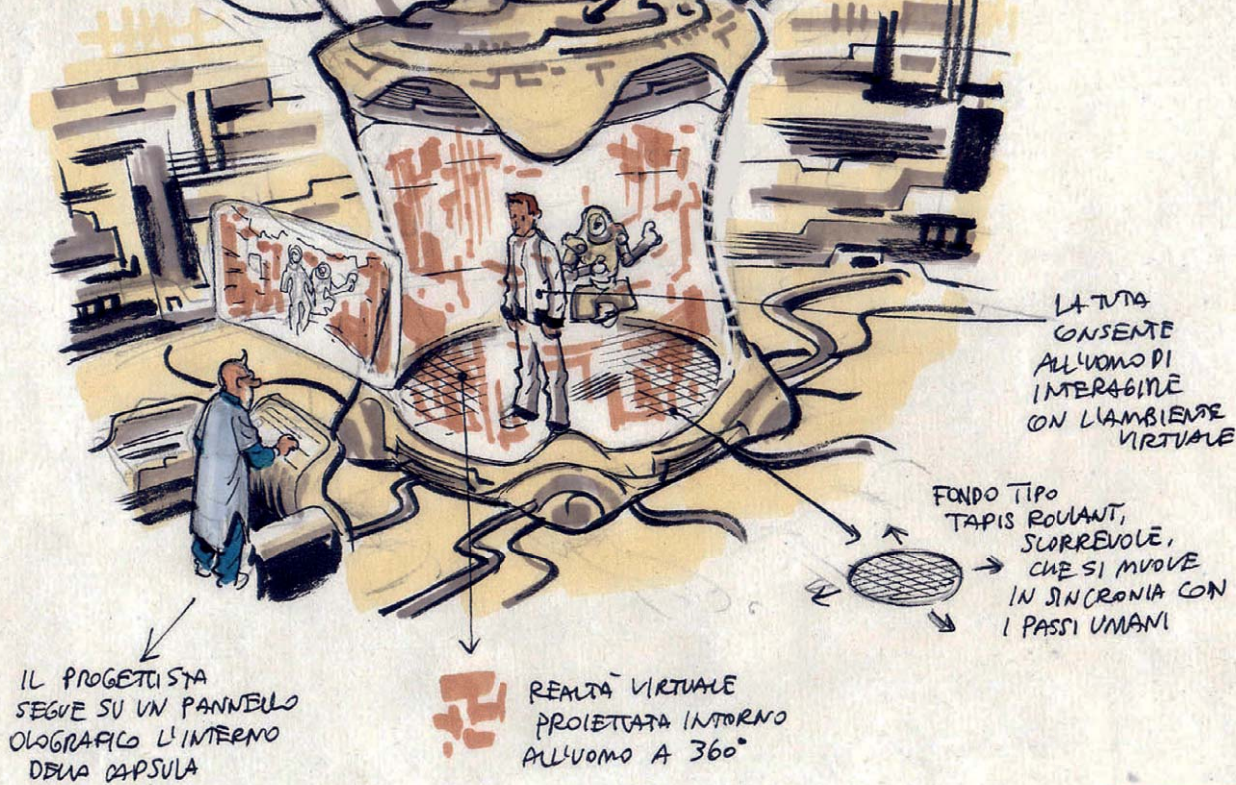


COMICS *for* ENGINEERS



INTRODUCING...
EMAX 2!



IL PROGETTISTA
SEGUE SU UN PANNELLO
OLOGRAFICO L'INTERNO
DELLA CAPSULA

REALTÀ VIRTUALE
PROIETTATA INTORNO
ALL'UOMO A 360°

LA TUTA
CONSENTE
ALL'UOMO DI
INTERAGIRE
CON L'AMBIENTE
VIRTUALE

FONDO TIPO
TAPIS ROULANT,
SURREVOLE,
CHE SI MUOVE
IN SINCRONIA CON
I PASSI UMANI



"THIS IS REALLY MY FIRST PROPER WORK IN THE SCIENCE FICTION FIELD. THERE ARE NO LITTLE GREEN MEN FROM DISTANT PLANETS, NOR ARE THERE ANY SURREAL, GROTESQUE THREATS TO HUMANITY - ALL OF WHICH ARE ELEMENTS THAT CROP UP PRETTY OFTEN IN MY USUAL ILLUSTRATION WORK. YES, THERE'S THE ODD FUTURISTIC TECHNOLOGICAL DISCOVERY AND A BIT OF TIME-SHIFTING BACK AND FORTH, BUT MOST IMPORTANT, THERE IS MY FIRST REAL CLOSE ENCOUNTER OF THE THIRD KIND WITH A FIELD ABOUT WHICH I KNEW ALMOST NOTHING - THE TRANSMISSION AND DISTRIBUTION OF ELECTRICAL ENERGY. FOLLOWING THE INITIAL COMMISSION PROPOSAL, I WENT ON TO EXPLORE THE BERGAMO FACILITY OF ABB SACE AND CAME INTO CONTACT WITH ITS ENGINEERS (WHO WERE AS "ALIEN" TO ME AS I MOST CERTAINLY WILL HAVE BEEN TO THEM). THIS THEN LED, AFTER A PAINSTAKING CREATIVE PROCESS, TO WHAT YOU ARE HOLDING IN YOUR HANDS. AS IN ANY GREAT ADVENTURE, THERE WERE PLENTY OF DISCOVERIES ALONG THE WAY, AND IT WAS VERY MUCH AN ILLUMINATING EXPERIENCE (ILLUMINATING BEING THE OPERATIVE WORD).

ENJOY THE COMIC...
AND LET YOUR OWN CLOSE ENCOUNTER BEGIN."

SERGIO PONCHIONE



INDUSTRIAL
STORYTELLING

PAOLO
VAIETTI

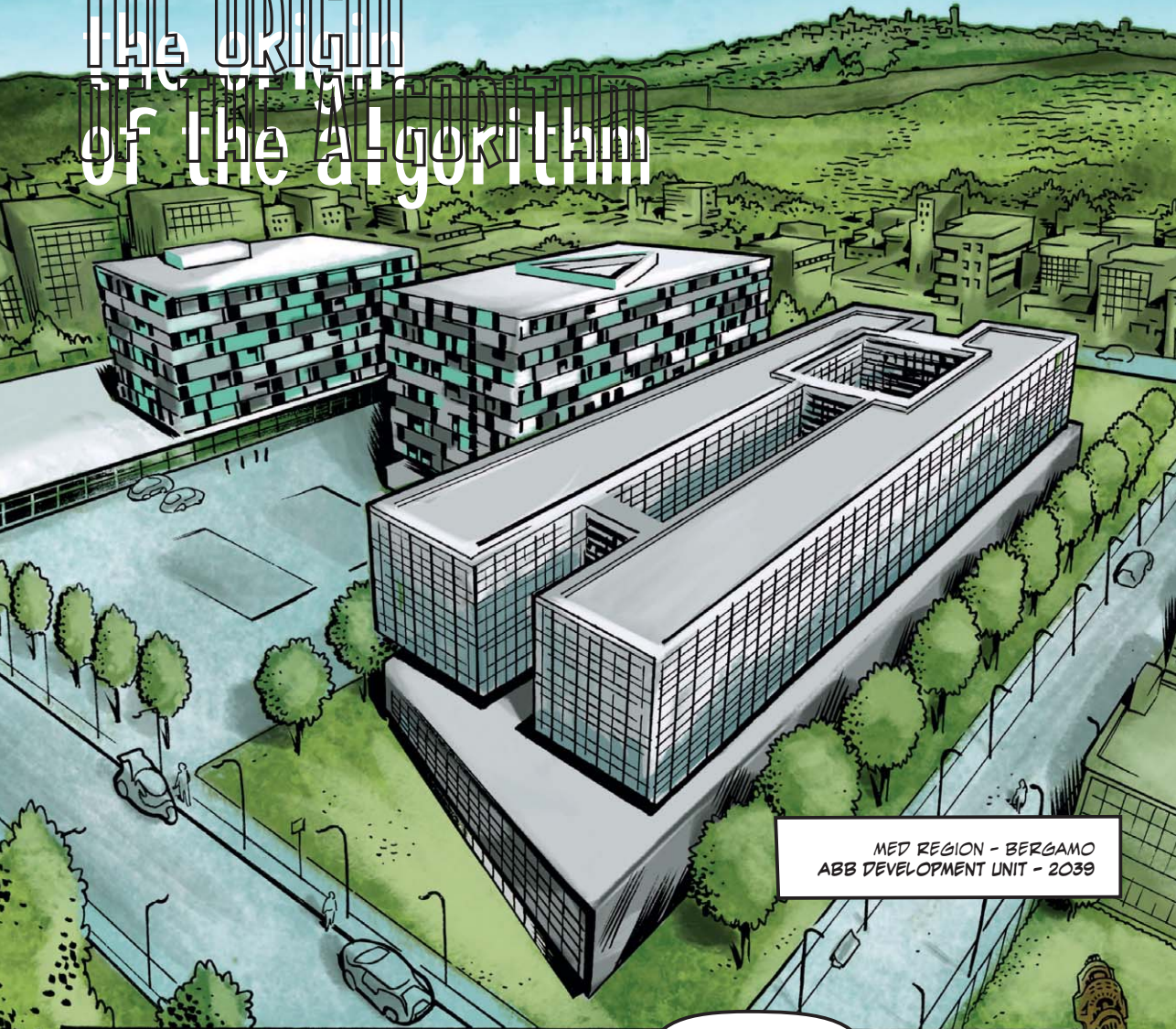
PENCIL
AND INK

SERGIO
PONCHIONE

DIGITAL
PAINT

PAOLO
LIBALI

THE ORIGIN of the Algorithm

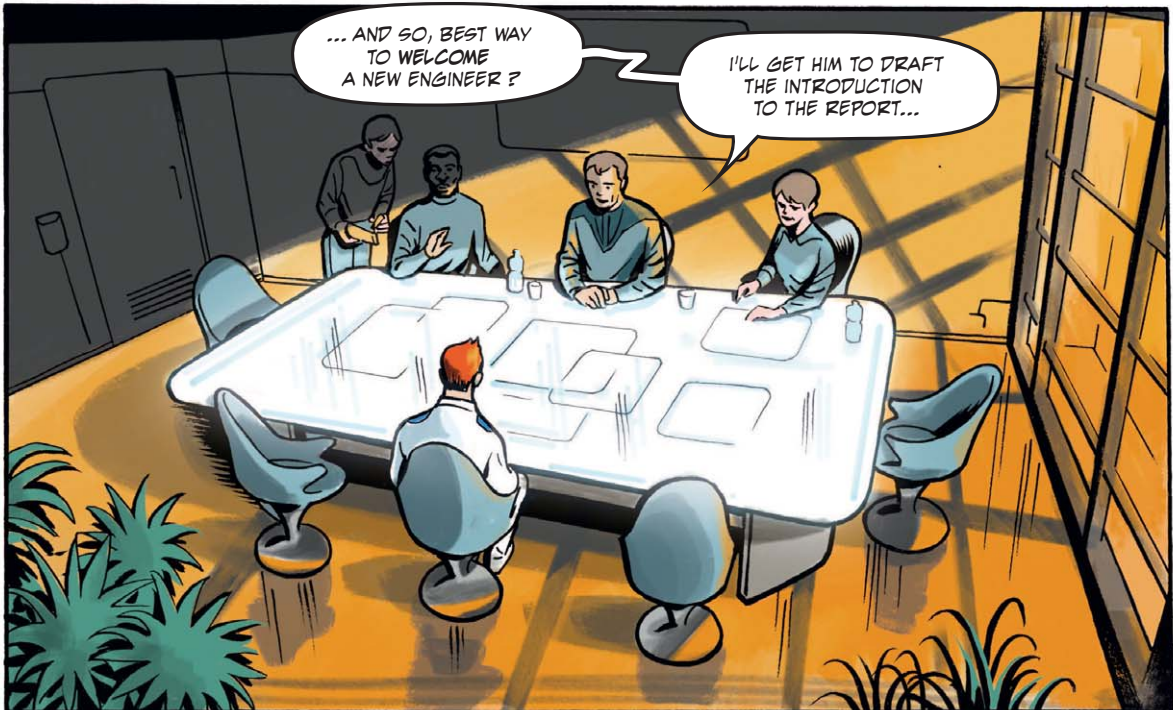


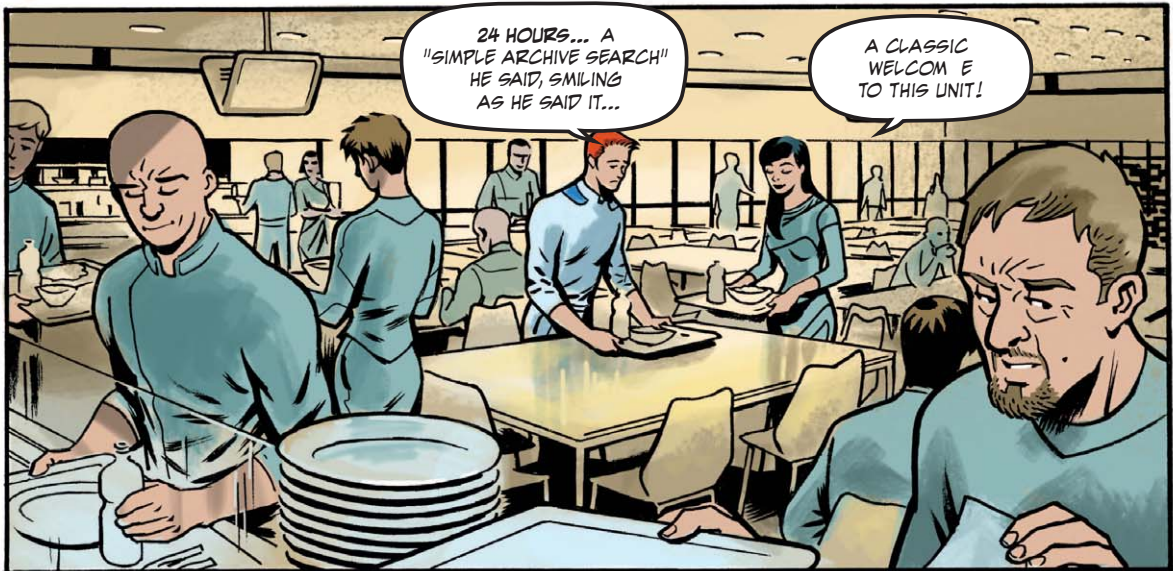
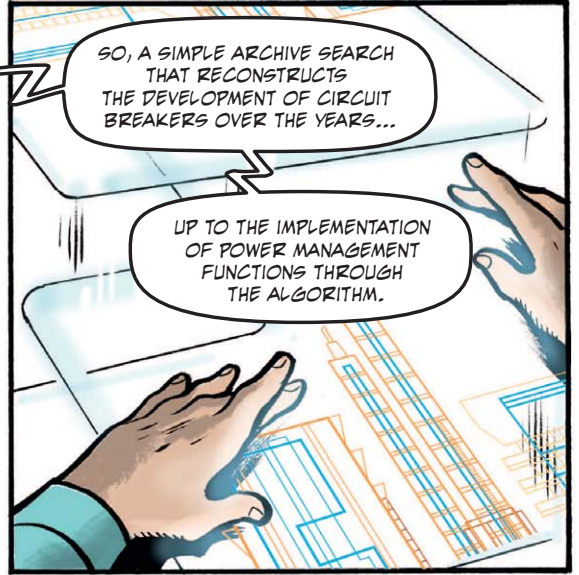
MED REGION - BERGAMO
ABB DEVELOPMENT UNIT - 2039



THE FIRST DAY
WENT SMOOTHLY.
ENCOURAGING.

DID YOU COME
FACE-TO-FACE
WITH YOUR BOSS ?







TO SAY NOTHING OF THE TITLE...

A PSEUDO CULTURAL REFERENCE FROM THE LAST CENTURY, I BET...



WORTHY OF A MYSTICAL ARCHAEOLOGICAL FILM FROM THE '80S.



MAYBE I'VE GOT AN IDEA, OR RATHER...

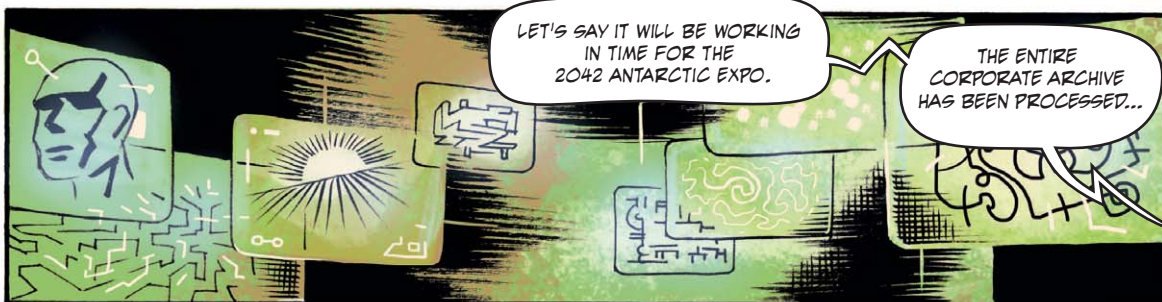


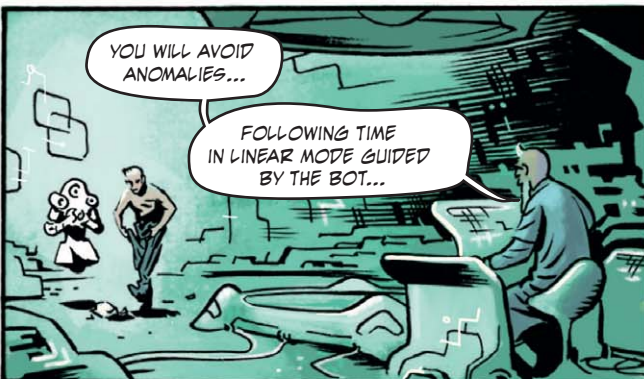
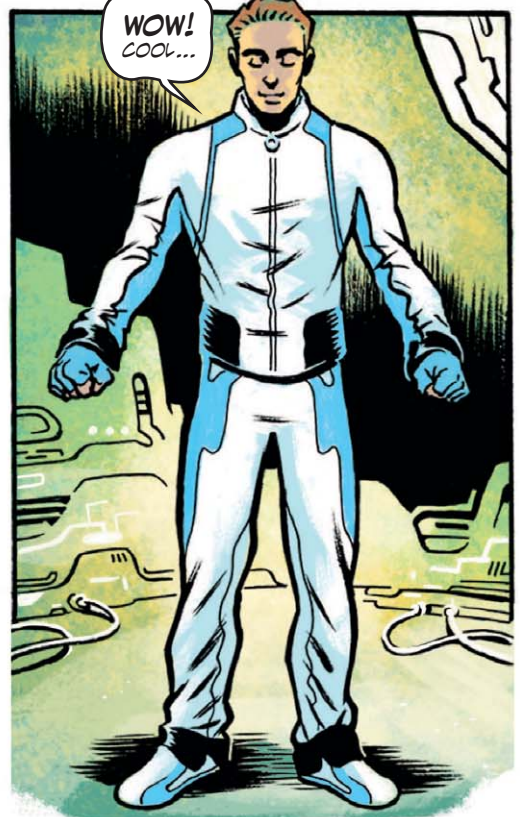
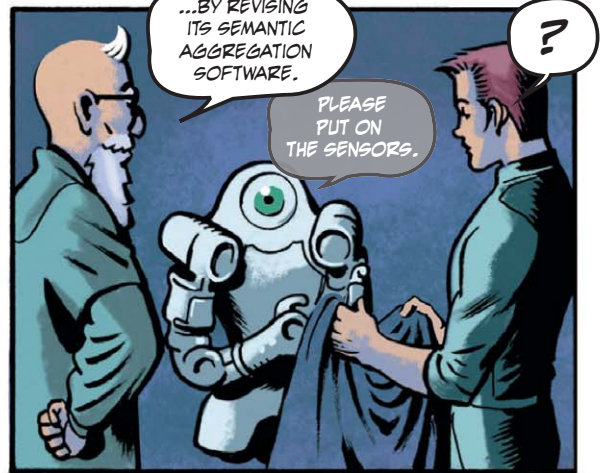
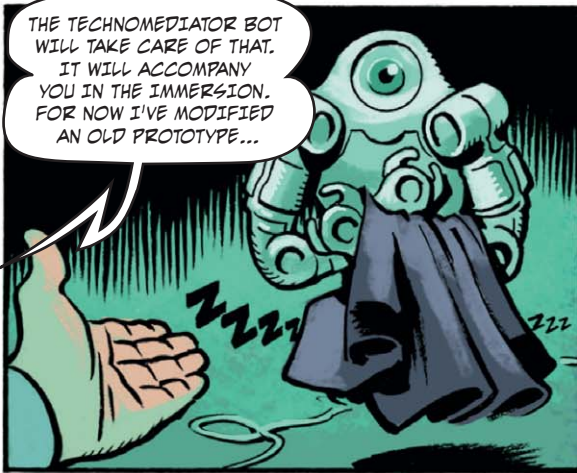
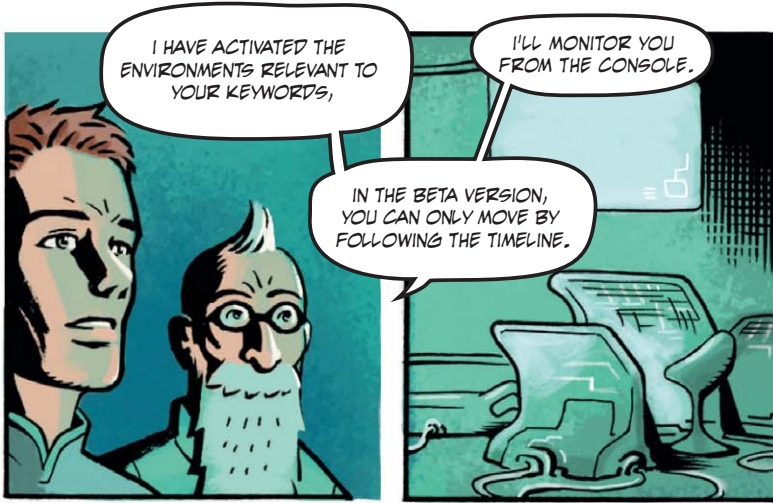
I KNOW SOMEONE WHO'S ALWAYS GOT AN IDEA!

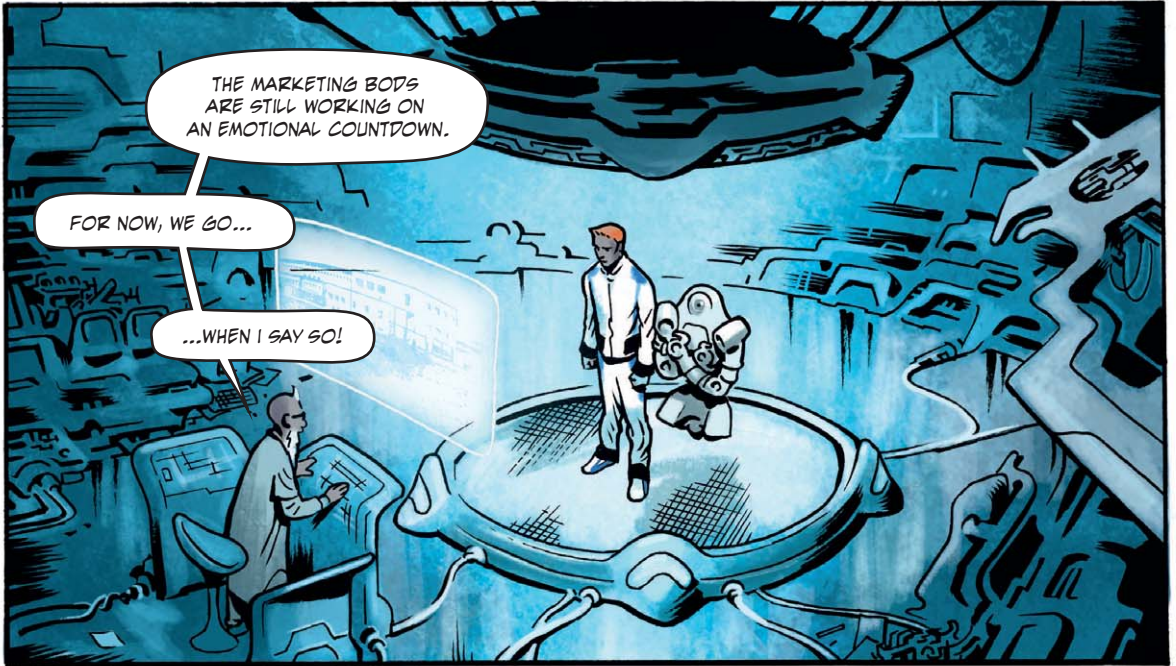


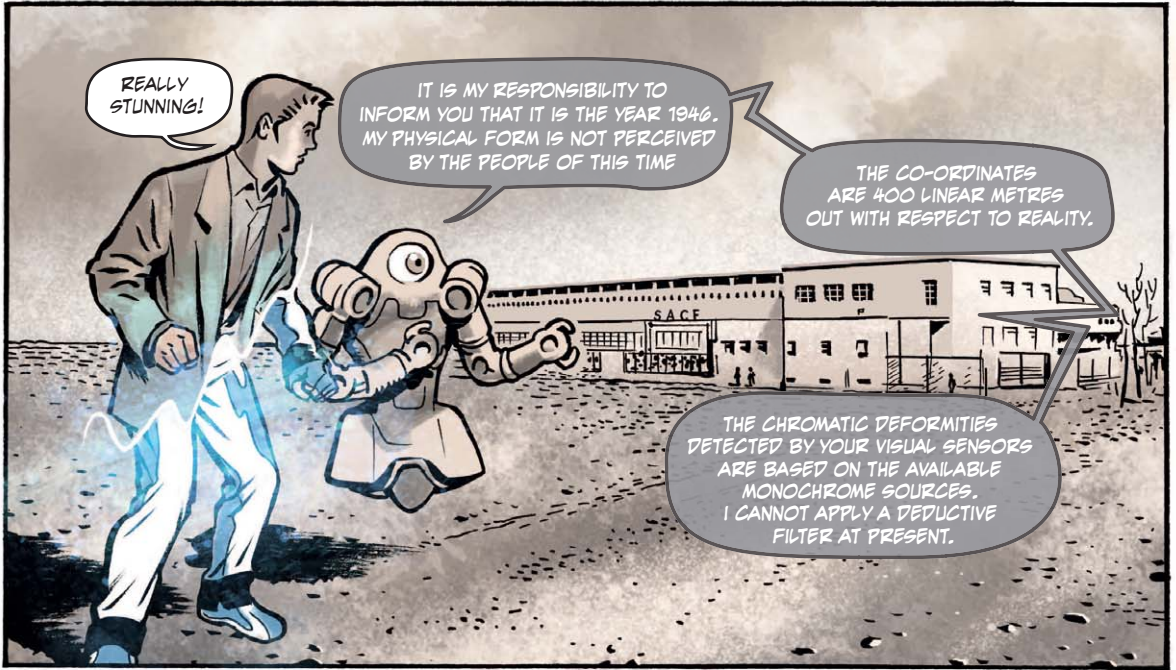
UNDERGROUND BUNKER OF THE DEVELOPMENT UNIT, SPECIAL PROJECTS SECTION.

WELCOME TO THE HOLOPEDIA, THE FIRST FULL-IMMERSION PLAUSIBLE PLATFORM.









REALLY STUNNING!

IT IS MY RESPONSIBILITY TO INFORM YOU THAT IT IS THE YEAR 1946. MY PHYSICAL FORM IS NOT PERCEIVED BY THE PEOPLE OF THIS TIME

THE CO-ORDINATES ARE 400 LINEAR METRES OUT WITH RESPECT TO REALITY.

THE CHROMATIC DEFORMITIES DETECTED BY YOUR VISUAL SENSORS ARE BASED ON THE AVAILABLE MONOCHROME SOURCES. I CANNOT APPLY A DEDUCTIVE FILTER AT PRESENT.



ARE YOU ALWAYS SO CONCISE?

I AM EQUIPPED WITH A COMPLETE DICTIONARY AND I CONSIDER IT MY DUTY TO USE IT FULLY, ENTHUSIASTICALLY SELECTING FROM THE VARIOUS APPLICABLE TERMS.



ALL THESE PEOPLE?

EMPLOYER, A WORD FIRST RECORDED IN ENGLISH IN THE 1580S, FROM "INVOLVE IN A PARTICULAR PURPOSE," A SENSE WHICH AROSE IN LATE LATIN.

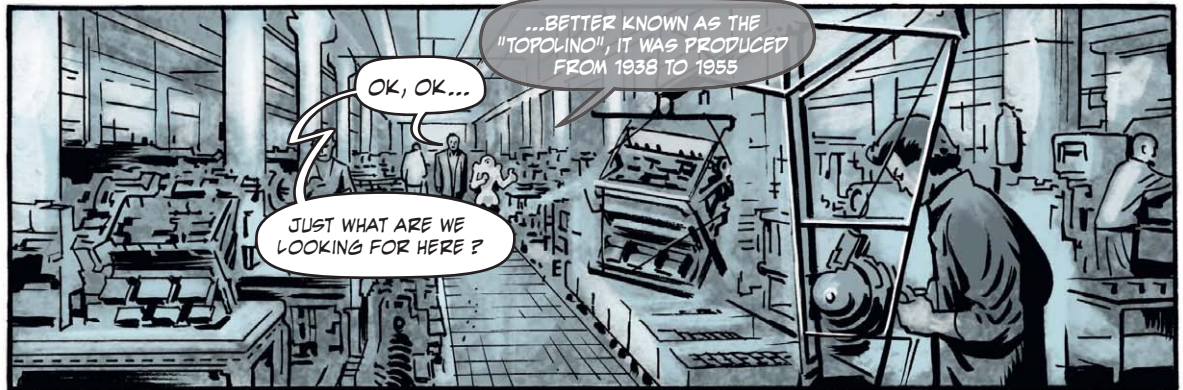




I'D SAY THAT THE PLANT SEEMS TO HAVE MADE A FLYING START

CURRENT YEAR DETECTED AS 1956,

THE CARS SEEM A BIT ANACHRONISTIC - FIAT ACTUALLY ...



...BETTER KNOWN AS THE "TOPOLINO", IT WAS PRODUCED FROM 1938 TO 1955

OK, OK...

JUST WHAT ARE WE LOOKING FOR HERE?



THE CURRENT RECONSTRUCTED REALITY GRAVITATES AROUND THE OTOMAX.

OTOMAX?

YOUNG MAN, THIS WAY FOR THE OTOMAX PRESENTATION.

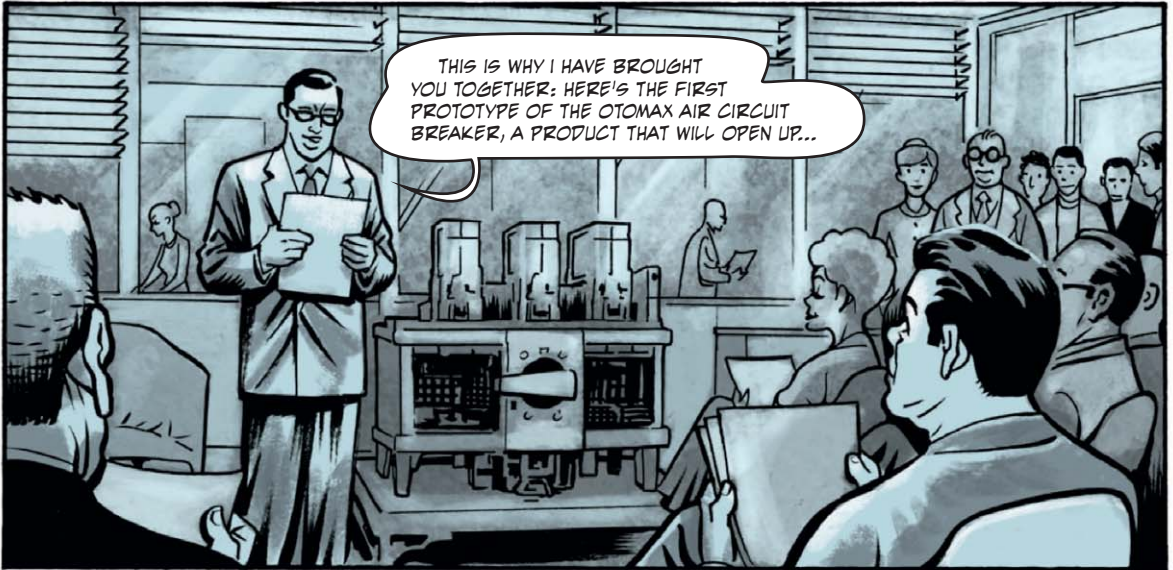


IT'S ONLY JUST STARTED. PLEASE, COME WITH ME.



ACTIVATE THE DATA-COMPILATION FUNCTION.

I AM PROGRAMMED TO DO IT AUTOMATICALLY, BUT IF YOU PREFER I CAN SIMULATE ACCEPTANCE OF YOUR REQUEST.



THIS IS WHY I HAVE BROUGHT YOU TOGETHER: HERE'S THE FIRST PROTOTYPE OF THE OTOMAX AIR CIRCUIT BREAKER, A PRODUCT THAT WILL OPEN UP...



IT MUST BE THE FIRST ERA, LET'S CONTINUE ALONG THIS PATH. HOW TO WE GET TO THE NEXT LEVEL?

SSSH!



I CONSIDER IT INAPPROPRIATE TO DISCUSS LEVELS OF TIME SHIFTS.

FOLLOW ME... THIS WAY.



TOILETTE

ANOTHER IDEA FROM THE MARKETING BODS?

...



WOW!
MY "VISUAL SENSORS"
HAVE TAKEN A WHILE TO GET
USED TO COLOUR AGAIN.

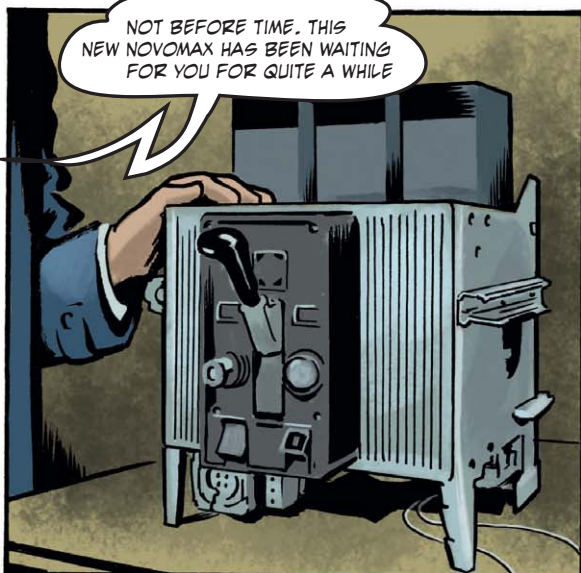
WE HAVE REPOSITIONED
OURSELVES
CHRONOLOGICALLY IN 1971.



THIS MUST BE
THE CIRCUIT
BREAKER.



GOOD MORNING, EM...
WERE YOU
EXPECTING ME?



NOT BEFORE TIME. THIS
NEW NOVOMAX HAS BEEN WAITING
FOR YOU FOR QUITE A WHILE

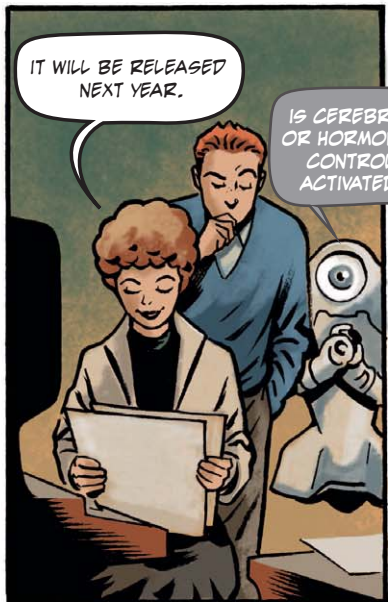
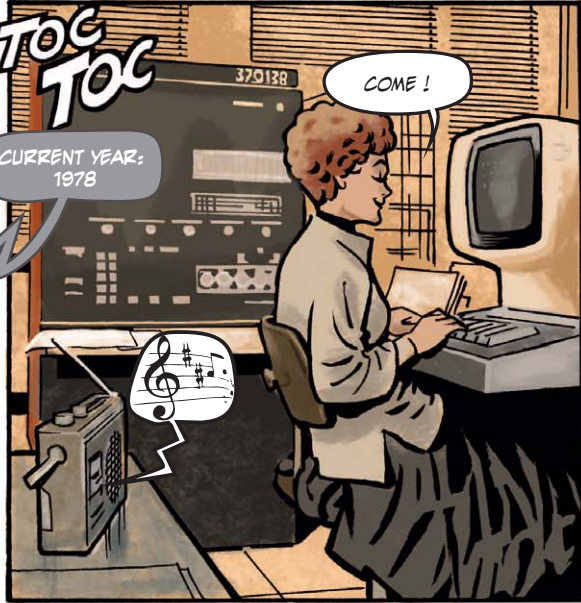


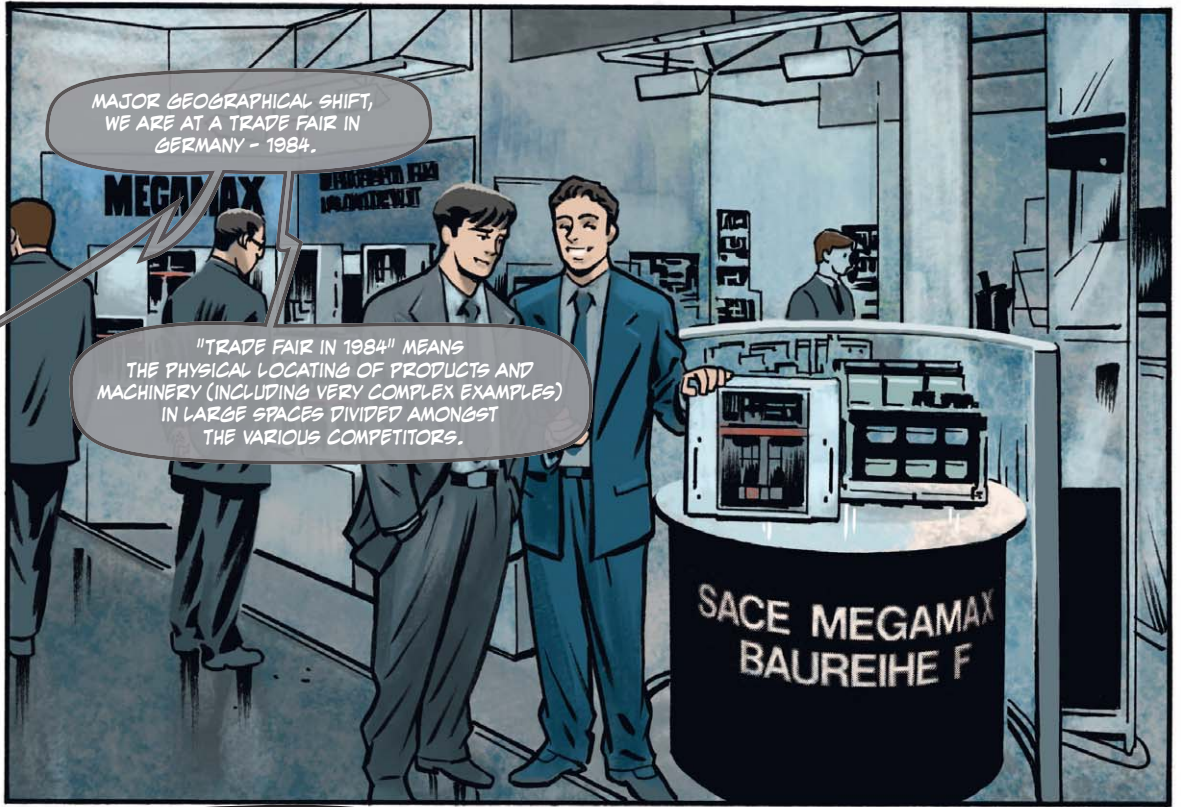
PACKAGE IT UP!
HAVE IT READY IN THE WAREHOUSE
WITHIN HALF AN HOUR!

AM I TO CONDUCT
RESEARCH ON
"PALLETIS"?

TOG
TOG

CURRENT YEAR:
1978





MAJOR GEOGRAPHICAL SHIFT,
WE ARE AT A TRADE FAIR IN
GERMANY - 1984.

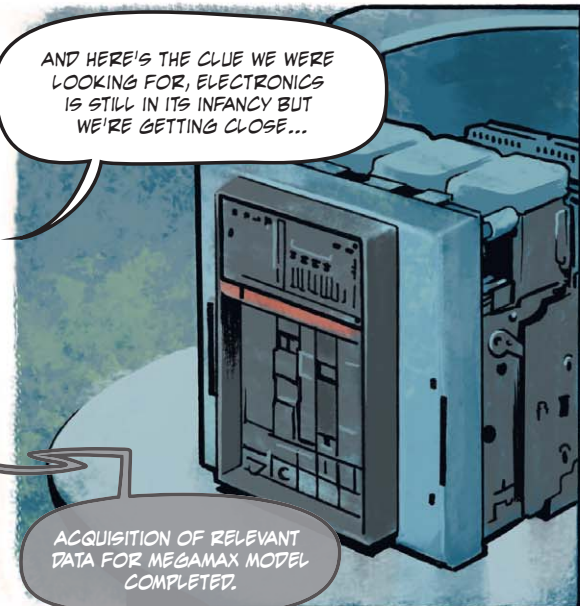
"TRADE FAIR IN 1984" MEANS
THE PHYSICAL LOCATING OF PRODUCTS AND
MACHINERY (INCLUDING VERY COMPLEX EXAMPLES)
IN LARGE SPACES DIVIDED AMONGST
THE VARIOUS COMPETITORS.

SACE MEGAMAX
BAUREIHE F



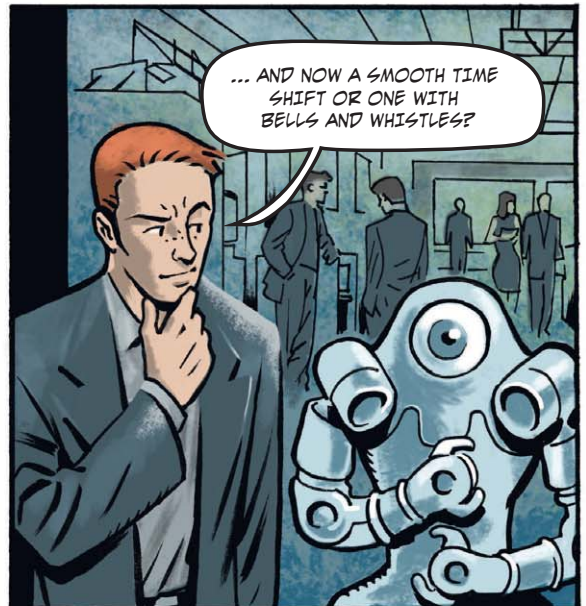
WOW!
THE CONCEPT OF VIRTUALISATION
WAS NOT VERY WELL-ESTABLISHED.

... UBER 30 VERSCHIEDENE...



AND HERE'S THE CLUE WE WERE
LOOKING FOR, ELECTRONICS
IS STILL IN ITS INFANCY BUT
WE'RE GETTING CLOSE...

ACQUISITION OF RELEVANT
DATA FOR MEGAMAX MODEL
COMPLETED.



... AND NOW A SMOOTH TIME
SHIFT OR ONE WITH
BELLS AND WHISTLES?

1996 - WE HAVE RETURNED TO OUR GEOGRAPHICAL STARTING POINT...

I KNOW THOSE PCs, AT UNIVERSITY WE HAD ONE THAT STILL WORKED - WE CALLED IT CTRL-ALT-CANC.

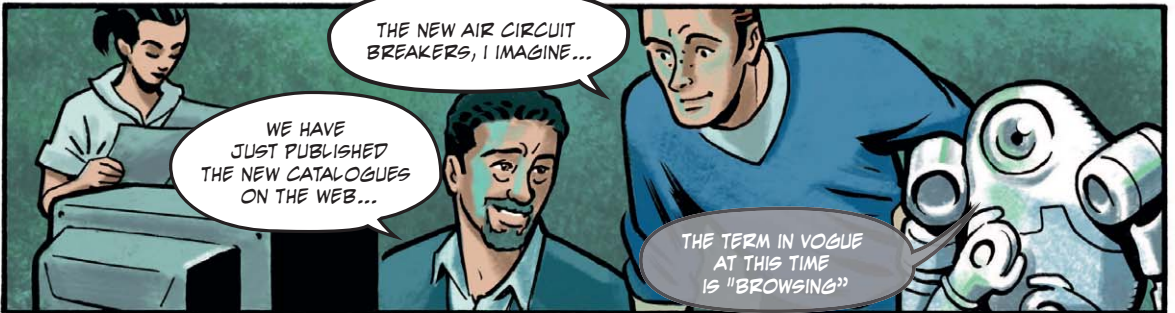
WE ARE IN THE TRANSITION PHASE FROM "DATA PROCESSING CENTRE" TO "IT SYSTEMS".



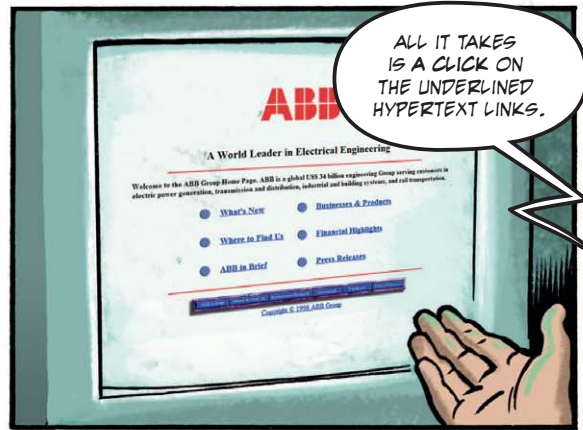
THE NEW AIR CIRCUIT BREAKERS, I IMAGINE...

WE HAVE JUST PUBLISHED THE NEW CATALOGUES ON THE WEB...

THE TERM IN VOGUE AT THIS TIME IS "BROWSING"



... EVERYTHING THERE IS TO BE KNOWN ABOUT THE EMAX SERIES IS HERE.



ALL IT TAKES IS A CLICK ON THE UNDERLINED HYPERTEXT LINKS.

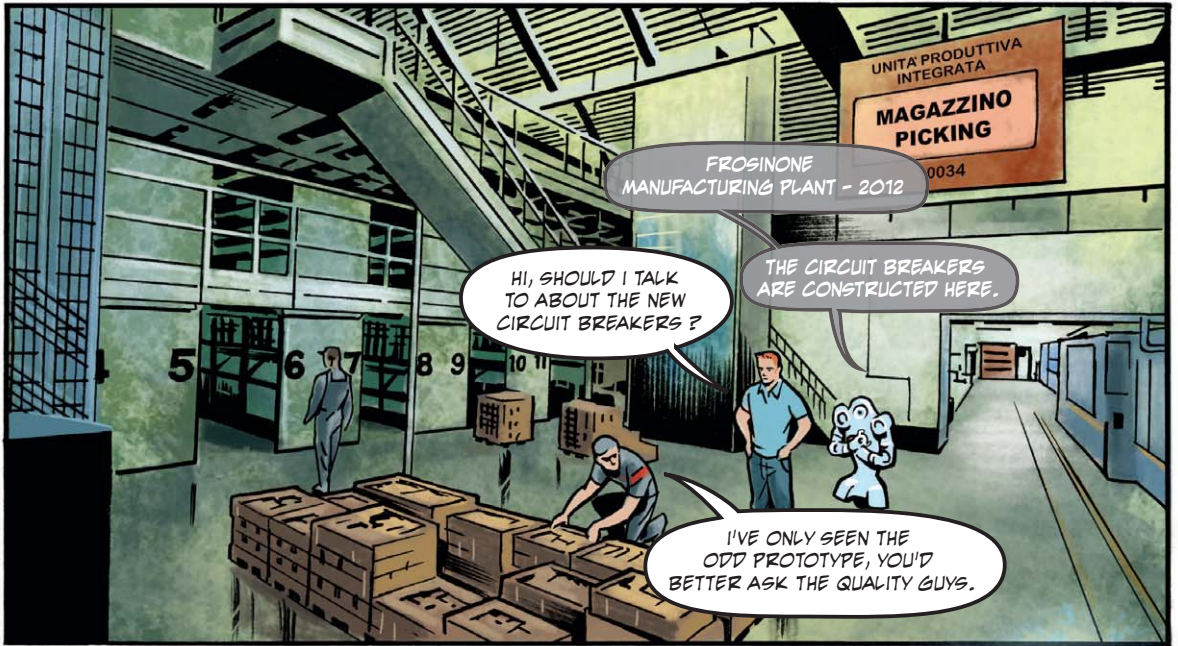


IS IT POSSIBLE TO SEARCH THROUGH THE CATALOGUE FOR THE WORD "ALGORITHM" ?



SORRY, THE SEARCH RETURNED NO RESULTS.

I PROPOSE A TIME SHIFT.



FROSINONE
MANUFACTURING PLANT - 2012

UNITA PRODUTTIVA
INTEGRATA
**MAGAZZINO
PICKING**
0034

HI, SHOULD I TALK
TO ABOUT THE NEW
CIRCUIT BREAKERS ?

THE CIRCUIT BREAKERS
ARE CONSTRUCTED HERE.

I'VE ONLY SEEN THE
ODD PROTOTYPE, YOU'D
BETTER ASK THE QUALITY GUYS.



YES, THE NEW SERIES
WILL BE PRODUCED HERE,
THEY'RE COMPLETING
THE TESTING NOW...

...THE LAB
IN BERGAMO
WILL GET YOU
UP TO SPEED.



PREPARATION
FOR A SIMPLE
GEOGRAPHICAL
SHIFT.



WE'RE GOING
TO BE LUCKY
THIS TIME!



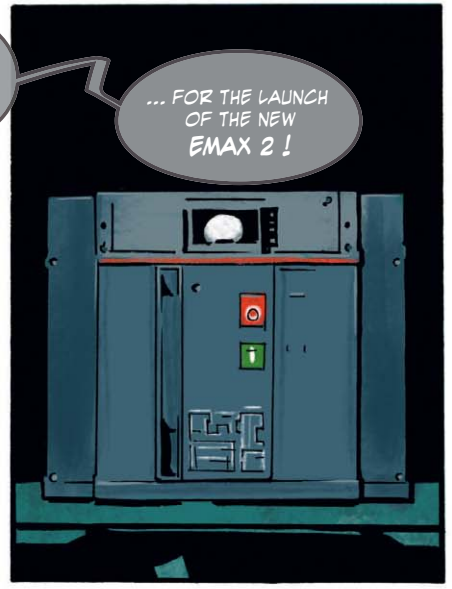
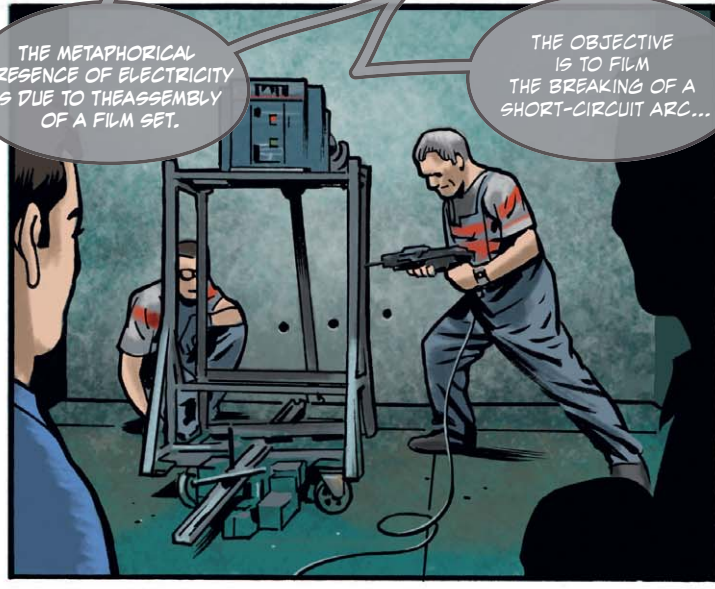
I CONFIRM THAT FEELING,
THEY ARE PRESENTLY
PREPARING A TEST ON THE MODEL
WITH THE BUILT-IN ALGORITHM.

IT SEEMS THERE
IS ELECTRICITY
IN THE AIR.

THE METAPHORICAL
PRESENCE OF ELECTRICITY
IS DUE TO THE ASSEMBLY
OF A FILM SET.

THE OBJECTIVE
IS TO FILM
THE BREAKING OF A
SHORT-CIRCUIT ARC...

... FOR THE LAUNCH
OF THE NEW
EMAX 2 !



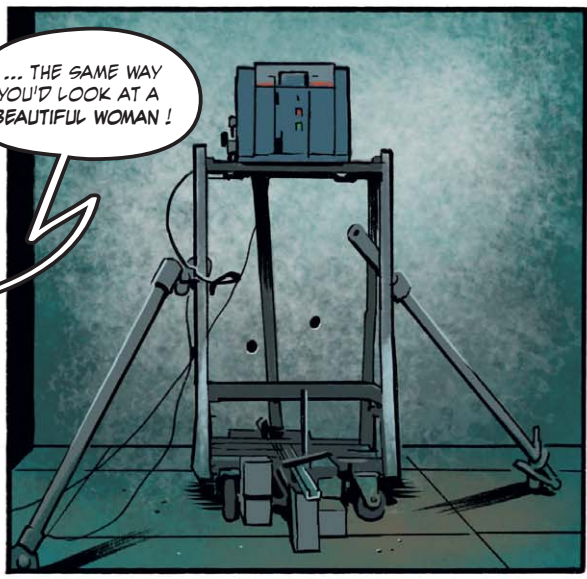
15 MILLISECONDS
TO BE DOCUMENTED,

A 100,000-AMP
CIRCUIT TO BREAK.

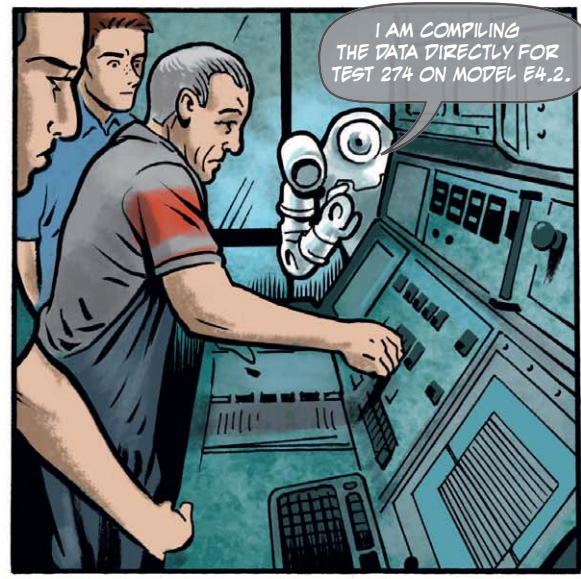
SORRY, ARE THESE
THE PROJECT
ENGINEERS?

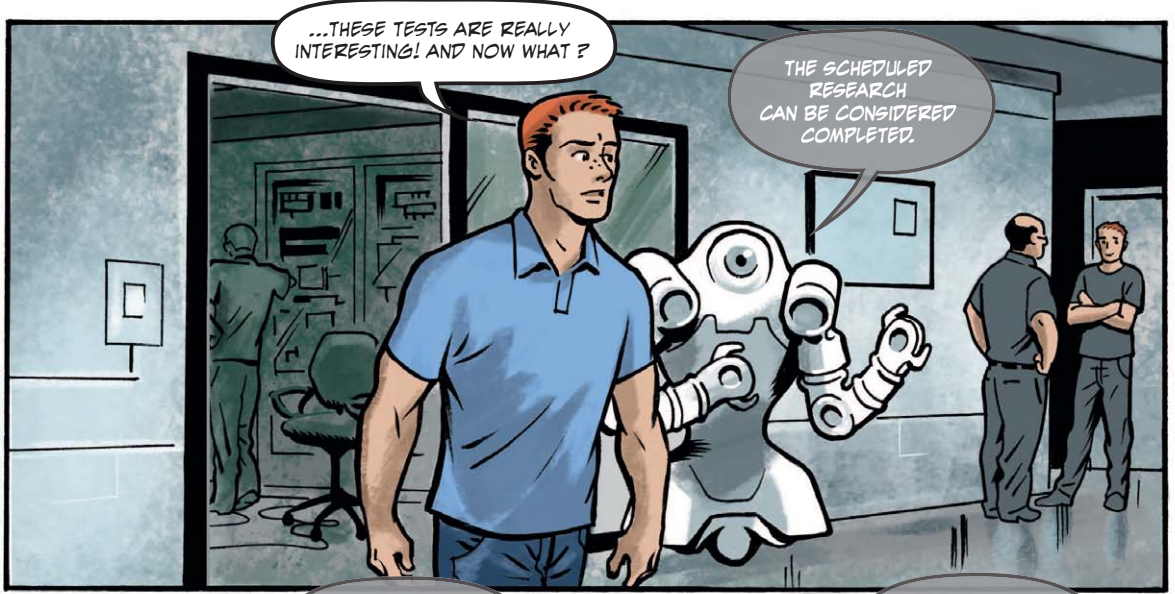
YOU CAN RECOGNISE THEM
FROM THE WAY THEY'RE
LOOKING AT THE BREAKER...

... THE SAME WAY
YOU'D LOOK AT A
BEAUTIFUL WOMAN !



I AM COMPILING
THE DATA DIRECTLY FOR
TEST 274 ON MODEL E4.2.





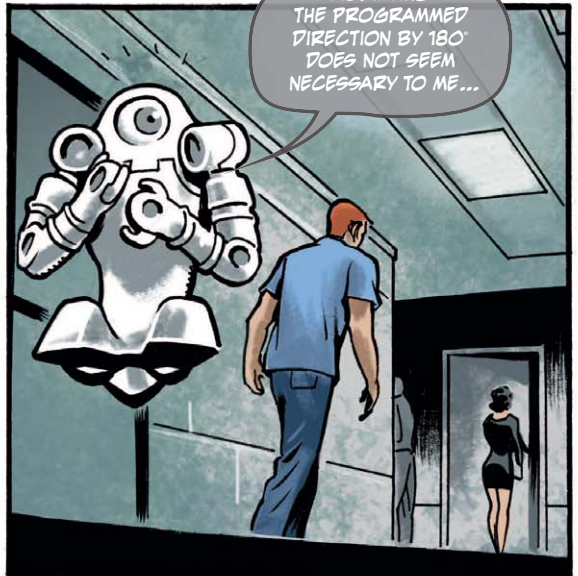
...THESE TESTS ARE REALLY INTERESTING! AND NOW WHAT?

THE SCHEDULED RESEARCH CAN BE CONSIDERED COMPLETED.



ALL THAT REMAINS TO BE DONE IS TO COMPLETE THE PROCEDURE OF TEMPORAL RE-ENTRY.

MMM... GO AHEAD WITH THE PROCEDURE.



MODIFYING THE PROGRAMMED DIRECTION BY 180° DOES NOT SEEM NECESSARY TO ME...



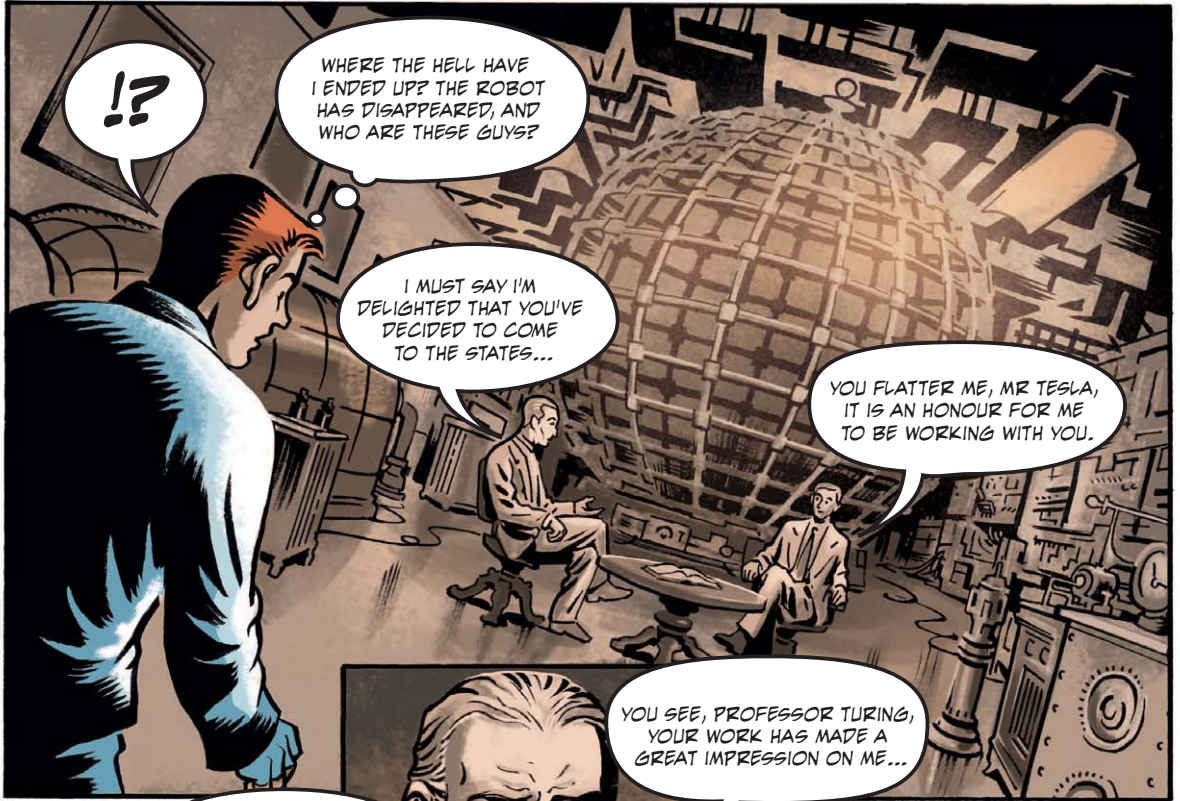
I WOULD INVITE YOU TO FOLLOW ME, IN LINE WITH THE PROCEDURE...



...TO AVOID THE POSSIBILITY OF ANOMALIES...



CHILL OUT, BOT, I RECKON I KNOW HOW DOORS WORK.



!?

WHERE THE HELL HAVE I ENDED UP? THE ROBOT HAS DISAPPEARED, AND WHO ARE THESE GUYS?

I MUST SAY I'M DELIGHTED THAT YOU'VE DECIDED TO COME TO THE STATES...

YOU FLATTER ME, MR TESLA, IT IS AN HONOUR FOR ME TO BE WORKING WITH YOU.

YOU SEE, PROFESSOR TURING, YOUR WORK HAS MADE A GREAT IMPRESSION ON ME...



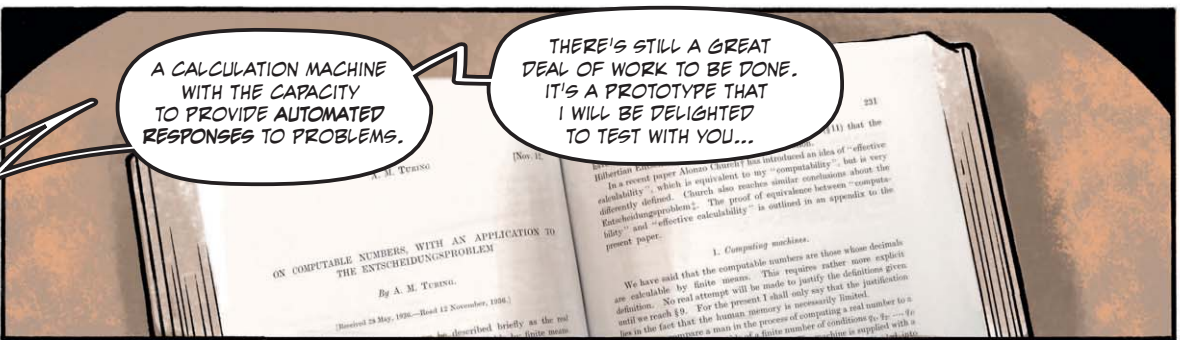
TESLA AND TURING, I CAN'T BELIEVE IT... IT SEEMS LIKE ONE OF MY NIGHT-BEFORE-THE-EXAMS NIGHTMARES

AH, HERE'S THE ASSISTANT I HAD REQUESTED.

A QUITE REMARKABLE TECHNICAL OUTFIT.

WAIT FOR US AT THE CONTROL PANEL.

I DO HOPE THAT MY WORK ON ALGORITHMS MAY BE OF SOME USE TO YOU



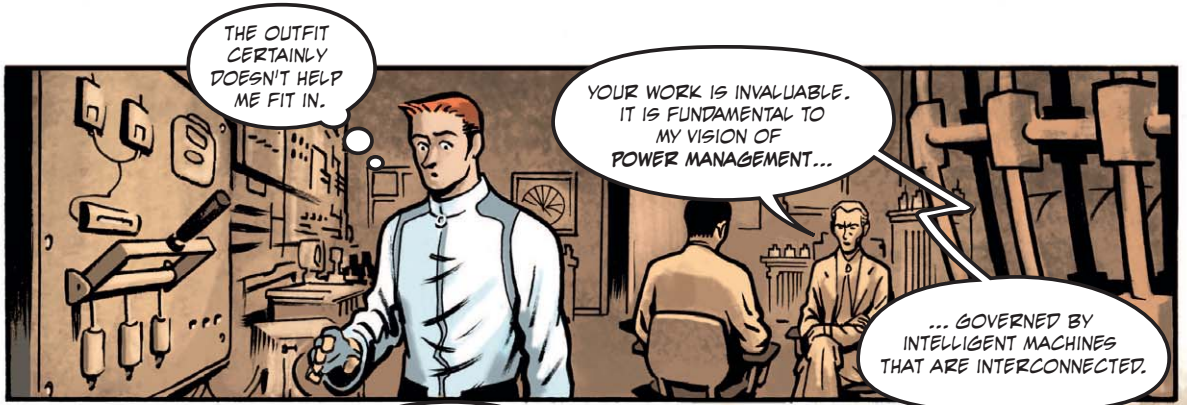
A CALCULATION MACHINE WITH THE CAPACITY TO PROVIDE AUTOMATED RESPONSES TO PROBLEMS.

THERE'S STILL A GREAT DEAL OF WORK TO BE DONE. IT'S A PROTOTYPE THAT I WILL BE DELIGHTED TO TEST WITH YOU...

ON COMPUTABLE NUMBERS, WITH AN APPLICATION TO THE ENTSCHEIDUNGSPROBLEM
By A. M. TURING

... (1) that the Hilbertian ... In a recent paper Alonzo Church has introduced an idea of "effective calculability" which is equivalent to my "computability", but is very differently defined. Church also reaches similar conclusions about "computability" and "effective calculability" is outlined in an appendix to the present paper.

1. Computing machines. We have said that the computable numbers are those whose decimals are calculable by finite means. This requires rather more explicit definition. No real attempt will be made to justify the justification itself. For the present I shall only say that the justification will be reached by the human memory is necessarily limited. It is in the fact that the human memory is necessarily limited with a finite number of conditions. It is in the fact that the human memory is necessarily limited with a finite number of conditions. It is in the fact that the human memory is necessarily limited with a finite number of conditions.



Our Future

By NIKOLA

... instructive article, the great scientist inventor who revolutionized industry and communication with his electric motors and distributing network opened the way for radio with frequency resources, analyzed the method of obtaining power to replace our earth's hidden resources which port the industry of future generations.



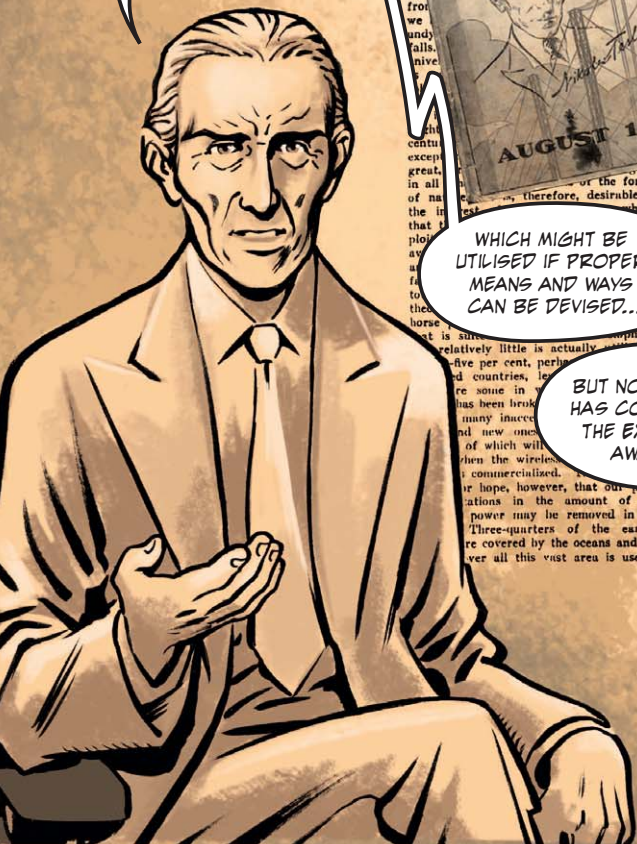
... and at the right, the arrangement of the great central heat power plants of the future. Water is circulated to the turbine, returning as steam to drive the condenser, and then returned to liquid form in an unending cycle.

... purpose. Much thought has been given to the artificial production of rain, but the means proposed offers the possibility, so far as the land is concerned, of solving the problem of water at present.

... Science and Mechanics

... height of the atmosphere, the delicate balance of forces, the delicate mechanism of nature and the complex effects of lightning are, in fact, controlled by us in 1892, when we later experiments showed that lightning bolts over which it appeared power plants and operated at the

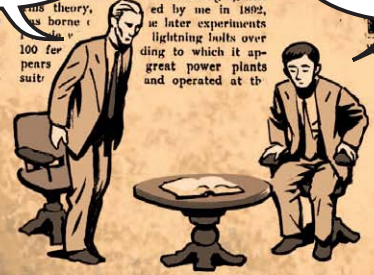
NATURE HAS PROVIDED AN ABUNDANT SUPPLY OF ENERGY IN VARIOUS FORMS...



WHICH MIGHT BE UTILISED IF PROPER MEANS AND WAYS CAN BE DEvised...

BUT NOW THE TIME HAS COME TO ACT. THE EXPERIMENT AWAITS US.

I'LL GLADLY LEAVE YOU IN THE DRIVING SEAT.



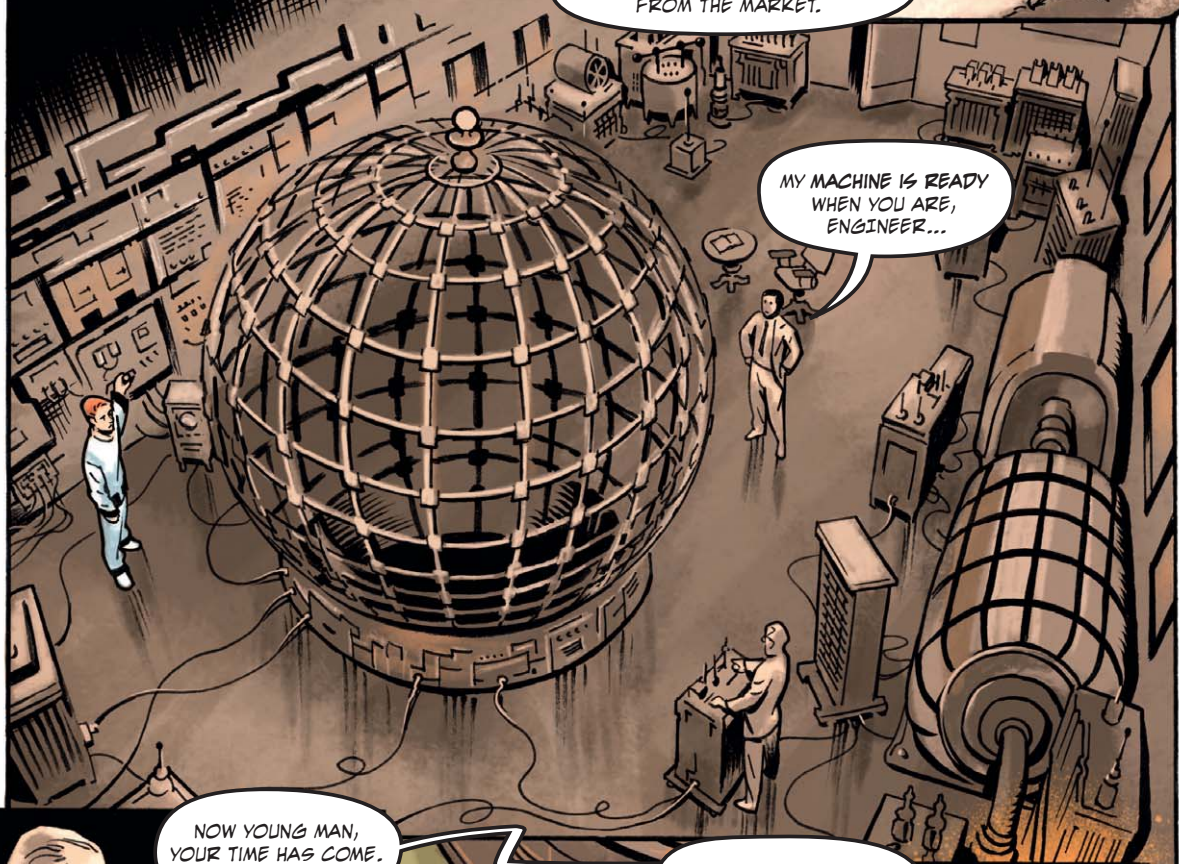
AT MY SIGNAL, CLOSE THE CIRCUIT AND MOVE OUT OF THE WAY!

FOR THE SAKE OF COMPLETENESS, I WOULD HAVE LIKED MY ELECTRIC PIERCE-ARROW IN THE SIMULATION...



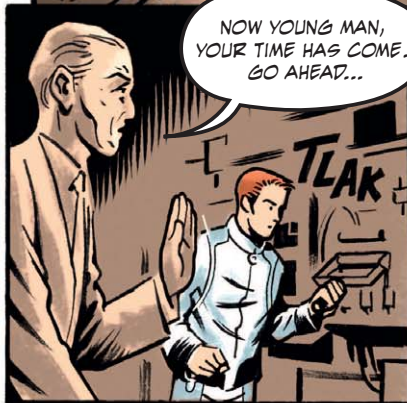
BUT SADLY PIERCE-ARROW IS WITHDRAWING FROM THE MARKET.

MY MACHINE IS READY WHEN YOU ARE, ENGINEER...



NOW YOUNG MAN, YOUR TIME HAS COME. GO AHEAD...

... AND JOIN US AS WE LOOK INTO THE FUTURE!



FZZT-KRAAK!!

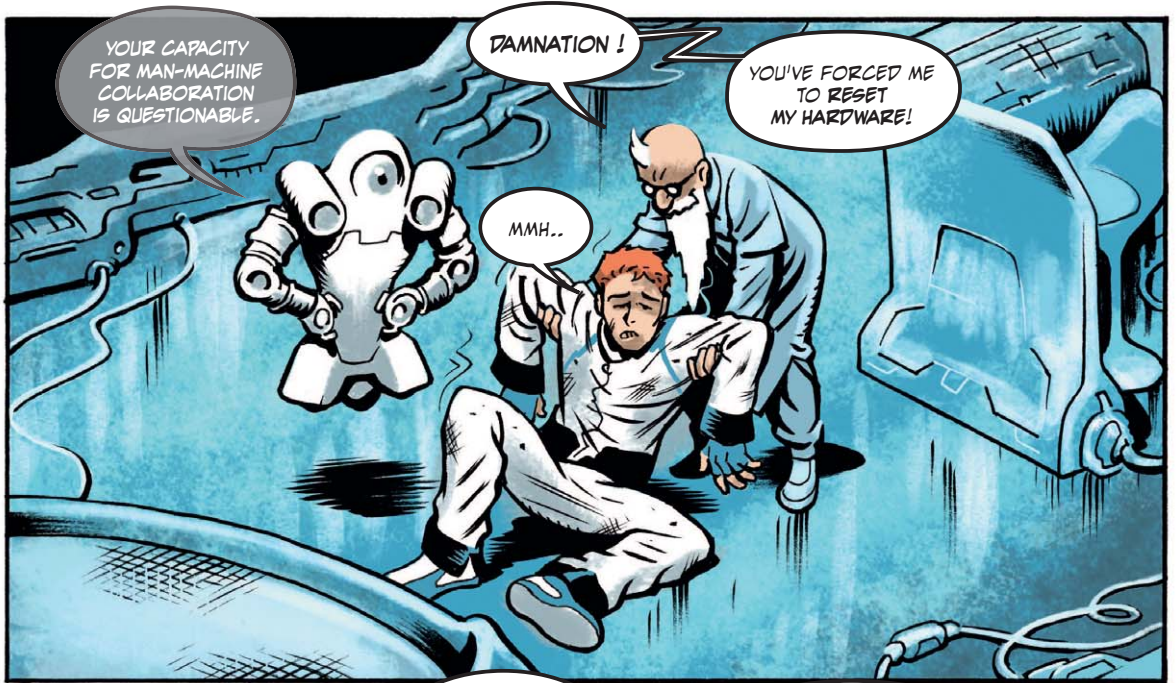


FZZT

I WOULD ASK YOU
ONCE MORE TO MOVE...

**RIGHT
AWAY!**



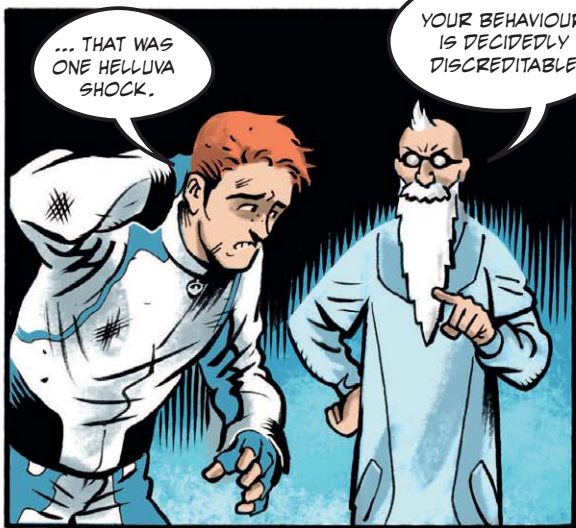


YOUR CAPACITY FOR MAN-MACHINE COLLABORATION IS QUESTIONABLE.

DAMNATION!

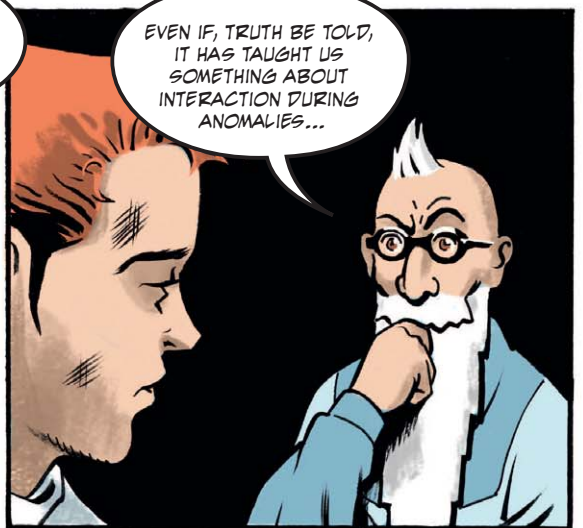
YOU'VE FORCED ME TO RESET MY HARDWARE!

MMH...



... THAT WAS ONE HELLUVA SHOCK.

YOUR BEHAVIOUR IS DECIDEDLY DISCREDITABLE,

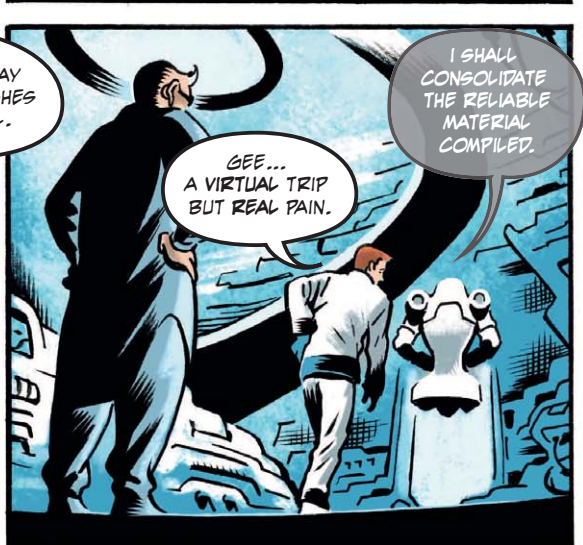


EVEN IF, TRUTH BE TOLD, IT HAS TAUGHT US SOMETHING ABOUT INTERACTION DURING ANOMALIES...



NOT FOR THAT REASON WILL I BOAST TO MY FRIENDS AT THE BAR THAT I HAVE MET YOU.

NOW, BE ON YOUR WAY AND GIVE MY BEST WISHES TO THAT DEAR GIRL.



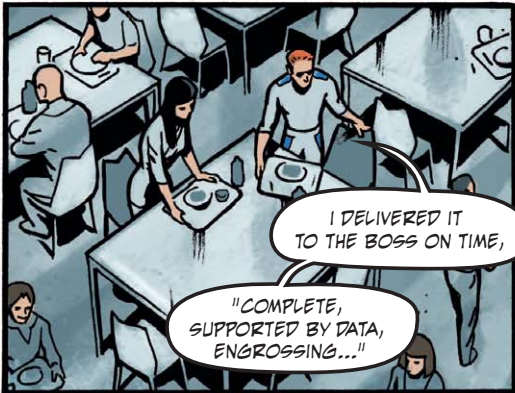
GEE... A VIRTUAL TRIP BUT REAL PAIN.

I SHALL CONSOLIDATE THE RELIABLE MATERIAL COMPILED.



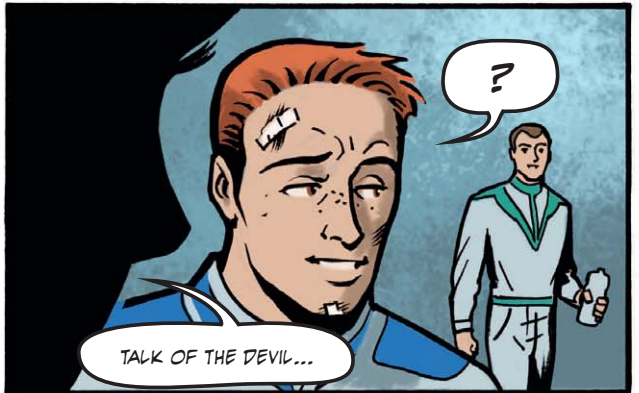
HOW DID THE RESEARCH GO? WAS THE PROFESSOR USEFUL?

DEFINITELY! CRUCIAL, I'D SAY.



I DELIVERED IT TO THE BOSS ON TIME,

"COMPLETE, SUPPORTED BY DATA, ENGROSSING...!"



IN THIS STORY, THERE IS AN ELEMENT OF PURE FANTASY, IN WHICH WE HAVE AFFECTIONATELY INVOLVED TWO CORNERSTONES OF THE SCIENTIFIC COMMUNITY OF THE PAST TWO CENTURIES.

THE MEETING DESCRIBED BETWEEN SERBIAN-AMERICAN NIKOLA TESLA AND ENGLISHMAN ALAN TURING NEVER HAPPENED, OR AT LEAST NO SUCH MEETING WAS EVER DOCUMENTED.



THE FORMER IS KNOWN, ABOVE ALL, FOR HIS VISIONARY WORK IN THE FIELD OF ELECTROMAGNETISM IN THE LATE 19TH AND EARLY 20TH CENTURIES.

THE LATTER, WITH HIS TURING MACHINE, LAID THE FOUNDATIONS FOR THE DEVELOPMENT OF COMPUTER SCIENCE THROUGH HIS FORMALISATION OF THE CONCEPTS OF ALGORITHMS AND COMPUTATION.

WE IMAGINE THEM COMING FACE-TO-FACE IN NEW YORK IN THE LATE 1930S, WHERE TESLA, NOW ELDERLY, IS LIVING AND CONTINUING HIS STUDIES. IN THE SAME PERIOD TURING MOVES TO THE STATES TO CONDUCT FURTHER RESEARCH AT PRINCETON UNIVERSITY.

PERHAPS, SOMEWHERE, THERE IS A UNIVERSE IN WHICH THIS MEETING REALLY DID TAKE PLACE, AFTER ALL.

TRANSLATION
GORDON FISHER

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