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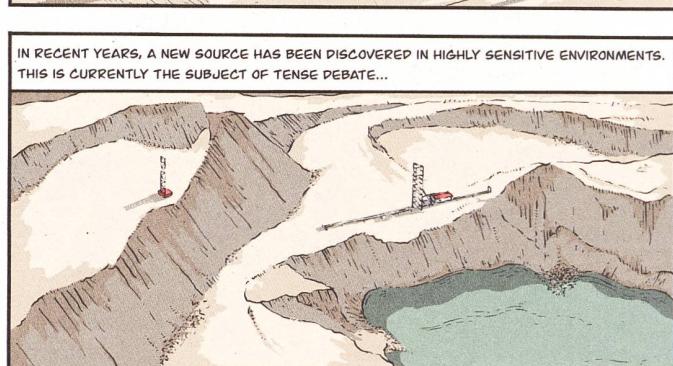
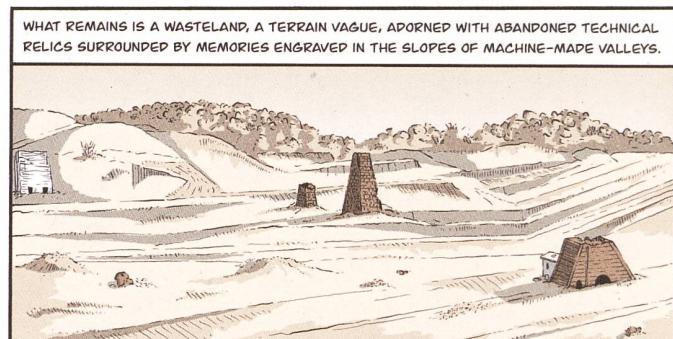
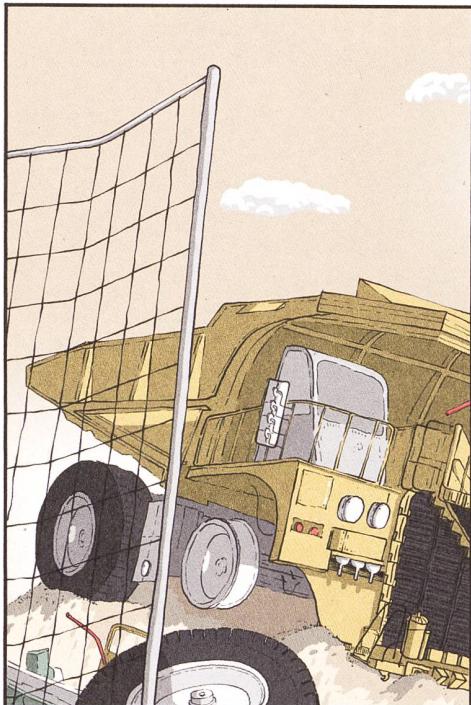
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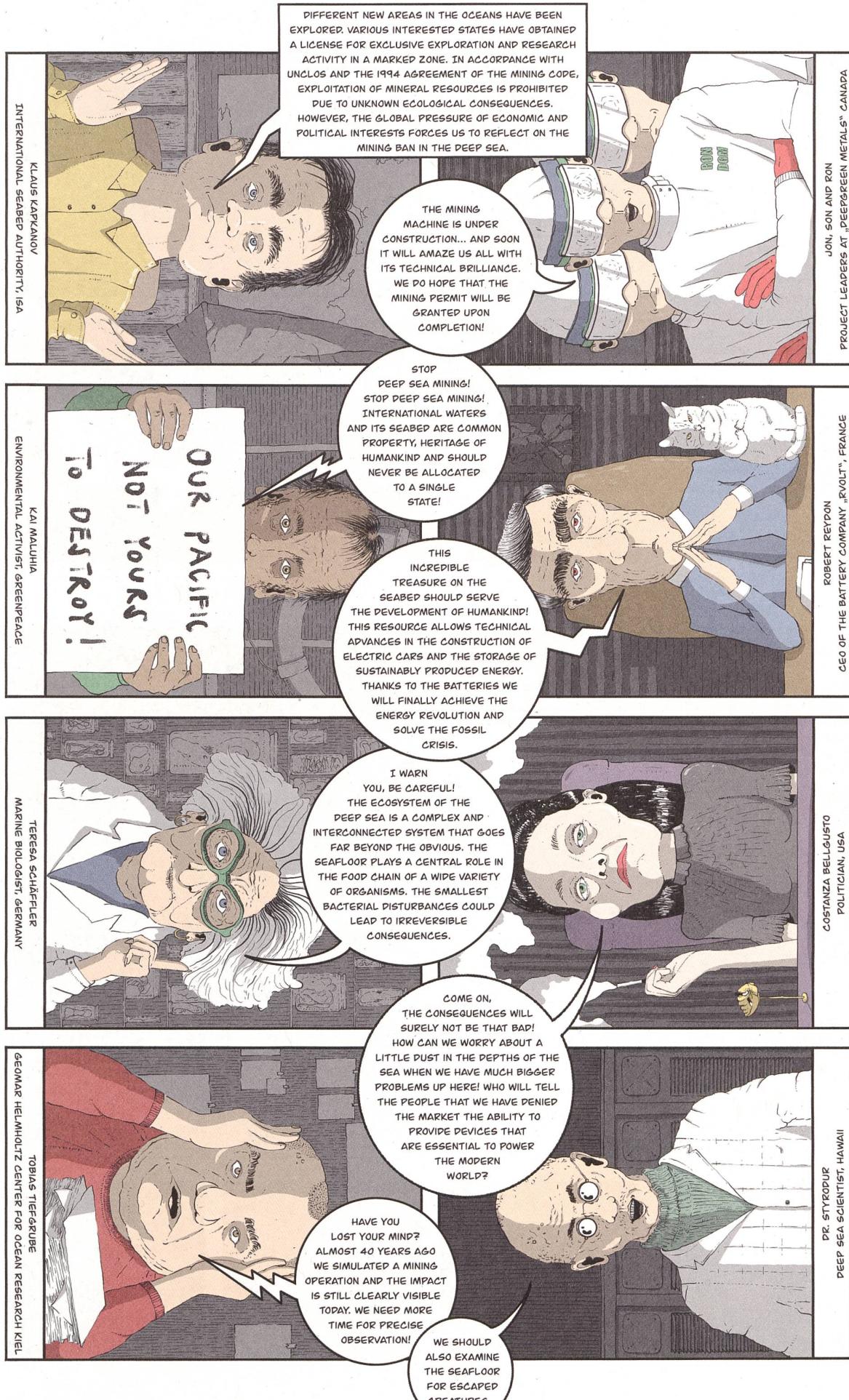
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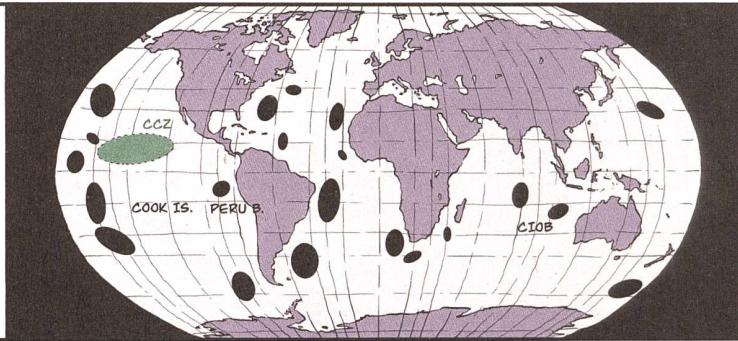
PART THREE:
ONCE FISH TEETH TURNED
INTO ROCKS AND POWERED
THE MODERN WORLD
Davide Morgillo

Davide Morgillo, born 1994, graduated in architecture from ETH Zurich in 2020. Currently, he works as an architect in Winterthur, as a teaching assistant at ETH Zurich and a comic artist. After «Microbial Globalisation» and «Once Jellyfish Started to Blossom and Grow Hair» this contribution forms the third part of his comic series for trans magazin.





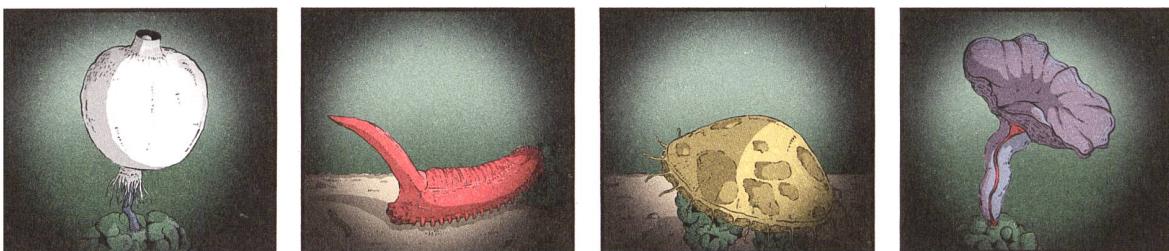
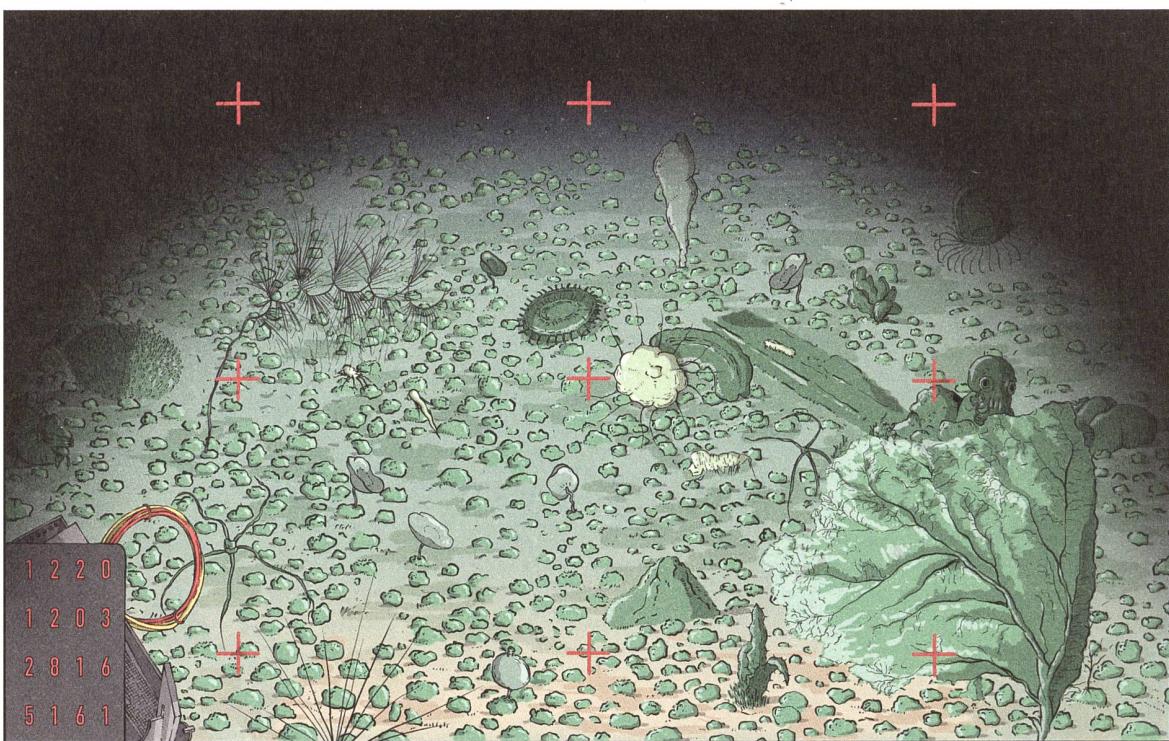
THE DEBATE CENTERS AROUND POLYMETALLIC NODULES, ALSO CALLED MANGANESE NODULES, WHICH LIE AROUND ABUNDANTLY ON THE SEAFLOOR IN DEPTHS BETWEEN 4000 AND 5000 M. THE REASON FOR THEIR HIGH VALUE IN THE SUSTAINABLE ENERGY INDUSTRY IS THE HIGH CONCENTRATION OF RARE METALS, ESPECIALLY COBALT, WHICH IS CRUCIAL 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.

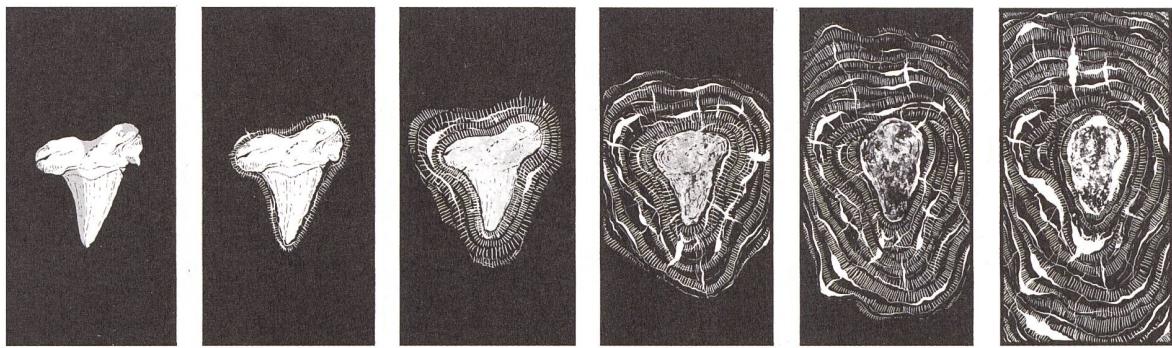


THE CCZ ITSELF, APPROXIMATELY THE SIZE OF EUROPE, IS AGAIN DIVIDED INTO DIFFERENT ZONES, RESERVED BY DIFFERENT STATES FOR OBSERVATION AND MINING. ONLY A FEW AREAS IN THE PERIPHERY ARE BLOCKED FOR ENVIRONMENTAL PROTECTION.

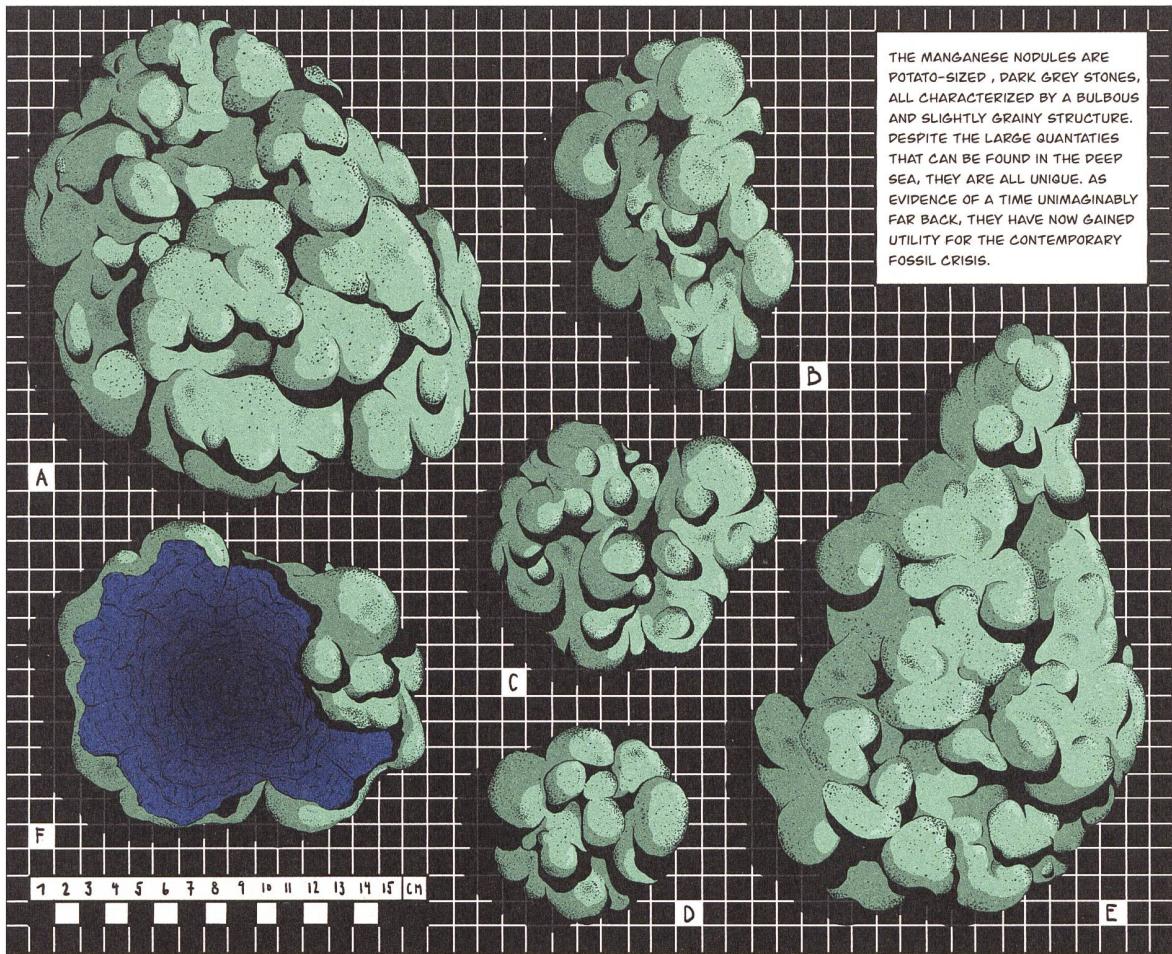


DESPITE THE EXTREME CONDITIONS, THE CLAIRON-CLIPPERTON-ZONE IS NOT DEVOID OF LIFE. THE SEAFLOOR IS A VERY SPECIFIC ECOSYSTEM, IN WHICH A HIGH VARIETY OF SMALL DEEP SEA ANIMALS, PLANTS AND BACTERIA DEPEND ON THE STONY GROUND TO STAY STILL AND FIND NUTRIENTS. BEFORE GETTING RESEARCHED OR EVEN DISCOVERED,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

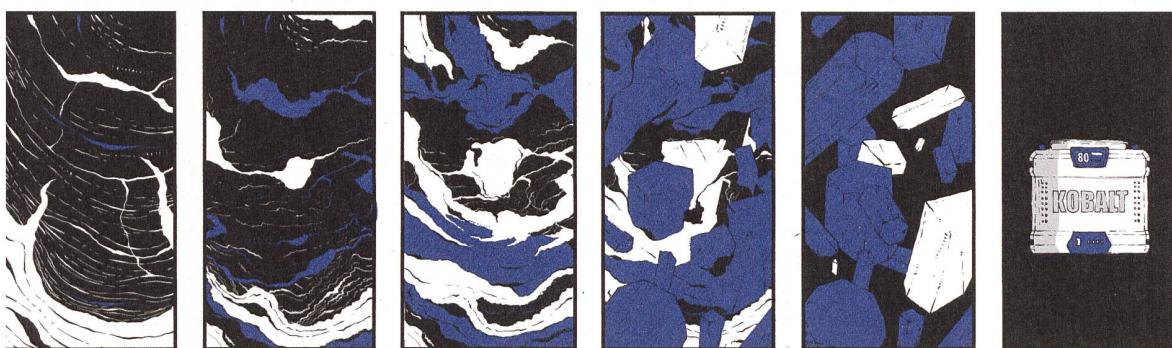




THE NODULES FORM OVER TIME. IT TAKES ABOUT 10 MILLION YEARS FOR A SINGLE STONE TO DEVELOP. AROUND A SUNKEN OBJECT, LIKE A SHARK'S TOOTH, DIFFERENT METALS CONTAINED IN THE SEAWATER ACCUMULATE LAYER BY LAYER AROUND IT AND BUILD CRUST DEPOSITS. UNDER THE RIGHT CONDITIONS, A NODULE IS FORMED, PROTECTING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

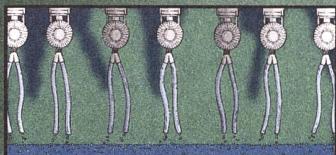
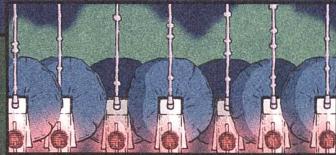
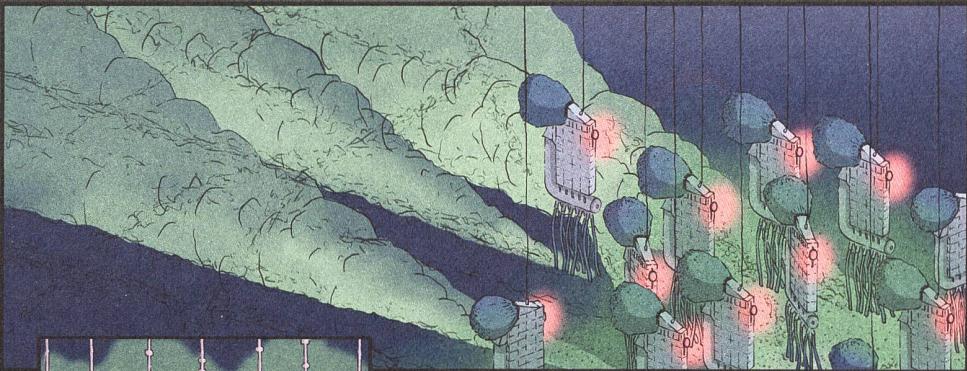
WHAT
ABOUT THE
DUST CLOUD THE
MACHINES LEAVE
BEHIND?



JON
DEEPGREEN
METALS

RON
DEEPGREEN
METALS

SON
DEEPGREEN
METALS



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.

