Paolo Budinich and Science Popularisation

I am very pleased and feel very honored to talk about Paolo Budinich, whom I had the privilege of working with for the setting up of Immaginario Scientifico, previously an exhbition and afterwards a science centre in Trieste.

I am here to present Paolo Budinich as a science communicator, even though he probably wouldn't be very happy with this definition. In fact, in his autobiography, L'arcipelago delle meraviglie (The achipelago of wonders), he talks about his experience with the Immaginario Scientifico as kind of interlude.

My point is that it is not by mistake, or by accident that he ended up founding a science centre.


RIESTE
LOŠINJ

Let's start with a bit of history, and geography.

Paolo Budinich was born in Veli Losinj (Lussingrande), this is why we are here :)
.

AUSTRO-HUNGARIAN MONARCHY.

Scale of English Miles

20 10 0 20 40 60 80 100

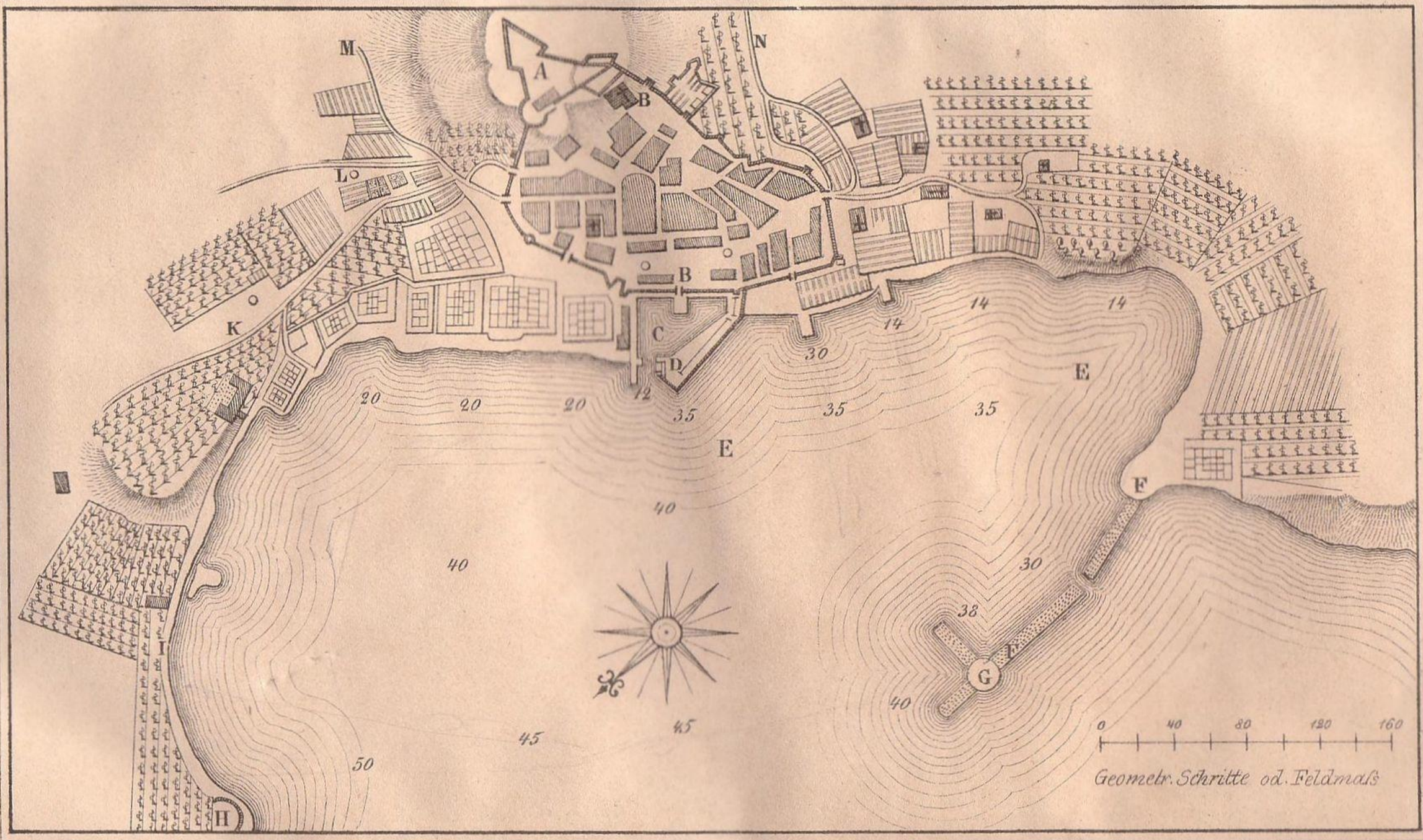
Railways thus

Longitude East 14 of Greenwich

W. & A.K. Johnston. Edinburgh & London.

This happened in 1916 when the Losinj Island was still part of the Austrian Empire, whose main port was Trieste.

PLAN DER STADT UND DES HAFENS VON TRIEST IM J. 1718.



gez. von Joh. Righetti

Lith. Anst. V. Stranski

The "new birth" of the city took place in the XVIII century by imperial decree, when Trieste was declared a free port.


HAYDN
TRAVIATA
TEATRO ARMONIA
DONNA DIANA
DONNA DIANA

In the XIX century Trieste grew very important and international a city, full of traders, travellers and intellectuals

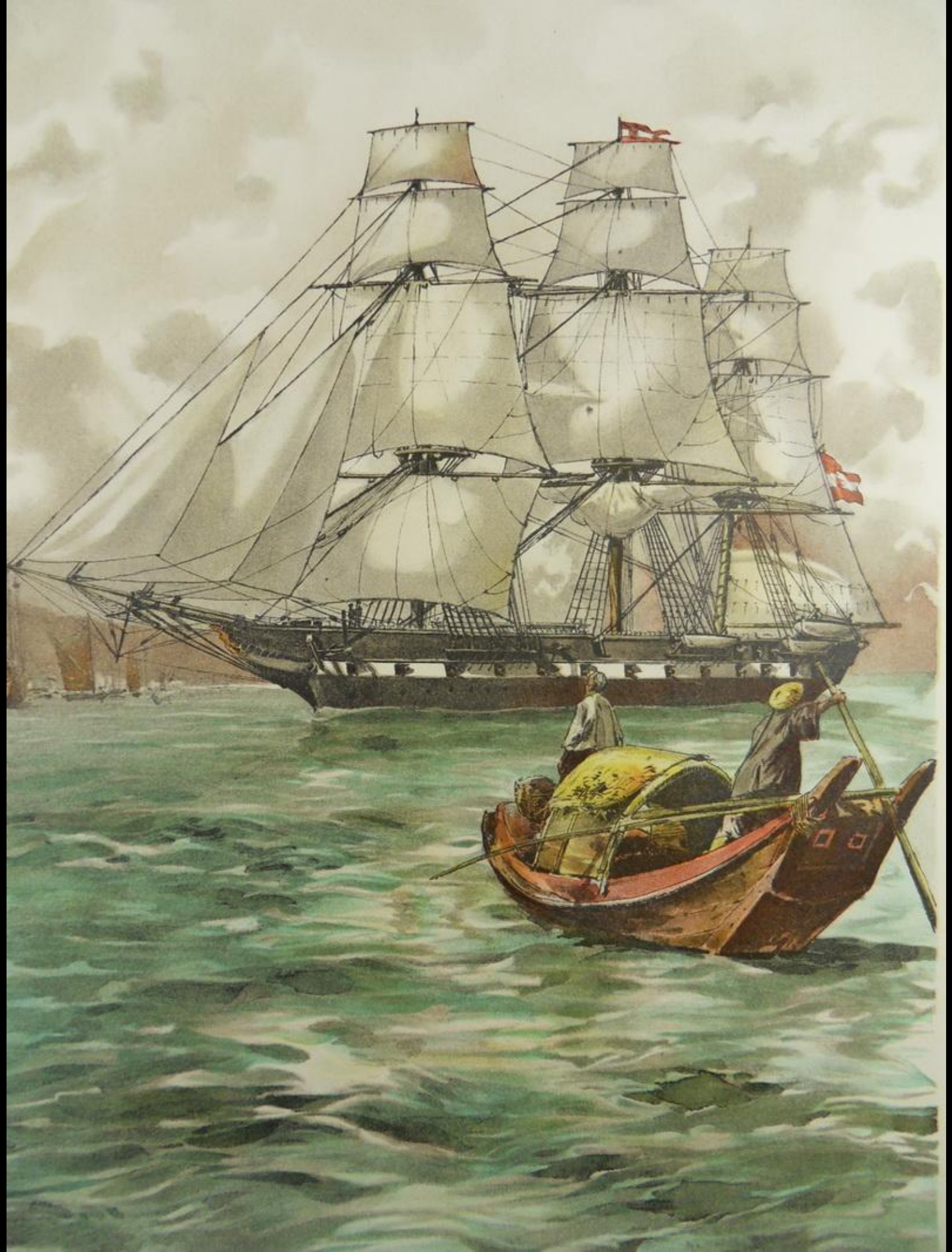
Anway, trading was the main activity.

Trieste's beating heart was the stock exchange (do notice the coaches waiting for the businessmen around the building main entry point).

Maybe, for a pure scientist, or for a philosopher, the word *trade* and, even worse, the word *commerce* have a bad connotation because they sound very far from the purity of the truth. However, if we consider “trading” from the point of view of information the word can take completely another flavour

Actually trading consist in bringing something, let's say coffee beans, from a place where you have plenty of it to a place where that good is scarce, increasing therefore the information value attached to that good.

If we move from material goods to incorporeal ones (knowledge) and consider trade from a more general (abstract) point of view, we can see then that this commercial background has something to do with what we call today the Trieste System...



This is a special example of trading, very much linked to science
This ship is the frigate Novara.

From The Novara scientific expedition (authorised by the Archiduke Maximilian 1857–1859) many samples where brought to Vienna. Also the Trieste Natural History Museum originated from the specimens collected all over the world during the Novara mission

Academy of Commerce and Naval sciences

Anyway, a lot of science is involved even with physiscal trasportation and storage of coffee beans, or other material goods.

As a matter of fact, in Trieste trading was coupled with science from the very beginning of the Austrian free port. An Academy of Commerce and Naval Sciences was founded and had been preparing traders and sailors since 1744.

I’s from that Academy that both the Geophysical and the Astronomical observatories took their start.

Josef Ressel
1793 - 1857

Among the men of science that worked in the Trieste region, it is worth mentioning Josef Ressel, for his invention of screw propeller that has fully changed the nautical world and trading by sea.

We see that science, sea and trade have always been strongly linked in Trieste.

Antonio Budinich 1714 - 1791

Simone Budinich 1744 - 1815

This has been true also for the family of Paolo Budinich.
His ancestors were captains and shipowners.

Antonio Maria Budinich
1784 - 1866

And also scientists

This is the grand grand grand father of Paolo. In the portrait we can notice that not only the dressing style has changed, but also what these gentlemen were holding in their right hand to signify their main activity. In fact this man was a scientist (his field of study was agronomy).

The invention of screw propeller had of course affected the family profession. Bringing them to that shift from the trade of material to the trade of incorporeal goods we have just considered

These are the parents of Paolo Budinich. When they married the father Antonio already was a teacher of History and Geography in Trieste high school

Paolo was born in Veli Losinj, Lussingrande, during the 1rst World War.

Then, when the war was over, the mother joined the father moving the family to Trieste

Of course every summer he would travel to his wonderful archipelago.

So he grew up learning sailing and boating skills, and the ability to pass (and “trade”) from environments completely far away from each other

In fact for the rest of the year he was living in town, reading many books, listening to classic music and learning philosophy and science.

He was specially fond of philosophy but, since he had schooled in a scientific lyceum, he was forced to pick Physics at the University

We already know that he got his first degree in Pisa at the Scuola Normale Superiore.

Immediately after that he started travelling by sea to the Middle East, on board on a merchant ship

Sailing was not an alternative to learning and teaching.
Immediately after the Middle East experience he sailed as a math and physics teacher in the training ship Amerigo Vespucci.

He taught Physics even during the 2nd World War, also on borad of the cruiser Eugenio di Savoia.

Budinich was very convinced of the fact that learning and teaching are activities mutually dependent: it's trivially true that you can't teach what you haven't learned, but it is also (and less trivially) true that you can't really learn without teaching, that is without communicating to somebody else what you have learned.

Learning and teaching are the very fundamental basis of of trading ideas and knowledge, that is of science communication

Whose signature, photograph, and fingerprints appear hereon.

Pvt Paolo Budini

(Prisoner of war's signature)

BUDINI Paolo

(Name printed)

Aug

(Grade)

(Arm or service)

Date of birth Aug 22, 1916

Color eyes brown Hair brown

Weight, 160 lb.; height, 5 ft. 9 in.

16 35032-1

Countersigned: Harry C Coulter

W. D., P. M. G. Form No. 90

FINGERPRINTS—RIGHT HAND

Notify Italy, Mary Deblasi

Address Ft. Geo. G. Meade, Md.

Phone 220

in case of irregularity concerning bearer.

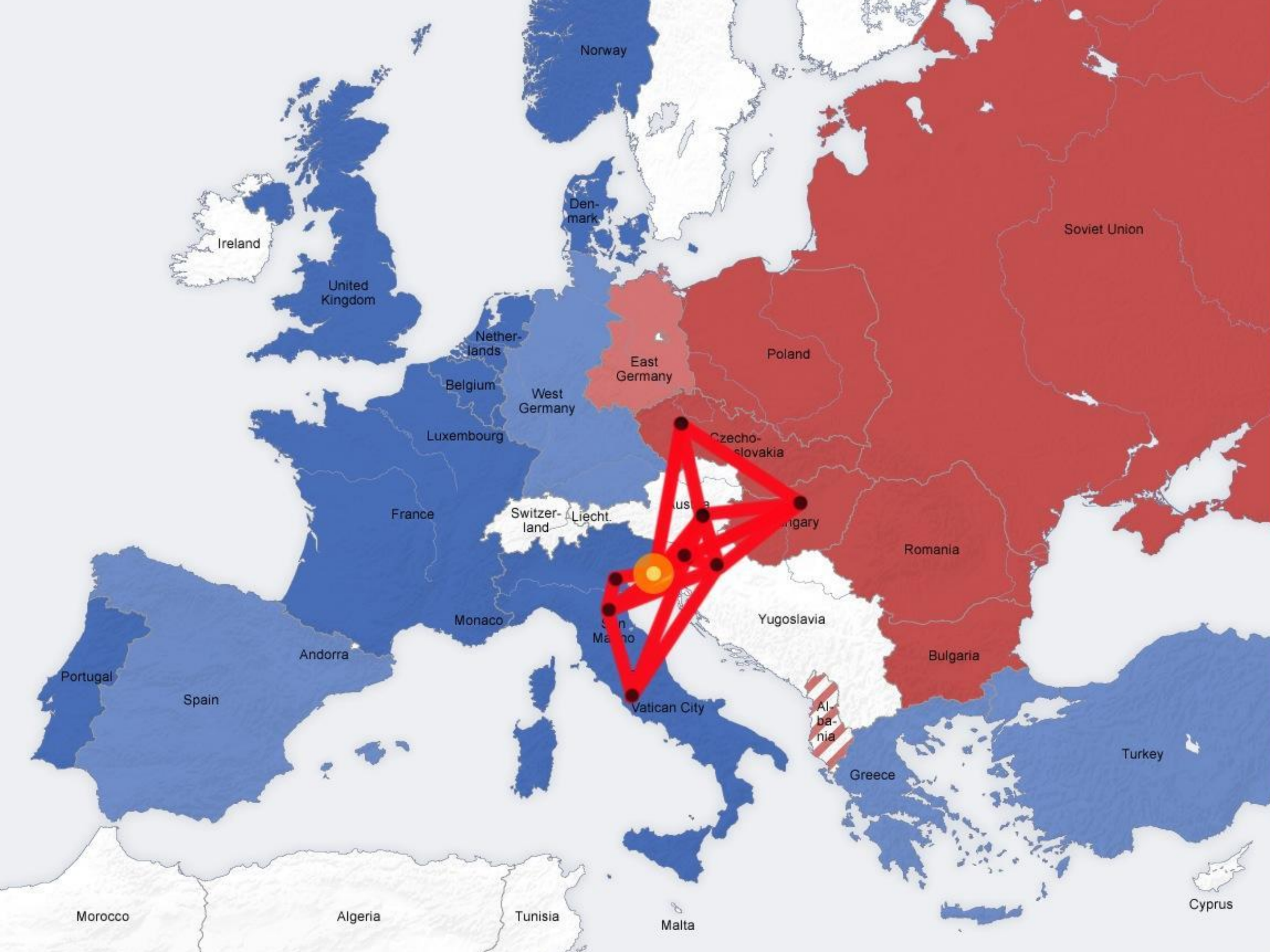
THUMB

Poalo Budinich didn't stop leaning and teaching even when he was taken prisoner first in the UK and then in the USA (he made the most of this opportunity to learn English, very useful skill for the further networking job)

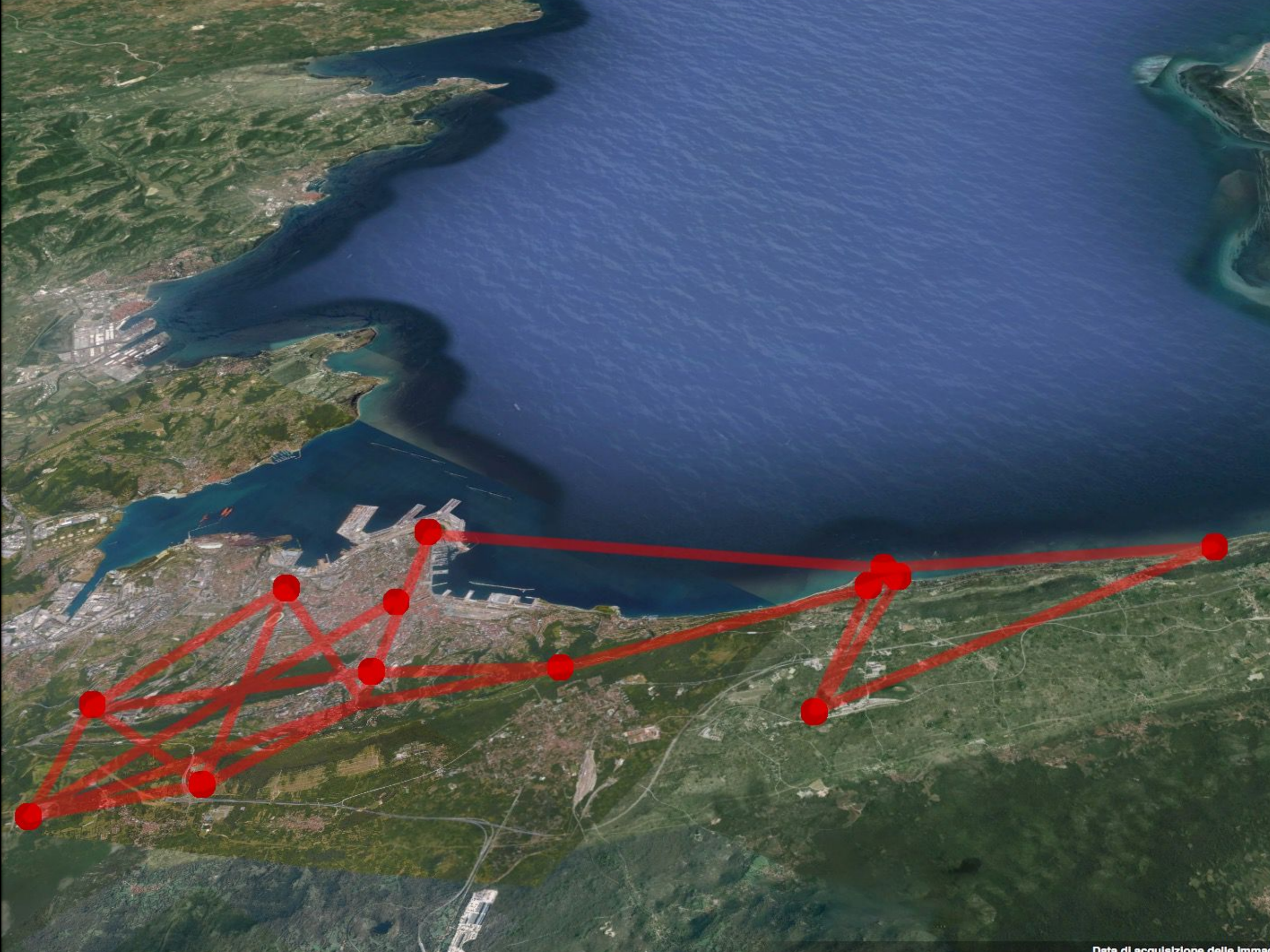
He didn't stop networking either, establishing good relationships with many other intellectuals and scientists, beside those he had already met at the Scuola Normale.

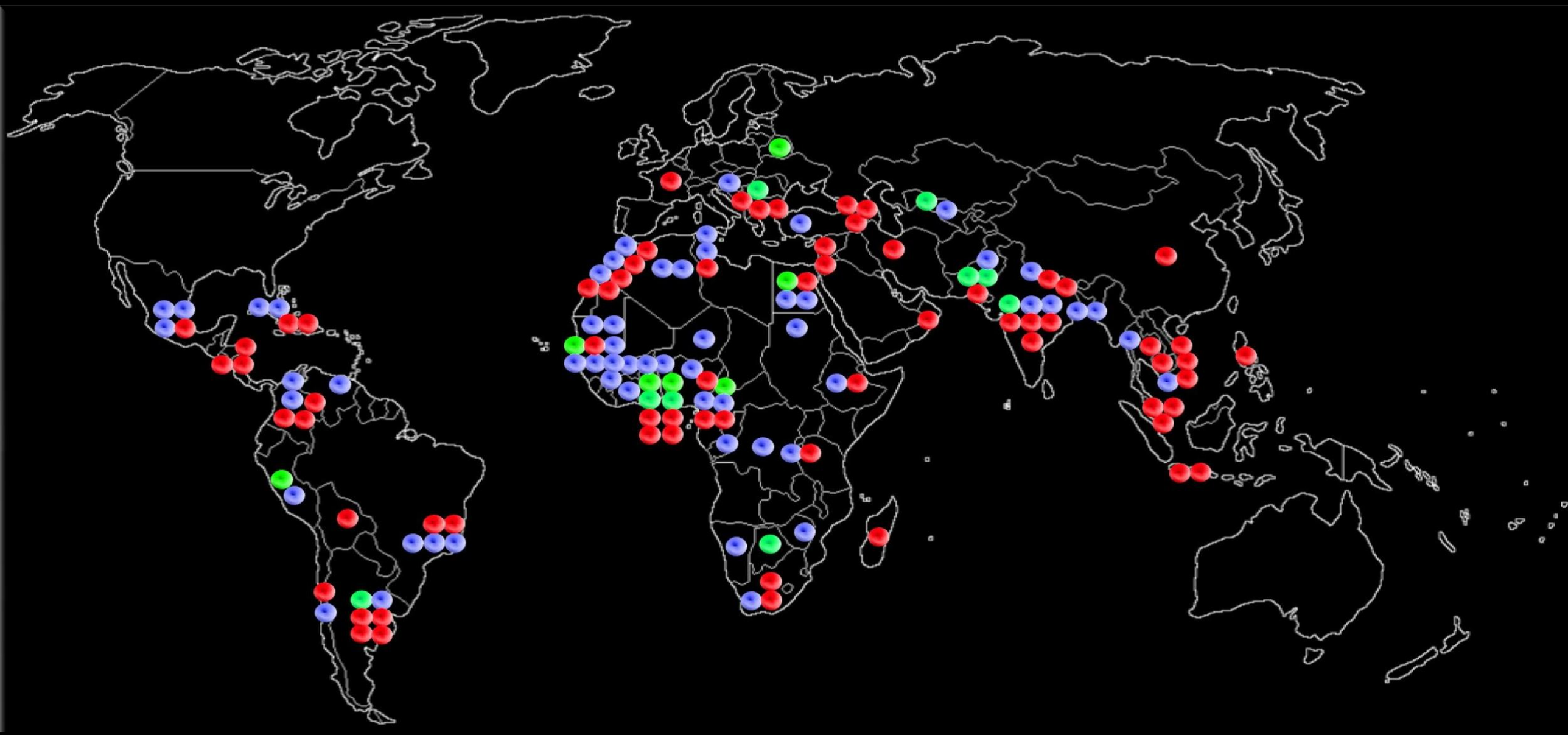
We know about his studies in Gottingen and in Zurich.

In this photo he is with Wolfgang Pauli in Zurich

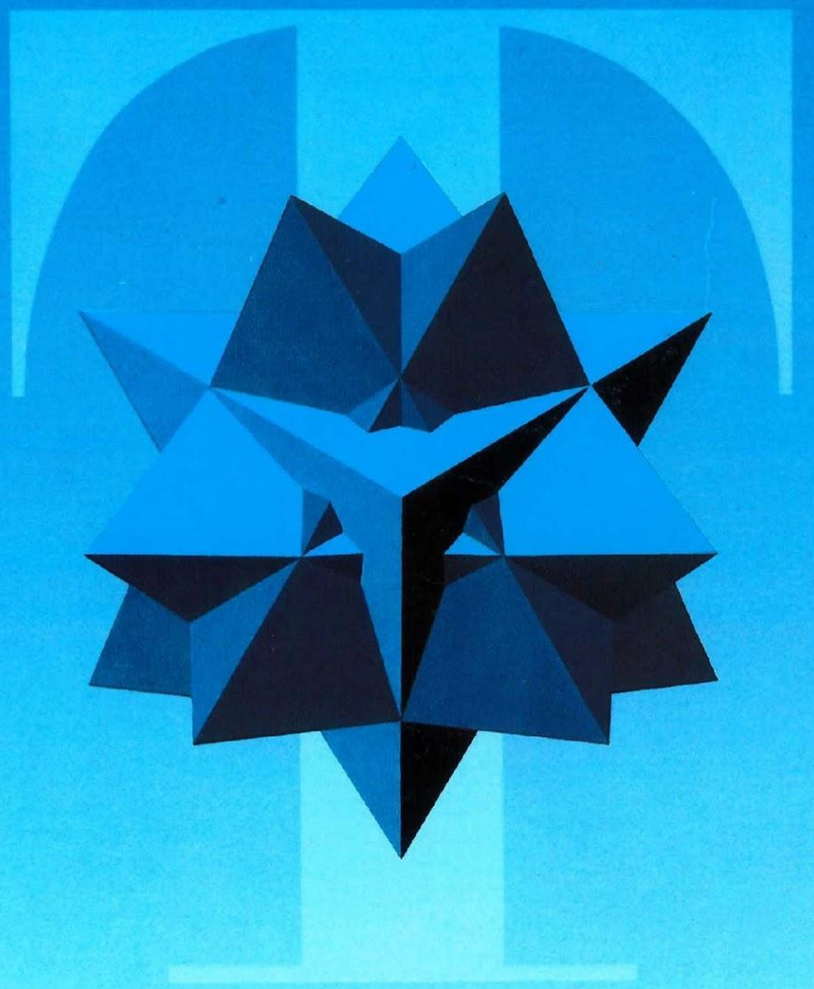

Norway
Ireland
Den-
mark
United
Kingdom
Soviet Union
Nether-
lands
East
Germany
Poland
Belgium
West
Germany
Luxembourg
Czecho-
slovakia
France
Switzer-
land
Liecht.
Romania
Monaco
Yugoslavia
Andorra
Bulgaria
Portugal
Spain
Vatican City
Al-
ba-
nia
Turkey
Greece
Cyprus
Morocco
Algeria
Tunisia
Malta

Of course he didn’t stop networking when he came back to Trieste.
On the contrary he did very much so in the 50s as INFN Director linking up many Universities, so crossing many fronteers and even the Iron Curtain, to make ideas circulate unrespectfully to political borders


Data di acquisizione delle Imma



I’ll skip mentioning the main events of promoting ICTP, SISSA, ICGEB, TWAS, GUNA etc. I would just remember the great networking job behind and ahead of each of these endeavours, that actually consist in local and global networks of scientists and science institutes



AISA ISSA

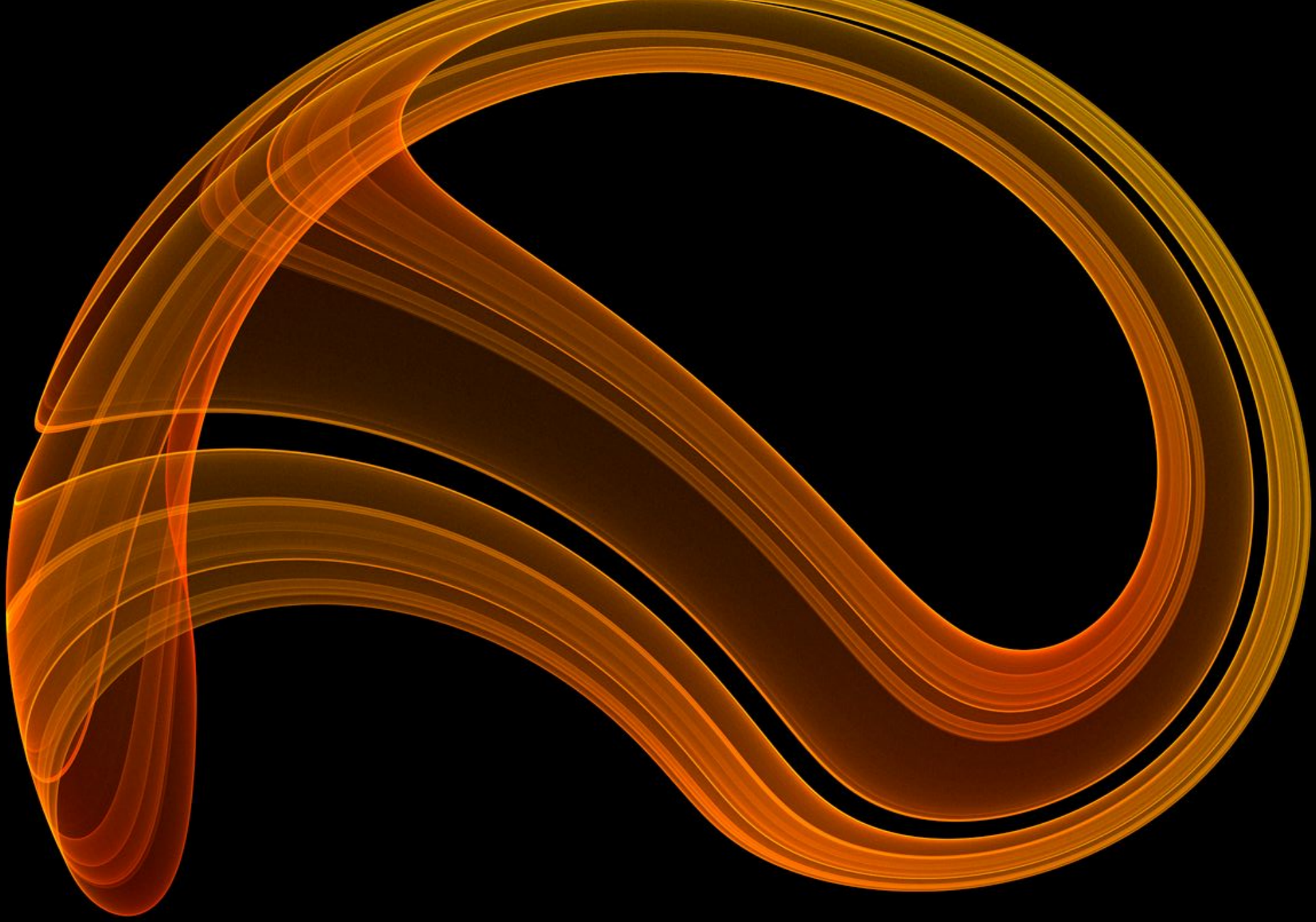
Let's come to our very subject: the creation of Immaginario Scientifico
The starting point was the invitation made to Paolo Budinich by the organiser of Trouver Trieste a big festival on Trieste held in Paris May 1986 to present Trieste as a science city.
The exposition had originally to be set at Baubourg Centre Pompidou, that is in an Art musym. We then thought of the possibility to make the most of the beauty of science images. It was also the same way scientists use to talk about their work when they give a talk.
There isn't a perfect English translation of Immaginario Scientifico. One could try with *Scientific Imaginarium*, which is good because it sounds like *Aquarium*, but the meaning of imagery gets somehow lost
In French and in Italian, instead, *Imaginaire* rhymes with *bestiaire*, so, beside the opposite of reality can also signify "a collection of picture". Which damps a bit down the apparent (and misleading) oxymoron between immagination and science.
Anyway as I said we collected many nice pictures, because scientists had altready started havind their cartridges of slides (in those times they were real slides)

When I say we I refer first of all to the small group formed by Nicoletta Brunner. Paola Rodari and I. called us "the semiologists" because I schooled with Umberto Eco. But we soon had to interact with artists, architects and, most importantly, with many scientists

AISA ISSA

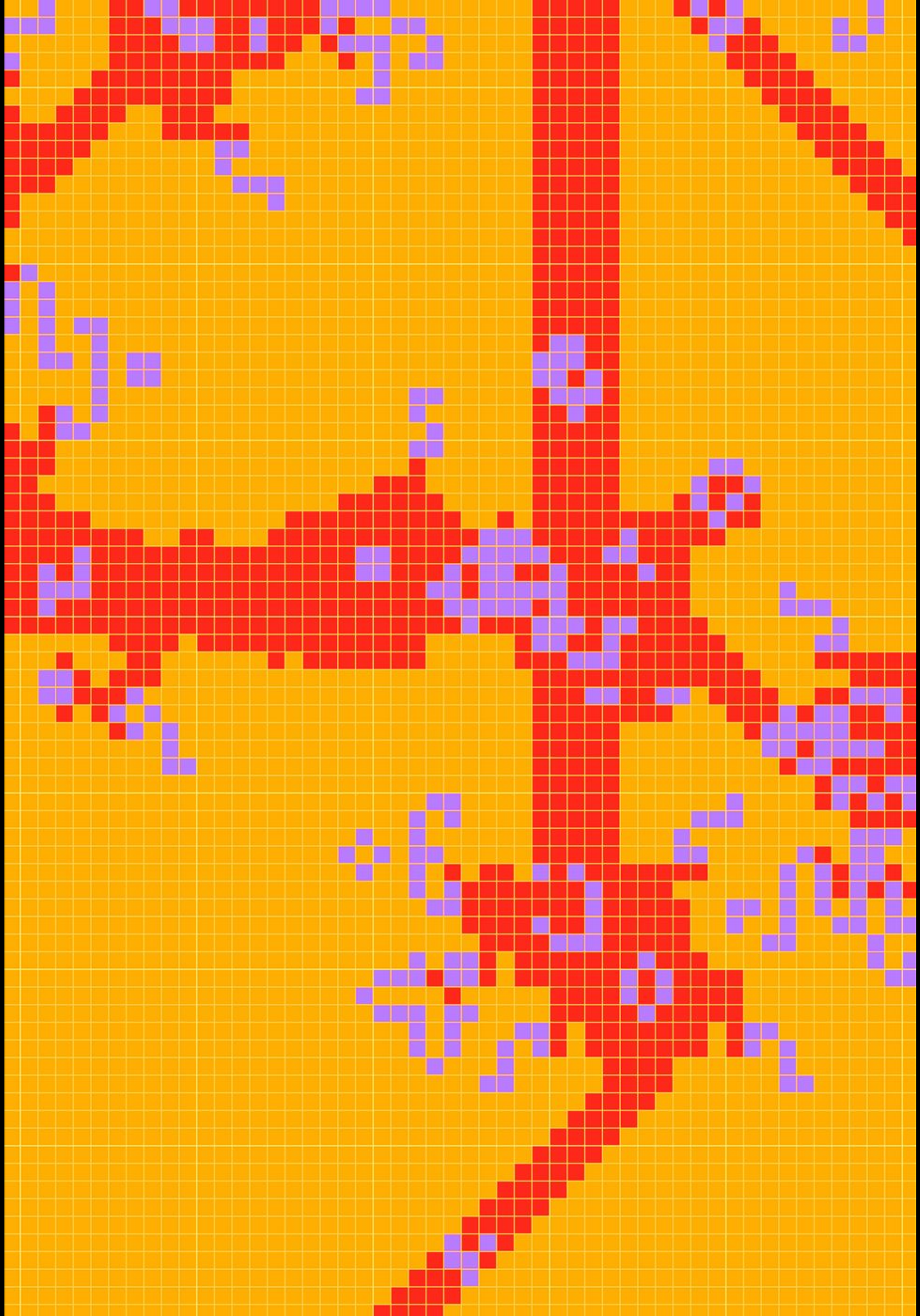
The exhibition was prompted by FIT (Fondazione Internazionale Trieste) and ISSA (Intercultural Society for Science and Art)

Members of ISSA were people like Claudio Magris, Giuseppe O. Longo, and Antonio Borsellino, founding father of Italian biophysics and Normale school mate and close friend of Paolo Budinich...



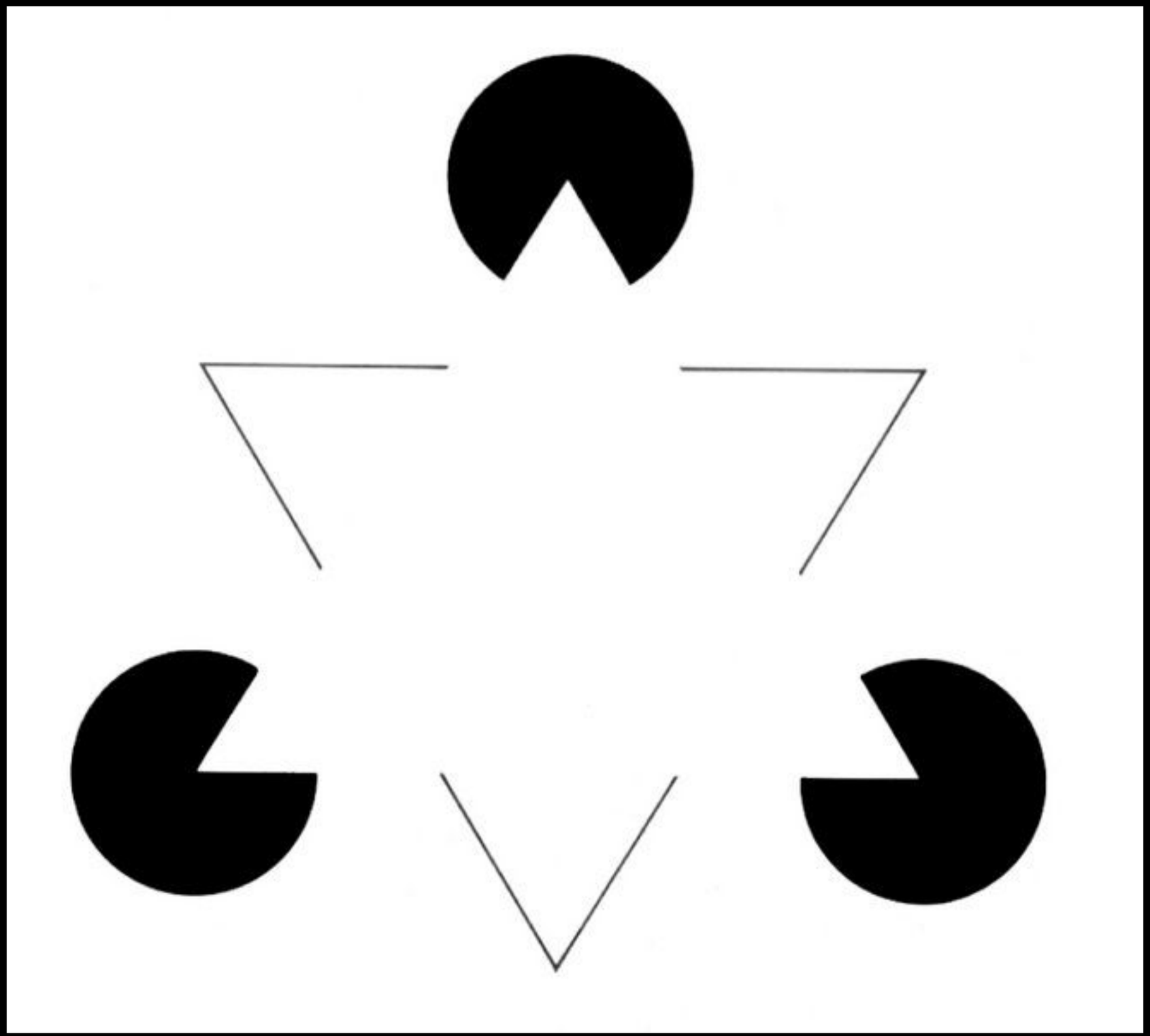
Among other contruibutions Borsellino gave us nice pictures of strange actractors because he was working on a mathematical model of visual perpecption of ambiguous images.

But we reaceived pictures from many other scientists, both from Trieste and, through ICTP, from all over the world



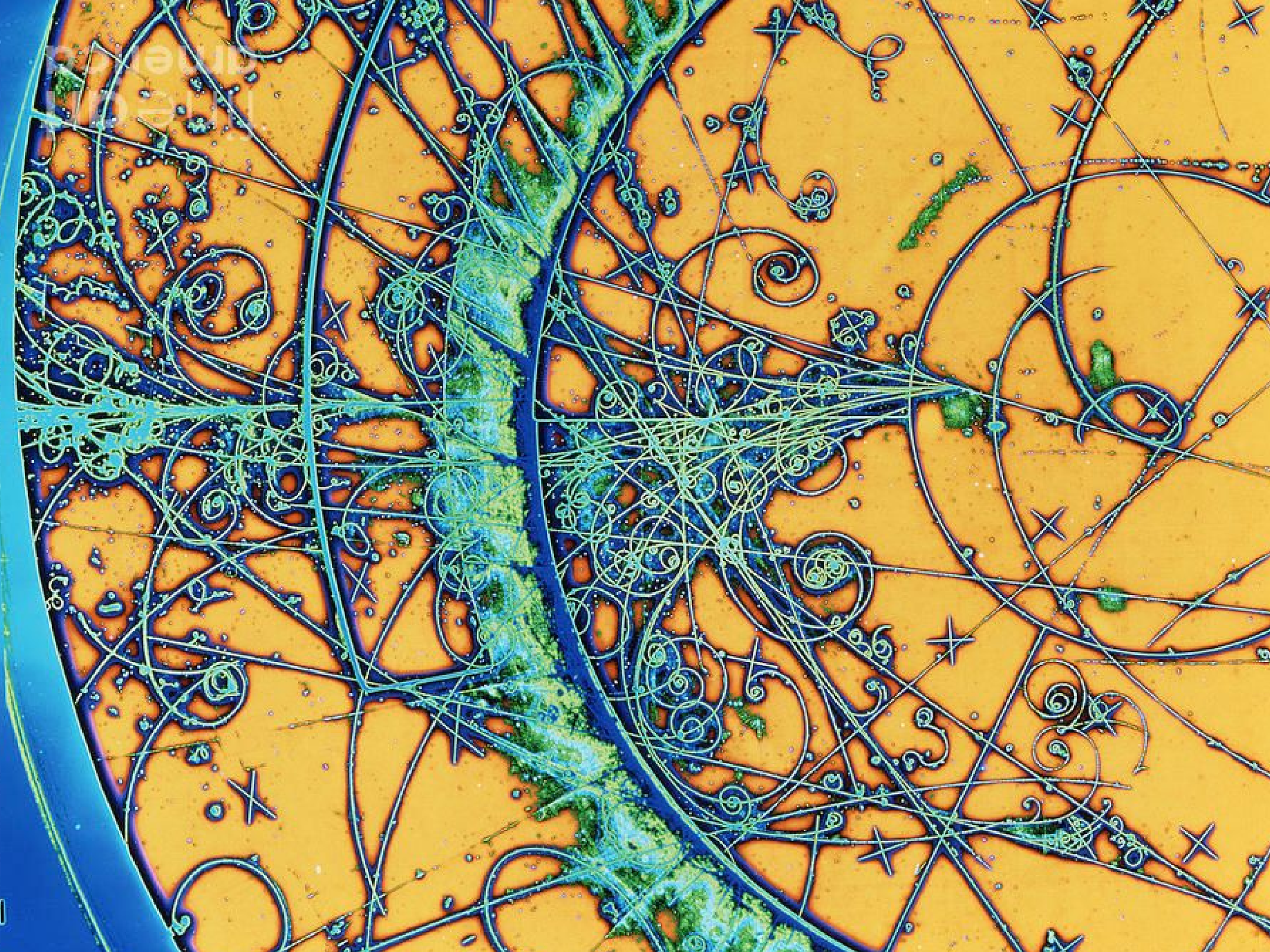
Tommaso Toffoli, MIT

Benoit Mandelbrot, IBM



Gaetano Kanizsa and Walter Gerbino, from the Psychology Dept of Trieste University

Margherita Hack and Giorgio Sedmak, of OAT



and of course people from the CERN in Geneve


L'IMMAGINE E LA CARTA

Budinich was also aware of the risk of remaining only at a superficial level, exploiting the aesthetic beauty of science pictures without conveying any further information.

In the first exhibition he was very proud of the way we managed to make information available "on demand". In fact those strange pillars were installations designed to to display what we called “computer books”

They contained the first personal computers M24 with a CGA (forerunner of VGA)

A special task force from the OAT wrote down the authoring software to prepare those visual hyper-texts (another example of Budinich ability to have people working at his goals)

In the following years the Immaginario Scientifico exhibition evolved into a system of services to the schools and to the city.

We played a much needed role, doing as an interface between the city and the scientific community satisfying both the need of the school teachers to have their knowledge updated and the desire of the scientists to share and make it public what they were finding out in their research

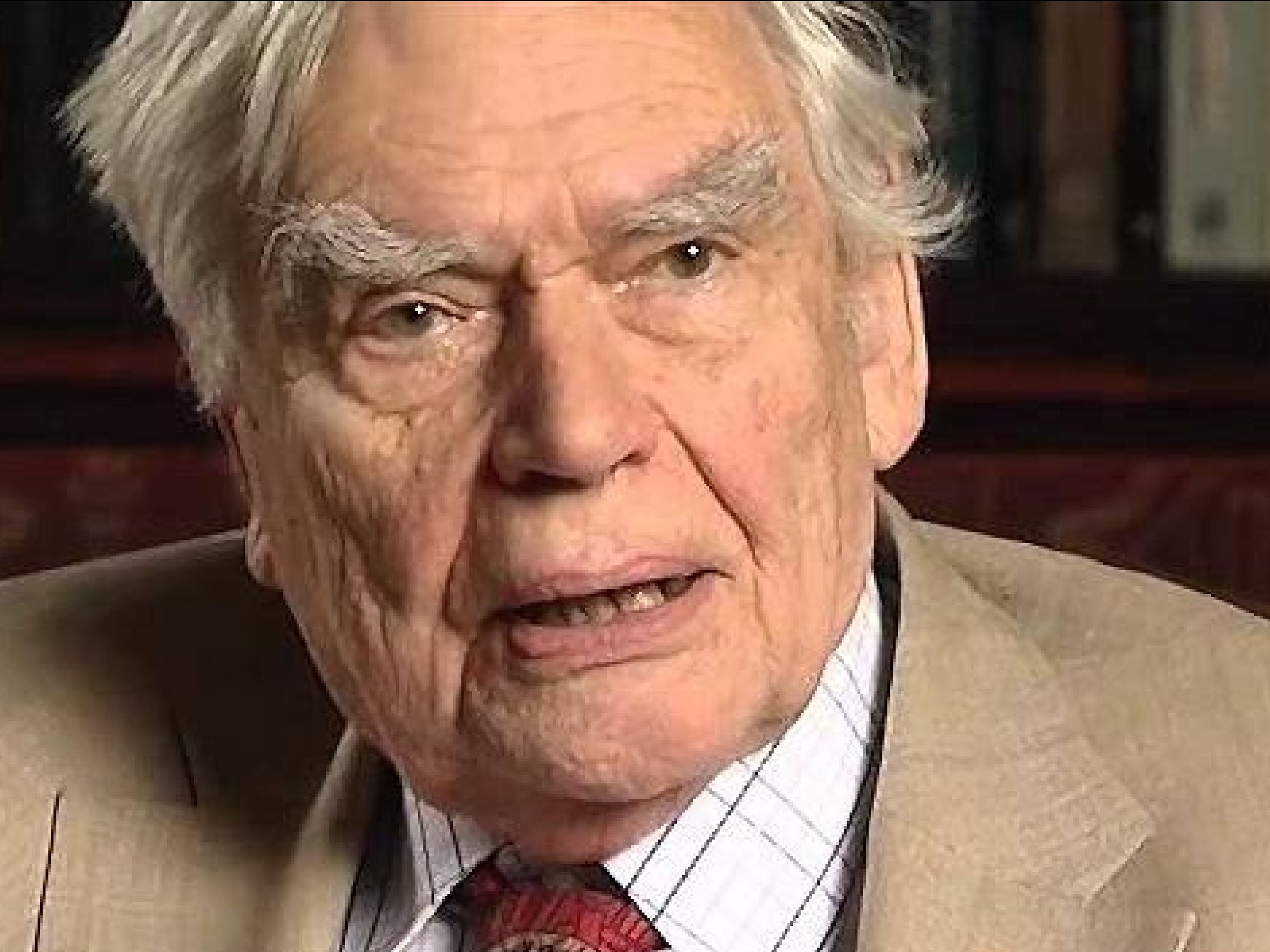
We organised courses, series of conferences, helped scientistist to set up exhibitions, we also had a science news letter in IL PICCOLO the Trieste news paper

Anyway we were not content with providing only scientific information. Budinich aimed at changing the way people feels about science, and have a more direct experience of it. Our goal was to become a new kind of science museum


EXIT
Cafe


P6
SEEING AND

Our model was San Francisco Exploratorium, the first interactive science centre in the world, founded by Frank Oppenheimer, brother of Robert Oppenheimer who was the first inspirer of IAEA and lead the first ICTP scientific council



One of our advisor was Richard Gregory who founded an other Exploratorium, in Bristol UK and was a friend of Budinich.

Together with Richard Gregory and a few other science museums directors Budinich founded the ECSITE

VIRASORO

DAMIANI

BUDINICH

FEHLHAMMER

PANIZON

INTERNATIONAL CENTRE
FOR
THEORETICAL PHYSICS

immaginario
scientifico

centro per la scienza

apertura il 21 giugno 1999

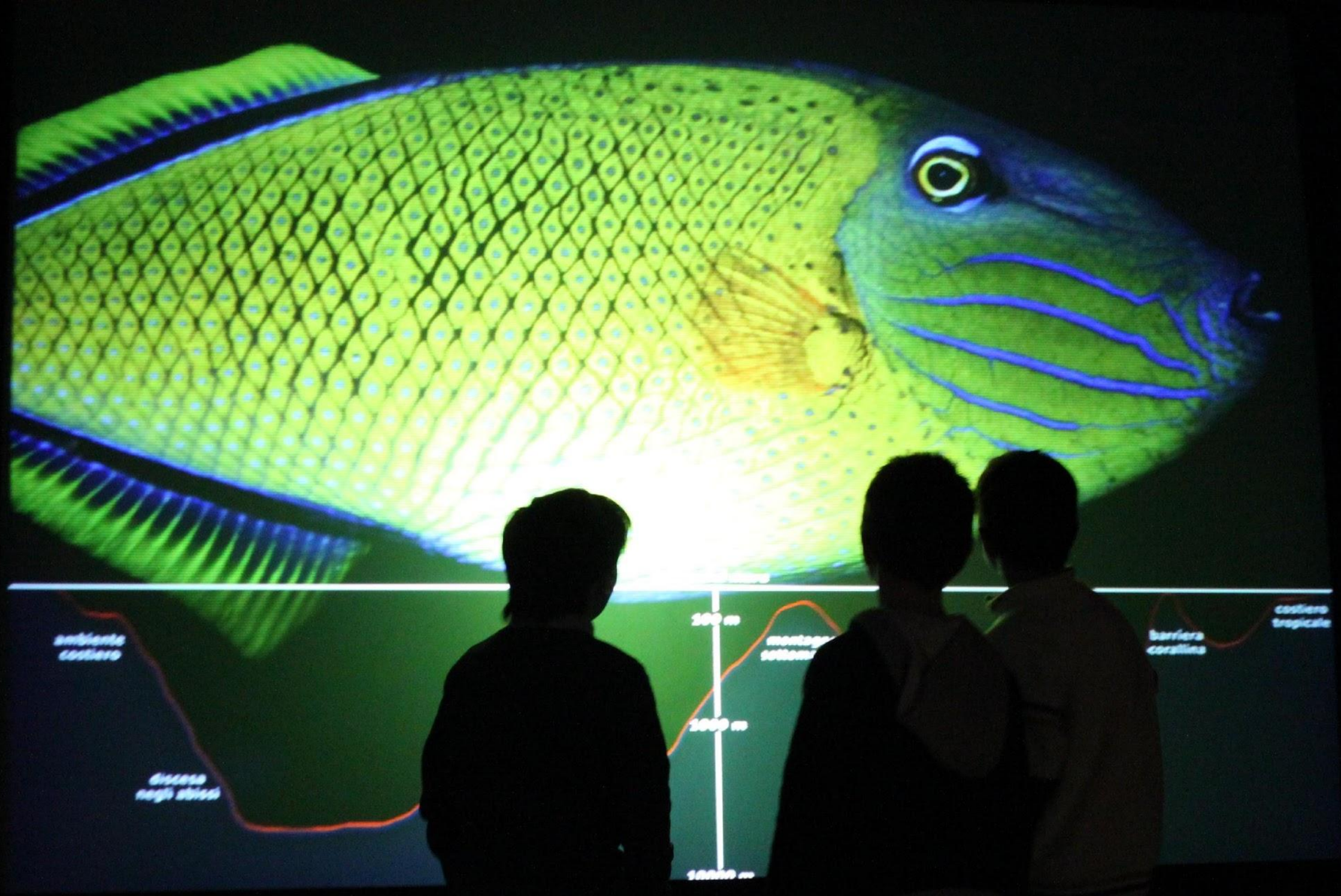
laboratorio dell'
immaginario
scientifico

centro per la scienza
vento la scienza contro trieste

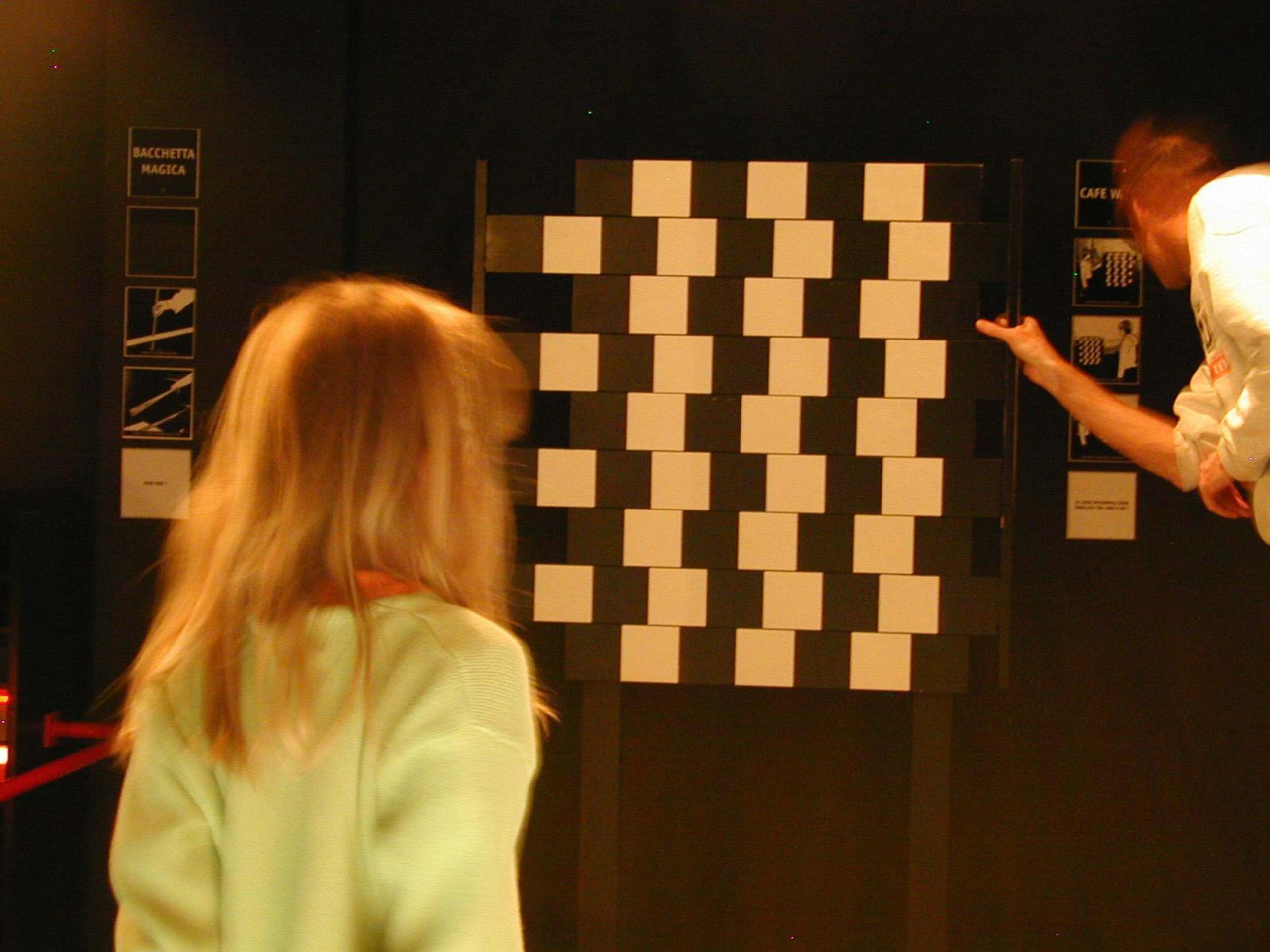
apertura il 21 giugno 1999

premio internazionale
"Primo Rovis"

In the following years, the Immaginario became a science centre regularly open to the public


ambiente costiero
discesa negli abissi
1000 m
barriera corallina
costiero tropicale

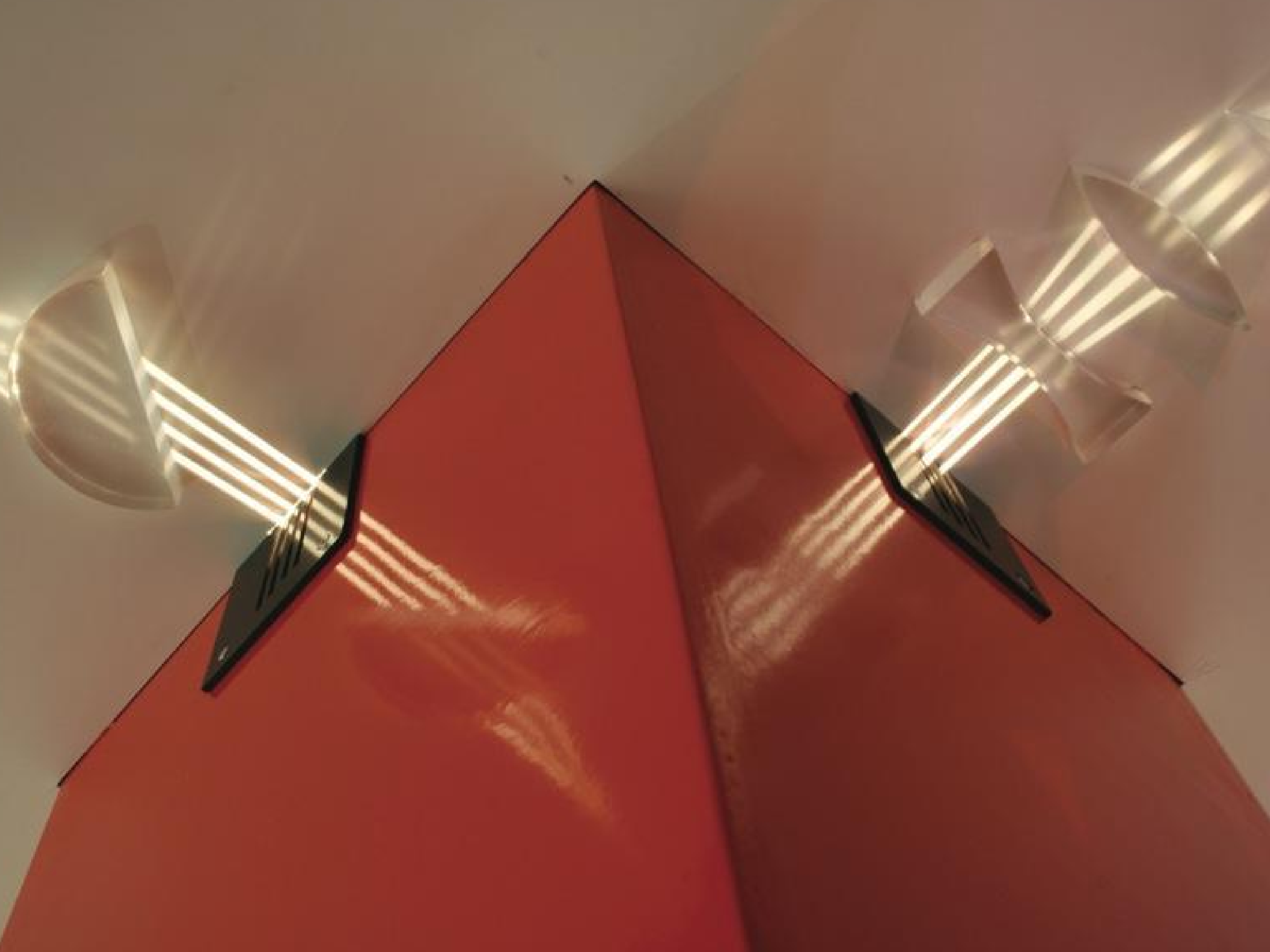
We kept showing beautiful science pictures


BACCHETTA
MAGICA
CAFE W

But we also set up a large collections of hands-on exhibits and informal teaching demonstartions

By the way this one is called cafè wall and was invented by Richard Gregory who observed this perceptual effect on the wall of a cafeteria in Bristol.

The following are just some of our hands-on exhibits and ways in which they are explained and used to give our public a better understanding of the natural world



I will try to give you a short explanation of what is an interactive science centre, starting from an authoritative definition of a museum in general

According to the International Council of Museums (ICOM) 2007 definition

A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the *tangible* and *intangible* heritage of humanity and its environment for the purposes of education, study and enjoyment.

A science centre must be about science, that is not about things as such but about how we can understand them.

Therefore the goods we expose in a science museum are part of the intangible heritage of the humanity our definition talks about

Interstingly enough, against the etymology of those adjectives, the tangible goods are those that are normally very well kept in cases. They are therefore actually not at all tangible (that is touchable) by the museum visitors.
In a science museum that deals with with intangible goods (knowledge) the things exhibited in the exhibition tend to be valuable not per se, but for what they can show of general natural phaenomena.

The museum can therefore invite their visitors to touch and have a hands-on interaction with the exhibits.

This is the kind of science centre Budinich wanted to build and it is in fact the kind of science centre we are aiming at, to communicate science in an informal and interactive way, as Budinich has been doing along all his life...

Thank you for you kind and patient attention

illy

FORME DELLA NATURA

SABATO 28 FEBBRAIO - DOMENICA 7 MARZO 2004

TRIESTE, SALA GIUBILEO, RIVA III NOVEMBRE N° 9

ORE 10.00 - 13.00 / 15.00 - 18.00 INGRESSO LIBERO*