

Zeitschrift: Trans : Publikationsreihe des Fachvereins der Studierenden am Departement Architektur der ETH Zürich

Herausgeber: Departement Architektur der ETH Zürich

Band: - (2023)

Heft: 42

Artikel: Part three : once fish teeth turned into rocks and powered the modern world

Autor: Morgillo, Davide

DOI: <https://doi.org/10.5169/seals-1051755>

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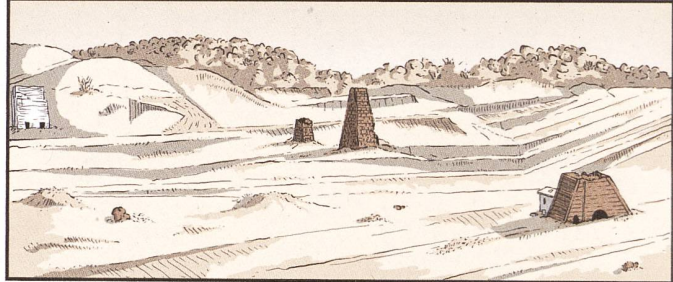
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PART THREE:
ONCE FISH TEETH TURNED
INTO ROCKS AND POWERED
THE MODERN WORLD
Davide Morgillo

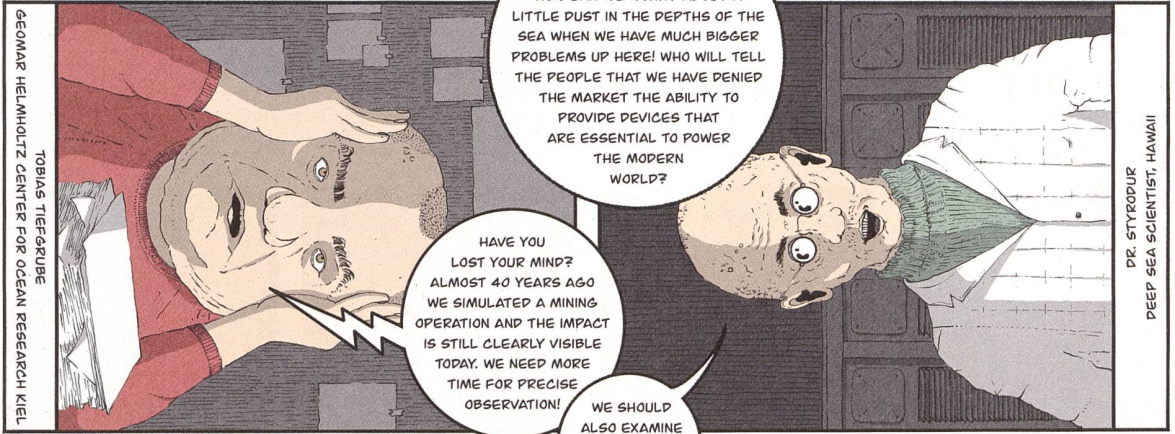
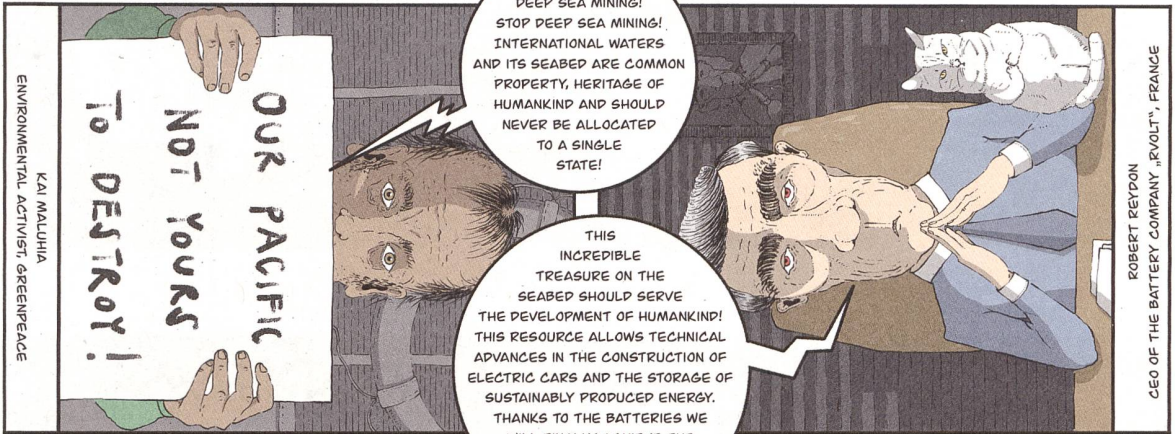
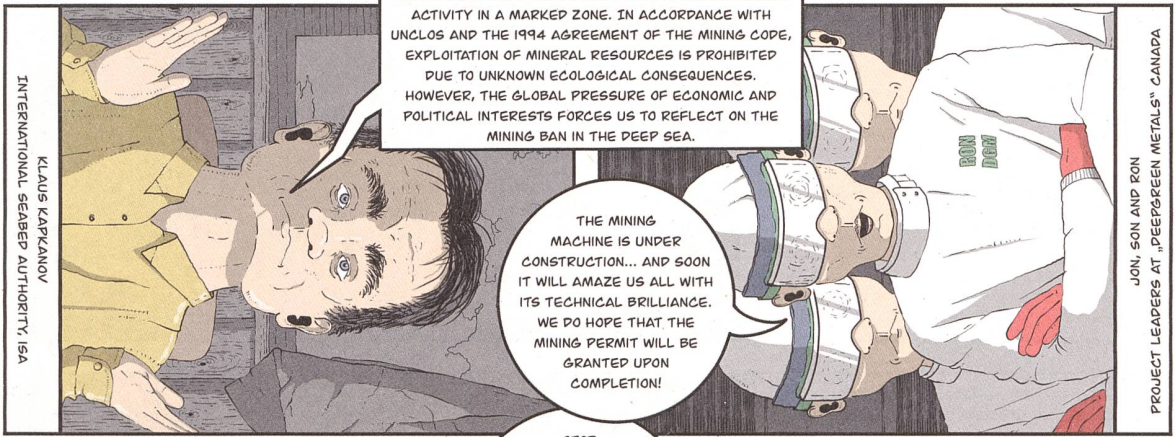


WHAT REMAINS IS A WASTELAND, A TERRAIN VAGUE, ADORNED WITH ABANDONED TECHNICAL RELICS SURROUNDED BY MEMORIES ENGRAVED IN THE SLOPES OF MACHINE-MADE VALLEYS.

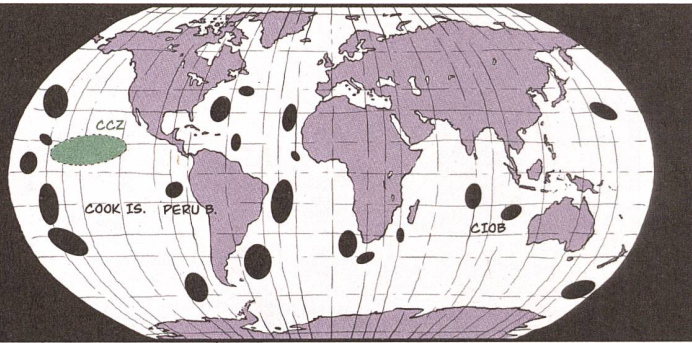


IN RECENT YEARS, A NEW SOURCE HAS BEEN DISCOVERED IN HIGHLY SENSITIVE ENVIRONMENTS. THIS IS CURRENTLY THE SUBJECT OF TENSE DEBATE...

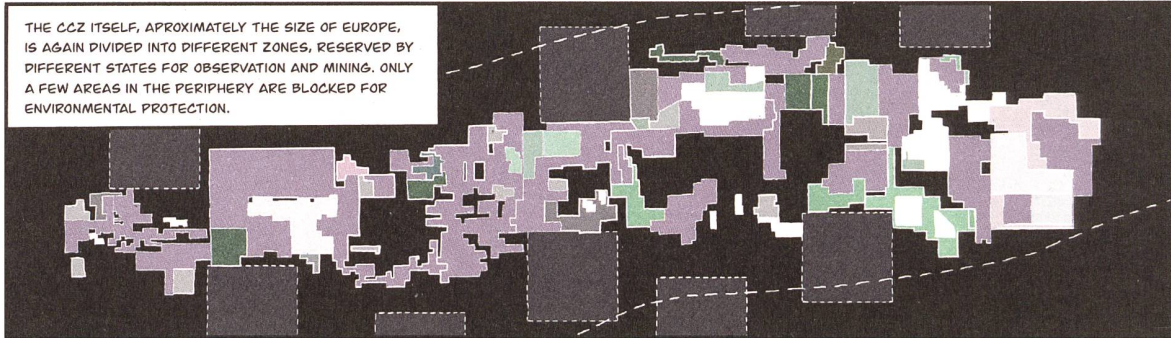




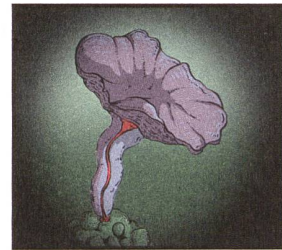
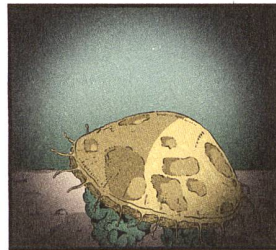
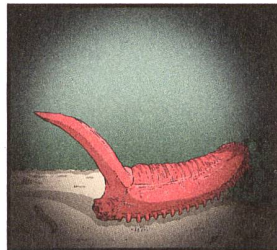
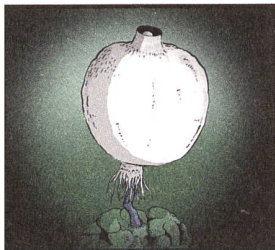
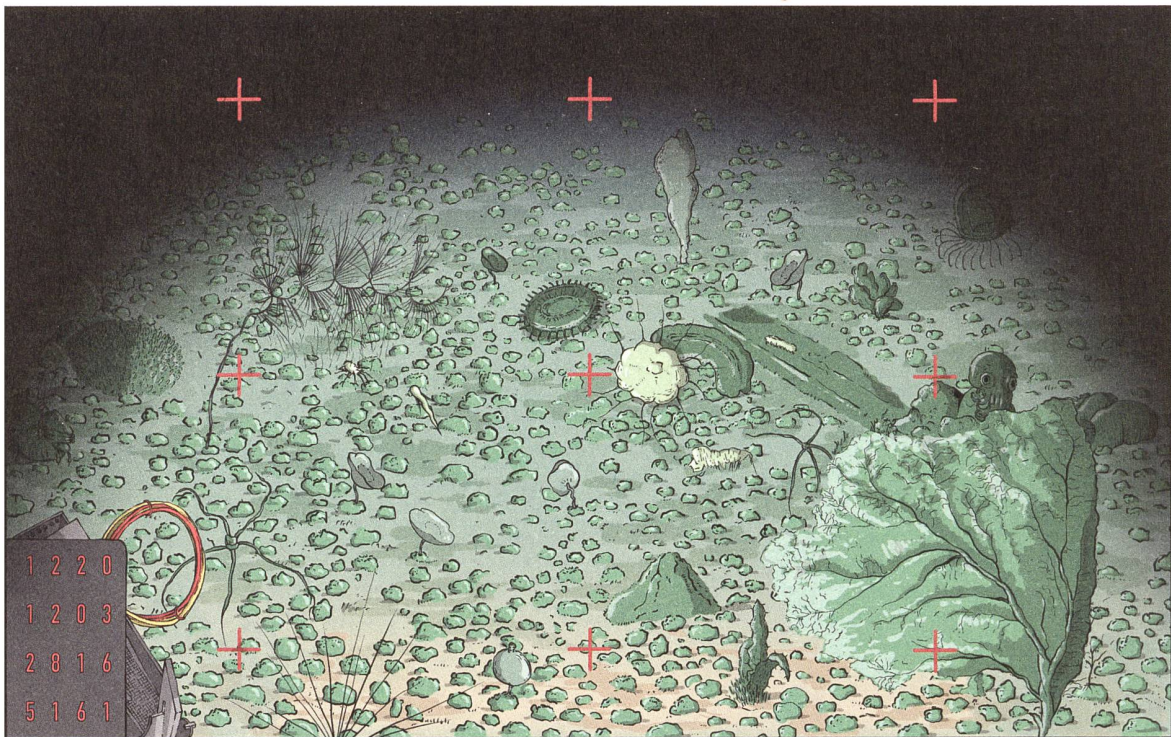
THE DEBATE CENTERS AROUND POLYMETALLIC NODULES, ALSO CALLED MANGANESE NODULES, WHICH LIE AROUND ABUNDANTLY ON THE SEAFLOOR IN DEPTHS BETWEEN 4000 AND 5000 M. THE REASON FOR THEIR HIGH VALUE IN THE SUSTAINABLE ENERGY INDUSTRY IS THE HIGH CONCENTRATION OF RARE METALS, ESPECIALLY COBALT, WHICH IS CRUCIAL TO STORING ENERGY. THE NODULES APPEAR IN DIFFERENT AREAS IN THE OCEAN BUT ONE OFFERS AN UNBEATEN RICHNESS. THE CLAIRON-CLIPPERTON-ZONE, CALLED CCZ, LOCATED BETWEEN THE HAWAIIAN ISLANDS IN THE NORTHWEST AND MEXICO IN THE EAST IS KNOWN FOR CONTAINING A VAST CARPET OF NODULES ON TOP OF THE SAND, BEING TRULY A DEEP SEA ELDORADO FOR SEEKERS.

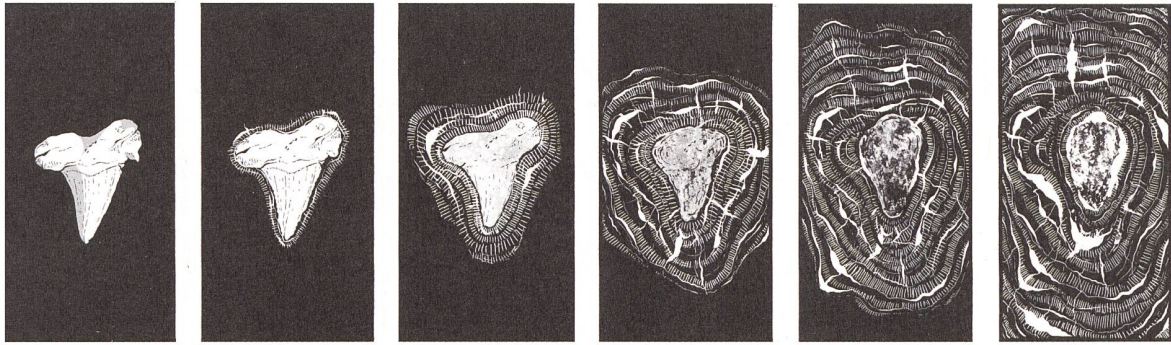


THE CCZ ITSELF, APPROXIMATELY THE SIZE OF EUROPE, IS AGAIN DIVIDED INTO DIFFERENT ZONES, RESERVED BY DIFFERENT STATES FOR OBSERVATION AND MINING. ONLY A FEW AREAS IN THE PERIPHERY ARE BLOCKED FOR ENVIRONMENTAL PROTECTION.

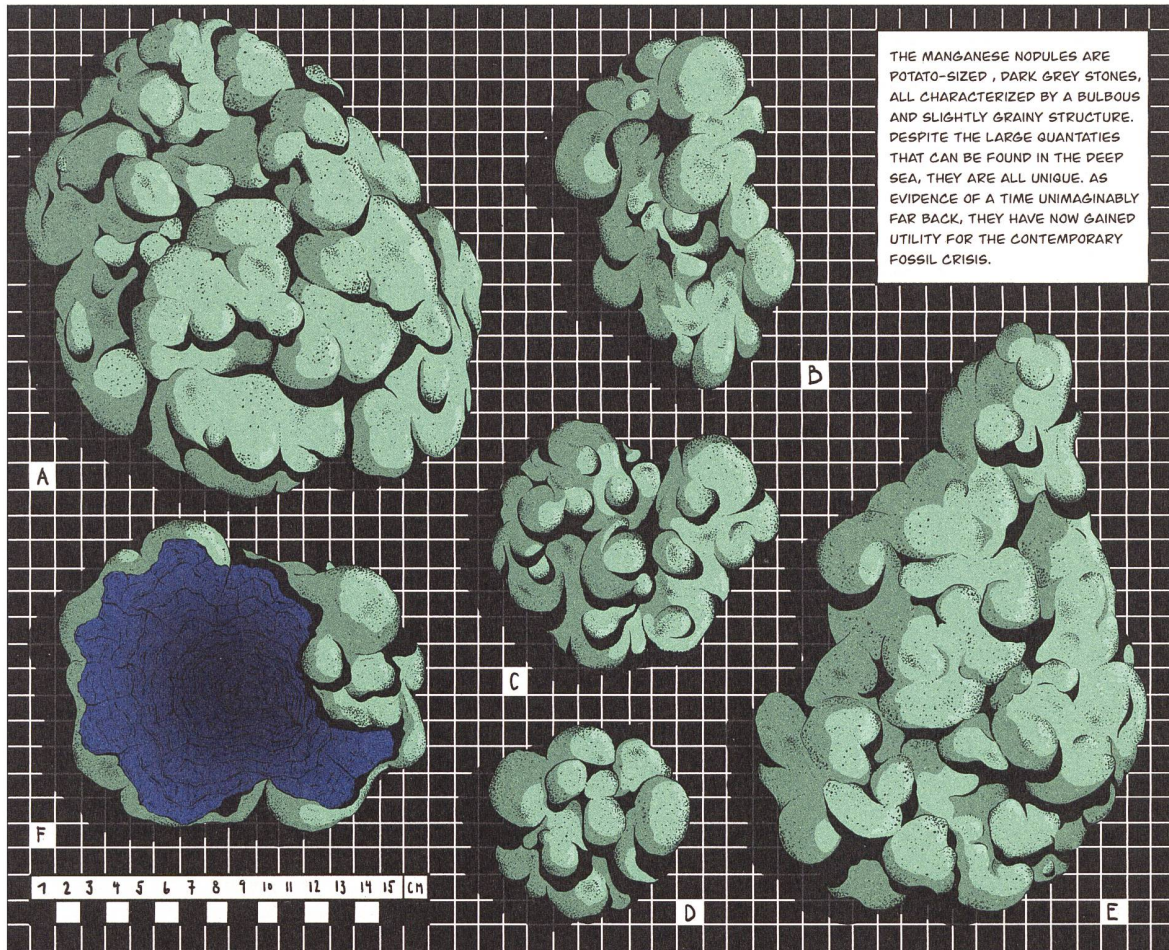


DESPITE THE EXTREME CONDITIONS, THE CLAIRON-CLIPPERTON-ZONE IS NOT DEVOID OF LIFE. THE SEAFLOOR IS A VERY SPECIFIC ECOSYSTEM, IN WHICH A HIGH VARIETY OF SMALL DEEP SEA ANIMALS, PLANTS AND BACTERIA DEPEND ON THE STONY GROUND TO STAY STILL AND FIND NUTRIENTS. BEFORE GETTING RESEARCHED OR EVEN DISCOVERED, MANY SPECIES HAVE BEEN PUT AT RISK OF EXTINCTION DUE TO THE ECONOMIC INTEREST OF THESE NODULES.

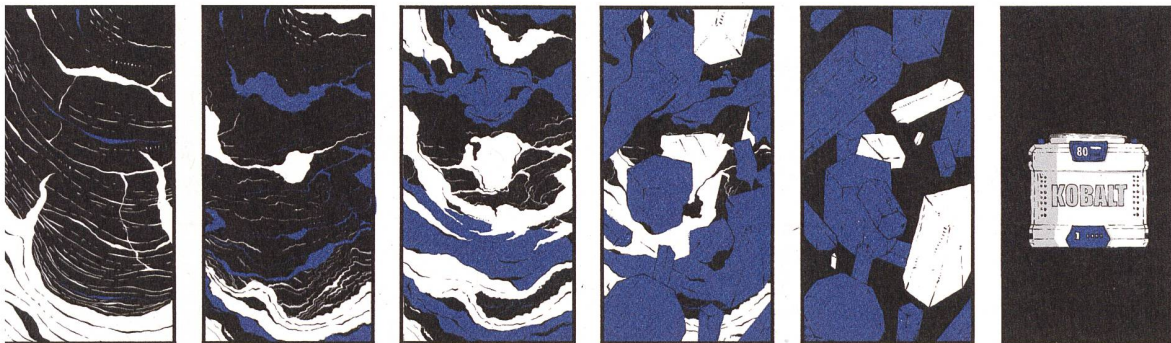


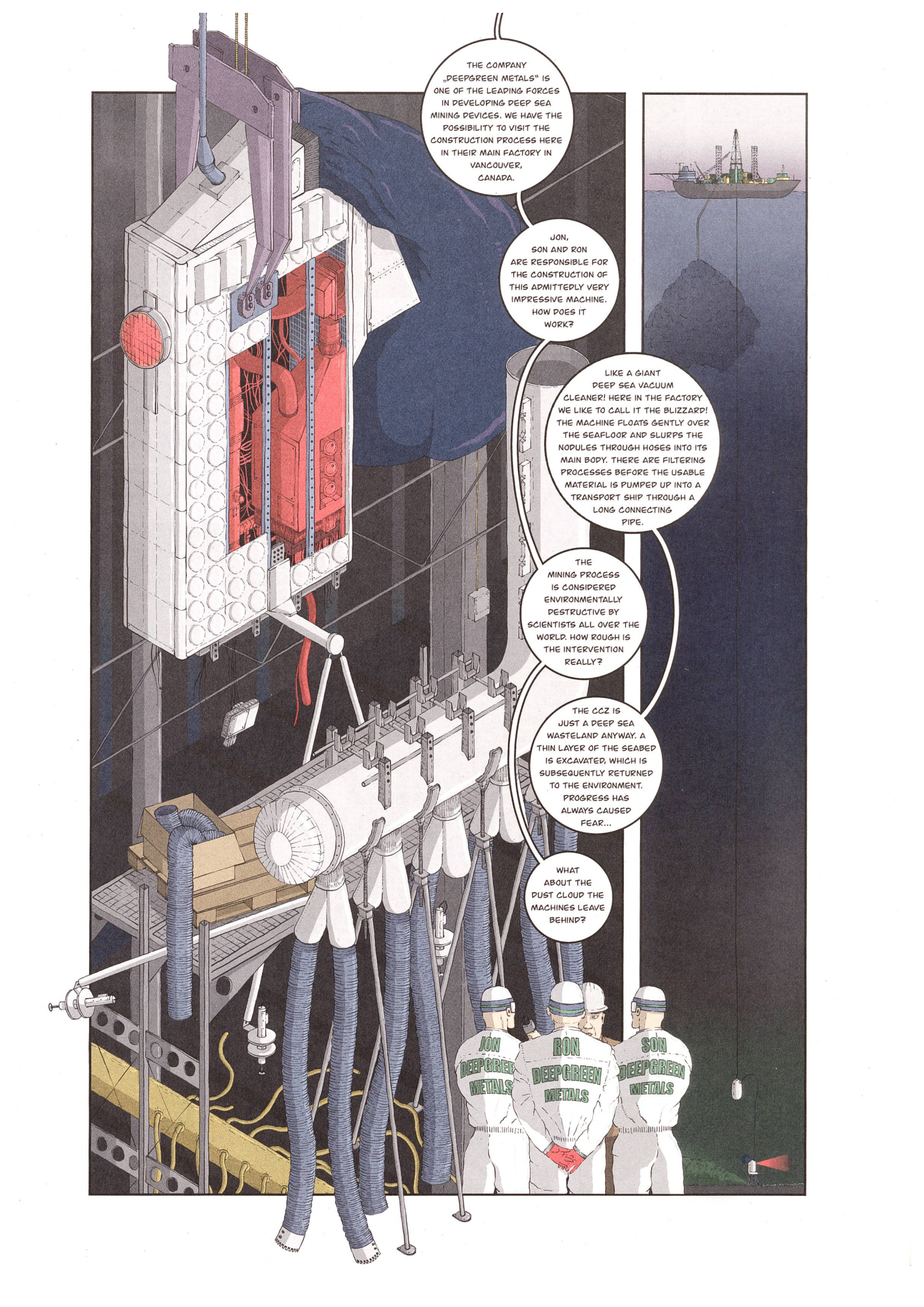


THE NODULES FORM OVER TIME. IT TAKES ABOUT 10 MILLION YEARS FOR A SINGLE STONE TO DEVELOP. AROUND A SUNKEN OBJECT, LIKE A SHARK'S TOOTH, DIFFERENT METALS CONTAINED IN THE SEAWATER ACCUMULATE LAYER BY LAYER AROUND IT AND BUILD CRUST DEPOSITS. UNDER THE RIGHT CONDITIONS, A NODULE IS FORMED, PROTECTING A KIND OF FOSSIL IN ITS INNER CORE.



FROM THE VARIETY OF METALS CONTAINED IN THE NODULES, THE HIGHEST ATTENTION IS PAID TO COBALT, THE INDUSTRY'S „BLUE GOLD.“ IT IS INDISPENSABLE FOR THE CONSTRUCTION OF BATTERIES OF ALL KINDS. IN PARTICULAR, THE AUTOMOBILE INDUSTRY IS COUNTING ENTIRELY ON IT TO FINALLY RELY EXCLUSIVELY ON ELECTROMOBILITY AND THUS SUPPORT THE EFFORTS TO MINE RESOURCES ON THE OCEAN BOTTOM. LET'S FIND OUT MORE ABOUT THIS MINING PROCESS!





THE COMPANY „DEEPGREEN METALS“ IS ONE OF THE LEADING FORCES IN DEVELOPING DEEP SEA MINING DEVICES. WE HAVE THE POSSIBILITY TO VISIT THE CONSTRUCTION PROCESS HERE IN THEIR MAIN FACTORY IN VANCOUVER, CANADA.

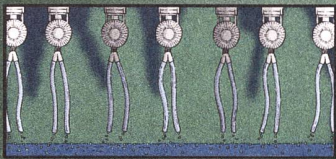
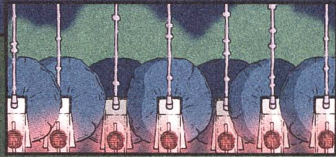
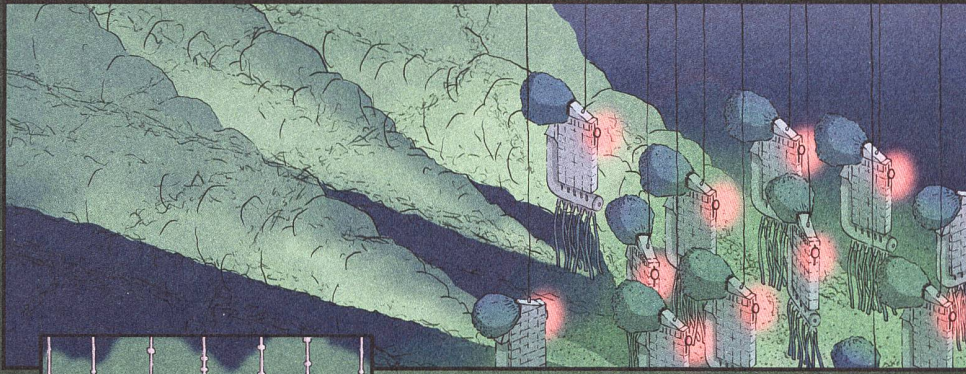
JON, SON AND RON ARE RESPONSIBLE FOR THE CONSTRUCTION OF THIS ADMITTEDLY VERY IMPRESSIVE MACHINE. HOW DOES IT WORK?

LIKE A GIANT DEEP SEA VACUUM CLEANER! HERE IN THE FACTORY WE LIKE TO CALL IT THE BLIZZARD! THE MACHINE FLOATS GENTLY OVER THE SEAFLOOR AND SLURPS THE NODULES THROUGH HOSES INTO ITS MAIN BODY. THERE ARE FILTERING PROCESSES BEFORE THE USABLE MATERIAL IS PUMPED UP INTO A TRANSPORT SHIP THROUGH A LONG CONNECTING PIPE.

THE MINING PROCESS IS CONSIDERED ENVIRONMENTALLY DESTRUCTIVE BY SCIENTISTS ALL OVER THE WORLD. HOW ROUGH IS THE INTERVENTION REALLY?

THE CCZ IS JUST A DEEP SEA WASTELAND ANYWAY. A THIN LAYER OF THE SEABED IS EXCAVATED, WHICH IS SUBSEQUENTLY RETURNED TO THE ENVIRONMENT. PROGRESS HAS ALWAYS CAUSED FEAR...

WHAT ABOUT THE DUST CLOUD THE MACHINES LEAVE BEHIND?



THE GREAT NUMBER OF DEEP SEA ROBOTS LEAVE AN ENORMOUS DUST CLOUD BEHIND WHICH REMAINS ALMOST MOTIONLESS IN THE SAME STATE FOR CENTURIES SINCE THE WATER IN THESE DEPTHS PRACTICALLY STANDS STILL. IT HINDERS LIVING CREATURES BY DISTURBING THEIR VISION, COVERING THEIR SKINS AND CLOGGING THEIR RESPIRATORY ORGANS.

WHAT HUMANS HAVE DESTROYED IN THE BLINK OF AN EYE, PREVIOUSLY EXISTED FOR MILLIONS OF YEARS. ANIMALS AND PLANTS IN DEEP SEA ECOSYSTEMS LIVE LONGER AND SLOWER AND WILL TAKE CENTURIES TO RECOVER FROM THE DAMAGE. WE HAVE TO FACE A LOSS OF BIODIVERSITY THAT IS IRREVERSIBLE ON MULTI-GENERATIONAL TIMESCALES.

THE CCZ HAS BECOME A DEAD UNDERWATER WORLD.

