GLYP TODON
MAGAZINE

INTERVIEW
Daniel De Lucca - Marajoara

ARTICLE
The importance of the questions

PROMO
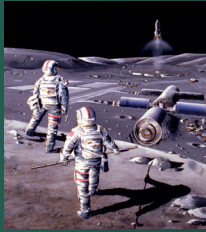Luna Maris

DISCOVER
The science of Luna Maris

SUMMARY

The second decade of the 21st century hasn't been easy so far: climate catastrophe, economic crisis, pandemic, war on several continents, political extremism, negationist movements, and the significant intensification of social inequality make it hard for us to think of a better future.

In this scenario, it is possible to see the popularization of dystopian narratives and references inspired by the cyberpunk tradition, like those typical 80's science fiction stories, that show a polluted and devastated Earth, as well as large metropolises controlled by corporations that massacre the citizens.

But is it possible to dream about a better future?

Building a futuristic utopia along the lines of the 1950's is impossible in 2022. These narratives were essentially male, white, and strongly rooted in Western values, excluding most of humanity from their technological paradises.

However, it may be possible to revisit these better futures with a critical view.

The emergence of authors from various origins, Latin American, African, Eastern, female writers, transsexuals etc., has brought to the surface demands that had been silenced until then, and have started to feed the desire for a better, fairer, and more equal future. *Afrofuturism*, popularly known by movies like *Black Panther*, shows the power of diversity and the fact that it is possible to dream about tomorrow.

In this edition of **Glyptodon Magazine** we talk a lot about *Luna Maris*, the studio's latest release which explores the possibilities for humanity's future in space with a lot of science and skill. To top it all off, you get a new game variant that will greatly increase its challenge.

And since building the future requires preserving the past, we also have more details about *Marajoara*, a game that uses dice in creative ways to bring a unique and very fun archaeological excavation experience.
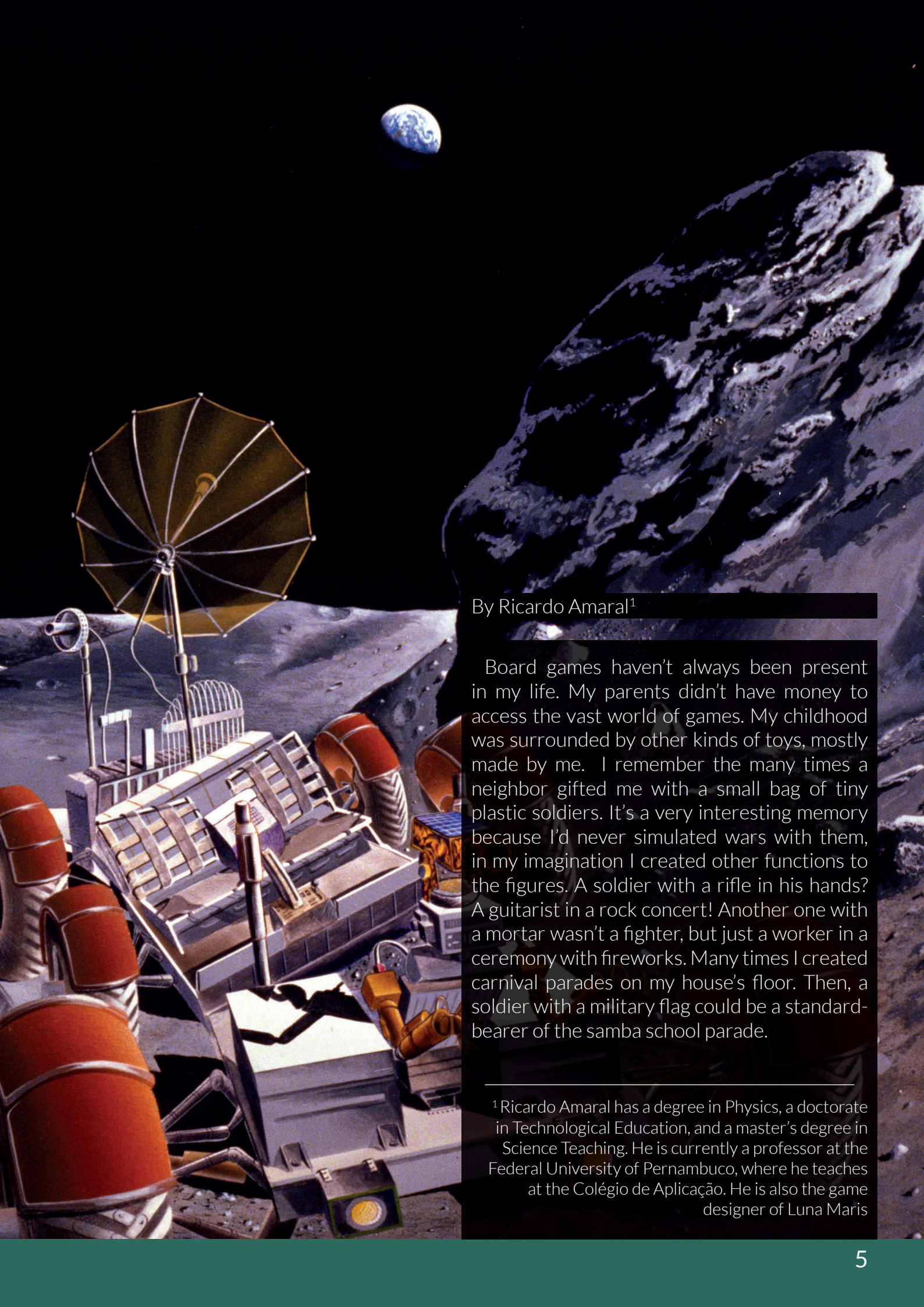
Despite the hardship, we at **Glyptodon Game Studios** allow ourselves to dream.

LUNA ⦿ MARIS

and SCIENCE
behind the GAME
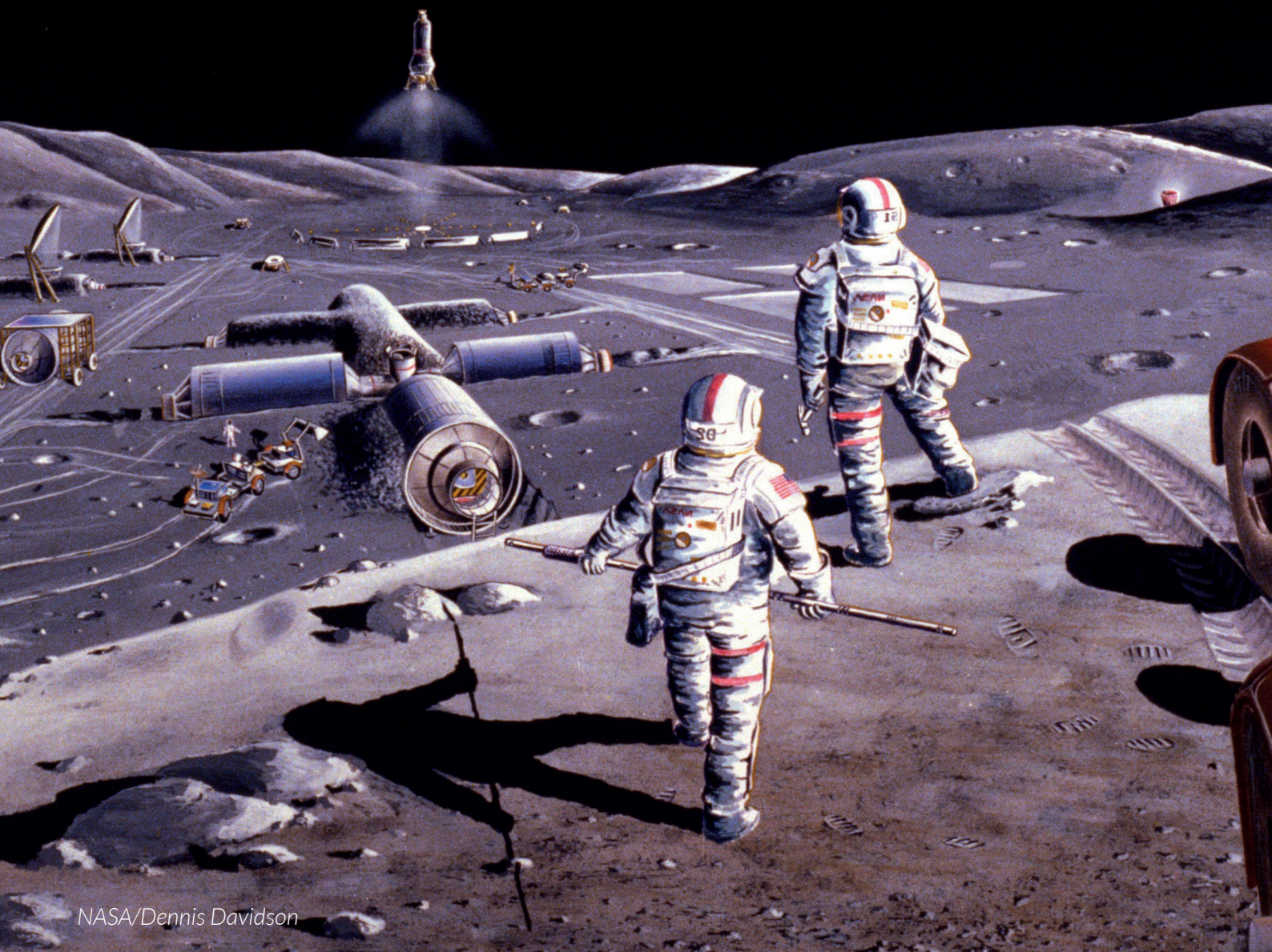
By Ricardo Amaral[1]

Board games haven't always been present in my life. My parents didn't have money to access the vast world of games. My childhood was surrounded by other kinds of toys, mostly made by me. I remember the many times a neighbor gifted me with a small bag of tiny plastic soldiers. It's a very interesting memory because I'd never simulated wars with them, in my imagination I created other functions to the figures. A soldier with a rifle in his hands? A guitarist in a rock concert! Another one with a mortar wasn't a fighter, but just a worker in a ceremony with fireworks. Many times I created carnival parades on my house's floor. Then, a soldier with a military flag could be a standard-bearer of the samba school parade.

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[1] Ricardo Amaral has a degree in Physics, a doctorate in Technological Education, and a master's degree in Science Teaching. He is currently a professor at the Federal University of Pernambuco, where he teaches at the Colégio de Aplicação. He is also the game designer of Luna Maris

Why bring that up? When I was invited to write about the scientific knowledge in the bases of the mechanics of Luna Maris, I was called to reflect about my choices, to think about my childhood and my necessity to find a useful meaning to things. In the past, and now, I saw no point in playing wars. This trait follows me to this day. Anyone who knows me as a player notices my struggle trying abstract games, because I don't get the point in doing random actions without any explanation.

When I entered the hobby, eleven years ago, I identified myself with euro style games because of the mix of complexity and simplicity. However, something bothered me: the lack of coherence between mechanics and theme or, in other words, the theme being only an excuse to do the actions. Some thematic descriptions don't make sense inside the game and I always thought about it at the moment to buy a game to my collection. I never thought about that before, but maybe this question about mechanics comes from my necessity to put a meaning in games in my childhood.

At some point I got interested in making a board game. Of course, my first worry was the necessity of putting a meaning in every aspect of the game. Adding to my professional choices in the Educational Area, I selected a theme based on Science. Now is the time for us to discover the scientific knowledge behind **Luna Maris.**

NASA/Moon to Mars

Lunar Days and Nights

For a good Moon observer or for the interested students in elementary school classes, it is not new that the Earth's natural satellite always shows the same face to us. It happens because the rotation period of the Moon (the time when it spins on its own axis) matches the duration of lunar translation (the time it goes around Earth).


Pearson Scott Foresman
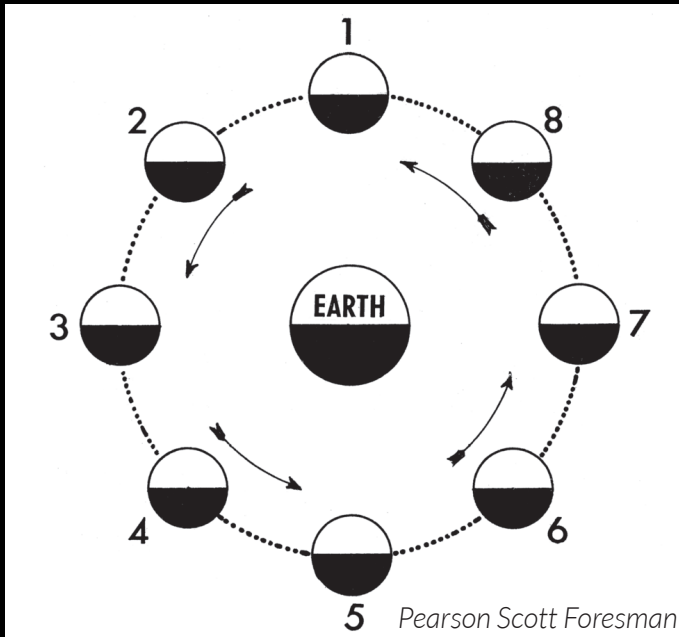
Because the Moon's rotation period is the same as its translation movement, our natural satellite always has the same face towards the Earth. Thus, its visible face remains illuminated only during the Crescent - Full - Waning Moon periods. On the other hand, the hidden face will be unlit during this period (points 3 to 7 on the picture). After about 14 days the process reverses. The occult side will be illuminated while the visible side will be in shadow (points 7 to 3 on the picture), which we refer to as the Waning - New - Crescent Moon period.

The "dark side" of the moon isn't always in the dark. Neither the visible side is always in light. Between crescent and gibbous, passing through the full moon, the visible side receives sunlight, which corresponds to the lunar day. At the same time, between gibbous and crescent, passing through the new moon, we barely see our satellite in the sky and the dark side is turned to the light.

The period in which a side of the Moon remains lightened or dark depends on the region someone is in. That way, assuming someone was on the lunar "equator", they would perceive mornings and evenings of about 14 Earth days of duration each, approximately. In **Luna Maris**, the rounds are divided into days and nights. This measurement was adopted to justify the possibility of getting energy from solar panels that can only work during the lunar day, besides adding a little level of difficulty to the lunar nights for players!

Curious fact: in Luna Maris Project every work journey would correspond to 14 Earth days of continuous working. Because each scientist performs his shift of activities alone and, on an average turn, we can use 4 to 6 scientists per round, we can say that this scientist works approximately 2,5 non-stop days! No wonder the stress level rises so fast.
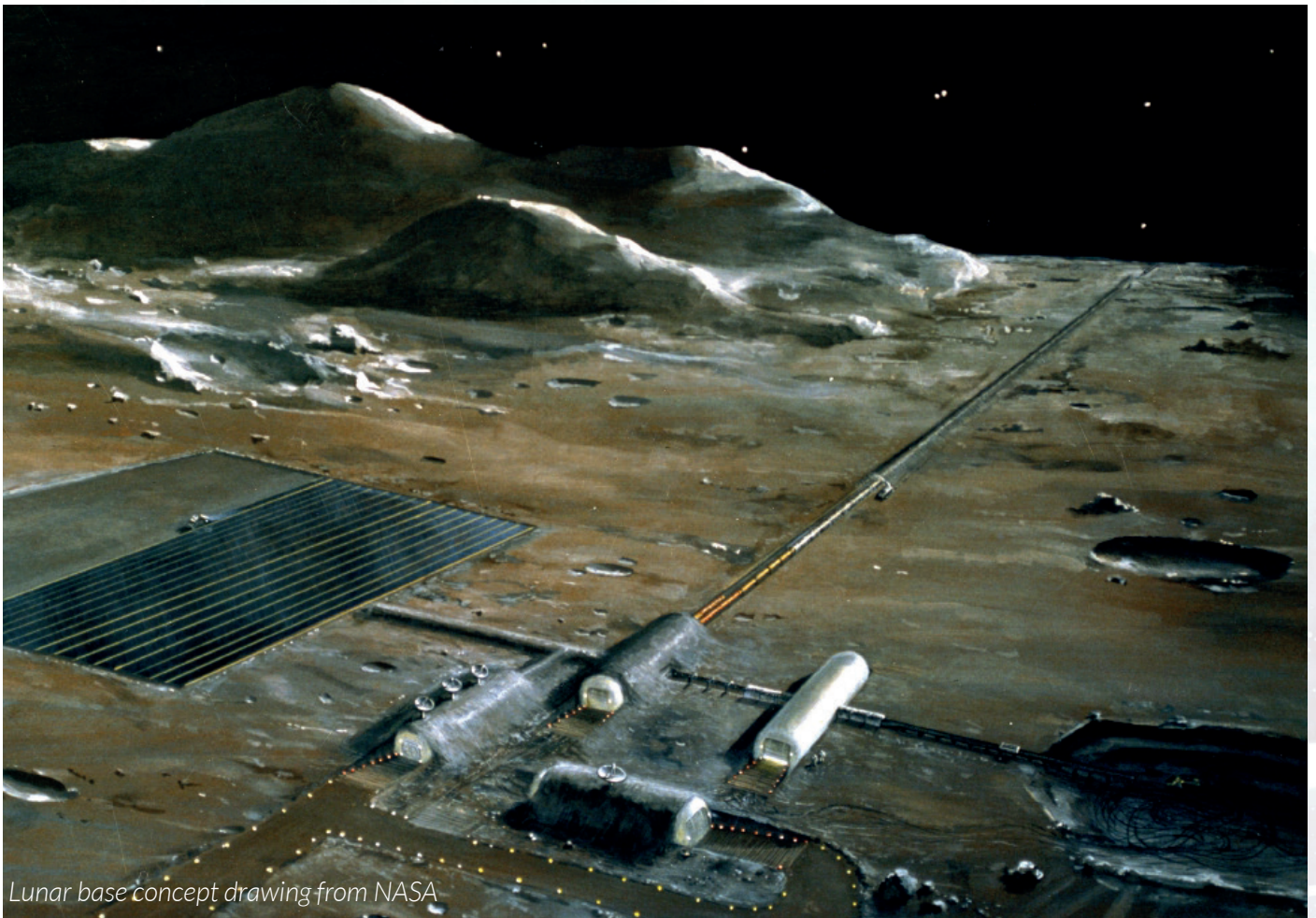
Lunar base concept drawing from NASA

Luna Maris Colony

"Luna Maris" means "Moon's seas" in Latin. One reason for this name is the fact that,in most of the moon landings, the site chosen was a lunar "*mare*" (sea) or their proximity. The *lunar maria* are areas formed by solid volcanic ground on the Moon surface. Observed from the Earth, they are the dark spots on the Moon. Ancient astronomers believed these areas could be oceans, hence the name of "sea". These places are rich in basalt, that's the reason for their dark color in comparison with other lunar areas.

Nowadays, many countries have an interest in mining on the Moon. However, they don't own the technology that allows human survival on the satellite for a long time and make the costs of missions for that purpose acceptable. Some studies have been developed, but they are insufficient to start a moon colony. What is known is that a lunar station should have laboratories for research development, a greenhouse for food production, power and oxygen production plants, housing and work modules, and other types of constructions.

Some projects are based in a horizontal colony, made with separated or connected modules, while others are vertical and buried in the lunar underground (an option to minimize the nocive effects of solar radiation). Because of the high cost to construct and sustain the structure, probably partnerships between different countries and companies will be necessary to create a permanent lunar base, taking part in its benefits, similarly to the ISS (International Space Station) model.

CO² production and air filters

Try to imagine a group of people locked in a closed area. The oxygen present in the air will be rapidly consumed and the amount of carbon dioxide will increase. In every space mission, lack of oxygen and excess of carbon dioxide is a killing problem.

In the ISS, generators use electrolysis to extract oxygen present in water and put out the station the hydrogen and the carbon dioxide produced. This operation needs a great quantity of water and turns long term missions in space into difficult. In the case of the Moon, the discovery of water in lunar soil can solve this problem and make colonization closer to us.

I had portrayed this concern with dioxide carbon accumulation in **Luna Maris**: the players need to activate air filters in the Industrial Complex. To avoid making it harder, the supply of oxygen is automatically recharged in the beginning of eachround.

Inventory of Helium-3 in Regolith
Chang'e-1 (CNSA/CLEP)

LRO / LOLA-64 DTM LTVT overlay
Maurice Collins-Palmerston North, NZ
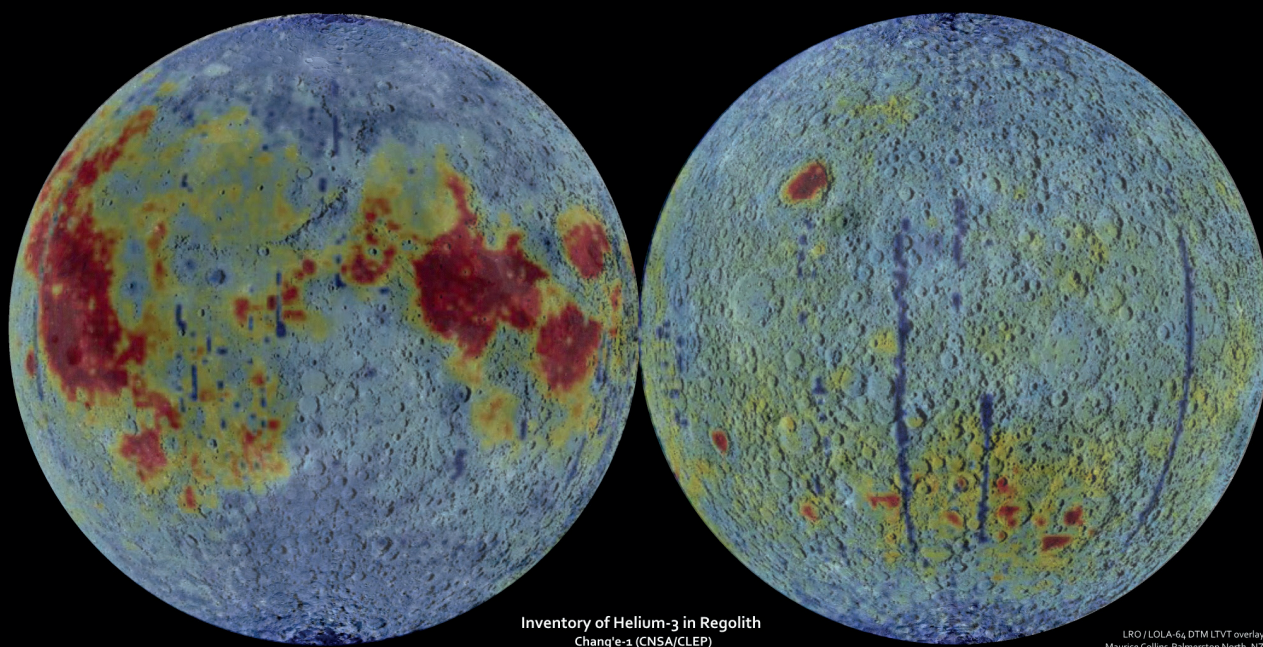
Lunar mining: what can we extract?

Since the human being visited the Moon for the first time, we discovered a lot of things about our natural satellite. Some discoveries, like Helium-3 (He-3), have made humanity look to the sky with economic interest.

With the announced oil shortage, the necessity to find a replacement is urgent and He-3 is an available substitute because of its potential to produce lots of energy in a nuclear fusion reactor (KAZANTSIS & WILKES, 2006).

Despite being rare on Earth, He-3 is abundant on the Moon. The lunar surface has been exposed to solar winds for millions years and the lack of an atmosphere, beyond the much weaker magnetic field than Earth's, make the He-3 remain encrusted in the lunar rocks like grapes waiting to be harvested (FLORIO, 2016).

Because of the He-3, the company capable of developing viable technology to extract and

send resources to Earth will find the pot of gold at the end of the rainbow. However, before the extraction of riches from the Moon, it will be necessary to develop ways to sustain human life on the lunar surface for long time periods, a more complicated purpose than the three days Apollos' missions in the 60's and 70's. This new space race is driven by economic rather than military interests, and a great number of countries and private companies are investing substantial amounts of capital in research and development of technologies to hit the goal: the conquest of the Moon.

Finding ways to obtain water is a priority research if we intend to sustain a group of astronauts for long periods far from Earth: water is a basic need for human physiology, and will provide oxygen and energy to the future

lunar base. In recent research scientists have discovered considerable amounts of water on the Moon. Not water in liquid state, but ice crystals encrusted on the rocks, specially in the poles, where the incidence of sunlight is lower.

After figuring out how to get the water, it will be time to tackle the development of technologies to extract He-3 and ores such as iron, silicon, aluminum and titanium. Extracting these resources from the lunar soil could lessen our dependence on mining on Earth, and certainly will contribute to lower environmental impacts.

In **Luna Maris** all the economic possibilities of lunar exploration are present: mining lunar rocks, extracting He-3 and water are options inside rooms like Industrial Complex or Mining Station. After extraction, these resources can be sent to Earth or used to sustain the colony.

ISRO/NASA/JPL-Caltech/USGS/Brown Univ.

Infrared Reflectance
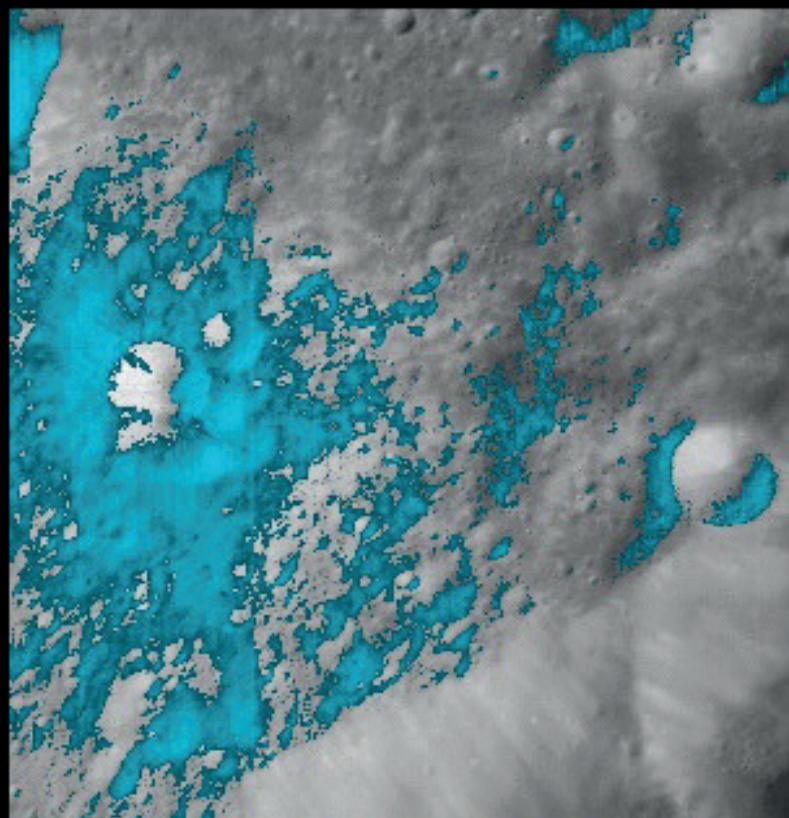
Blue = water absorption strength on Infrared Reflectance

Stress levels and O² consumption

Inside a lunar colony the only thing between you and certain death is a thin layer of metal. Any negligence or system failure can kill you. The scientists really need to double their attention in any mundane activity, a situation that creates lots of physical and mental stress. Stress gets even worse when astronauts need to go out to walk far from the refuge of a human-made structure and the stress level increases substantially.

The increased respiratory rate makes breathing shallower, generating a stress response that causes the person to consume more oxygen, which can be a problem in a space confinement environment with limited oxygen.

The relationship between oxygen consumption and stress level is a fundamental part of Luna Maris. But first things first, I need to explain the reason for the option to represent the oxygen scale in a crescent sense: the trail doesn't represent the quantity of oxygen, but the rate of consumption! In other words, how much oxygen the crew consume in the lunar colony. And the greater the stress of the team, the faster the breathing becomes, consuming oxygen faster. So although in practice the marker of the amount of oxygen available decreases with increasing stress, in theory we should think that the amount is the same, but the gas is consumed faster.

Feeding on the Moon

It's a fact: potatoes don't exist on the Moon! I do love Martian (20th Century Fox, 2015), the famous movie with Matt Damon, but the differences between lunar and martian soil are enormous - and potatoes will not be present at the first moment of Moon's colonization.

So, what can we grow on the Moon? Recent researches try to answer this question (WAMELINK et al, 2019).

To find out which crops would grow outside Planet Earth, scientists have planted ten different types of seeds in soil similar to lunar and Martian regolith: tomatoes, rye, watercress, leeks, peas, radish, quinoa, spinach, arugula, and green onions. Only the spinach didn't grow and quinoa didn't produce seeds. They were able to harvest radish, watercress, rye, arugula, tomatoes, and pees (in all cases, scientists were able to obtain seeds). Green onion and leek grew steadily, but with fewer development in all growth mediums. Among the samples, rye, radish, and watercress provided enough seeds for a germination experiment.

During the development of Luna Maris, I have used this research to select the eight plants available in the game. The nutritional value in the cards are directly connected to the performance of the culture in the experiment with lunar regolith. Rye, for example, is the most efficient food card to feed people because of its success during the research. On the other hand, those plants that weren't so successful, like leek, provide less calories to the astronauts.

The foods of less nutritional value bring bonuses to the player during their use: energy, oxygen, or stress reduction. Some of these choices also make sense, since leeks have medicinal characteristics for anxiety relief, and tomatoes, being one of the largest plants among the selected ones, contribute in providing oxygen.

Garbage and recycling

The mining industry produces great amounts of rubbish during the process of extracting minerals from the soil. It would be no different on the Moon, a problem particularly complex when you

think about the high cost for sending resources to Earth. Because of this, it's necessary to clean all the shipments to avoid unnecessary weight (and costs). As a consequence, to maximize the profits, technologies to recycle the rubbish produced during the extraction of He-3 and water are fundamental to sustain the economic viability of the lunar project. In addition, the loss of resources such as food needs to be avoided in a highly inhospitable place like the Moon.

Garbage and recycling are present in **Luna Maris.** Scientific research can open new and efficient ways to use trash. It's possible to generate more energy from it, extract the water in the garbage or refine the mining techniques to obtain a little more titanium. At the end of the game, players who ignored the issues related to the garbage management will lose a great amount of money: the investors don't want to have their brand associated with a project that causes environmental pollution.

Energy production

Just like water and oxygen, electricity is a vital resource for survival out of the Earth.

During a match of Luna Maris the players can recharge their batteries from four types of energy supplies: solar boards, thermoelectric generator, hidrogen usine or biomass power plant. I won't teach in detail how these energy supplies work, my intention here is just to comment how the game mechanics interact with these sources.

A solar power plant provides energy from the incidence of sunlight in solar boards, stimulating electron release in photovoltaic cells. This way, there is only electric power as long as the sun's rays hit the panels. Since a game is divided into day and night rounds, the panels only work during the day, when each player gets three free "energies" in the production phase.

During the night rounds (or if the player wants to get more energy during the day), the only way to get electricity is through the other power plants - reminding that doing advanced research also gets energy from the recycling plant. There are two plants in the colony's energy complex: the thermoelectric plant, which uses the ore itself as fuel to produce electricity, and the hydrogen plant, which obtains energy from the separation of hydrogen and oxygen from the water molecule using an electric current. This hydrogen is stored in tanks and used as fuel to produce energy. Because it is more efficient, the hydrogen plant can produce more electricity. Also because it is a clean and renewable way of obtaining energy, its mechanics in the game are also associated with the disposal of a garbage unit.

Once it develops advanced research in recycling, it will be possible to obtain energy from a biodigester, where the gas released by the accumulated garbage is used as fuel to activate a generator. This is similar to the bioenergy producer, one of the tools available to players and which functions as a power plant.

Final thoughts

In Luna Maris, the theme has been thought out in minute detail to integrate well with science. There is nothing in the mechanics or rules that is not closely related to the theme. Exactly because of this, you may find the rulebook dense or the rules explanation long, but halfway through the first round you can already understand the basic principles and be able to make good moves. I can say that I am satisfied with the work done. Those who like a good combination of rules and theme will be delighted with the science that comes out at every turn.

About the real possibility of a lunar colonization, it is only a matter of time. Technology is developing rapidly and several countries are already signaling the creation of manned missions to the Moon in the short or medium term. Private companies are already able to take people to and from Earth orbit. It will not take long until a project like the Luna Maris colony becomes a reality and we finally have humans working on mining missions on lunar soil.

If stepping on the Moon was a giant leap for mankind, developing a permanent colony will be an immeasurable scientific breakthrough!

To know more:

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WAMELINK, G et al. Crop growth and viability of seeds on Mars and Moon soil simulants. Open Agriculture [online]. 2019, vol. 4, pp. 509-516. Disponível em: <https://doi.org/10.1515/opag-2019-0051>. Last access: 20 jan. 2022.

Advanced Game Mode: Faulty Conveyor

A breakdown in the conveyor belt has scattered ores in various spaces of the colony. Now these rooms are a mess, and this will end up stressing the teams. Only a renovation will solve this problem.

During step 8 of setup (p. 5), as you select the advanced module tiles that will come into play, place an iron cube in each corresponding basic module. These rooms are messy with ores scattered everywhere, and this will cause stress for the scientists using them.

For a player to use an action of some marked module, they must move the stress marker 1 space to the left. If the stress marker is at maximum (red), the player will not be able to perform this action until they decrease the stress (move it to the right) in the dormitory. In modules that have 2 available actions (Laboratory and Industrial Complex), the stress moves only one space, even if a player uses both actions. Moving through the module without activating it does not increase stress.

This consequence remains in play until the advanced modules are built. When this happens, the player who made the upgrade gains for himself the ore that was in the module which was upgraded, placing it on his conveyor belt as normal.

From then on, activating or using the module that has been upgraded will no longer generate stress change.

Interview
Daniel de Lucca

By Márcio Botelho

remember like it was yesterday the first time I came into contact with Daniel de Lucca's work. We were at Spiel.digital 2020 and I was invited to play the prototype of *Tess*, a euro-style title in which alien civilizations vie for control over a newly discovered planet.

Thematically *Tess* was not very innovative, but its main engine was very clever and caught the attention of everyone playing that day. It became clear to everyone present that Daniel had something incredible in his hands.

Daniel used the basis of that game to develop *Marajoara*, a title that invites participants to take on an excavation of ceramics from the Marajoara culture that inhabited the Amazon region before Europeans arrived in America.

Marajoara innovates by using the traditional game of *Peg Solitaire* as the basis for a highly interactive experience with lots of competition among players, and it is one of the titles that promises to join the Glyptodon Game Studio catalog soon.

In this interview we talk about games, about the *Marajoara's* development and what is to come.

When did your relationship with board games begin?

I always played the classics that everyone played in the 80's. But it was only as an adult that I got to know modern board games. I had already played *Zombicide* with friends, but it was not something that addicted me at that time, and I didn't know about other possibilities. But one day, on a trip, I played *Scotland Yard* with some friends and it was a really fun time. When we got back from the trip, my wife and I wanted to buy this game to play at home. We searched for stores on Google and we found a board game store. And that's when board games changed my life. I discovered the Euro games, the absurd amount of games that exist, and I ended up leaving the store with 5 of them (and *Scotland Yard* was not one). From this day on, I completely fell in love with this world and it became my main hobby.

What types of games most interest you as a player?

I'm an eclectic player. Normally I prefer to play Euros, I love the Italian and German games. Games with different mechanics always catch my attention. I really like the mechanics of engine building, deck building, and I have a passion for games that have dice allocation.

As far as the gaming experience, what I enjoy doing most is to introduce new games to new players. Presenting a game that blows the mind of a player who has never had experience with modern board games is a very good feeling. As a game designer, I think it's important to play all kinds of games, from the Party Game to the heavier Euro. These are references that help to create.

At what point did you decide to develop your own games?

I have always been an inventive and creative person. In my head, I've always created mechanics since I was a child (initially imagining video games). When I entered the world of board games, becoming a game designer was a natural process. Every game that I played became a reference to some other game I created in my head. Other than that, I was always critical with what I played. Some mechanics that I would change, add to, or take away from a game. I created house rules for some games, I created solo mode to be able to test it alone and I realized over time that it was not that common for people to do that. I also noticed that some ideas I had in my head hadn't been used in any game yet, so I started wanting to take a step further. I've made a card game based on *Truco*, which is a popular game in Brazil, thinking about what a Truco with elements of modern board games would look like. And this game ended up being a hit for whoever I presented. I got excited to study game design and in the pandemic I decided to take my first ideas off the paper and try to present them to the market.

Will *Marajoara* be your first published game? What can players expect from it?

When I presented my games at the 2020 Spiel Digital, I really believed in the mechanics that I had created! I had never seen anything like that released and by playtesting it I found that I was addicted to my own game. However, I entered the fair without any expectations. I didn't know anyone in the market, I hadn't formed any kind of network, I didn't know digital influencers. I had never imagined that, at that point, I would leave the fair with a publisher contract, and that's what happened. *Marajoara* is a product made with great care and I am very happy that Glyptodon and I always were on the same page. It was a game made from step zero with the publisher and the entire team was essential to create it in a way that the core mechanics could shine and that players could feel like they are playing something like they have never really played before.

## What kind of player will have fun with *Marajoara*?

Marajoara is a game that all types of players will have fun with. It can be a game played by the whole family, in an unpretentious and fun way without being silly, and also by the most hard-core gamer. We took care to make a game that has greater strategic layers and that in each match the player can perceive strategic nuances and wants to improve his skill. A match played by experienced players can have a lot of twist, a lot of strategy. It's a game with zero luck factor (despite having more than 50 dice), and all the initial information is open on the table from the beginning. There's a lot of interaction between the players, but you never feel frustrated that something happened that you had no control or could not foresee.

The use of the *Peg Solitaire* as the main mechanic is something very innovative. Where did the inspiration for its use come from?

This is a funny story. At the time I created the mechanics, we were in the pandemic time and there wasn't much to do except play board games with my wife or watch TV. At the time, I was impressed with Stephan Feld's *Trajan* and how he managed to revisit an ancient mechanic and use it in a modern board game. With that in mind, I came across a scene on a reality show where people were playing Peg Solitaire with beans. The moment I saw that, I connected the
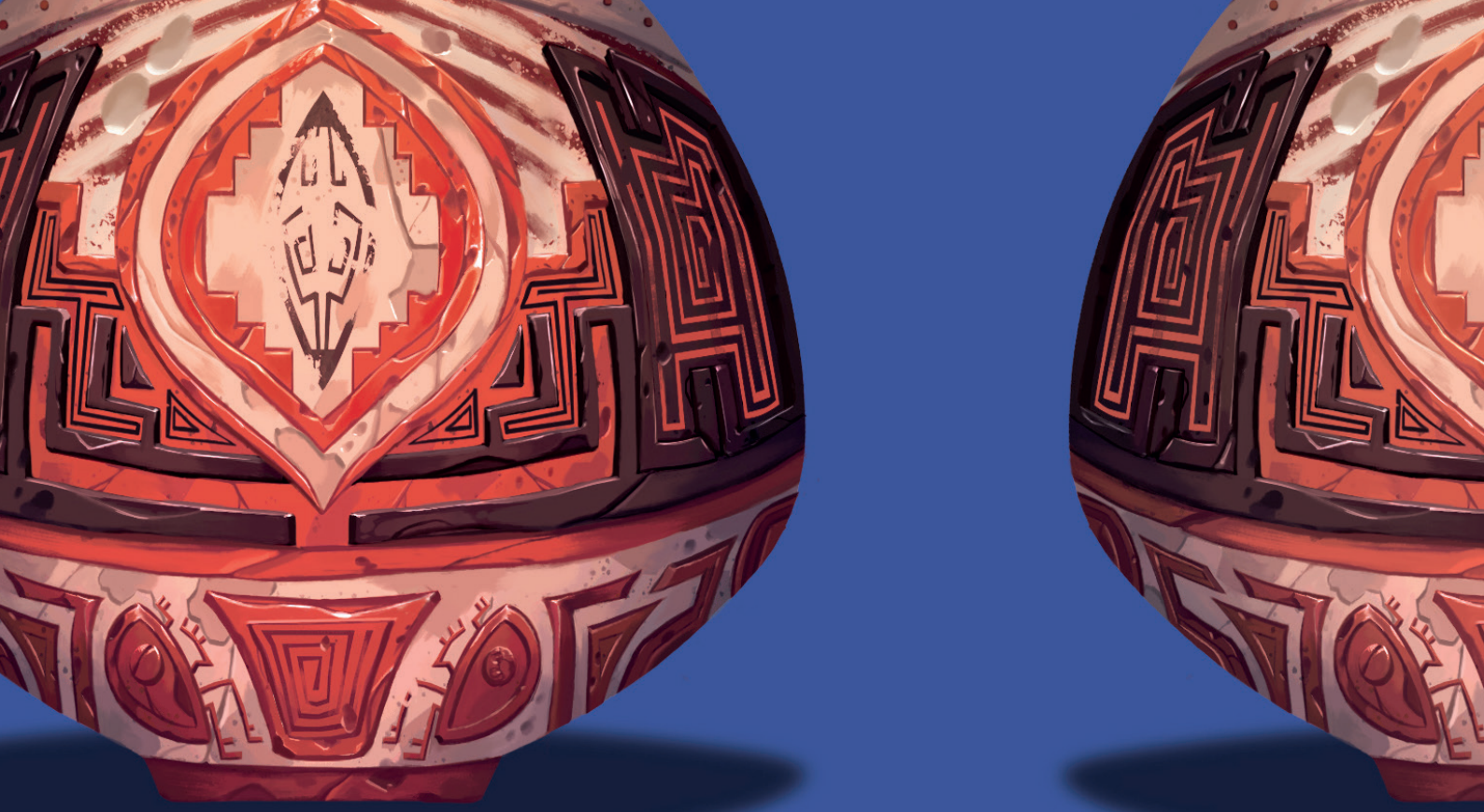
two pieces of information and thought: "why have they never used this mechanic in a modern board game?". From there, the mechanics popped into my head almost instantly. Initially I thought of a game in which the selection of actions would be like a Peg Solitaire with different colors and, in later versions, I had the happy idea of exchanging the pieces for dice, causing an evolution in the strength of their actions.

Could you tell our readers about the development of *Marajoara*? What was the most challenging stage of the process?

I had a lot of learning in the whole process. As my initial conception was another game, a "4X" full of cards and secondary mechanics, the hardest part of the whole process was to completely forget the initial idea to create a new game, more concise, elegant and easier to play with the same mechanics (and at the same time totally different). So it was a process made from scratch, from the base mechanics of the other game. I came across at different times with mechanics that were too complex for what we

were trying to propose, and the Glyptodon team was fundamental to this process. We have worked hard to make the setup faster to assemble, reduce the number of components, optimize secondary mechanics, always without losing strategic complexity. And these exercises have brought in some very creative elements that I think will surprise players.

In what stage is the game at this moment?

The development of mechanics and balance are ready. Today I'm creating a solo mode that I think will really please those who like this modality (as well as me), and soon we'll open a sequence of playtests to make fine adjustments, but *Marajoara* is already a very mature game in its development. At the same time, the illustration team has been doing a wonderful job and the concept of the final product will be something very different from what we see out there in the market. We will even have surprises in how the game will play at the player's table. But I can't say much more about this part yet.

Do you want to create a
GOOD GAME?

Start by asking
QUESTIONS!

By Diego Bianchinni

Good games are closely linked to the act of asking questions.

In order to explain my point of view, we must talk about the concept of critical thinking, its definition and relevance in the game design process. There are many definitions for critical thinking, but according to Barry beyer, in Critical Thinking (1995): "Critical Thinking... means making rational judgments".

In Essence, Beyer says that critical thinking is a disciplined way of thinking that a person can analyze the validation of something.

Cool definitions, right? I think that exerting critical thinking is something extremely necessary in game design activities, no matter the purpose. Through critical thinking, the game designer can start to validate hypotheses and theories about his games.

Going a little deeper in Beyer's definition, Carole Wade identifies 8 characteristics in the critical thinking:

- It involves asking questions;
- It defines a problem;
- It examines the evidences;
- It analyzes suppositions and pre concepts;
- It avoids the emotional reasoning;
- It avoids the excessive simplification;
- It considers other interpretations;
- It tolerates ambiguity.

Here, I will focus on the first two characteristics of critical thinking: asking questions and defining a problem, because it will lead us to the heart of the design activity itself, where the goal is to generate solutions for the game.

Componentes de Luna Maris

Let's take a look at an example of design and build a bridge to our needs. Salen and Zimmerman, in Rules of Play, quote the architect Christopher Alexander in his book "Notes on the Synthesis of Form", with a very interesting analogy about problems in design. The excerpt is long, but quite illustrative:

"Let us look again at just what kind of difficulty the designer faces. Take, for example, the design of a simple kettle. He has to invent a kettle which fits the context of its use. It must not be too small. It must not be hard to pick up when it is hot. It must not be easy to let go of by mistake. It must not be hard to store in the kitchen. It must not be hard to get the water out of. It must pour cleanly. It must not let the water in it cool too quickly. The material it is made of must not cost too much. It must be able to withstand the temperature of boiling water. It must not be too hard to clean on the outside. It must not be a shape which is too hard to machine. It must not be a shape which is unsuitable for whatever reasonably priced metal it is made of. It must not be too hard to assemble, since this costs man-hours of labor. It must not corrode in steamy kitchens. Its inside must not be too difficult to keep free of scale. It must not be hard to fill with water. It must not be uneconomical to heat small quantities of water in, when it is not full. It must not appeal to such a minority that it cannot be manufactured in an appropriate way because of its small demand. It must not be so tricky to hold that accidents occur when children or invalids try to use it. It must not be able to boil dry and burn out without warning. It must not be unstable on the stove while it is boiling."

Observing how many problems of design must be evaluated during the creative process of a simple product. Also, there exist countless different models of kettles, from different brands and manufacturers, each one with his form and personality, trying to solve its own design issues and/or marketing necessity.

Carrying this example of product design to the board games, i believe it's important to ask questions and reflect about the answers to find the desirable solutions in the design. Usually, the game designers begin their developments by having an idea, a passion, an interest, and start to lapidate it, putting aside important questions that can contribute to making the game stand out.

As i don´t want to deplete the subject on this article, here it is some good questions that you can ask yourself, as a way to improve your game or find the best path to some design solutions:

● What kind of experience do you intend to offer?

In essence, what will be the difference between my game and countless other games released every year?

Is there anything in the market that meets the experience that I intend to offer?

DO you want a narrative or mathematical game? Cooperative or competitive? What will be the style?

Lucky factor near zero, or maybe the "true chaos"?

Do you want to create an introspective mood or make the players communicate eagerly?

Luna Maris

Are there characters in the game? Do you want your players to stick to their characters?

- **What is the focus of your product?**

What will be the strongness and weakness in the player experience?

What will make the player buy your game or even play it, instead of any other existing game?

Do you want to have a product for the mass market or niche?

Do you want a Eurogame? An Ameritrash? Hybrid? Gateway? Does your audience consume this kind of product?

Do you intend to offer something different in art, or just focus yourself in the game mechanics?

Brazil Imperial

- **What is the desired audience?**

Do you know who your customers will be? And the client? Are they the same people?

Do you want to develop a game for children?

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Are the elements of the game suitable for their age? What is the weight of the decisions?

Do you want to focus your development for a more casual or family audience?

Do you want to do it for experimented gamers, with a lot of decisions and possibilities?

Does the game offer a suitable challenge to the desired audience? It's not too easy, or too hard?

- **What are the market needs that you intend to meet?**

Innovation, yes or no?

Does your game have a unique and unusual theme? Do the players want to talk about this theme?

Does your game offer good components to catch the attention of the audience?

Do you want to offer a lower price game to hit the mass market? In this case, would the game be interesting to the audience? Why?

● Does the game make sense?

Is the goal of the game clear and interesting?

Are the decisions taken important to the flow of the game? Or, maybe, the choices are not so relevant and the results come from pure randomness?

Are the actions relevant?

Does every action in the game need to be there?

● Which mechanisms do you want to present in this game and how it´s builded, in order to be an unique game?

Are the mechanics structured and funcionals to the desired proposal?

Is the game flow fun and challenging? Is it captivating? Is it clear? Or is it too complicated, generating several moments of stopping and consulting the rulebook to clarify rules and exceptions?

Are the proposed mechanics suitable for your audience?

Do the mechanics talk well with each other? Do the mechanics complement each other? Or do I just have a Frankenstein in hands, a bunch of ideas without any clear connections?

Could any part of the game be changed or simplified, generating a better game experience?

● Does the game generate interesting choices to the desired complexity?

What is the path to win the game?

How many and which are the possible different strategies in the game?

Is it easy or hard to follow the desired strategy at the beginning of the game? Do you need to detour too much?

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Paper Dungeons

Do players actively impact my decisions? Can I think about several rounds in advance without fearing a window of opportunity?

● Does the game have enough elements to allow each game to be unique?

Are the elements of randomness present and relevant to switch from one gameplay to another? Or is my randomness just the "opponent"?

Are the components adequate and sufficient for replay?

Is the beginning of the game setup fixed or does it vary from match to match?

● Is the experience pleasant within the estimated game time?

Is the length/duration of each match pleasant?

It´s too long? Too short?

Do you feel like the game could be over sooner, or that it needs more time?

Do you want a tighter experiência where there's no time to do everything? Or is freedom your mantra?

● Is the theme really relevant for the game experience?

If you opt for changing the theme, will the impact on the game flow and mechanics be relevant, or is it just a matter of "changing the name of the term"?

Is the theme really present in the game? In carrying out the actions?

Does the player feel like being part of the intended experience, or is it just a math game with defined names to captivate and anchor players to the theme.

After all these questions, you must be thinking about how this can help you on your project.

By asking questions and mapping out answers, you have enough elements to apply the concepts of critical thinking in order to have "rational judgments". After all, if you have a game with more decisions or more difficulties than you wanted for children or family audiences, maybe you should seriously consider "to polish" the game, removing elements that generate complexity and simplifying the entire flow. Or add more weight and innovative mechanics to your euro game focused on the experienced gamer. Maybe change the theme to something more

current and appealing, generating better acceptance of the game. Or even if everything is making sense to you, some elements of the game can be simplified in search of a more natural and pleasant flow, the functioning of a more complex rule can be reviewed, evaluating if that is really necessary considering the player experience.

Many of these questions are simple, and tend to bring forth equally simple answers, while others can lead to intricate answers. But an answer, no matter how simple it is, can be the key to indicate the need for a shift in the project, looking for a better game. Or, to validate your theories and prove that you are really on the right track.

Today, the success of a game depends on several factors, such as a good mechanical core and a pleasant game experience, eye-catching art, clear and concise graphic design, well-developed and relevant theme, adequate advertising, as well as reach and distribution capillarity. . But I still believe that the central point of this experience is the game mechanics and experience. After all, it is this factor that will make the player ask "Do I want to take the game off the shelf?" to face its challenges, instead of playing the hottest game.

If the idea is to develop the game for the market, think about the market and the player and be prepared to answer a lot of questions.

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Christopher Alexander, Notes on the Synthesis of Form (Cambridge: Harvard University Press, 1964), p. 60.

Salen and Zimmerman, Rules of Play: Fundamentals of Game Design

Paper Dungeons

STAGES OF GAME DEVELOPING

New project - the game is still a prototype and we are working to set the core mechanics, game flow, and potential visual identity.

In development - the game is in playtest; this phase is essential to establish game rules, find mathematical balance and evaluate possible game modes.

Arte & Design - game rules are now consolidated and it's time to establish the visual identity of the product; in this phase, playtests aim to improve user experience.

File preparation - rule book is last reviewed, blind tests and final adjustments are made on the files to print.

In production - all files are sent to the factory and after evaluation of the printed proofs, the game production begins.

Finished - the game is finally ready for sale and distribution by us or our partners in other countries.

COMING SOON

	Eletrika	Construct energy lines and manage hydroelectric power.
	Paper Dungeons: The Long Night	Explore new dungeons, complete side quests, and find the treasure box.
	Street art	Street artists compete among themselves to rule the walls of the city.
	Marajoara	Archaeologists searching for Amazon ceramics
	Agroflorestry	Cultivate an ecological farm with Brazilian native species.
	1890: National Railroad Plan	Build railroads and make your fortune investing in Brazilian railway companies.
	Project Zeppelin	Duel between civilizations in a fantastic world.
	Project Barn	Moles and rabbits dig tunnels and compete for carrots.
	Project Boss' dream	A cooperative exploration experience.
	Project NPC	Help the community... and make a good profit.