



SAFETY MATTERS



Newsletter from

Boskalis

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In this issue:



Page 1-7
Yard safety

Page 7
Featured



Page 8
Lessons Learned
Colophon



Yard safety

With a fleet of a thousand ships and vessels, Boskalis is a regular guest at shipyards around the world. Working in dock is generally regarded as high risk. What role does safety play in the choice of a yard? What do colleagues have to deal with in practice? And (how) can you stick to your own safety standards?

What role does safety play in the choice of a yard?

The choice of a yard depends on several factors, including the level of safety. These factors need to be weighed up against each other. Step one in assessing a yard's safety is a written questionnaire. Step two is personal audit. This is followed by a report with recommendations.

That sounds like a simple step-by-step plan, but the reality is much more difficult, says Rick Ackermann, Corporate Project Procurement Manager. "Time and money can cause conflict. Once I commissioned a yard before we'd done an audit. We only knew them from the past. During the repairs a piece of steel fell out of the crane, missing an employee by a hair's breadth. When I first saw the report and the pictures I was shocked: it was my choice of yard that had brought the crew here. Since then, I don't take *shortcuts* anymore. I feel responsible."

Solvable shortcomings

If colleagues have bad experiences at a yard, or a yard is not up to standard, then it gets a 'rejected' status. Which is not to say that a shipyard with low(er) safety standards is never contracted, says Area Maintenance Manager Ruud Godeschalk: "What counts in your decision is the nature and scope of work. For a complex modification you insist on different requirements for a yard than for a simple repair. You see if shortcomings in safety are solvable. Can we adequately limit the risks by good preparation and supervision?"



Left Rick Ackermann

Towards a more informed choice

Choosing a yard is therefore not an exact science. But, says Rick Ackermann, "we must avoid taking irresponsible risks or the price is too high." That's why he set up a *yard group* last year as a working group with colleagues from various sectors, with the aim of making current knowledge available about the yards Boskalis works or worked with so that it can serve as a selection tool. This information will be shared internally via Boskalis World and the Vendor Link purchasing system. To keep the information up to date, after each project a *vendor evaluation report* is completed, which is also provided to the yard. Rick says: "We want to establish a learning curve. Eventually we'll draw up Master Agreements with certain yards. If you act as one organization you get more out in terms of safety for each other."

Maintenance and repair: what do you encounter in its implementation?



Blue Marlin

A maintenance job or modification in a shipyard is a substantial activity. Your own systems are turned off, and the ship is crawling with men working at height, lifting and welding. How do you monitor safety in a situation like that? We asked Taco Terpstra, Offshore Energy & Marine Contracting Project Manager, and Enrique Mari de L'isle, Technical Superintendent.



Taco Terpstra:
“The trick is to celebrate what you’ve accomplished, instead of getting fed up about whatever it is you’ve not managed to do.”

Taco is supervising modification of the Blue Marlin in Singapore. One of the reasons we chose Jurong Shipyard is their track record in terms of safety, he says. “Their management takes safety seriously.”

How do you encourage working safely?

“The safety standards of our end client, Exxon Mobile, determine the framework. We apply a two-tier approach: 1) monitor compliance with the contractual agreements, and 2) celebrate successes. We organize a monthly tour with the yard’s management, insist on reporting near-misses, and share information about accidents. We have a *safety corner* with pictures, messages and statistics. And we extensively celebrate successes in monthly ceremonies.”

What have you been surprised about?

“Despite the agreement that the PPE had to be in order, at the start we still saw people with worn-out shoes. When we brought this to the yard’s attention, they bought new shoes. They weren’t worn, but got sold on. Now we’ve put out a bin where people first dump their old shoes before they get new ones.”

Does your approach work?

“Yes, the safety consciousness of the people on our project has grown. But it’s slow and sometimes frustrating. Safety is about behavior: we can think certain things are really important, but people here see it differently. “The trick is to celebrate what you’ve accomplished, instead of getting fed up about whatever it is you’ve not managed to do.”

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Safety Training for modification of the Blue Marlin



HALF EMPTY HALF FULL





Edax



Enrique Mari de L'isle: "I always ask myself whether it is an acceptable risk."

Enrique is supervising modification of the CSD Edax in Hardinxveld-Giessendam, in the Netherlands. There is a lopsided poster of NINA Values and Rules stuck on his office door. "Every time safety improves here, I straighten it up a bit."

What's your experience with safety in the yard?

"I've noticed that a lot of yards know that safety is a big issue for us. They often know NINA, which makes it easier to start a discussion and to get cooperation. For me, working safely has become second nature. When I think about how to do something technical, I think: how do I do it safely? I try to convey this to people, by constantly pointing things out. I never say, 'you've got to wear a hard hat, because that's the rule'. I always explain why, in the hope that the penny drops and someone intentionally wears a hard hat because he wants to."

In a yard, you're a 'guest'. Do you ever ever come into conflict with your own values in terms of safety?

"Of course I see things that we would do differently. I judge the situation by asking: What happens if something goes wrong? Is it an acceptable risk? You have to accept that you can't change everything, because there's work to be done. You know there'll be hoses and obstacles on the walkways, but I can't keep holding up the work because of that. But when I get to hear from several sides that a situation is not acceptable, or if there is an immediate danger, then I will do just that."

New build: safer working conditions and a safer ship

A new-build project generally takes over two years to complete. "Long enough to leave our footprint behind when it comes to safety", says Kees Camp, Manager New Build. Together with André Klop and David Cuninghame, Project Manager New Build, he explains what that leads to: safer working conditions and a safer ship.

Each yard has its own safety policy. How do they react when you introduce Boskalis' NINA policy?

David Cuninghame, who is responsible for the new build of the backhoe dredger, Magnor: "We want to convey to them that safety is a concern for all of us. At first you notice that the management of the yard is afraid: 'What's that going to cost?' But after introducing NINA they realize that doing things differently (i.e. applying NINA) does not necessarily mean increased costs. What we see is that NINA opens doors: there's a dialogue, and that's really positive."



The Helios in dry dock February 2016.

How far does that change go?

André: "Initially, safety only came up if there was a problem. But since we introduced NINA to middle management we talk about it at every meeting. What I like is that they see the value of it and appeal to their own bosses to take it on board. It's like an oil slick in terms of how it spreads."

Kees Kamp: "Questions and comments driven by safety issues can result in technical improvements."

André Klop, who is responsible for the new build of CSD Helios: "There are often unsafe situations. If necessary, we then stop work. During a fire drill we had organized, for example, there turned out to be no pressure in the fire extinguisher system up the slope. That was then solved. What about reporting accidents? The yard didn't report accidents, but we insisted on it. Even if it's no more serious than a bruised ankle, *safety should be a complete open culture*. That's the message I want to give. I now see a sharp upward trend in safety awareness."

Kees Kamp: "There is another effect. I find that we get more feedback on safety issues during the design phase of a ship. Not only people at Boskalis, but also designers at the yard make suggestions to us and ask more questions. With the design of the Helios, for example, Kees van Tuijl commented that there was no good working solution for lifting the spud poles in an emergency. This eventually resulted in a new (and patented) design. So that's how questions and comments driven by safety issues can result in technical improvements."



André Klop (centre) in the Helios' pump room

David Cuninghame





Rutger van Vliet

What is the situation regarding safety in Boskalis' own yards? We asked Rutger van Vliet, SMIT Equipment Maintenance (SEM) Manager in Rotterdam, and Kenneth Neves, Yard Manager in Ras al-Khaimah (RAK), UAE.

Safety in Boskalis' own

Rutger van Vliet: "Bridging cultural differences."

"Thirty-two permanent employees work in SEM. They ensure that equipment stored there is repaired and ready for use. Our largest customers are Boskalis Subsea Services and Salvage, who also work here with their own people on repair and maintenance jobs on the water."

What do you see as the biggest challenge in terms of safety?

"We're working with people from different safety cultures. The Boskalis culture is different from SMIT's. Subsea Services is different from Salvage. That's not to say that one works safely and the other doesn't. The difference lies in the approach. That cultural difference must be bridged because we're all together at a Boskalis location and so everyone should abide by the same rules."

When do you say 'stop'?

"One night on my way home, and I saw a welder working on a pontoon. Half hanging over the water, on his own. There had been

no risk assessment, and no hot work permit. Then I stopped the work. The next time, the job was prepared properly. When it comes to safety, it's not a matter of unwillingness, but how you assess risk depends on your experience and your background. To avoid subjectivity, all departments working on this site have to follow and maintain the Boskalis safety policy."

What dilemmas do you come up against in this process?

"We must continue to do more to inventorize and cover risks, but the time and/or facilities can't always be found. One pitfall is that everyone is driven: you want the work to go well and not get delayed. So sometimes you accept certain risks unconsciously: you don't send a subcontractor home if you don't have to. Working safely is not a black-and-white matter; in practice there is a large gray area. NINA can help find the way: give each other feedback, know you've got management support, have the courage to take responsibility yourself."

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Own initiative with regards to the scrapping of the Baltic Ace

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"I wanted only one thing: that there were no accidents."

Peter Teerling, diving foreman at Salvage, saw a dangerous situation during the recycling of parts from the Baltic Ace, and took action.

"After the Baltic Ace sank in the North Sea in 2012, the ship was cut into sections and transported to the Netherlands on pontoons.



Protective grille

Various subcontractors were hired for the demolition and recycling. Because there were a lot of activities taking place at the same time all over the pontoons, the manholes for the 18 ballast tanks were often left open. If you step into one you fall eight meters. I thought that was dangerous, firstly, because sometimes 25 men were at work at the same time (demolition, welding, operating blowlamps, gutters, cleaners), and secondly, because all those guys had different nationalities: Polish, Lithuanian, you name it. Furthermore, the composition of the teams changed constantly, such that often people were at work who were working on a pontoon for the first time. The workers often worked at night and under time pressure: the pontoons had to be quickly unloaded and returned to the location in the North Sea for a new load. At one stage, I had four pontoons at three sites under my control, and wanted only one thing: that there were no accidents."

Grilles

"When I started going on about the manholes, I had a mountain to climb. 'Can't we just put a pallet over it?' I was asked, 'because that's what we always do.' If you're working with your own small team that might be enough. But not here. The world has changed and you've got to change with it. Therefore I had some (multipurpose) grilles made up, which fit all contract barges, Smit barges and transport pontoons. Took three days.

Looking back, the recovery went off safely: the four pontoons sailed up and down twenty times to the location in the North Sea. With 100 men from various subcontractors we processed 16,000 tons of steel and removed 500 cubes of heavy fuel oil from the wreckage without any pollution of the sea. It became a zero incident operation."



shipyards

Kenneth Neves: “We show people we take safety seriously. And we expect them to take it seriously as well.”

“We are a technical center in Ras al-Khaimah providing support to all vessels and Boskalis works in the area and beyond. Our team consists of 21 people. First gear is my crew alone doing routine work. Now, with 18 dredging vessels laid up and a large amount of dredging equipment returned after recent projects being completed, we are in fourth gear with over 50 subcontractors’ and ships’ crews involved in maintenance and repairs.”

What does safety mean to you?

“I find it important that the guys who work here feel safe. I have seen some terrible accidents in the past and I don’t want to see them again. We try to facilitate safety any way we can. We have built a rigging store with certified equipment and personnel and introduced a strict Lifting and Rigging Equipment procedure; we have also organized a lot of courses and special toolboxes to educate people. This is how we show we are taking safety seriously.



Kenneth Neves

And we expect them to take it seriously as well. That’s the key.”

documents you cannot enter. They get the message very quickly.”

What dilemmas do you encounter?

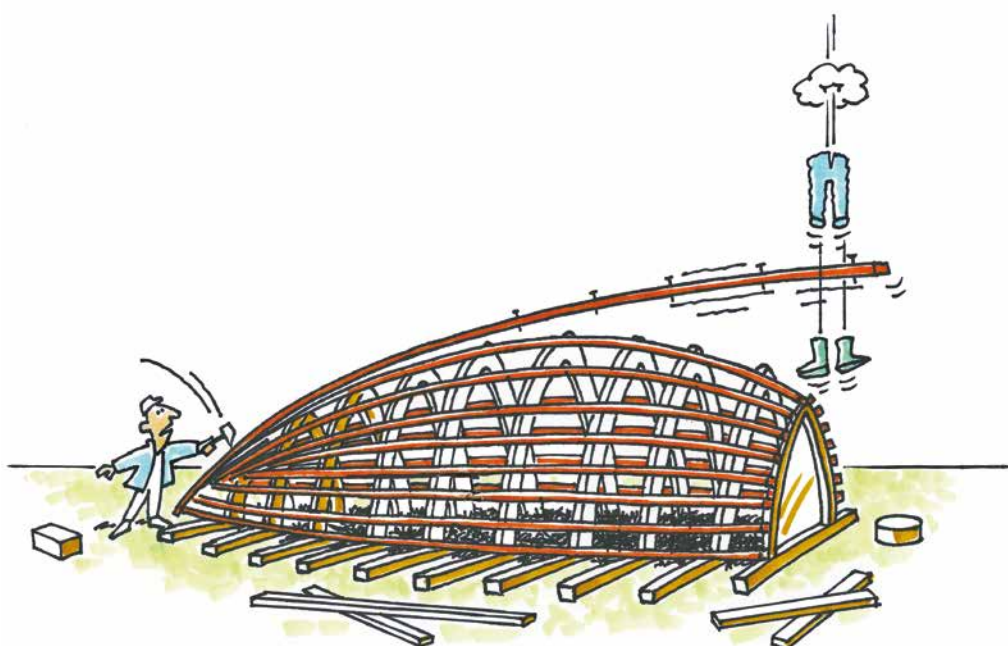
“One of the dilemmas is working with subcontractors. I have become more strict: if you cannot provide appropriate PPE you cannot work for us. We revised the procedure at the main gate: without proper PPE and

And with what results?

“Our efforts pay off. People’s thinking has changed. Our statistics have improved, there are less incidents and near-misses and we see an increase in SHOC cards.”



Peter Teerling at the scrapping of the Baltic Ace



What is the experience of safety awareness in shipyards?

Rick Ackermann, Corporate Project

Procurement Manager: "I've noticed that, particularly in Asia, safety awareness has grown strongly, although it still needs a lot of guidance. On the other hand, in Europe, because of a lack of a regular flow of orders, yards have fewer in-house people and use more contract workers. The question is whether they have those subcontractors well under control. Compared with ten years ago I see a decline in quality."

Ruud Godeschalk, Area Maintenance

Manager: "When it comes to safety, the yards often say 'yes', but do the opposite. In the first place because they work with predominantly low-skilled people who don't know the risks. But also because moral awareness plays second fiddle to finances. That sounds

harsh, but in practice, yards will only be more safety conscious if they have to be. If we down tools because we're working with faulty equipment, the next day there's better equipment. If we put a ribbon around our ship saying 'our rules apply here', people will comply. So it is possible."

Enrique Mari de L'isle, Technical

Superintendent: "There are yards with very strict rules, and yards where there are hardly any rules. What I see in some yards with a strict safety policy is that people stop thinking. It seems mostly to do with paperwork; covering your back. And that's really dangerous. I've seen hot work permits signed off blindly."



Maintenance Cell and Docking Cell: professional supervision of repairs

With the growing organization, the need arose to centralize and standardize procurement and supervision of repairs and maintenance. That's why the Maintenance Cell (Dredging) and Docking Cell (Offshore) were established last year.

The Docking Cell is controlled by Rob Eggink. The Maintenance Cell by Sijmen van Marle: "I've done a lot of repairs myself. How you supervised a job, what you did and did not find acceptable was very personal. That has to change: the subjectivity needs to be taken out of it."

To do this, a database is being built (along with the yard group) with information about shipyards' performance. A team of specialists is also being set up to support the Technical

Superintendents. One of them is SHEQ Engineer Antonio Giuliano. "The first job where we were involved was the repair of the Taurus. We introduced several tools on that job, including a daily SHE report that's reviewed every morning in the work meeting." Because this approach worked, the Maintenance Cell wants to make it a permanent procedure. The same applies to the final evaluation, where the entire repair is reviewed with all the departments concerned.



From left to right Sijmen van Marle and Ruud Godeschalk

Training Technical Superintendents & Safety Officers

Area Maintenance Manager Ruud Godeschalk is also a specialist attached to the Maintenance Cell. "The awareness raised by NINA has certainly contributed to the movement that we see today: professionalizing the supervision of repairs. We can see the risks more clearly. Supervising a repair is a skill." To train technical superintendents and safety officers in this skill, Antonio Giuliano developed an SHE module. "Armed with a good SHE plan, you learn how to prepare the yard for the project, what you can encounter and how to solve it. Through the training we want to make knowledge available in the company accessible to all, and to also create uniformity, so as to improve safety at the yard."

The training is available from spring 2016.

Taurus



Statistics: the number of accidents with absenteeism continues to fall

The downward trend in the number of accidents (LTI = Lost Time Injuries) continued in 2015. Good news for everyone who contributed to a safer workplace last year. Paying attention to safety pays off. The number of SHOC cards and reports of *near-misses* continues to grow. This shows that safety is increasingly on everyone's mind. Ultimately, we all benefit because every near-miss can be a *lesson learned*.

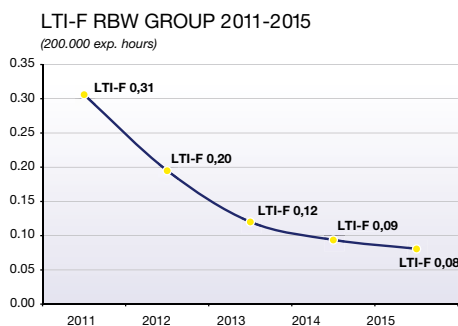
Nonetheless, there were a number of serious incidents in 2015. Unfortunately, we had two fatal accidents on projects where we were part of a consortium, of which one took place during an activity outside the scope of the project.

Even though they are not formally our reporting responsibility, we still examined these cases in depth. Again something to learn from.

We can see that there is a great willingness and need to immerse ourselves in working safely. The NINA training courses offer a platform from which to share our experiences. There are also specialist courses, special *toolbox meetings* and initiatives such as the new *mooring workbox*. All of these actions move us closer to our goal: *No Injuries No Accidents*.

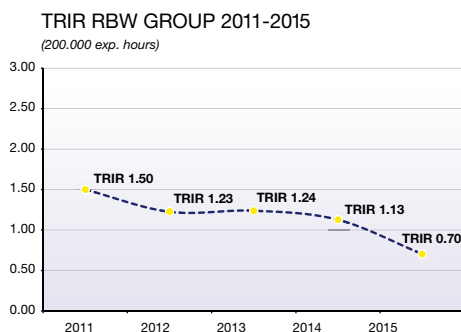
LTIF rate (Lost Time Injury Frequency)

LTIs are accidents resulting in one or more days' absence. The LTIF rate is the number of lost time injuries per 200,000 hours worked. The LTIF rate fell in 2015.



TRIR rate (Total Recordable Injury Rate)

The TRIR figure includes all accidents requiring medical treatment: LTI (Lost Time Injury), RWC (Restricted Work Case, in which injury results in adapted work) and MTC (Medical Treatment Case, where someone can immediately resume their duties after medical treatment). The TRIR rate is the total number of LTIs, RWCs and MTCs per 200,000 hours worked. The TRIR rate fell in 2015.

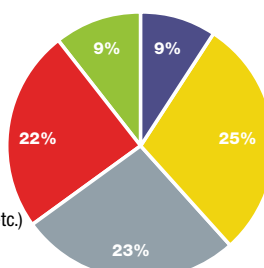


The Main Causes of Accidents

This diagram shows that 1) falling, tripping and slipping, 2) being hit by an object, 3) being crushed in or between something, 4) overstretching, overloading, 5) contact with heat, dust, etc., together accounted for 75% of the causes of accidents in 2015.

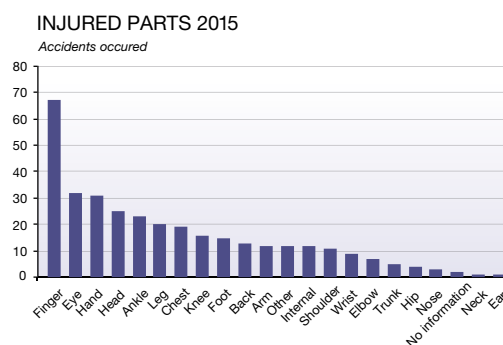
TOP 5 TYPE OF EVENT TOP 2015

- Falling/slipping/tripping
- Struck by/against
- Caught between/in/on
- Overstress, overpressure
- Contact with (heat, dust etc.)



Injured body parts

Fingers and hands are the body parts where people are most often injured. The Nina 'Hands' workbox was developed to make people aware of this. The new 'Mooring' workbox also focuses on this risk. Furthermore, people often suffer injuries to their eyes and head. The reason is that injuries mainly have to do with wearing the correct PPE.

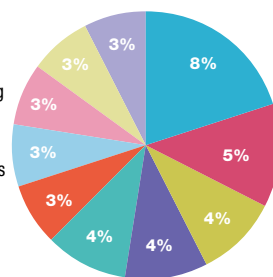


Top ten near misses

In 2015, almost 900 near misses were reported. The Top 10 near misses together account for 40% of the total number of types of activities. Most near misses were reported in lifting work (8%) and in berthing and unberthing (5%). The remaining 60% of reported near misses is divided into small percentages of 1% to 2%, and therefore covers a wide range of activities, ranging from 'black out' to 'work with contaminated soil'.

TOP 10 TYPE OF ACTIVITY 2015 REPORTED NEAR MISS

- C07 Lifting and Hoisting
- D09 Mooring/Unmooring
- Slipping, tripping, falling on surface
- C01 Fuel supply, bunkering and storage
- B01 Hopper dredging on a project
- D01 General deck operations
- Engine Failure
- C16 Handling barges
- C08 Hot works, cutting and grinding
- D10 Anchor handling



Lessons Learned resulted in a new procedure for Megger testing



Switch box before fire



Switch box after fire

Boskalis tries to learn from each accident or near-miss. To this end, the SHEQ department analyzes all reports received and examines the circumstances surrounding serious incidents, with the aim of preventing their recurrence. The *lessons learned* are shared through media platforms such as Safety NewsFlashes. Sometimes the research leads to changes in procedures, which happened, for example, following a serious accident on the Shoreway, Mexico, in May 2015.

8 Jurriaan Guljé, Crewing Department Dredging Division Manager, explains what happened: "The 1st machinist was doing a Megger test in the switch box (a preventative test to determine whether the electrical circuit is completely isolated) when a jet of flame hit him on the hands, arms and face, and the switch box caught fire. Blinded, the 1st machinist managed to crawl out of the control room, and was quickly brought to safety. He was rushed to the nearest hospital by crew boat. His hands had such severe burns that he was out of action for six months. The fire in the switch box was extinguished with a portable fire extinguisher, but the damage was so bad that the box had to be replaced.

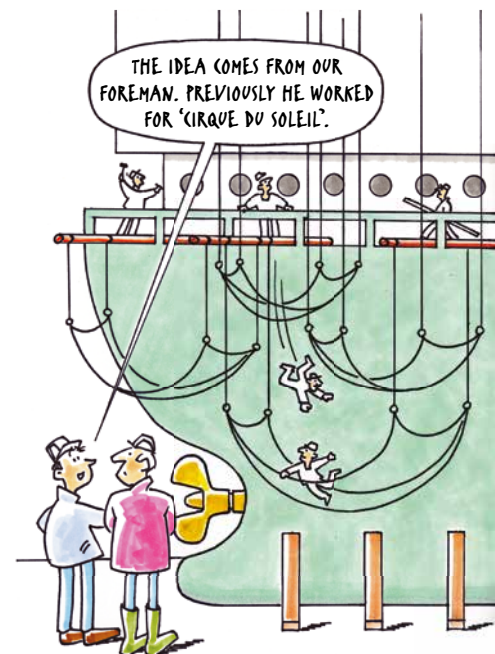
The Fleet Management immediately sent a circular round saying that there must be no more Megger testing until further notice. Then we examined the circumstances of the accident. We found several direct and indirect causes, such as insufficient awareness of the risks and ignorance of procedures. We have also raised the question of whether we need to do the Megger testing every year and whether we need to do it ourselves. Eventually this resulted in a new procedure: in principle, rather than doing the Megger testing ourselves we contract a specialist once every five years. This measure is due to the severity of the injuries sustained by the 1st machinist and the fact that Megger testing ourselves is not always necessary. So why should we take the risk?" ■



Thought of a good idea to improve our safety?

Send it to:

safety@boskalis.com



Colophon

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