子产品都有“中国制造”的标签。这一定意味着在中国有大量的工厂以及工人为世界提供产品！那中国内部情况如何？他们进口和消费商品和出口的一样多吗？等等，这些贸易是什么时候开始的？

中国的对外贸易可以追溯到很久以前的明朝，中国最早期并且最为重要的一次贸易航行是”郑和下西洋”。“郑和下西洋”是明代永乐，宣德年间的一场持续了大约28年之久的由郑和带领的海上远航活动。郑和带领着船员们周游大西洋，与各国进行贸易往来。由于这是海上航行，中国可以许多无法通过公路贸易系统到达的沿海国家取得了联系。这使中国开始打开了与全世界建立关系的大门。郑和带来了丝绸等中国商，作为回报，他得道了当时令人“大开眼界”的商品。中国接收了长颈鹿，斑马，狮子和大象等动物。“郑和下西”增强了世界贸易和交流的的发展。

Now, China is the leader of global exports, sending goods to the United States, Japan, Germany, and South Korea. In 2017, China alone exported $2.41 trillion worth of goods. The country’s main exports include electrical machinery and equipment, accounting for around 26% of total exports. This includes the components of Apple products which are used by millions. The Chinese export market is so substantial that President Obama started the Trans-Pacific Partnership to exclude China and outbalance the Chinese market. Although the United States has now withdrawn from this partnership, other countries are continuing to act within this agreement, while many American companies now outsource their production to China, belying these efforts to match China’s exportation rates.

Given their massive export network, what does China import? In 2017, China imported items that are worth $1.54 trillion. The Chinese have balanced their exports and imports to maximize earnings; their major imports are mineral fuels, iron, copper and coal. Many of these imported fuels are used to create heat and electricity for China’s humongous population. Factories likewise use this imported fuel to produce objects for export as well as China’s daily needs. In addition, China imports foodstuffs such as soybeans to supplement its agriculture sector.

China’s growing trade starting from 2009 has given a new rise to its economy. With its massive role in commerce and investment, China has developed the second-largest economy in the world. China has created a stable and productive economy that supports large-scale manufacturing. Not only does this manufacturing and global trade allow other nations to purchase mass-produced goods, but it also gives China a solid financial base. China has generated waves of trade in all directions since ancient times, in return, China has received significant profits and national development.

中国是如今世界上最大的出口国。主要目的地是美国，日本，德国以及韩国。2017年，仅中国就出口了价值2.41万亿美元的商品！中国的主要出口商品就、是电机和电气设备，占出口总额的26%。这也包括了目前数百万人使用的苹果产品的、组件。中国的出口市场如此之大而导致的贸易逆差，使美国前总统奥巴马发起了“跨太平洋伙伴关系协定”条约，并将中国排除在外。尽管美国现在已经退出了这项条约，他们还是在试图使用这个方法来逆转中美贸易逆差,与此同时美国的很多贸易公司试图赶上中国的生产力度来打破这个不平衡的局势。

中国向世界出口了这么多商品，那他们进口什么？2017年，中国进口的商品总值1.54万亿美元。相比之下，中国则平衡了进出口数据，以获得最大的收益。他们的主要进口是矿物燃料，铁，铜以及煤，这也不足为奇。因为庞大的人口也带来了市场用品所需的燃料。供暖和发电都需要燃料来提供动力。这意味着过去生产出口物品和日常生活物品的工厂需要大量进口到中国燃料。农业部门也开始更多的依赖大豆等进口，大豆是中国烹饪的重要组成部分。

自2009年以来，中国一直保持着稳定的贸易增长。投资及贸易使中国成为了世界第二大经济体。中国已经创造了一个稳定而富有成效的经济体系来支持大规模的制造业。这种交易不仅通过购买大量生产物品给世界带来了好处，还为中国自身的稳定提供了资金基础。中国掀起了全方位的贸易浪潮，作为回报，中国同时也获得了丰厚的利润以及全方位的发展。

Water Is Life
水是生命的源泉

By Amna Li

Water is the source of life, sustaining plants, animals, and humans. The development of society is likewise dependent on water. Water provides the energy that makes life possible. Water makes evolution and great development possible.In all seriousness, it is not an exaggeration to say that water is the most important source of life.

Theoretically, the earth shouldn't lack water resources; rather, the earth should have water in abundance. Our earth stores up to 1.45 billion cubic kilometers worth of water. Why would life on earth lack water. In reality, out of the 1.45 billion cubic kilometers of water, 97.5% are seawater that is not drinkable. This means that only 2.5% of Earth's water is freshwater. And 70% of that freshwater is found in the icebergs of the North and South Poles, beyond our reach. The freshwater that we can use only takes up to 0.3% of the total supply, and only five-thousandths of that freshwater can be consumed by humans. As the population grows, Earth's water supply is dwindling. Many trees, towns, and fields have been engulfed by expanding deserts. This decrease in freshwater supply affects both our survival and the economy. 26 countries, home to 40% of the earth's population, are facing a water resource crisis. In developing countries, one billion people don't receive and consume clean water. Unclean water is the cause of 80% of China's illnesses. 25 million die from water-borne illnesses every year, equating to about 6000 individuals per day. Many who succumb to these illnesses are children.

China has two large, well-known rivers, the Yangtze River and the Yellow River, as well as numerous smaller rivers. Although the country has a rich store of water, China is still short of water supplies. There are 2300 cubic meters of water per capita in the nation. This is only a quarter of the water per capita in other countries. Simultaneously, China has an uneven distribution of water supply throughout different areas. The drainage basin of the area north of the Yangtze River accounts for 63.5% of the land, but the water supply only takes up 19% of the whole country. Two out of three cities in China lack water and 110 of those water-deficient cities have an impactful water shortage. The daily water shortage in the cities is 16 million cubic meters, and this water shortage damages an industrial output worth at least 200 billion per year. It also affects around 40 million people in the city, and 30 million people in the countryside have water consumption difficulties.

Wasting water and water pollution are also problems that need to be solved. 24% of China's population drinks poor quality water, about 70 million people drink water with high fluorine content, and approximately 50 million people drinking chloride water, especially in provinces north of the Huaihe River. 30 million people drink water with excess nitrate; 300 million people drink excessive iron. Half of the population doesn't receive potable water. Two-thirds of the people in the countryside rely on polluted water. China suffers from severe manmade pollutions to the environment; currently, the daily waste that goes into water exceeds 300 million tons, 80% of which goes directly into the water supply without any processing. Thus, rivers, lakes, and reservoirs are each distinctly and dangerously contaminated. Simultaneously, China's use of water is also highly inefficient. Its water consumption per unit of GDP is 8 times that of the United States and 11 times that of Germany. This inefficient use of water is yet another factor in China's water shortage.

This issue isn't exclusive to China but globally. Water shortages are affecting all individuals. In the words of one sage, "If humans continue to destroy and waste water resources, then the last drop of water humans will ever see will be their tears". I ask you, then, please value water and use it wisely: every small, conscious action can make a difference.

水是生命之源，人类与动物维持生命需要水，植物的生长也需要水，世界上不管什么生物都离不开水。可以说，水才是真正的无价之宝。水孕育了大千世界，芸芸众生，水为生命提供能量，让生命能够存活，水使生命继续发展，越来越兴旺，越来越发达。所以说，“水，是生命之源”，是毫不夸张的。

说起来，地球的储水量应不缺乏，相反还是很丰富的，据说地球共储水达14.5亿立方千米之多，生活在地球上又怎么会缺水？但事实上，其中97.5%都是苦涩的海水，淡水只占2.5%，而且其中70%还是南，北两极的雪和冰山，对我们来说只是可望而不可及的。据资料显示，地球上能够被人类直接利用的淡水资源，仅占地球的0.3%，而淡水中可供直接饮用的的只有千分之五。随着世界人口增长和经济的快速发展，地球的水资源储备正在走向枯竭。目前，地球上绝大多数的地区都严重缺水，许多树木，村庄和田地已被沙漠吞噬，沙漠面积正在逐渐扩大。淡水资源的减少已成为了影响人类的经济建设的重要因素，并威胁着人类的生存。根据统计，拥有世界人口40%的26个国家正面临水资源危机，发展中国家约有10亿人口喝不到清洁水，80%的疾病由饮用不清洁水引起，并造成每年2500万人死亡，每天约6000人，而这些死亡者中的大多数是儿童。

我国拥有长江，黄河两条世界闻名的江河和众多的大小河流，全国水资源总量虽然丰富，但仍是一个缺水的国家，人均水资源占有量为2300立方米，仅为世界人均水资源量的四分之一,同时，我国水资源在地域上分布不均匀，长江以北水系流域面积占国土面积的63.5%，水资源却占全国的19%，使我国一些地区水资源严重不足，全国600多个城市有400多个城市缺水，缺水比较严重的城市有110多个，全国城市日缺水量为1600万立方米，每年因为缺水影响工业产值2000亿元以上，影响城市人口约4000万人，全国农村还有3000多万人饮水困难。

水资源浪费和污染也是急需解决的问题。中国水资源的污染极为严重，全国有24%的人在饮用水质不良的水，约有7000万人在饮用高氟水，尤其在淮河以北的省份极为突出，约有3000万人在饮用高硝酸盐水，5000万人氯化物水，3亿人饮用水含铁超标。一半的人口无法获得安全的饮用水，三分之二的农村人口依赖于受污染的水。我国水污染中的人为污染十分严峻，目前全国的日排放量已超过3亿吨，其中80%以上未经任何处理直接排入水域，使河流，湖泊，水库遭受了不同程度的污染。同时，我国的水资源利用率也非常低下，我国的单位GDP用水量是美国的8倍，德国的11倍，利用率之底已成为我国水资源短缺的又一因素。

水资源短缺成了当今世界面临的重大难题，有人说过：“如果人类继续破坏水资源和浪费水源，那么人类看到的最后一滴水将会是自己的眼泪。珍惜水资源，惜水，爱水，节水，从我做起！

China's Boat People
水上人

By Jules Pung

Every morning, a quiet suburban community wakes to prepare for work. But unlike the hustle and bustle of the city nearby, no one ever has to deal with early morning traffic jams, much less leave their homes for work; in fact, this particular neighborhood has no roads at all. Everyone has the same backyard, the same jobs, and the same tools, including a net, a set of wooden oars, calloused hands worn with years of hard labor, and a lifetime's worth of fishing skills.

Along China's southeastern coast reside approximately 7,000 Cantonese sea-farers collectively known as the Tanka, or, more simply, the "boat people." The floating village in Datang, the Guangdong province, is home to the largest Tanka population in the nation. Like the generations before them, many men and women here spend their days fishing and collecting clams, selling their catch to various local markets onshore.

While this tradition can be traced back to ancient times, the exact origin of the Tanka people remains

每天早上，一个安静的郊区从睡梦中醒来准备开始一天的工作，可是哪里的日常通勤不像附近喧嚣城市，无需经历交通堵塞。有些人甚至无需离开家去工作。实际上，这个邻里连路都没有。所有人的家里有着一样的后院，他们干着同样的工作，用着相同的工具：一张网，一副木桨，因为多年的辛苦劳作而磨出的老茧，以及一生的捕鱼技术。

在中国东南海沿岸，有大概七千的广东渔民。他们被称之为“蜑家”或”蜑人“。在广东大塘的一个渔村有着中国最大的‘蜑家’人口。那里的男人和女人们继承了祖辈的事业，每天忙碌于捕捞鱼和蛤蟹，然后出售于海鲜市场。

虽然这样的生活方式可以追溯到古代，（追本溯源）但是历史上并没有对“蜑家”的出现有明确记载。他们被普遍的认为是与汉族完全不同的名族。（汉族是中国最大的名族）事实上，“蜑家”起源于香港。蜑人在汉族于清朝时期从北部入侵以后迁移至最南部，因此他们必须适应打鱼的生活方式，久而久之，他们遗忘了自己的本土语言和传统。

unclear. Most speculate that they are distinct from the Han Chinese --- the main ethnic group in China --- instead, they belong to an indigenous group once centralized in modern-day Hong Kong. Following an aggressive northern Han invasion during the Qin Dynasty, the Tanka fled further south, where they were forced to adapt to life on the water and abandon much of their original language and customs, eventually integrating entirely into Cantonese culture. Today, they are recognized by the Chinese government as an ethnic subclass of the Han.

But even with such long-standing roots, these boat dwellers are now gradually deserting their homes altogether. Fish in the rivers and streams are not nearly as plentiful as they once were, a result of decades of water pollution. More pressing, however, is the fact that the tradition has largely become obsolete. In the midst of rapidly growing industry and urbanization in Guangdong, the younger generation prefers life on land in search of better work opportunities. China's government, too, is attempting to relocate those who remain on the water into suburban communities.

Yet, even as many try to resist relocation, others have accepted what their uncertain future will bring. Fishing, they argue, is merely a method of survival, rather than a permanent lifestyle.

"We have no choice but to hang on to our old way of life, because it's the only skill we know," 59-year old Chan Kuai-hung said. "...[but] I don't want our tradition to be preserved if the younger generation doesn't want to keep it."

From the beginning, the story of the Tanka has been one of remarkable resilience. Dissolved and fragmented as they might become, their legacy will be shaped by a key characteristic: the ability to adapt and thrive in an ever-evolving, ever-changing world.

While water often represents life and vitality, it is also a universal symbol of change. Depending on its surroundings, it can condense into something hard, rigid, and unyielding. Or it can flow freely with no set design, taking the shape of its container. Whatever the fate of China's "boat people", their "fluidity" will undoubtedly play a role in their changing impact and legacy.

最近，他们被中国政府列入少数名族行列。虽然他们曾经有着自己悠久的历史文化，但是随着社会的发展，“蛋家”的捕鱼传统渐渐被抛弃，因为河流以及水域的污染，越来越少的干净水源可以为“Tanka”人提供充足的生活物资，渐渐的这个传统淡出了时代的潮流。由于广东的城市和行业的快速发展，新一代的年轻人为了在城市找更好的工作而选择不再遵从旧的生活方式。

中国政府也开始实施拆迁补助的方法来鼓励“Tanka”人回到陆地上。当有些人抵制搬迁时，有些则接受拆迁带了的渺茫前途。现在，捕鱼对他们来说只是讨生计的方法，而不再是一种生活方式。

一位59岁的老翁说：“我们只能保持着这种古老的生活方式，因为捕鱼是我们唯一会做的事情，但如果晚辈不想继承这个传统，我们老一辈也不会指望这个习俗可以流传下去。”

从一开始，Tanka的故事就充满了非凡的韧性。尽管它们可能会分崩离析，但它们的遗产将受到一个关键特征的影响: 在这个不断演变、不断变化的世界中适应和发展的能力。

当水常常代表生命和活力，同时它也是变化的象征。它可以根据周围环境的变化凝结成坚硬的、刚性的、不屈的东西。更甚，它可以自由流动，根据其容器的形状而变化多端。无论中国“渔家”的命运如何，他们的极强的适应性无疑将在他们不断变化的影响和遗产中发挥作用。

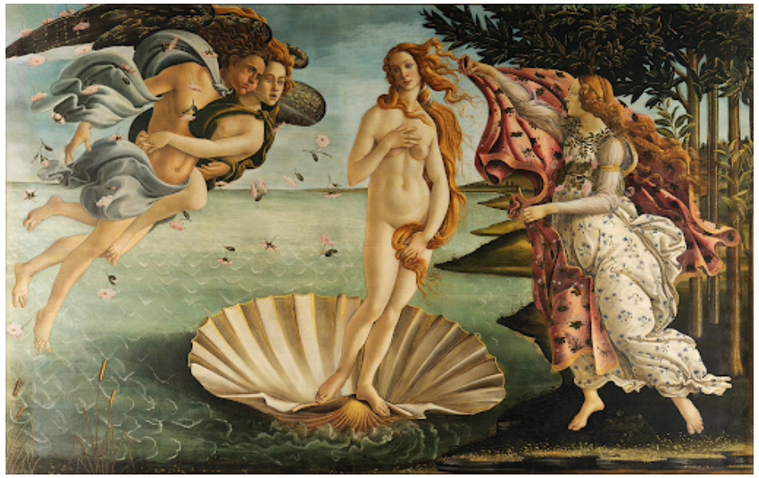
LATIN
LATINA

The Birth of Venus
Partus Veneris

By Sophia Berry

Emerging from the sea, Venus was born from the blood of Ouranos and ocean foam. And so, for Venus, water is life itself. Although Venus's is one of the more unusual mythological births, her origins feature prominently in myth and have inspired many works of art. Not only did this story affect the culture of ancient Rome, but it even is a great part of the Renaissance. There are many famous paintings of Venus in the Renaissance, but none more famous than Boticelli's The Birth of Venus. Similarly, the scene of Venus' birth is a most common one for ancient Roman artists both on frescoes and mosaics. Venus is often depicted bathing or emerging from the sea accompanied by the Graces. Venus, also known by her Greek name Aphrodite ("aphrodites" meaning "foam"), was considered to be among the most important in the Roman empire, and her temples and cults were built throughout the Mediterranean. Worshipped so widely and by so many different peoples, Venus had many different cult names. One of these is seen in Roman festival the Veneralia which took place in April. This festival celebrated Venus Verticordia ("Venus, the Changer of Hearts"), where men and women used to ask Venus for help with their love lives. Other names of the goddess are fusions of Venus with goddesses from other cultures. One good example of this is Venus Cloacina (Venus the purifier). This cult joined the Etruscan water goddess Cloacina to Venus and worshipped them as one. Finally, we also see Venus worshipped by the name Star of the Sea, a protectress of seafarers, an example that once again shows Venus' connection to the sea, the water of her birth. Just like the Greeks, the Romans looked at the goddess Venus, the goddess of life itself, and saw water at the heart of her.

Crescens a mari, Venus a sanguine Urani spumoque Oceani nacta est, itaque Veneri, aqua est anima ipsa. Quamquam ortus Veneris est mirabilior inter ortus deorum, tamen ortus Veneris in in fabulis deorum identidem notatur et multa magnaque opera artis excitat. Non solum haec fabula cultum Romanum antiquum affecit, sed etiam est magna pars Renovamentis. Multae sunt picturae Veneris clarae in Renovavente, sed nulla est clarior quam Ortus Veneris, quae a pictore Boticelli picta est. In modo simili, imago ortus Veneris est celebratissima facta ab artificibus Romanis, et in tectorio et in lithostroto. Saepe Venus in picturis ostenditur aut se lavans aut cum Charitibus e mari oriens. Venus, quoque nota est nomine Graeco Aphrodite ("Aphros" significat "Spumum"), magnam auctoritatem in Imperio Romano tenuit, et templa et cultus per omnes oras Maris Nostrae aedificata sunt. Venus, tam longe lateque a tot gentibus culta, multa et varia nomina cultuum habuit. Unum ex his apparet in feria Romana, nomine Veneralia quae in mense Aprili celebrabatur. Haec feria Venerem Verticordiam ("Venerem, Mutatricem Cordum") celebravit. In hac feria, viri mulieresque Venerem ut auxilium in amore inveniendo daret rogabant. Alia nomina deae sunt iuncta cum deabus ex institutis aliarum gentium. Bonum exemplum est Venus Cloacina (Venus quae lustrat). Hic cultus iunxit Cloacinam, deam Etruscatam, cum Venere et duae deae ut una culta est. Denique, videmus Venerem cultam esse nomine Stellam Maris, Conservatrix nautarum quod exemplum iterum ostendit Venerem esse coniuncta cum mare, cum aqua sui ortus. Sicut Graeci, Romani vidit deam Venerem, deam vitae ipsius, et aquam in eius corde vidit.



The Birth of Venus by Sandro Botticelli

1

Naumachiae
Naumachiae

By Annie Class

When you think about ancient Rome, what comes to mind? You may think of the Colosseum, which held gladiatorial fights and wild animal hunts. You may wander to the emperors, and picture their grand, triumphal processions. However, did water come to mind? Did you picture ancient Romans cheering on war prisoners forced to fight each other to the death in gruesome, mock naval battles? Unless you were keen on the Classics, you may not have known about this kind of fighting. After all, most are unaware of one of the most interesting public spectacles in ancient Rome: naumachiae.

Naumachiae began in 46 BC to celebrate Julius Caesar's return and victory over Pompey the Great. A large, artificial body of water, built by engineers and fueled by the Tiber River, was created in the Campus Martius. Ordinary citizens slept in the streets the night before, waiting to marvel at the naval battle between the Tyrian and Egyptian fleets. Prisoners of war, citizens sentenced to death, and even volunteers (all considered naumachiarii), awaited their cruel fate aboard the ships. These initial naumachiae established the expensive, complex tradition into Roman culture, a tradition that thereafter would take place in various lakes, straits, and even the Colosseum, put on by individuals as prominent as Sextus Pompeius and the Emperor Claudius.

The influence of these mock battles can be seen in later European cultures. King Philip IV is known to have put one on in the Buen Retiro Palace in Madrid, while, in 1755, one was put on in Valencia to celebrate a priest's ordination. The "aqua theater" genre in London in the 19th century was directly based off naumachiae. Even today we can see that we create modern reenactments of old sea battles very similar to the naumachiae of ancient Rome. Our movies Midway and Pearl Harbor show that the people still want to see modern naumachiae. Thus we can see ancient civilizations influence all aspects of the modern age and show the lasting effect of water on life.

Cum de eventis in Roma antiqua existimas, de quibus existimas? Forsitan de Colosseo, quod pugnas gladiatorum venataque tenebat, existimes. Forsitan imperatores existimes et suas pompas magnasque cogites. Aquamne autem existimavisti? Romanosne antiquos hortantes captivos belli, qui pugnare inter se ad mortem in crudas naumachias coacti sint existimavisti? Si linguis antiquis non studeas, de hoc modo pugnandi nescias. Nam plures personae nesciunt de hoc ex attractivissimo imagine in Roma antiqua, nomine naumachiae.

Naumachiae in XLVI AC coeperunt ut reventum Iulii Caesaris et victoriam in proelio super Pompeium Magnum celebraret. Lacus magnus et artificiosus, qui a fabris compositus erat et Tiberino nutritus erat, in Campo Martio factus est. Nocte superiore vulgus, expectans mirandas naumachias inter Tyrios Aegyptosque in viis dormiverunt. Captivi ex bellis, cives damnati mortis, quoque voluntarii, omnes nominati naumachiarii, in navibus fata crudelia expectaverunt. Hae primae naumachiae mores sumptuosas multiplicasque in cultu Romano traditione instituerunt. Mos, quae postea in lacibus et in angustis et adeo in Colosseo fiat, ab hominibus tantae auctoritatis quam Sexto Pompeio et imperatore Claudio edita est.

Auctoritas naumauchiarum in cultu postero Europae videri possunt. Dicitur rex Philipus IV naumachias in aula nomine Buen Retiro Matrice edidisse, atque anno Domine MDCCLV alteram Valenciae anno Domine MDCCLV ad celebrandam ordinem sacerdotis editam esse. Londini saeculo undevicensimo genus theatri aquae originem ex naumachiis habet. Etiam hodie possumus videre nos renovamen naumaciarum antiquarum modernum simillimum naumachiis Romae antiquae edere. Nostrae pelliculae "Mediolocus" et "Portus Margaritarum" populum adhuc naumacias modernas videre velle demonstrant. Hoc modo videmus alium modum in quo cives antiquitatis omnes partes aetatis modernae adficit et effectum aquae perennem in vita monstrat.

1. *Naumachia* by Ulpiano Checa

Making Waves in Medicine: Hippocrates
Undas in Medicina Faciens: Hippocrates

By Tony Rapold

Hippocrates is considered the most famous ancient physician of all time. He is most known for the Hippocratic Oath, which is taken by all physicians today. According to myth, Hippocrates was such a great doctor that he was said to be the son or relative of Asclepiades, the god of medicine. On top of all of that, he acted as an important agent in the unification of ancient medicine.

Hippocrates was easily the most influential physician of the ancient world, and he made waves throughout the Mediterranean Sea in the field of medicine. Born on a small island in the Aegean Sea, Hippocrates expanded beyond his home and studies. He traveled into Macedonia, Egypt, and Greece for many years, eventually returning to his home in Cos to begin the first medical school. During his travels, he had a mutually beneficial relationship with every town he visited: he both brought his own ideas on how to fight disease and gained experience from every town. When he had finally returned to his home, Hippocrates was a living capsule of the collective medical knowledge of the entire Aegean Sea. Hippocrates used both his experiences and godlike ability in the art of medicine in order to lead his school, which was dedicated to control disease and restraining pagan healing rituals. Ths school also worked to spread medical knowledge throughout the Mediterranean. His school's teachings and writings were spread largely by trade routes on the water, and some of his students even made their way to England. However, Hippocratic Medicine was not limited to just the Mediterranean Sea or the Hellenic period, for its effect is felt even today throughout the world.

Hippocrates and his school developed all kinds of treatments for existing diseases, but one of his most famous and relevant remedies was "The Water Cure": Hydrotherapy (bathing in normal water) Balneotherapy (bathing in springs) and Thalassotherapy (bathing in sea water). All of these therapies used water as a medicine, some for muscle therapy, some for skin treatment, and many others for other uses. These applications were all based upon the four Humors, an idea generated by the Hippocratic school. The four humors are about balancing the elements— earth, air, fire, and water — in the body, in the forms of normal bodily fluids and organs —black bile, yellow bile, blood and phlegm. The school of Hippocrates mastered the use of medicinal water in these ways and many others.

Hippocratic medicine has had a massive ripple effect on the medical world from antiquity all the way through today with the Hippocratic Oath. In the Roman Empire, doctors such as Galen viewed Hippocrates as their teacher. In the Medieval Ages, Hippocratic medicine was the only resistance to pagan healing, which was proven to be extremely dangerous. For this reason, Hippocratic influence was a very important factor for medicine, and this started with one man who truly made great waves in medicine.

Hippocrates clarissimus medicus in omni aetate appellatur. Hic est notissimus propter iusiurandum Hippocraticum quod ab medicis hodie iuratur. De mythologica, Hippocrates tam bonus medicus erat ut dicitur filium aut propinquum Aesculapii, dei medici. Insuper, erat persona amplia in unitate medicinae antiquae.

Hippocrates facile valentissimus medicus in mundo antiquo erat. Natus in insula maris Aegaei parva, Hippocrates et domo et ex disciplina ibi excessit. Inter Macedoniam et Aegyptum et Graeciam multos annos commeabat, tandem domum suam rediit ad ludum primum medicorum constituendum. Dum itinera facit, cum omnibus oppidis quae visitabat beneficia mutua inter se habebat: et tulit secum cognitiones suas de modis quibus contra morbos pugnare posset atque cognitiones et peritia rerum ex oppidis omnibus didicit. Cum ad domum redisset, Hippocrates fontem viventem scientiae medicinae in mare Aegaeum factus est.

Hippocrates et peritia facultatibusque divinis artis medicinae usus est ut ludum suum duceret, qui coercando morbum et rituales curantes paganorum deditus est. Ludus quoque laboravit ut scientiam medicinae per mare nostrum divulgaret. Disciplina scripturaque ludi sui commerciis aquae divulgabantur, et nonnullae usque ad Britanniam advenerunt. Tamen, medicina Hippocratica non fere mari nostro aut aetate Hellenico circumscripta est, nam per omnes terras orbis hodierni effectus etiam sentitur.

Hippocrates et ludus suus remedia morbis praesentibus fecerunt, sed unum e clarissimis sempiternisque remediis erat "Remedium Aquae": θεραπεία ὕδατος, actio lavantis in aqua naturalis et θεραπεία θερμῶν, actio laventis in aquis, et θεραπεία θαλλάσης actio lavantis in aqua maris. Omnia haec remedia usa sunt aquis medicinae; alia erant remedia musculis, alia remedia cutis et alia erant ad multa alia curanda. Applicationes e quattuor umoribus, cognitio quae a ludo Hippocratis creatur. Quattuor umores est cognitio de aequandis quattuor elementis - terra et aër et flamma et aqua - in corpore forma umorum corporum organorumque velut bilis atra et bilis flava et sanguis et pituita. Ludus Hippocratis erat peritus aqua remediorum his modis aliisque.

Medicina Hippocratica effectum magnum in mundo medicinae ex antiquitate usque ad medicinam hodiernam per ius iurandum Hippocraticum. In imperio Romano, medici velut Galenus Hippocratem sicut magistrum viderunt. In aetatibus mediis, medicina Hippocratica sola remediis paganorum obstabat, quae periculosissima esse demonstrata erant. Auctoritas Hippocratis amplissima pars medicinae, quae ab uno homine incepit, qui vero in medicina undas magnas fecit.

The Battle of Cape Ecnomus
Proelium Promontori Ecnomi
By Michael Thomas

Throughout history, water has played a key role in the way many battles were fought and won, but the Battle of Cape Ecnomus was particularly influenced by it. The Battle of Cape Ecnomus was part of the First Punic War, which was fought between Ancient Carthage and the Roman Republic over control of Sicily and some of North Africa. In the beginning, Carthage had a stronger navy, while Rome had a superior army. Thus, the war reached a standstill: the stronger Roman army was unable to capture the Carthaginian cities on the coast of Sicily, because the Romans could not be supplied via the sea. In order to finish the war, the Roman Senate was forced to build a large navy of their own. After the navy was quickly assembled, it was sent off to Carthage, but the Carthaginians heard about this and intercepted the Romans out at sea. The two opposing fleets met off the coast of Cape Ecnomus and what followed was, perhaps, the greatest naval battle in Roman history.

The two opposing fleets had over half a million people in total, making it the largest naval battle in history. Carthage approached the battle with its ships in a line, whereas Rome's ships were in a compact arrow formation. The Carthaginians sailed so quickly and very skillfully that the Roman were not able to hold the formation of the ships, and were forced to fight the battle split into three separate fights. At first, Carthage was winning, but the Romans won one of these conflicts, and the victorious Romans, having attacked, helped their allies to defeat the Carthaginians at the other two fights. In the end, Carthage suffered massive loss in ships and soldiers. The Battle of Cape Ecnomus was a great victory for the Romans, not only because they lost fewer people, but also because it proved the Roman navy had the ability to defeat the more experienced Carthaginians. The war was a land war, but it was the battles on water that were most important on the path to Roman victory.

Per historiam, aqua fuit magni momenti ad pugnanda vincendaque bella, sed hac Proelium Promontori Ecnomi praesertim afficiebatur. Proelium Promontori Ecnomi erat pars Primi Belli Punici, quod inter Carthaginem antiquam et rem publicam Romanam certabatur ut victor Siciliam et partem Africae caperet. Primo, Carthago classem fortiorem at Roma exercitum maiorem habebat. Sic bellum stitit: exercitus Romanus urbes Carthaginis in litora Siciliae capere non poterat quod Romani a mari praeberi non poterant. Ad bellum perficiendum, Senatus Romanus classem magnam creare coactus est. Postquam classis celeriter parabatur, ad Carthaginem missa est, sed Carthaginienses hoc intellexerat et Romanos in mare convenit. Duae classes adversae prope Promontorium Ecnomum convenerunt et proelium navale, forte maximum in historia Romana secutum est.

Duae classes adversae plusquam quingenta milia militum habebant, qui numerus proelium navale maximum in historia fecit. Carthago cum navibus in acie ad proelium appropinquavit, at naves Romanae in forma angusta, similis sagittae erant. Carthaginienses autem, tam celeriter et peritissime navigaverunt, ut Romani formam navium tenere non possent et proelium in tres pugnas scindi cogerentur. Primo, Carthago vicebatur, sed unam proeliorum trium Romani vicerunt, et victores Romani, aggressi Carthaginienses in duabus pugnis ceteris, socios vincere iuverunt. Demum Carthago calamitatem maximam navibus militibusque passus est. Proelium Promontori Ecnomi magna victoria Romanis erat, non solum quod minorem numerum hominum amisserunt, sed etiam quod proelium confirmavit classem Romanam facultatem habere Carthaginienses peritiores superare. Bellum pugna terrae erat, sed pugnae in mari vincendo Romani gravissimae erant.

1. *The Roman Fleet Victorious over the Carthaginians at the Battle of Cape Ecnomus* by Gabriel Jacques de Saint-Aubin

The Aqueducts of Rome
Aqueducta Romae
By Maxine Mandt

A systematibus inrigationis in Asia antiqua ad oleiductus modernos, translatio aquae semper maximam partem in civitate habuerat. Unus e systematibus est aqueductus Romae antiquae.

Hi aqueductus per rem publicae Romae imperiumque aedificati sunt. Primus aqueductus, Aqua Appia nomine, in 321 BC a censoribus, Appio Claudio Caeco et Gaio Plautio Venoci audificabantur. Hoc aqueductus circiter septuaginta et tres milia metrorum aquae Romam cotidie et a decem milia pasuum oriente Romae ad Forum Boarium in Campo Martio tendit.

Postmodum hi aqueductus longiores facti sunt ut populum Romanum augentem assidue sostenere iuvent. Exempli gratia, Aqua Marcia, quae quinquaginta et duo milia passum tendit, et serius Balneae Caracallae praebuit. Aedificato in 52 BC aqueductu, Aqua Claudia quadraginta et tres milia passum tendit, et pertinet a Subiaco ad collem Caeliae. Aqua Claudia serius aulas imperiales in colle Palatii praebuit.

Sed cur graviores sunt hi aqueductus? Cur tam significantes systemae translationis aquae sunt? Antequam aqueductus creabantur, aqua a fluminibus fontibusve communalibus coacta est, et nonnumquam aqua e imbri per puteum cogebatur. Hoc modus limum fluminis duxit et inconstabilis fuit, quod fontes aruere potuerunt. Aqua pura, acerva larga, ad urbem systema aqueductus feri potuit. Hi aqueductus quoque potis aedificare balneas Romanas, nomine thermae, fecerunt. Thermae amplissimae in cultu Romana fiebant, quod hae Romanis se lavandis et dicendis ponitae sunt. Hi aqueductus quoque signum viris divitiaeque Romanae fiebant. Quas tot thermas subministrare poterant, quanti rem publicae imperiumque Romae certe mostrabat. Roma centrum cultus Mediterraneae erat, cum suas res finxerunt, tum res Tarquinii et Greaci velut deas deosque Graeci acciperunt. Hi aqueductus quoque topiarios fontes per urbem nutriverunt.

Creatura aqueductuum Romana amplissima est, quod haec iuvit fingere translationem aquae modernam. Aqua a lacibus et fluminibus et rivis Romam ferta, Romani satis aquae augmentem populum sustinere poterant.

From the irrigation systems in ancient Asia to the pipelines of today, transporting water has always played a very important role in societies. One of these systems was the aqueducts of ancient Rome.

These aqueducts were built throughout the Roman Republic and Empire. The first aqueduct, the Aqua Appia, was built in 312 BC by the censors Gaius Plautius Venox and Appius Claudius Caecus. This aqueduct brought around 73,000 cubic meters of water to Rome each day and stretched from around 10 miles east of Rome to the Forum Boarium in the Campus Martius.

As time went on, these aqueducts became longer to help sustain the constantly growing Roman population. For example, the Aqua Marcia spanned fifty-six miles, and later supplied water to the Baths of Caracalla. Built in 52 AD, the Aqua Claudia is forty-three miles long and reaches from Subiaco to the Caelian Hill. The Aqua Claudia later supplied water to the imperial palaces on the Palatine Hill.

But why are these aqueducts so important? Why are these systems of water transport so significant? Before the creation of aqueducts, water was gathered by local streams or wells, and sometimes rainwater was collected through a cistern. The water of rivers, however, was not always pure, and wells could dry up. By building an aqueduct, clean water could be brought to the city in larger quantities. These aqueducts also made it possible to build Roman baths, called thermae. These baths became very important in Roman culture, as they were places not only for Romans to wash themselves, but also to socialize. These aqueducts also became a symbol of Rome's power and wealth. The fact that they were able to afford so many of these massive waterways symbolized how great of a republic, and later empire, Rome truly was. Rome was a center of Mediterranean culture, not only creating their own ideas, but also adapting those of the Etruscans and the Greeks, such as the Greek gods and goddesses. These aqueducts would also fuel ornamental fountains throughout the city.

The Roman creation of aqueducts was very significant, as it helped shape the waterways of today. By bringing water from lakes, rivers, and streams to the city of Rome, the Romans were able to support a growing population that had as much water as it needed to survive.

SPANISH
ESPAÑOL

Poems on Water
Poemas sobre el agua

These poems were composed by the elementary students of CEIP Hernando de Soto and Saint Stephen's Episcopal School to capture the nature of water. Here, the students explore its many forms and influences through their unique styles and rhythms.

Estos poemas fueron compuestos por los estudiantes de las escuelas primarias CEIP Hernando de Soto y Saint Stephen's Episcopal School para capturar la naturaleza del agua. Aquí, los estudiantes representan las formas e influencias del agua a través de sus estilos y ritmos únicos.

#1

THE STORM / LA TORMENTA

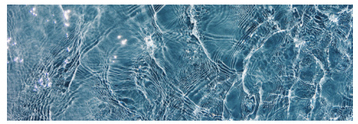
The black clouds
now approach,
I peek out the window
and they give me fresh water.
Little by little
drop by drop
they're falling
one after another.
The black clouds
now go away,
those that had waged
such a fierce war.
I look at the sky
and out comes the sun,
the storm
disappeared.
I look at the ground
and I see the puddles
in which I
play and jump.
In the sky
you'll see
a colorful trail.
-Natividad Haut

La tormenta.
Ya se acercan
las nubes negras,
me asomo a la ventana
y ellas agua fresca me regalan.
Poco a poco
gota a gota
van cayendo
unas detrás de otra.
Ya se alejan
las nubes negras,
las que habían formado
una fuerte guerra.
Miro al cielo
y sale el sol
la tormenta
desapareció.
Miro al suelo
y veo los charcos
en los que yo
juego y salto.
En el cielo
un camino colorido
verás.
-Natividad Haut

#2

WATER, SWEET WATER / AGUA AGÜITA

Water, sweet water
so clean and cool
so pretty and clear
in the lakes,
in the rivers,
in the sea,
and on the shore.
so immense and infinite,
it helps us live
and belongs to all, oh!
-Joaquín Álvaro



Agua Agüita
tan limpita y fresquita
tan bonita y clarita
en los lagos,
en los ríos,
en el mar
y en la orilla.
tan inmensa e infinita
que nos ayuda a vivir
y es de todos ¡Sí!
-Joaquín Álvaro

What is water?
Water is pure
like fruit
you drink and enjoy it.
Water is holy
like hope.
Water is wild
like a sabre-toothed tiger
riled.
Water gives us life
energy and force
And of nature's joy it is the
source.
-Victor Hermosa

#3

WHAT IS WATER? / ¿QUÉ ES EL AGUA?

¿Qué es el agua?
El agua es pura
como la fruta
la bebes y la disfrutas.
El agua es sagrada
como la esperanza.
El agua es indomable
como el tigre diente de
sable.
El agua nos da vida
energía y fuerza
y alegra la naturaleza.
-Victor Hermosa

Note: All poems were translated from Spanish to English by Augustus Bayard.

#1 OH WATER... / OH AGUA...

Oh Agua...
Oh Agua que linda tú puedes ser
Oh Agua que ruidosa tú puedes ser
Oh Agua puede ser congelada
Oh Agua puede ser caliente
Oh Agua puede ser tranquila
Oh Agua, Oh Agua para La Paz
-Kennedy Moschetto

Oh Water...
Oh Water how pretty you can be
Oh Water how noisy you can be
Oh Water can be frozen
Oh Water can be hot
Oh Water can be calm
Oh Water, Oh Water for Peace

-Kennedy Moschetto

#2 THE WATERFALL / LA CASCADA

Water falling
Water is cold
Very calm
Not ugly just pretty
The trees in the background
Water running
It's very, very, pretty
And very, very, calm
The mountains in the background
The water is falling
The weather is cold
No snow
Only the waterfall and the water
Water falling down
The waterfall
-Julie Harris

Agua cayendo
Agua es fría
Muy tranquilla
No fea solo bonita
Los arboles en el fondo
Agua corriendo
Es muy, muy, bonita
Y muy, muy, tranquilla
Las montañas en el fondo
El agua está cayendo
El clima es frío
No nieve
Solo la cascada y el agua
Agua cayendo hacia abajo
La cascada
-Julie Harris

#3 THE WATER / EL AGUA

El agua es muy
Tranquilla.
El agua tiene muchas
Burbujas.
El agua corre.
El coral es
de Muchos colores.
El agua
Es
Misteriosa.
Tú no sabes
Que está
En
El Agua.
-Isabelle Valcarcel

The water is very
Calm.
The water has many
Bubbles.
The water runs.
The coral is
Many colors.
The water
Is
Mysterious.
You don't know
What is
In
The water.
-Isabelle Valcarcel

Note: All poems were translated from Spanish to English by Augustus Bayard.

The Armada Portrait by George Gower

The Spanish Armada
La Armada Española

By Annie Class

One of the great rivalries of world history was between the English and Spanish in the centuries leading up to the establishment of colonies in the New World. This rivalry culminated in the Anglo-Spanish War, lasting from 1585 to 1604. It was during this time that King Philip II dispatched the infamous Spanish Armada, an event that would lead to the decline of Spanish power and consequently the rise of the English empire.

King Philip II had many issues with the growing power of the English and specifically their Protestant queen, Elizabeth I. As a devout Spanish Catholic, he feared the spread of Protestantism in England, detested the queen's new policy on seizing Spanish ships and the recently-made alliance between the Dutch and the English, and perceived their sheer political differences as detrimental to the Spanish. It was only natural then that in 1588 Philip II sent out 130 ships, 40 of them warships, with over 8,000 seamen and 18,000 soldiers, a group that later became known as the Spanish Armada, to carry soldiers to London. However impressive this flotilla seemed, Queen Elizabeth I prepared her soldiers for defense, and with the help of disease among the ships, the Spanish were forced to retreat to Spain before reaching England.

Although not an ending to the Anglo-Spanish War, 1588 marked a huge military and moral victory for the English. The Spanish were never able to regain the power they had before the defeat, largely contributing to the rise of the English in the 17th and 18th centuries as holders of western civilization and as a major colonizing power, a change which would in turn affect countries on nearly every continent.

Una de las grandes rivalidades en la historia del mundo ocurrió entre los ingleses y los españoles en los siglos antes del establecimiento de las colonias en el Nuevo Mundo. Esta rivalidad culminó en la guerra anglo-española que duró desde 1585 a 1604. Durante este tiempo el Rey Felipe II envió la Armada Invencible a conquistar a Inglaterra, un evento que causó el declive del imperio español y consecuentemente el ascenso del imperio inglés.

El Rey Felipe II tenía muchos problemas con la fuerza creciente de los ingleses, específicamente con su reina protestante, Isabel I. Como un español católico devoto, él temía la difusión del Protestantismo en Inglaterra, detestaba la política nueva de la reina de tomar los barcos españoles y la alianza nueva entre los neerlandeses y los ingleses le preocupo, y percibía sus diferencias políticas como una amenaza para España. Entonces fue natural que en 1588, Felipe II envió 130 barcos, de estos 40 buques de guerra, con más de 8.000 marineros y 18.000 soldados, un grupo que después ha sido conocido como La Armada Invencible, para traer los soldados a Londres. Aunque la flotilla parecía impresionante, la reina Isabel I de Inglaterra preparó a sus soldados para la defensa, y con la ayuda de la enfermedad entre los barcos, los españoles se vieron obligados a retirarse a España antes de llegar a Inglaterra. Aunque no fue el fin de la guerra, 1588 marcó una victoria enorme de la fuerzas armadas y de la moral para los ingleses. Los españoles nunca pudieron recuperar la fuerza que tenían antes de la derrota, que en gran parte contribuyó al aumento de los ingleses en los siglos XVII y XVIII como los titulares de la civilización occidental y una fuerza colonizadora grande, un cambio que afectó los países en casi todos los continentes.

Adam Before the Water
Adán ante el agua
By Augustus Bayard

Vicente Huidobro was a Chilean poet born in 1893 to a wealthy family in Santiago. His mother, herself a writer, instilled an abiding love of literature in him at a young age and at just 18 he published his first work. He had a distaste for the constraints and expectations of the poetic past and instead espoused his own creacionismo movement, which held that poems should exist for themselves, not the outside world. He traveled Europe widely, spending significant amounts of time in Paris mingling with the city's artistic elite and avant-garde. He is often credited with bringing the innovations and developments of contemporary European poetry back to Chile where the style rippled across the rest of Latin America.

This selection is a canto from Huidobro's Adán, which has never before been translated to English. The entire poem consists of Huidobro's retelling of the Biblical story of Adam. However, in Huidobro's own words, "[this] isn't the Biblical Adam, that monkey from the dirt brought to life with a sneeze; he is the scientific Adam. He is the first being to understand Nature, the first in which intelligence awoke and amazement bloomed." In this canto Adam first encounters water.

Note: Possible typesetting flaws in the Spanish version haven't been corrected from the original printing.

Vicente Huidobro fue un poeta chileno que nació en 1893 en una familia adinerada en Santiago. Su madre, una escritora también, le inculcó un amor de la literatura desde joven y cuando solo tenía 18 años publicó su primera obra. No le gustaban las restricciones y las expectativas del pasado poético y en lugar de ellas promocionaba su propio movimiento del creacionismo, que dice que los poemas deben existir solamente para sí mismos, no para el mundo exterior. Él viajó por Europa mucho, quedándose mucho tiempo en París mezclandose con la élite artística y la vanguardia de la ciudad. Frecuentemente se le atribuye el traer las innovaciones de la poesía contemporánea europea a Chile donde el estilo se difundia por todo el resto de latinoamérica.

Esta selección es un canto de Adán del Huidobro, que nunca antes ha sido traducido al inglés. El poema entero consiste en Huidobro contando de nuevo el cuento bíblico de Adán. Sin embargo, en las palabras de Huidobro, "[este] Adán, no es el Adán bíblico, aquel mono de barro al cual infunden vida soplándole la nariz; es el Adán científico. Es el primero de los seres que comprende la Naturaleza, el primero en el cual se despierta la inteligencia y florece la admiración." En este canto Adán encuentra el agua por primera vez.

Nota: Defectos posibles de composición tipográfica en la versión española no se han corregido de la impresión original.

And later abandoning
that statuesque expression
with which he mutely considered,
Adam began to walk solemn and deliberate.

And he went towards the water
and once he understood it
he felt his lips stretch towards it,
and once he saw its whiteness
he felt his body eager for freshness,
tried to sink into it,
to see himself enveloped in its fabric
like the pebbles that his eyes
saw in the depths.

And with an astonished glance
he saw that in it something moved
while something else stayed still.
—And this that moves,
where is it going, where is it coming from?
And he followed the current with his eyes.

After watching it for a while
he plunged his hands into the water,
half-closing his eyes
in a voluptuous expression.
And as he turned his head towards the water
he saw in it a face like the one he knew
Oh strange mystery! Why was it doubled?
And he saw that the sky bent down
towards the clear current,
he saw that the pool's water
nearly brought the trees to those same hands;
and he submerged his face in the water
and felt it rippling beyond his eyes,
he felt it throbbing beyond his eyelids,
sweetly closed,
and he felt that the water had hands.

The spring's eternal song invaded
the valley, and Adam stretched out on the ground
to drink with all his body.
And he saw that it was good, the water,
and he loved it with all his soul
and his affectionate gaze
floated over the waves.

Oh! Water of wonders
children's bright laughter,
you know the taste of wheat
and that marvelous bread
knows your freshness
and understands that everything
around you is made kind.

Y luego abandonando
aquel gesto de estatua
con que las cosas mudo contemplaba,
Adán empezó a andar grave y pausado.

Y fué al agua y al comprenderla
sintió alargarse sus labios hacia ella,
y al mirar su blancura
sintió su cuerpo ansioso de frescura,
quiso sumirse en ella,
verse envuelto entre sus telas
como los guijarros que sus ojos
veían en el fondo.

Y con mirar atónito
vio que en ella algo tomaba movimiento
mientras lo otro se quedaba quieto.
—Y esto que se mueve
¿A donde va de dónde viene?

Y siguió con los ojos la corriente.

Después de un rato de mirarla
hundió sus manos en el agua,
entornando los ojos
con gesto voluptuoso.
Y al inclinar la cabeza hacia el agua
vió en ella un rostro como el que él palpaba
¡Oh raro misterio! ¿Porqué se duplicaba?
Y vió que a la corriente clara
el cielo bajaba,
vió que el agua del remanso
le traía los árboles casi a las mismas manos;
y en el agua sumergió su rostro
y la sintió temblar bajo sus ojos,
la sintió palpitar bajo sus párpados
dulcemente cerrados
y creyó que el agua tenía manos.

Invadía el valle el canto eterno
del manantial, y Adán se tendió en el suelo
para beber con todo el cuerpo.
Y vió que era buena el agua
y la amó con toda el alma
y su tierna mirada
sobre las ondas flotaba.

Oh! Agua de prodigios
clara risa de niños,
tu conoces el sabor de los trigos,
y el pan maravilloso
conoce tu frescura y sabe que todo
junto a ti se torna bondadoso.

Rebuilding after Irma and Maria

Reconstrucción después de Irma y María

By Janaki Menon

In September, 2017, disaster struck twice in Puerto Rico, Florida, and the Bahamas. These areas would take years to recover. Hurricane Irma, an extremely powerful storm, wreaked destruction along its path and changed the lives of millions of people. Moving northwest, Irma closely followed the north coast of Hispaniola on September 6, causing power losses for more than a million Puerto Ricans. Just two weeks after Hurricane Irma, another category 4 storm hit. Hurricane Maria made landfall in Puerto Rico as a category 4 storm and became the worst natural disaster in the island's history. Today, three years after these hurricanes hit, Puerto Rico continues to rebuild.

Although power has been restored and access to clean water has greatly improved, Puerto Rico's residents are still recovering from the storm. Random power outages still occur in rural areas. Some homes still do not even have roofs and use plastic tarps. Collapsed utility poles and uprooted trees are common. The continued challenges have caused an economic disaster for the island; as a result, hundreds of Puerto Ricans have left to seek work and housing in the United States.

When Hurricane Maria first hit Puerto Rico, thousands of homes were destroyed, displacing hundreds of people. In the wake of the disaster, Puerto Rico needed 21 billion dollars in order to rebuild and repair the many schools, bridges and government buildings that were destroyed. However, the American government was not the only one to help; many charities also came to its aid. Relief organizations such as the Red Cross were able to help rebuild homes and raise 98.1 million dollars in funds to help Puerto Rico. Today, the Red Cross continues to help with unmet needs and support affected areas. Two years after the hurricanes' devastating impact, the Red Cross continues working with government and non-profit partners, community and faith-based organizations, and Long-Term Recovery Committees to support affected residents.

With the help of charities and the American government, Puerto Rico continues to recover from Hurricanes Maria and Irma. This work isn't likely to end soon—since the start of 2020, the island has experienced devastating earthquakes in the South that have undone much of this recovery. Many more Puerto Ricans were displaced and are now living in crowded shelters, tent cities, or even cars. However, in spite of these disasters, the people of Puerto Rico are slowly but surely rebuilding.

En septiembre de 2017, dos desastres golpearon Puerto Rico, Florida y las Bahamas. Estas llevaran años para recuperarse. El huracán Irma, una tormenta muy poderosa, causó una gran destrucción en su ruta y cambió la vida de millones de personas, causando pérdidas de poder eléctrico para más de un millón de puertorriqueños. Al moverse hacia el noroeste, Irma siguió la costa norte de La Española muy cerca el 6 de septiembre. Solo dos semanas después del huracán Irma, el huracán María tocó tierra en Puerto Rico como una tormenta de categoría 4 y se convirtió en el peor desastre natural en la historia de esa isla. Hoy, tres años después de estos huracanes, Puerto Rico continúa reconstruyéndose.

Aunque se restableció la electricidad y el acceso al agua potable se ha mejorado tremendamente, los puertorriqueños todavía se están recuperando de la tormenta. Todavía hay cortes de energía al azar en las zonas rurales y urbanas. Algunas casas aún no tienen techos y usan lonas de plástico. Los postes de servicios públicos colapsados y los árboles desarraigados son comunes. Los desafíos que han continuamente aparecido han causado un desastre económico para la isla; como resultado cientos de puertorriqueños se han ido a buscar trabajo y vivienda en los Estados Unidos.

Cuando el huracán Maria golpeó por primera vez a Puerto Rico, miles de hogares fueron destruidos, desplazando a cientos de personas. Después del desastre Puerto Rico necesitaba 21 mil millones de dólares para reconstruir y reparar las numerosas escuelas, puentes y edificios gubernamentales que fueron destruidos. Sin embargo, el gobierno americano no fue el único que ayudó; muchas organizaciones benéficas vinieron a ayudar también. Organizaciones de ayuda como la Cruz Roja pudieron ayudar a reconstruir casas y recaudar 98.1 millones de dólares en fondos para ayudar a Puerto Rico. Hoy, la Cruz Roja sigue ayudando con las necesidades restantes de las personas afectadas por el huracán Maria y apoyando otras áreas afectadas. Dos años después del impacto devastador de los huracanes, la Cruz Roja sigue trabajando con organizaciones gubernamentales y sin fines de lucro, organizaciones comunitarias y religiosas y comités de recuperación a largo plazo para apoyar a los residentes afectados.

Junto con la ayuda de organizaciones benéficas y el gobierno americano, Puerto Rico continúa recuperándose después de los huracanes María e Irma. No es probable que este trabajo termine pronto—desde el principio de 2020, la isla ha experimentado terremotos devastadores que han deshecho una gran parte de esta recuperación. Muchos más puertorriqueños han sido desplazados y ahora están viviendo en albergues llenos, en ciudades de tiendas de campaña o incluso en coches. Sin embargo, a pesar de estos desastres, la gente de Puerto Rico está reconstruyendo la isla lenta pero seguramente.

Microplastics: The Epidemic Problem

Los Microplásticos: El Problema Epidémico

By Kaleigh Hart, Layla Turner, & Audrey Dunbar

Microplastics are very small pieces of plastic that pollute our planet and oceans. Microplastics are any piece of plastic that is 5 millimeters or smaller. They come from larger sources of plastic that degrade over time into smaller pieces. The plastic eventually finds its way into the ocean, and many fish eat them. Microplastics have a big impact on marine life, because thousands of fish die when they eat them.

Microplastics affect the environment each and every day. The main sources of them in the ocean are waste management, shipping industries, and fishing industries, among others. Studies show that smaller fish in the ocean eat microplastics not knowing what they are eating. Larger fish will then eat the smaller fish, transferring the microplastics from one fish to another. When fish digest the plastic, it permanently stays in their digestive system. Microplastics make the fish feel full. When the fish feels full, it will not eat any more protein, thus starving itself to death. This problem will eventually begin to affect humans, if it hasn't already.

Microplastics are appearing everywhere in our water cycle from rain, snow, and drinking water to lakes, oceans, and rivers. Recent studies show that it is raining microplastics. The study shows an assortment of microplastics ranging from plastic fibers to beads or shards in our rain. This often ends up in sewage, lakes, rivers, and oceans. These microplastics will find their way to our drinking water. Not only are microplastics affecting marine life but they are affecting all living things.

Microplastics are a big problem in today's world, and most of it is because of us. However, if we care enough for the world, we can cut down the production of microplastics by a lot. We can reduce our single-use plastic intake by replacing everyday items with reusable water bottles, paper bags, and metal straws. We can also stop using products with microbeads, such as face wash, toothpaste, and body scrubs. To see if your product has microbeads, check the ingredients for polyethylene and polypropylene. Finally, you can spread awareness of microplastics to people you know. You don't have to start a protest. Just tell your friends and family about the dangers they are causing to our environment. Even a simple message can make a difference.

Microplastics are a big problem, especially in today's world. They're affecting our marine life, our oceans, and our world as a whole. Microplastics are everywhere around us but are not visible in the public eye.By simply informing others about the problem, you can change the lives of animals, people, and future generations.

Los microplásticos son trozos muy pequeños de plástico que contaminan el planeta y los océanos. Los microplásticos son plásticos de 5 o menos milímetros. Provienen de fuentes más grandes de plástico que se degradan a piezas más pequeñas con el tiempo. El plástico eventualmente encuentra su camino al océano y muchos peces lo comen. Los microplásticos tienen un gran impacto en la vida marina, porque miles de peces mueren cuando los comen.

Los microplásticos afectan el medioambiente cada día. Las fuentes principales de ellos en el océano son la gestión de desechos, las industrias marítimas y las industrias pesqueras, entre otros. Los estudios muestran que los peces pequeños en el océano comen microplásticos sin saber lo que comen. Entonces, los peces más grandes se los comen, transfiriendo los microplásticos de un pez al otro. Cuando el pez digiere el plástico, se queda permanentemente en su sistema digestivo. Los microplásticos hacen que el pez se sienta lleno. Cuándo el pez se siente lleno, no come más proteínas, y por eso muere de hambre. Este problema eventualmente empezará afectar a los humanos si no lo ha hecho ya.

Los microplásticos están apareciendo en todas partes de nuestro ciclo de agua desde la lluvia, la nieve y el agua potable hasta los lagos, los océanos y los ríos. Los estudios recientes muestran que está lloviendo microplásticos. El estudio muestra una variedad de los microplásticos desde fibras de plástico a cuentas o fragmentos en nuestra lluvia. Estos a menudo terminan en las aguas residuales, los lagos, los ríos y los océanos. Estos microplásticos encuentran su camino a nuestro agua potable. Los microplásticos no solamente afectan la vida marina, pero también a todos los seres vivientes.

Los microplásticos son un gran problema en el mundo de hoy y la mayor parte de esto se debe a nosotros. Sin embargo, si cuidamos suficientemente al mundo, podemos reducir la producción de microplásticos mucho. Podemos reducir nuestro uso individual del consumo plástico al reemplazar artículos cotidianos con las botellas reutilizables, las bolsas de papel y las pajitas metálicas. También podemos dejar de usar los productos con microperlas, las cuales se encuentran en el lavado facial, la pasta de dientes y los exfoliantes corporales. Para ver si su producto tiene microperlas, compruebe si contiene los ingredientes polietileno y polipropileno. Por último, puede compartir estas soluciones al problema de los microplásticos con las personas que conoce. No tiene que iniciar una protesta. Solamente cuénteles a sus amigos y a sus parientes sobre los peligros que los microplásticos están causando a nuestro medioambiente. Hasta un mensaje sencillo puede hacer una diferencia.

Los microplásticos causan un gran problema, especialmente en el mundo de hoy. Están afectando nuestra vida marina, nuestros océanos y nuestro mundo entero. Los microplásticos están en todas partes alrededor de nosotros, pero no son visibles en el ojo público. Simplemente al informar a otras personas sobre el problema, puede cambiar la vida de los animales, la gente y las generaciones por venir.

Itaipú Dam
La Represa de Itaipú
By Augustus Bayard

The Itaipú Dam, located on the border between Brazil and Paraguay, is an incredible sight. It has been named one of the seven modern Wonders of the World by the American Society of Civil Engineers and inspired a Philip Glass cantata. But it has also almost led to the impeachment of Paraguay's president.

Brazil and Paraguay have had a tense relationship for centuries. In the 19th century Brazil was involved in the War of the Triple Alliance against Paraguay. In this war the Triple Alliance of Brazil, Argentina, and Uruguay took a quarter of Paraguay's land and killed a massive number of its citizens, leaving scars that would take decades to recover from. Still, in the 60s the two countries began negotiating to build the Itaipú Dam and in 1973 they signed the treaty that now governs it.

That treaty gives each country the right to half of the dam's energy output. However, Paraguay sells a lot of its energy back to Brazil because it is such a small and unindustrialized country. The problem is that Paraguay isn't paid market price for the energy it sells. From 1985 to 2018, Paraguay missed out on $75.4 billion because of this. Paraguayans were understandably mad, feeling that they had been bullied by their bigger neighbor. However, the future was looking better for Paraguay. In 2009 Brazil promised to increase their payments and begin to allow direct sales of Paraguayan energy.

Now the stage was set for the political scandal that almost took down Paraguayan president Mario Abdo Benítez. Benítez had made a secret deal with Brazil that seemed to be moving in the wrong direction for Paraguay. It removed a clause that allowed Brazilian companies to bid for Paraguayan power, earning Paraguay more money, and agreed to receive significantly less money over the next three years. Instead of signing the new deal, the head of Paraguay's state power company quit and accused Benítez of treason. Paraguayans began to protest in the streets, demanding the president's impeachment.

La Represa de Itaipú, ubicada en la frontera entre Brasil y Paraguay, es una vista increíble. Se ha nombrado una de las sietes maravillas modernas del mundo por la Sociedad Americana de Ingenieros Civiles y también inspiró una cantata de Philip Glass. No obstante también casi ha causado el proceso de destitución del presidente de Paraguay.

Brasil y Paraguay han tenido una relación tensa desde hace siglos. En el siglo XIX Brasil estaba involucrado en la Guerra de la Triple Alianza contra Paraguay. En esta guerra la Triple Alianza de Brasil, Argentina y Uruguay tomó un cuarto de la tierra de Paraguay y mató a un número masivo de ciudadanos paraguayos, dejando cicatrices que tomaron décadas para sanarse. En los años 60 los dos países todavía empezaban a negociar la construcción de la Represa de Itaipú y en 1973 firmaron el tratado que ahora gobierna el uso de la Represa.

Ese tratado da a cada país el derecho a la mitad de la producción de la energía de la represa. Sin embargo, Paraguay vende mucha de su energía a Brasil porque es un país muy pequeño y poco industrializado. El problema es que a Paraguay no se le pagaba el precio de mercado por la energía que vendía. Desde 1985 a 2018, Paraguay perdió 75.4 mil millones de dólares por esto. Los paraguayos, por supuesto, se sentían que se había aprovechado de ellos su vecino más grande. Sin embargo, el futuro parecía mejor para Paraguay. En 2009 Brasil prometió que aumentaría sus pagos y permitiría las ventas directas de la energía paraguaya.

Ahora el escenario estaba listo para el escándalo político que casi terminó con la presidencia de Mario Abdo Benítez. Benítez había hecho un acuerdo secreto con Brasil que parecía un desastre para Paraguay. Quitó una cláusula que permitía que las empresas brasileñas compitieran por la electricidad paraguaya, ganando más dinero para Paraguay, y consintió recibir mucho menos dinero en los próximos tres años. En vez de firmar el acuerdo nuevo, el jefe de la compañía eléctrica estatal renunció a su puesto y le acusó a Benítez de la traición. Los paraguayos empezaron a protestar en las calles, insistiendo en el proceso de destitución del presidente.

The Paraguayan Congress listened to them and began proceedings. However, the proceedings were ended once Benítez scrapped the hated deal, barely saving his presidency.

The future of the Itaipú Dam remains unclear. As Paraguay industrializes and needs more energy, their deal with Brazil will be more and more important. Just like how the ripples of a deal from the 70s led to a political crisis today, the deal Paraguay makes today will cause ripples that will continue long into the future.

El congreso paraguayo comenzó los procedimientos. Sin embargo, los procedimientos se terminaron al descartar Benítez el acuerdo odiado, apenas salvando su presidencia.

El futuro de la Represa de Itaipú queda confuso. A medida que Paraguay se industrializa y necesita más energía, su acuerdo con Brasil será más y más importante. Al igual que las repercusiones de un acuerdo de los años 70 causaron una crisis política hoy, el acuerdo que Paraguay haga hoy tendrá consecuencias por mucho tiempo en el futuro.

Invasive Species
Las Especies Invasivas
By Audrey Yanevich

Invasive species are species of animals and plants that are not native to an area, and destroy ecosystems and threaten other wildlife. In the United States alone, there are about 4,300 different invasive species, such as the European green crab and the lionfish. Most invasive species are introduced accidentally to an area. They are classified into four different categories. In the first category, 1A, the species needs to be removed from the area and destroyed, if possible, and planting or trading these species without a permit is not allowed. Category 1B is similar to 1A. The only difference is that 1B is more dangerous than 1A. The same goes for categories 2 and 3. Category 1A is the least harmful, and category 3 is the most harmful.

The Panama Canal is one reason that there are many invasive species in the Americas. The canal was built almost 100 years ago and is the primary way for ships to cross from the Gulf of Mexico into the Pacific Ocean. Otherwise, the ships would have to make a trip around the entire continent of South America. Although it makes ships' travel more efficient, it has also allowed invasive species such as lionfish to enter the Gulf of Mexico. Lionfish have spread out into the Atlantic Ocean as well, where they threaten the native species. This is why lionfish hunting is encouraged.

The brook trout is another invasive species that was introduced to many Latin American countries in the past 30 years. Although where it is native the brook trout population is declining from overharvesting, the population in Latin America is growing.

In conclusion, invasive species exist all around the world, from microorganisms to the Burmese python. In the past 200 years, the threat of invasive species has only risen, especially in Latin America, partly due to the creation of the Panama Canal, and it shows no sign of stopping. However, there are organizations that are trying to reduce the population of invasive species. Sadly, this can mean that the animals are killed. The threat of invasive species won't go away for many years, but scientists are working on this issue right now.

Especies invasivas son animales y plantas que no son originarias de un lugar, y que destruyen los ecosistemas y amenazan los animales nativos. En los Estados Unidos, hay aproximadamente 4.300 especies invasivas diferentes, por ejemplo el cangrejo europeo verde y el pez león. La mayoría de las especies invasivas se introducen en un área por accidente. Se dividen en cuatro categorías diferentes. La primera categoría es 1A. En esta categoría, una especie necesita ser quitada y eliminada, y tampoco se puede plantar sin una licencia. Categoría 1B es similar a 1A. La única diferencia es que 1B es más dañina que 1A. Es lo mismo para las categorías dos y tres. Categoría 1A es la menos dañina y la categoría tres es la más dañina.

El Canal de Panamá es una razón por la cual hay muchas especies invasivas en las Américas. El canal fue construido hace casi 100 años, y es el camino principal para los barcos del Golfo de México al Océano Pacífico. Si no existiera, los barcos necesitarían rodear América del Sur. Aunque los barcos viajan más eficientemente,el canal deja que los animales extranjeros puedan entrar al Golfo de México. Los peces león son una especie invasiva en el Golfo de México. Estos peces ahora están en el Océano Atlántico, donde amenazan los organismos nativos. Por eso, la caza de los peces león se fomenta.

La trucha de arroyo es otra especie invasiva que se introdujo a muchos países latinoamericanos en los últimos treinta años. Aunque donde es native, la población de las truchas de arroyo está disminuyendo debido a la sobrepesca, la población en Latinoamérica está creciendo.

En conclusión, las especies invasivas existen alrededor del mundo, de muy pequeños animales a la pitón birmana. La amenaza de las especies invasivas solamente se ha desarrollado en los últimos dos siglos, especialmente en Latinoamérica, en parte debido a la creación del Canal de Panamá, y no hay ninguna señal de detener. Sin embargo, hay organizaciones que intentan reducir las poblaciones de las especies invasivas. Desgraciadamente, esto puede significar que los animales mueran. La amenaza no acabará por muchos años, pero los científicos están trabajando en este problema ahora.

The Domino Effect: Water
Efecto domino: El agua
by Luca Filippi and Ludmila Stoffel

How does the domino effect affect all the planet's species?
On Earth, everything is connected; everything's just right to allow this miracle that we call 'life.' And, precisely because of this, the extinction of one species can mean that of others, in an effect that scientists refer to as 'coextinction.' The loss of biodiversity can increase the risk of a cascade of extinctions, where an initial loss of a species leads to a domino effect of new extinctions.

For example, a change in temperature can lead to earlier mating for our grouse, whose chicks, when they hatch, then don't find the insects they need to feed on because those come later in the year. Changes to the salinity, and consequently density, of water in ocean currents due to fresh water from melting glaciers can slow the rise of cold currents from the seafloor that are rich in nutrients, leaving the entire trophic chain that feeds on them without food, all the way up to the sea lions.

The domino effect in water:
For a couple of years, the biologists of the Marine Mammal Center in San Francisco were astonished to see that, on the coast, during sea lion breeding season, there were many defenseless pups. Some of the young that made it to the sea moved clumsily and shivered from the cold. Their loose skin suggested they lacked the fat necessary to insulate them in the cold waters of the Pacific. Something or someone had deprived them of the food essential to surviving the first weeks of their lives. There are many tipping points in ecosystems and the climate, and many are interconnected. That means that the massive changes that we are causing will have many unexpected consequences. The team of biologists analyzed 300 ecosystems with possible tipping points or changes in pattern. The study suggests that almost half of them are linked. For example, a more severe rain due to global warming can greatly increase soil erosion, especially in heavily-used agricultural land, and carry more phosphorus to rivers, lakes, and the sea. This can trigger algal blooms and red tide, and amplify the drop in oxygen that occurs when the water heats up. This leads to even larger aquatic 'dead zones' with little oxygen, which can have additional effects. What this team's work shows is that crossing one tipping point increases the risk of crossing another and, therefore, unleashes an entire cascade of effects. And we might not even recognize the danger until it's too late.

¿Cómo el efecto dominó afecta a todas las especies del planeta?
En la Tierra, todo está conectado; todo, ajustado para permitir este milagro que llamamos 'vida'. Y, precisamente por eso, la extinción de una especie puede suponer la de otras, en un efecto al que los científicos denominan 'co-extinciones'. La pérdida de biodiversidad puede aumentar el riesgo de cascadas de extinción, donde una pérdida inicial de especies conduce a un efecto dominó de nuevas extinciones.
Por ejemplo, un cambio de temperatura puede adelantar el apareamiento de nuestros urogallos, cuyos pollos, al eclosionar, no encuentran los insectos necesarios para alimentarse porque estos llegan más tarde. Alteraciones en la densidad del agua de las corrientes oceánicas debidas al aporte de agua dulce de los glaciares en deshielo pueden frenar el ascenso de las corrientes frías y ricas en nutrientes del fondo marino dejando sin sustento a toda la cadena trófica que se alimenta de ellos y que termina en los leones marinos.
El efecto dominó en el agua:
Hace un par de años, los biólogos del Centro de Mamíferos Marinos de San Francisco, quedaron asombrados al ver que, en la costa, en la época de cría de los leones marinos, estaba salpicada de cachorros inermes. Algunas de las crías que llegaban del mar se movían con torpeza y tiritaban de frío. Sus pieles colgantes delataban la ausencia de la grasa necesaria para aislarlos de las aguas frías del Pacífico. Algo o alguien los había privado de la comida imprescindible para superar las primeras semanas de vida. Hay muchos puntos de inflexión en los ecosistemas y el clima, y muchos están interconectados. Eso significa que los cambios masivos que estamos causando tendrán muchas consecuencias inesperadas. El equipo de biólogos analizó 300 ecosistemas con posibles puntos de inflexión o cambios de régimen. El estudio sugiere que casi la mitad de ellos están vinculados. Por ejemplo, una lluvia más extrema por el calentamiento global puede aumentar en gran medida la erosión del suelo, especialmente en tierras agrícolas degradadas, y transportar más fósforo a los ríos, lagos y el mar. Esto puede desencadenar floraciones de algas y mareas rojas, y amplificar la disminución de oxígeno que se produce cuando las aguas se calientan. Esto conduce a "zonas muertas" acuáticas aún más grandes con poco oxígeno, lo que puede tener efectos adicionales. Lo que muestra el trabajo del equipo es que cruzar un punto de inflexión aumenta el riesgo de cruzar otro y, por lo tanto, desencadenar toda una cascada de efectos . Y tal vez ni siquiera reconozcamos el peligro hasta que sea demasiado tarde.

Binary Power Generation
水は「諸刃の剣」
By IZUMI: Kiichiro Miyake'22, Koh Umebayashi'22, Ryoko Yamaguchi'22 & Takahiro Yano'22

For Water is Life 2020, our team is researching Binary Cycle Generation. This is a form of generating power with two solutions (hence the name), also known as the Kalina cycle. Hot water from a geothermal source is pumped up to the surface, where it heats a second liquid with a lower boiling poin than water. Steam from the secondary liquid then spins turbines in a closer environment to generate power.

The Kalina cycle has increasingly gained importance as Japan has changed its energy production methods. The Fukushima disaster of 2011 was the most devastating catastrophe since the Chernobyl meltdown thirty years prior. Following this incident, the Japanese government shut down all nuclear reactors around the country as a precaution and began conducting thorough safety checks. To mitigate the sudden loss in energy supply, Japan augmented its use of thermal power.

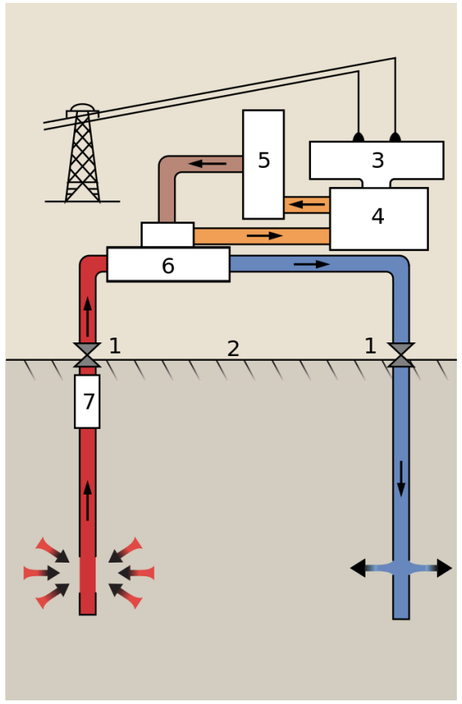
2011年3月11日。東日本大震災の発生により、福島第一原子力発電所で甚大な被害が出てから9年が経った。この事故の結果、日本はエネルギー生成の手段として化石燃料に大きく依存している。しかし、地球温暖化が問題となっているこの時代に、温室効果ガスの排出を少しでも削減するため、日本はより多様な再生可能エネルギー源を考えなければならない。そ

こで私たちは、日本の文化として欠かせない「温泉」にスポットを当てた。日本全国津々浦々で湧き出ている天然資源を有効に活用する手段はないのか。調べていくうちに、バイナリー発電という方法に辿り着いたのである。バイナリー発電とは温泉の熱を利用して、低沸点の媒体を蒸発させ、それによりタービンを回し電力を生成する発電方法である。日本の温泉の現状は、高温で湧き出ている源泉を人間が入れる最適な温度に冷却する過程で、多くの熱エネルギーを無駄にしている。もしバイナリー発電を導入すれば、この無駄にしている熱エネルギーを有効に活用することが出来るのである。しかし、一見画期的に伺えるバイナリー発電には、実は様々な問題があり、日本での導入は数が少なく実験的なものである。最も大きな問題となっているのが導入や維持に必要となるコストである。そこで私たちはコストの問題を解決するため次の実験を行うことにした。

Even though several nuclear reactors have restarted production (or are in the process of restarting), thermal power still constitutes over three quarters of Japan's overall power production, with renewable sources (including geothermal) relegated
to a mere 17% as of 2018. However, through our research, we have come to realize the Japan's potential for geothermal power, and have decided to focus on the use of hot springs as a means of Binary Cycle Generation. Hot springs, or onsen in Japanese, are an
integral part of Japanese culture, and can be found all across the country. In the process of cooling hot water from natural springs to optimal bathing temperatures, much potential heat energy is wasted. By implementing Binary Cycle Generation, that heat energy can be used to produce electricity. However, this form of energy production remains experimental and uncommon in Japan. Its expense deters new investments, and the springs' cultural importance and use as a commodity ironically make entering the market difficult.

We have already met several people working on the few Binary Cycle power plants in Japan, and had constructive discussions on its prospects, but we always returned to the same point: the cost for constructing and maintaining such a system is so high compared to other variants, locals tend to oppose its implementation.

To combat these problems of costs and local opposition, we plan to conduct two experiments. For our first experiment, we want to find a more cost-effective binary solution by creating a simplified Binary
Cycle power station ourselves, and by running several candidate solutions through to measure electricity production. For the second experiment, we will focus
on the metal used to construct Binary Cycle generators. Metals used currently are prone to corrosion by the binary solutions, and maintenance fees constitute
a large portion of the already high costs. If, through these experiments, we can lower costs, it is reasonable to think that we can contribute to further spreading
Binary Cycle Generation in the future. If it is established as a reliant form of power production, the world can further develop its renewable resources, for a brighter and cleaner future.



1つ目は、コスト削減を実現する糸口となる低沸点媒体に着眼することである。現在バイナリー発電に使用されている媒体より安価で入手しやすく、可能であるならばさらに低沸点の
物質を探すことである。実際に私たちでバイナリー発電が行われてるシステムをオリジナル
に作り、いくつかの候補となりそうな媒体を使用し、その発電量を測定する。

2つ目は、維持費削減の糸口となるバイナリー発電で使用されている金属に着眼することで
ある。低沸点媒体により傷んだ金属は定期的に清掃、取り替えをする必要があり、そこにコストがかかっている。そこで私たちは今回検証に使用した媒体を元に、それらの影響を受け
にくい金属を見つける。

これらの実験により、コスト面の問題が解消できると証明されれば、バイナリー発電を普及
することが出来ると考えられる。現在地球上に湧き出ている温泉に加え、更に新たな温泉を
掘り出すことをしなければ、排出する温室効果ガスが増加することはない。つまり、化石燃
料を燃やして発電し、地球環境を悪化させている現状を打破することが出来るのである。バイナリー発電がより広範囲に使用されると、日本のエネルギー生成手段はより自立し、地球環境に優しい未来への道が開かれる。

Image: Duffield, Wendell, and John Sass. Geothermal Binary System. 2004.

"Water in Japan— a Double-Edged Sword"
水は「諸刃の剣」

By Nanako Asakura '20

Water cleans us, hydrates us, and sustains us; it's essential to life. On March 11, 2011, I woke up to see a video of brown, murky water swallowing a whole port town in Japan. Fortunately, I was living in the U.S. with my family at the time; nonetheless, my eyes were glued to the screen as clips of the tsunami played endlessly on the news. To a clueless 10-year-old, the huge waves were like the mouths of a monster hovering over a delicious meal. While water is a necessity, it's also a danger that easily took away thousands of lives. Water is a "double edged sword."

Even though the tsunami took away thousands of lives and left people devastated, water was still an essential part of our lives. No matter how angry we were at water or how hateful it was, we still needed it to live. After the Great East Japan Earthquake, I found that an irony had developed. The huge tsunami that had killed many left behind new pools of water on land. And although the water provided to the evacuated wasn't enough, there was no hope in making use of those pools of either, as they were contaminated. This irony strangely fascinated me, making me feel like I was being challenged to come up with a solution. This became my research idea for Water is Life 2018. I decided that a year-long research project about local water issues was the best way to battle this
issue.

To resolve this issue, my teammates and I focused on the fact that we had plenty of water around us; the only reason we couldn't use it was because it was contaminated. Therefore, we decided to create a purification system for emergencies, and planned it so that this system wouldn't rely on electricity in case of a power outage. We created two filters (① a simple plastic bottle filter with layers of activated carbon, granite, and gauze, and ② a black box with aluminum foil covering the inside) which had specific purposes: to clear the color and odor of the water, and to sterilize the water from E.coli using only UV rays from the sun (the Japanese government insists that there be no E. coli in drinking water). Sadly, we weren't able to finish our research within the year, but we strongly believe that if we can bring this system into reality, we'd be able to put an end to the irony, making life after huge disasters a little more bearable.

Water is a double-edged sword which can both help and hurt us. As much we hope not to face
any more catastrophes, we can't control Mother Nature. As creatures living on this planet, I feel that we must put up with and get around whatever trouble we may face as best we can, and the "Water is Life" conference is the perfect place to pursue how. This conference is a great way to raise awareness on water issues, and I hope, for our futures' sake, that it will be held for generations to come.

人間にとって水は欠かせないものだ。私たちは水があることで清潔感を保ち、生きるためのエネルギーの 供給をしている。2011年3月11日、日本のある港町が濁った水によって襲われるという動画を目の当たりにした。私の家族はその時期ちょうどアメリカに住んでいたため、災害による影響はなかったが自分の母国が海水に飲み込まれているニュースから目を離すことができなかった。10歳の私には港町を襲っている津波が、ご飯を楽しみそうに大きく口を開けている姿と重なったのである。私たちの生活に水は必要不可欠だ。しかし、それと同時に「水」という存在は一瞬にして怪と化け、多くの命を奪ってしまう。そう、私たちの知っている水は「諸刃の剣」なのだ。

ここでのアイロニーは津波が多くの尊い命を奪ったと同時に、この災害を乗り越えるためには水が今まで以上に需要が高くなった、というところにある。どれだけ水に対して怒りや憤りを感じたとしても、生き残るにはどうしても水に頼らなければいけない、そういうパラドックスがこの災害を通して私は見つけた。東日本大震災後、多くの水たまりや小さな池が新たに形成されため水資源は多く存在した。しかし、これらの水は汚れており、とても飲めるような状態にはないため目の前にある水資源は使えず、避難者の水不足の問題は深刻化するばかりであった。不思議なことに私はこのパラドックスに惹かれた。「この課題の解決方法を考え、見つけてみろ」そう言われているような気がした。そしてWater is Life 2018に参加できるということを知り、「頭の片隅にずっとあったパラドックスの解決方法を見つけるにはこれしかない！」と思い、「災害時における二段階式浄水システム」の開発をテーマとした。

この浄水システムの開発において私のチームは周りに水資源となりうるものがあるのに汚れているがためにそれを活用できていないということに注目した。①大きな汚れ、透明度の向上、消臭効果を求めてペットボトルに活性炭・花崗岩・ガーゼを層にした簡易型フィルターの作成、②国家の規定として飲用水には大腸菌が含まれていないということがあったため、太陽光の市街戦による大腸菌の殺菌効果を期待し、外側が黒く、中はアルミホイルに覆われた箱型の殺菌装置の2つの開発を試みた。残念ながら、1年間という研究期間では完成することは叶わなかったが、もしこれを完成することができるのであれば本当にパラドックスの解法となり、将来起こりえる災害の後の生活が少しは楽になるのではないかと期待している。

「水」は私たちを助けると同時に命を奪ってしまうという二面を持った諸刃の剣だ。東日本大震災のような災害がもう起きないことは願うが、自然を抑制することは人間のキャパシティーを超えている。しかし、地球で生活している者として自然災害などによって直面する課題を解決していくことは人類の役目であると私は思う。このような事を探求するにはWater is Life 会議という機会は最も適しており、この高校生会議はずっと続いて欲しいと思う。

DANISH

DANSK

Denmark—Small country surrounded by water

Danmark - Lille land omringet af vand

By Mathilde Vinther, Selma Murray, Frida Brandt, Gry Vangslev, Thea Holm & Hjalte Matthiesen

Coploff, Ava. “Copenhagen, Denmark.” Unsplashed, 3 Mar. 2019, unsplash.com/photos/tcE9zSc2SU8.

Throughout Danish history, market towns have been an important part of the country's trading culture. Market towns were towns or cities given special trading privileges by the king. These privileges made the towns more attractive to newcomers. Given the towns' easy access to the sea, most market towns were also sea ports. This facilitated foreign merchants as they sought to reach the towns, creating a global market; in addition, Danish merchants could travel easily from market town to market town. This trading history is still apparent in Danish geography, where most of the country's big cities are sea ports and old market towns.

However, the ports were not only used for trade. The historic Vikings also resided in port and market towns, since they needed to live close to the water for their sea voyages. Vikings are probably best remembered as wild barbarians, plundering everyone and everything. But they were also incredible sailors, who spent most of their lives at sea. From their early childhoods, they went out sailing with their fathers; this continued as they got older. The sea definitely had a special place in their hearts. They knew it inside out: even when the sea was acting differently, whenever they faced a problem, they knew how to tackle it. Denmark is— as mentioned above— surrounded by water, and water has certainly made its mark on our culture. We've relied on water through the ages, as a large part of our economy is derived from the sea. In the 1500s, Denmark was home to Europe's biggest fishing industry; nowadays, our biggest company, Maersk, is the largest shipping company in the world, with more than 300 vessels.

Alle verdens samfund har gennem historien været dybt afhængige af den omkringliggende natur. Mennesker har altid udviklet sig for at kunne tilpasse sig deres omgivelser. I et moderne samfund glemmer vi ofte naturen og overser nemt, hvor stor betydning den egentlig har i vores hverdag. Danmark består af små øer omringet af vand fra alle sider. Selvom vi i dag er et veletableret landbrugssamfund, har en kæmpestor del af vores identitet dybe rødder i udnyttelsen af havets kræfter.

Igennem dansk historie har købstæder spillet en vigtig rolle i Danmarks trivende handel. Købstæderne var byer, som havde fået særlige rettigheder af kongen til handel og finere håndværk. Dette gjorde, at flere og flere flyttede til byerne. På grund af den nemme adgang havet gav til byer, var næsten alle købstæder også havnebyer. Dette gjorde, til dels, at folk nemmere kunne komme fra udlandet og drive handel med sig, men det gjorde det også nemmere for handelsmænd at tage fra købstad til købstad. Man kan stadig se den historie i dansk geografi, da størstedelen af de danske storbyer, er havnebyer og gamle købstæder.

Dog er det ikke kun handelsmænd, der udnyttede købstæderne til deres fulde potentiale. De gamle vikinger har også holdt til ude ved de gamle havnebyer og købstæder. De har alle haft brug for at bo tæt på vandet, da de kom rundt ved brug af skibe. Vikingerne er nok mest kendte for at være vilde barbarer, der plyndrede alt og alle, men det man måske ikke tænker over er, hvor gode sømænd de var. De var vant til at bruge det meste af deres liv på vandet, og siden de var børn havde de været med deres fædre ude og sejle, og endda selv taget ud da de blev ældre. Havet har helt sikkert haft en speciel betydning for dem. De har kendt det ind og ud, og har til enhver tid vist hvordan de skal håndtere havets strabadser, selv når bølgerne var imod dem.

Denmark is— as mentioned above— surrounded by water, and water has certainly made its mark on our culture. We've relied on water through the ages, as a large part of our economy is derived from the sea. In the 1500s, Denmark was home to Europe's biggest fishing industry; nowadays, our biggest company, Maersk, is the largest shipping company in the world, with more than 300 vessels.

In addition to using water to transport goods, we also use it to produce most of Denmark's electricity via wind turbines. Denmark currently has 14 established offshore windmill farms, and just one turn of the wings of the largest offshore wind turbines can produce enough power to cover a household's electricity consumption for 29 hours. The energy from the wind turbines were previously used to grind grain and pump water; today, they are primarily used to produce electricity. Denmark leads several nations in turbine technology research to exploit the wind's renewable energy at sea. Thus, Denmark was, and still is, heavily dependent on the sea, and we wouldn't be the nation we are today if we didn't have the sea and its many possibilities.

The water also affects the Danes' daily lives. As children, we often go to the beach with our families to swim and relax, even though the water is not as warm as it is in Florida. As we get older, we start going to the beach with our friends, where we talk and eat together. In Denmark, almost everyone knows how to swim, and we are also pretty good surfers. No matter where you are in Denmark, the water will always be near. Therefore, water has had, and continues to have, a profound impact on our lives.

Danmark er jo - som sagt - omringet af vand, og det har sat sit præg på os som samfund. Vi var, og er stadig, afhængige af vand, og en stor del af vores økonomi tager udgangspunkt i vandet. Danmark var i 1500-tallet Europas største fiskeindustri, og nutildags er Danmarks største virksomhed, Maersk, et verdensomspændende shipping-firma. Det er faktisk det største i verden med over 300 fartøjer.

Udover at Danmark bruger vandet til at fragte forskellige varer, bruger vi det også til at producere det meste af Danmarks elektricitet ved hjælp af vindmøller. Danmark har i øjeblikket 14 etablerede havvindmølleparker, og bare én omdrejning på den største vindmølle kan producere nok strøm til at dække en husstands strømforbrug i 29 timer. Energien fra vindmøllerne blev tidligere brugt til at male korn og pumpe vand m.m, mens vindmøllerne i dag primært bruges som vindkraftværker til at producere elektricitet. Flere steder i verden forskes der i vindmølleteknologi i et forsøg på at udnytte vindens vedvarende energi, og Danmark er faktisk det førende land indenfor vindmølleteknologi.

Danmark har altid fæstet ild til havet, og vi ville ikke være den nation vi er i dag, var det ikke for havet og dets mange muligheder.

Vandet påvirker endda også danskernes dagligdag. Som børn tager vi tit på stranden med vores familier, hvor vi bader og slapper af, også selvom vandet ikke er lige så varmt som i Florida. Når vi bliver ældre tager vi også på stranden med vores venner, hvor vi taler og griller. I Danmark kan næsten alle svømme, og vi er faktisk heller ikke helt dårlige til at surfe. Lige meget hvor du står i Danmark er vandet altid nært, og derfor har vandet sådan stor betydning på os.

Bohemian Hot Springs
Bohémské horké prameny

By Lina Graf

What Are Hot Springs?

Hot springs are a world phenomenon. People have been visiting hot springs for hundreds of years now because of the medical benefits they bring. The heat of the water soothes muscle tension, relieving visitors' pain. The springs also attract people with skin conditions, as minerals in the water can help treat skin diseases such as psoriasis and eczema. However, some hot springs can be dangerous because they may be too hot for the body to handle. How, then, do hot springs work?

By definition, hot springs are naturally occurring sources of underground water, and are usually warmer than 98 degrees Fahrenheit. Thus, hot springs tend to be warmer than both their surroundings and the average human body temperature.

Hot springs form in numerous ways. The most common is when underground water encounters rocks that have been previously heated by magma. This type of formation usually occurs close to volcanic activity. There are a myriad of hot springs all over the world, but this article explores a specific type of hot springs in Karlovy Vary, Czech Republic.

Co jsou horké prameny?

Horké prameny jsou světovým fenoménem. Lidi z celého světa jezdí k horkém pramenum už stovky let kvuli zdravotním vyhodum. Horkost vody zklidňuje svaly a bolest, což velmi pomáhá lidem. Horké prameny také přivádí lidi různými stavy kůže kvuli mineralu ve vodě. Tato voda muze pomoci léčit onemocnění, jako je psoriáza a ekzém. Některé horké prameny však mohou být nebezpečné, protože mohou být příliš horké na to, aby je tělo zvládlo. Chcete vědět, jak horké prameny fungují? Podle definice je horký pramen podzemní vodou, která se vyskytuje přirozeně a je obvykle teplejší než 98 stupňů Fahrenheita. Takže trochu teplejší než teplota těla. Co dělá horký pramen, ve skutečnosti horký pramen spočívá v tom, že voda je teplejší než její okolí. Jak se tedy tvoří? Horké prameny se vytvářejí mnoha způsoby. Jeden způsob - nejběžnější způsob - je, když se voda, která je v podzemí, dotkne hornin, které byly dříve zahřívání magmatem. Tento typ formace se obvykle vyskytuje v blízkosti vulkanické aktivity. Po celém světě existuje nespočet horkých pramenů, ale prozkoumáme konkrétní typy horkých pramenů v Karlových Varech v České republice. Karlovy Vary jsou nejnavštěvovanější lázeňské město v České republice nacházející se v Čechách.

Karlsbad (Karlovy Vary) Hot Springs:

Located in Bohemia, Karlsbad is the most visited spa town in the Czech Republic. The city was founded by and named after the King of Bohemia and Holy Roman Emperor, Charles IV, in 1370. Karlsbad has thirteen main hot springs and 300 small ones; they all only differ in CO_2 content and temperature. The hottest hot spring is the Vřídlo with an average temperature around 73 degrees Celsius, or 163 degrees Fahrenheit. These hot springs differ from others, in that one can't soak in them. Until 1522, bathing hot springs were vastly popular; however, physicians believed that soaking in boiling water for long periods disrupted the skin. By the 17th century, drinking water from the hot springs became more popular; however, it was consumed only in small amounts, because it can be harmful to drink too much. People mainly drink the water when it is prescribed to them by a medical professional to help treat diseases. Usually, people can access hot spring fountains easily all throughout the city, and can pour the water into small porcelain cups to drink. In 1718, Charles VI prohibited the distribution of mineral water outside the borders. This led to a massive influx of people— typically nobles— pouring into Karlovy Vary for the mineral water to help cure their diseases. By 1859, more research was being conducted on the water's effects. Josef Seegal discovered that it decreases blood sugar levels; thus, doctors began to send diabetics to Karlovy Vary to drink the water. As the years went on, Karlovy Vary continued to be a successful spa town, but suffered three air raids when Hitler's Third Reich and Wehrmacht occupied the town. After World War II, as the town and the rest of the Czech Republic recovered, Karlovy Vary began growing once again. To this day, it remains the most visited spa town in the Czech Republic.

Město bylo založeno a pojmenováno po českém králi a římském císaři Karlu IV. V roce 1370. Karlsbad má třináct hlavních horkých pramenů a 300 malých; všechny jsou podobné, protože se liší pouze obsahem CO_2 a teplotou. Nejžhavější horký pramen je Vřídlo s přibližně 73 ° C, což je 163 ° Fahrenheita. Tyto horké prameny se liší od typických pramenů, ve kterych se da koupat. Až do roku 1522 byly horké prameny ke koupání nesmírně populární. Lékaři však věřili, že namáčení ve vroucí vodě po dlouhych dobach narušilo kůži. V 17. století se pití vody z horkých pramenů stále populárnější, ale jen v malém množství, protože může být škodlivé pít příliš mnoho. Lidé pijí hlavně vodu, když jim to lékař předepisuje k léčbě nemocí. Obvykle lidé najdou horkou pramennou fontánu po celém městě, snadno přístupnou. Lide si obvykle dávají tuto vodu do malých porcelánových šálků a popíjejí ji. V roce 1718 Karel VI zakázal distribuci minerální vody mimo hranice. To vedlo k tomu, že do Karlových Varů přicházelo do Karlových Varů velké množství lidí - vzácně šlechticů, kteří chtěli léčit jejich nemoci. V roce 1859 byl proveden další výzkum účinků teto vody a Josef Seegal zjistil, že snižuje hladinu krve a lékaři začali odesílat diabetiky do Karlových Varů, aby ji pili. Jak léta pokračovala, Karlovy Vary byly i nadále úspěšným lázeňským městem, ale poté, co město obsadily Hitlerova Třetí říše a Wehrmacht, vydržely tři nálety. Po druhé světové válce se městu i zbytek České republiky postavili na nohy a Karlovy Vary začaly znovu růst a zůstává dodnes nejnavštěvovanějším lázeňským městem v České republice.

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