

**TERRA - X: THE CHIEMGAU COMET - TIME ZERO FOR THE
CELTS**

**(ZDF - Zweites Deutsches Fernsehen - "Second German Television
Channel") Length: 43:15**

Film by Sven Hartung and Guido Weihermüller

0.02 / Woman

The year 465 B.C. in Chiemgau. A catastrophe forces a Celtic tribe to leave their homeland.

0.12 / Sign

The formerly peaceful peasants move through the land as barbarous warriors.

0.18/knife on throat

Wenn they return decades later, they find mysterious rocks, which their smiths are able to make into high-grade steel.

0.28/ Roman sign

In the hands of the Romans, the novel weapon becomes the harbinger of the creation of a powerful empire.

0.37/Man

The fate of the Celts in South Germany took a dramatic turn - on the day when heaven fell on their heads.

0:45 / TERRA X with Title:

1:04 / The Chiemgau Comet

1:08 / Time Zero for the Celts

1:11 / by Sven Hartung - Guido Weihermüller

1.17 / Celtic village

A Celtic settlement on the shores of Lake Chiemsee in Bavaria in the 5th century BC.

1.24 / People in the fields

A peaceful community, practicing farming and herding for generations.

1.32 / Woman and girl by fire

The people live in extended families - in close proximity with other farmsteads.

1.39 / Women by fire

The fields yield cereals and fieldcrops, the forest useful plants, wood and abundant game.

1.48 / Man

The daily life brings little variety and is defined by the rhythm of seasons. Important decisions are taken communally by the clans.

1.59 Cobbler

Each member is responsible for a particular task: fine leatherware, making beer and honey-wine, fabrics in plaid pattern, crockery, sweet smelling soaps are produced to be exchanged on the markets.

2.18 / Woman and chicken

Women rank behind men, yet wield more power and have more freedom of action than in other cultures of antiquity.

2.29 Man with fork

Nature is considered by the Celts as a divine force, which defines their destiny. As a spiritual leader of the tribe, the druid is both a medicine man and a priest.

2.41 / Druid walking through the woods

He knows every plant and beast. He puts his knowledge of the laws of the universe at the service of the community.

2.52 / Druid

But on a mild autumn afternoon around 465 BC catastrophe is near.

3.01 / Boy in a square

Even the wise man cannot interpret the omen in heaven. Within seconds, the weather changes. A fierce wind blows through the village, the sky darkens.

3.15 / Man looks at the sky

Nobody understands what's brewing up there.

3.22 / Woman and Man

Never before have the people of Chiengau seen such a sight.

3.29 / People in square

And they have no time left to reflect upon it.

3.38 / Treasure hunters with sensors walk the forest

In the autumn of 2000, a group of treasure hunters investigate the area. They are looking for precious objects from the past.

3.48 / Foot

For hours, the men comb through the forest with probes - in the hope of finding metal objects. At first, without success.

4.00 / probe cheeps

Near a crater-like hole, the highly sensitive instruments suddenly react.

4.11 / Forest floor

In a depth of a few centimeters, the treasure-hunters find a large deposit of alien metallic rock. They cannot explain the origin of this strange formation.

4.25 / Sky view

And none of them guesses that it fell literally from the sky more than 2000 years ago.

4.34 / People by fire

Spellbound, the Celts must have observed the surprise attack from the sky.

4.44 / Luminous body in the sky

In a mere few seconds disaster comes upon them. A cloud of dust and ash obscures the sun.

4.57 / People

With the speed of lightning, balls of fire rip towards Earth.

5.03 / People running

Desperately, the people try to escape from the inferno.

5.11 / Boy by a hut

A doomsday-scenario, such as it occurred only a few times in millions of years. The fiery objects, pieces of a comet, drive a tremendous shock-wave in front of them.

5.27 / People in square

Thousands of people around Lake Chiemsee die on the spot in blistering heat. Only a few manage to escape.

5.38 / People in the fields

Houses, fields and forests flare up. Time zero for the Celts, in what is today Bavaria.

5.47 / Starry sky (computer animation)

A research team of astronomers, geologists and historians has been working for years at elucidating this immense disaster.

5.56 / Observatory

One thing is clear by now: it was a large cosmic body that impacted on Earth. With devastating effect.

6.06 / Man in observatory.

Dr Michael Rappenglück of INFIS-Institute in Gilching has located over 80 craters - of a diameter between three and 500 meters.

6.17 / voice Dr Michael Rappenglück, archaeoastronomer:

“We can make an estimate with the help of modellizing: the explosive force was equivalent to some 8000 Hiroshima bombs. That’s enormous. There were larger events, but humans - so far as we know - did not observe them. But for the historical period, this was a very mighty impact.”

6.35 / Starry sky (computer animation)

An impact from the cosmos, millions of years old. And of which the solar

system is a part. According to experts, the lethal cosmic body was a comet.

6.50 / Sun and comet (computer animation)

A comet moves always on an elliptic course around the sun. At every turn, it loses some of its mass, which it trails behind it as a tail of gas and dust.

7.07 / Comet and Sun (computer animation)

The nucleus is mainly composed of methane, ice and ammonia. Experts describe it as a “dirty snowball.”

7.18 / Comet and Jupiter (computer animation)

The gravity of the large planets Saturn and Jupiter have forced the Chiemgau comet into an orbit inside the solar system.

7.29 / Planets and sun (computer animation)

The dangerous projectile, with a diameter of ca 1.1 kilometer, hurtled directly towards Earth.

7.40 / Earth and light-flare (computer animation)

When the comet penetrates the atmosphere at a speed of 43.000 kilometers per hour, it heats up within seconds to a temperature of several thousand degrees.

7.52 / Fire and mountains (computer animation)

Following the explosion at an altitude of ca 70 kilometers, the fragments rain with a destructive force of the magnitude of nuclear bombs onto the Celtic settlements.

8.05 / People in front of house

Poisonous gases develop which by themselves are lethal for men and beasts. But it is the stone fragments of up to 30 meters that bring total ruin.

8.19 / People running

They trigger a rolling wave of fire of up to 15,000 degrees Celsius, which annihilates everything alive on a surface of 2,000 square kilometers.

8.32 / Crater in Chiemgau (aerial view)

Still today, a series of craters stands witness for the vehemence of the

impact from space. But erosion and agriculture have long since melded most of the craters into the landscape.

8.46 / airplane

To get a picture of the magnitude of the impact, scientists want to establish a detailed map.

8.56 / Lake (from the air)

They keep discovering new “Thunderholes,” as the craters have been called in the local dialect for centuries.

9.02 / Lake

The best known is Lake Tüttensee, which is situated in an idyllic, protected nature-area near Grabenstätt.

9.12 / Map

Between Salzburg and Munich lies the scatter field of the comet. 58 km long and 27 km broad, it belongs to the largest of its type.

9.27 / Lake Chiemsee

Pieces of the celestial body landed in Lake Chiemsee, as well. Using satellite supported echography, members of “Chiemgau Impact Team” were able to locate five remarkable cavities at the bottom of the lake, some of large dimensions.

9.46 / Landscape

But there are yet more clues. In the affected area, geologists find great quantities of stones with remarkable characteristics.

9.57 / Stone

They are found broken up, deformed or glazed. Bizarre cleavages, roundings and accretions point clearly to a cosmic collision.

10.11 / Stones

The commotion catapulted tons of debris up to 20 km into the sky. Moreover, extremely high temperatures produced novel chemical bonds in the soil.

10.26 / Legs and arms

On the site of the event, Prof. Kord Ernstson of the University of Würzburg is leading the investigation. In one layer of soil, the geologist hits on a phenomenon which has been observed in a similar scatter field found in Australia.

10.44 / Voice-off: Prof. Kord Ernstson, geologist

“Let’s have a look at the normal pebbles from the quarternary rocks before the impact. These are compact, nice, smooth stones, which we can knock together. They give a clear sound, they are really firm and compact. But when we take stones from this layer, they also look really nice from the outside - this one is probably an amphibolit, a metamorphic alpine rock. And when we take this one in hand - there’s no sound any more, we can just crumbled it. This type of rocks occurs only in this particular layer. Or take that one, here: that’s probably a gneiss. Look at this! This was at one time a really firm alpine gneiss...”

11.42 / geological layer

The porous material exhibits distinct traces of black deposits of graphite. These crystals of pure carbon could stem from the thin layer of soot which surrounds the nucleus of a comet. An experiment will reveal more.

12.01 / Flame

With a welding torch, geologists heat up conventional stones to a temperature of ca 2000 degrees celsius. About the temperature reached by the exploding comet at impact.

12.16 / Flat stone

Sure enough, the so-treated test samples exhibit the same characteristics as the finds from the craters.

12.33 / Burning rock

A proof of the occurrence of a gigantic impact in Chiemgau.

12.33 / Stones and rolling fog

The area after the impact - a ghostly sight. Poisonous fogs waft over the land.

12.43 / Rocky landscape

Shortly thereafter, diluvian rains fall, which last for days. The perilous watermasses extinguish the flames and wash over ashes and carbonized remains.

12.58 / Boy in a cavern, rain

The few survivors had to wait for weeks, for the sun to penetrate again the dust-laden cloudcover.

13.08 / Clouds

When the storm subsides, the Celts no longer have a land to live in. Their settlements have been like swallowed by the earth. The area resembles a lunar landscape. Which may be the reason why science until recently ignored everything about this event of a millennium.

13.27 / Boy

Also, because the Celts did not know historical writing and nobody recorded the devastating event.

13.36 / Boy in landscape

Only modern science allows for the reconstruction of the catastrophe, which deprived tribes in Southern Germany of the basis of their existence around 465 B.C.

13.48 / Boy

But for the contemporaries and their descendants, the day when the comet came remained burned indelibly in their memory.

13.59 / Girl running

In their perception, the sky had opened itself in order to punish the inhabitants of Earth. The idyllic life of the settlers came to an abrupt end. The fiery intruder from the cosmos shattered their worldview to its very foundations.

14.17 / Boy in landscape

The wasted land no longer offers protection. As far as the eye can see, there are no more trees that could be felled to make a fire. The lush flora and fauna - annihilated by the flames.

14.30 / Man

If they don't want to die of hunger, they must leave the site of their established homesteads and move into foreign parts. Without a firm goal in sight, for they ignore the magnitude of the destruction.

14.44 Boy and girl

Gone is the time of affluence, and of the assurance that nature would provide for the daily fare.

14.53 / Map

Scientists surmise: the land between Munich and Salzburg must have remained uninhabitable for decades. Where their wanderings brought the survivors remains a matter of speculation.

15.04 / Voice MA Kurt Zeller, Celtic Museum at Hallein

“The dimensions of this catastrophe, which must have been tremendous, if it should really be uncontrovertibly established that there was one, will make a reexamination of our total profession necessary. For one thing must be made clear. This absolute break in the artefacts from the late Hallstein period, this hiatus as we call it in our terminology, this break in continuity, is elemental. And a coherent answer to it, a really coherent one, about what has really happened then, has not been brought forth by anyone up to this day.”

15.38 / Chieftain's tomb

One thing is sure: richly furnished chieftains' tombs and the legendary gold of the Celts have been brought to light by archaeology only outside the affected area.

15.49 / Mummy and sword

The world famous find of Hochdorf in Baden-Württemberg bears witness to the high craftsmanship of some of the tribe, such as may have existed in Southern Germany also.

16.02 / Cone of gold

The impact of a comet provides the first explanation for the sudden absence of archaeological remains in this particular area.

16.11 / A group of people

The philosopher Plutarch describes the drama in the 1st century AD:

16.18 / Comet in the sky (computer animation)

“In the sky a fiery body of wide-reaching dimensions was seen, a flaming cloud, which did not rest in one place, but which moved about with convoluted motions, so that fiery fragments were thrown off in all directions and flared up, just like shooting stars do.”

16.40 / People in front of a house

As its first chronicler, the Greek Plutarch dated the inferno to 467 BC. Modern research reaches a similar conclusion.

16.52 / Men in a forest

But the experts of the Chiemgau-impact want to bring scientific proof for this. For this purpose, they search for earth samples and archaeological remains.

17.04 / Men in a forest

That's where scientists make an important observation. The objects which they bring to light stem exclusively from the time before and after the cosmic impact. The archaeological gap spans over a hundred years.

17.20 / Man grabs a stone

The crucial insight is brought by the examination of the stones. In a special series of tests, the team analyzes the outer molten layer of the stone fragments.

17.30 / Hand on a measuring instrument.

The presence of minuscule chips of diamond in the glazing allows for a scientific dating of the event between 500 and 300 years before Christ.

17.42 / Trees

The Celts who were able to escape the disaster in Chiemgau must break off and find a new home. They seek contact with fellow countrymen.

17.54 / A horse

However big the differences between the tribes, they have a common

language and religion.

18.03 / Horse

New discoveries make one think that the migrants were not welcome everywhere. Armed conflicts break out among the clans.

18.14 / Men on horses

The clans fight for territory. Their image as peaceful peasants changes to one of brutal murderers and conquerors.

18.28 / Men on horses

Mercilessly, they pursue their enemies and punish them with death. To begin with, “the braves,” as the Celts are called, wage skirmishes among themselves.

18.40 / Forest

But it doesn't last long, until they undertake raids all across Europe. Pillaging and setting fires they push all the way to Northern Italy, then fall upon Rome, and occupy the Eternal City for almost seven months.

18.56 / Map

From there, the intruders spread into the South of the peninsula, occupy Hungary, Bulgaria and Greece. They plunder the oracle in Delphi and take away the temple gold.

19.10 / Map

Finally, the Celtic hordes swoop down over today's Turkey - without regard for losses. This blind fury lasts for almost two hundred years, and no one can stop it.

19.24 / Men in the dark

It is accompanied by new, bloody rituals and with a ruthless treatment of enemies. The cause being a deep change in the religious representations.

19.37 / Men in front of a straw man.

They no longer worship nature, but gods which bear names and have protective functions. The religious change is documented in art. Instead of geometric figures, all of a sudden the repertoire is dominated by grotesque

faces: fear-inspiring monsters swallowing humans.

20.00 / Man

In order to dispose favorably the rulers of heaven, sacrifices must be brought. With the druids' blessing, prisoners, criminals, but also many innocents are executed.

20.13 / Fibulae

The gods are represented everywhere. Even clasps carry their image.

20.20 / Fibulae

With these images, humans bear testimony to their respect of, and their deep bonds with the heavenly powers.

20.29 / Fibulae

Part of this is the cruel ceremony of the triple ritual-killing. The victim is first strangled, then his skull is shattered and finally his throat is cut.

20.44 / Man

Despite the fact that the names of some 400 actors of Celtic mythology have been handed down to us, the religion remains a mystery. The druids passed on their knowledge only orally to the initiates.

21.01 / Strawballs

That much we know: for every sphere of life, there existed one god. Over all of them throned Taranis, the master of Thunder and Lightning. In offering to him, humans are put to death by fire.

21.16 / People in front of fire

Men and women, children and babies, young and old are tucked into gigantic puppets of straw and branches and are put on fire. The human torches were meant to put the mighty Taranis into a gracious mood.

21.33 / Stone figure

His attribute, the fire-wheel, has been interpreted by archaeologists as a symbol of the life giving sun, assuring the eternal cycle of nature.

21.45 / burning straw puppet

Yet the evidence from the cometary impact calls up another theory. The fire-wheel could be a remembrance of the cosmic fragmentation bomb which came down over Chiemgau.

22.01 / Fire wheel

Independently of its original meaning - the fire-wheel still plays a significant part in contemporary feasts of the summer solstice.

22.12 / the lake in evening light

Some 50 kilometers from Lake Chiemsee, lived the closest neighbors of the victims of the catastrophe.

22.12 / Map

They had settled on the Dürrenberg, in today's Austria. Protected by the Alps, they were spared the direct effects of the impact. But they certainly heard the noise and saw the fireballs.

22.38 / Man with a skull

In the opinion of specialists, the people of the Dürrenberg also suffered a traumatic experience. Time zero brought about a striking change, which took place within a single generation.

22.52 / Skull

The new research findings are corroborated by the funerary offerings in a family tomb. Within a few decades, there is a change in the enclosed objects. The survivors bury the dead with richly ornate jewelry, and with more weapons than before.

23.12 / voice MA Kurt Zeller, Celtic Museum, Hallein

“And now let's imagine that something happens, which has never happened before, a natural catastrophe of a vast extent. I surmise that it was of a vast extent. This must have had a conscience-changing effect. We know about these so-called end-of-the world moods, which every few years are propagated by some sect or other, and which always find a following even in our supposedly enlightened times. One can imagine what it must have been like, when one had been oneself a witness of such an event.”

23.51 / man and chariot

Dürrenberg - a concrete example for a radical change in the 5. Century BC. A shift which the Romans and the Greek also registered.

24.04 / A tree

The Greek historian Diodorus leaves the following portrait of these barbaric neighbors:

24.12 / Water

“They offer a frightening sight. They are tall, with muscles playing under their white skin.

24.10 / Forest

Their hair is not only naturally blond, they bleach it artificially, they wash it in chalk water and comb it back from the forehead and upwards. Thus they resemble forest demons.”

24.36 / Man

“The Celts cut off the heads of their enemies and hang them on the mane of their horses, as if they were a hunting catch. The heads of famous enemies they embalm with cedar-oil and preserve them. It’s of the nature of wild beasts, to fight a fellow man even after his death.”

25.00 / Man by a river

Daily looking death in the face fearlessly. Yet there is one thing which the cruel warriors fear, more than 200 years after the impact of the comet -

25.10 / Man by a river

that the sky might fall on their heads.

25.20 / Chiemgau in the fog

The wounds of nature are healed after about five decades. But the messenger from space had brought to earth a strange gift.

25.34 / forest

In its scattering field of 2000 square kilometers, experts have made an astonishing discovery.

25.43 / Man by a river

Out of the sand of the clear mountain lakes, mysterious iron pellets were washed.

25.51 / Man

Nobody had ever seen such material before. But they soon made the daring guess that it might be of an extra-terrestrial origin.

26.01 / Stone fragments

Possibly, these pellets had been part of the stone fragments which the Chiemgau comet carried with it.

26.11 / Bees

Yet it was a so-called bee-monitoring program which brought the decisive breakthrough.

26.19 / Bees

In the summer of 2002, public authorities order the testing of sixty honey probes from different bee-keepers. They are to be analyzed for signs of eventual environmental pollution in the district.

26.33 / Bees

In place of the usual pollutants, the scientists discover exotic particles. The honey contains silicide of aluminium, xifingite and titanium carbide. Precisely those probes from the areas, where the iron pellets had also been found.

26.52 / Measuring instrument

Together, these substances do not occur naturally on Earth. There is no doubt about that. They originate in the stellar dust clouds and are older, in part, than the solar system.

27.06 / fence

This means: this is pre-solar matter. At least, this is the guess of the scientists in Würzburg. These small particle form in the envelopes of red giant stars, or they result from the explosion of a supernova.

27.26 / Supernova

When these gigantic stars explode in the universe, their residues bond to form new stars. This is how the solar system was formed, but also comets develop this way. Therefore, they carry within them matter of the extinguished celestial bodies.

27.48 / Stone

If, together with the extra-terrestrial stones, pre-solar material also reached the Earth, then the experts have in hands the oldest geological evidence of the universe. It's a sensation.

28.02 / Lake Chiemsee at evening

200 years after the inferno, Celtic tribes return to the shores of Lake Chiemsee and build new settlements. Their works of arts now bear recognizable influences of Mediterranean cultures.

28.19/ Lake Chiemsee at evening

The meaning of the motives on coins is less evident. That they may point to images of a cosmic catastrophe remains purely speculative.

28.34 / Arms and fire

It is rather the weapons of the Celts which show a connexion to the catastrophic event. In those times, the world of antiquity praises above all the art of the Noric blacksmiths.

28.46 / Man

These outstanding specialists produce raw steel and swords which are traded far and wide as "black gold."

28.57 / Man

Even the Roman writers Plinius and Horace rave about the high quality of "ferrum noricum."

29.06 / Flame

The sophisticated production technique is kept as highly secret by the blacksmiths. And each one has his own method.

29.15 / a steel pan with melted iron

For many years, experts have tried to figure out the composition of Noric steel. Despite intensive studies and countless experiments, no useful result has been achieved.

29.30 / Voice Markus Balbach, weaponsmith

“Either these guys were extremely fit physically, to be able to produce over such a long period of time such consistently high quality, but this is unlikely. Or there existed something in their environment at that time that they could use and that made the steel so good.”

29.55 / Trees

Maybe it was a matter of chance - as with many discoveries in the history of mankind.

30.03 / Man

Maybe that while looking for iron ore and iron-holding sand, the smiths stumbled upon stone which had fallen from the sky 200 years before.

30.15 / Man with stone

As its coloring and appearance resembled the one of iron ore, it ended up in the baskets of the collectors.

30.23 / Man in forest

That's how the success story of the Celt's super-steel might have started.

30.30 / Man

Smithery is a laborious process. First, the smelting ovens were brought to a high temperature. A process which took many hours.

30.43 / A boy

Then, the men could start the process of welding the varied materials.

30.50 / Man

Together with charcoal, pieces of ore and iron-holding sand were poured into the fire, in regular alternance.

31.00 / Hand in the sand

The seal of quality for good steel is its carbon content. The ingredients of the Noric mixture contained a higher portion of carbon than the materials used by other smiths.

31.15 / Stone on a pad pulley

It is contained in high doses in Fullerene - a carbon compound which can be found everywhere in Chiemgau and which according to scientists must be of extra-terrestrial origin.

31.28 / monitors

Analyses are still being done, to find out which materials on the impact site are of pre-solar origin.

31.36 / Stone on the monitor

If it should turn out that the Norics owe their success weapon to an interplanetary transfer of technology, a new chapter would open in Celtic history.

31.51 / Boy, from the back

The oven heated for 48hours until the smith obtained the so-called *luppe*, an overheated clump which served as the primary material for the making of steel.

32.05 / Man

Then the object was worked into a rod. Through this process, impurities in the metal were eliminated. Then the smith stacked the piece again into the charcoal fire.

32.17 / men, anvil

He folded the hot steel lengthwise and broadwise with his hammer, heated it again and repeated the process over and over - until a blank of unique properties was obtained. Then the master would fashion the final sword blade.

32.35 / voice-off Markus Balbach, weaponsmith

“The surprising possibility, to have suddenly at one’s disposable in great quantities a very good high carbon content, weapon-grade steel was

sensational.”

32.51 / Men and horses in a farmstead

The qualities of this exceptional product soon become known. When the Romans hear about it, they send their merchants to the Norics. Commerce of speers and swords made from the new special steel flourishes.

33.08 / Man

The outstanding weapon is to give the masters from the Tiber superiority in combat.

33.16 / Hand on a sword

The blades exceed all expectations. They compell through their particular hardness and elasticity, and their low susceptibility to rust.

33.26 / blade

One historic fact documents the high esteem in which the Romans held the smiths of Chiemgau: the Norics remained the only Celtic tribe which they did not subject. They united with them as trading partners - for the love of their swords.

33.50 / blad of a sword

This is the blade of a Roman short sword. It is over 2000 years old. For the first time, an expert has tested the material of this precious specimen.

34.03 / Man

The German Dieter Kraft is a connoisseur of antique weapons and issues certificates for collections in Germany and abroad. He knows the work of sword cleaning to the hilt.

34.19 / sword blade

With whetstones of varying finesse, he removes the layers of rust in an acribic manual process.

34.28 / Blade

When the metal finally reveals itself, he is stupefied by the result.

34.33 / voice Dieter Kraft, sword-cleaner

“A steel of this quality I have seen up to now only in Japan. In swords of the 14th or 15th century. At first glance, one could almost believe that it is a counterfeit, or something, but it is not. It is indeed made by hand and for its time, it’s of a staggeringly high quality.”

34.55 / Man

The new weapon of the Romans - a revolution in combat technique.

35.02 / Man with a sword

Out of their legendary iron, the Celts produce not only swords but shield-plates, helmets as well as throw-weapons. An assortment much in demand.

35.15 / suit of armor

The smiths are extremely busy. In a short time, they must supply whole armies, for the Roman legions are on their way to conquer the world.

35.29 / Men in a forest

Warfare takes on a new, bloodier dimension. Hosts of Celts hire themselves out as Roman soldiers.

35.40 / soldiers in the field

They are welcome soldiers - not only because of their bravery, but especially for their professional acquaintance with the supersword.

35.52 / sword blade

The material is unique - it does not need to fear comparison with the industrial productions of the XXI century.

36.03 / Microscope

The electronic microscope confirms it: stresslines, structural conditions and welding grooves of Roman swords are of a level with modern heavy duty steel.

36.19 / metal under microscope

An outstanding performance of Noric smiths, brought about by a natural event - placed in the hands of their enemies to be.

36.31 / Forest

The great commander Cesar spread the anecdote, that his soldiers were victorious over the Gauls because the latter went to battle with low quality iron swords, which warped in combat.

36.45 / Man

The Gauls had to retreat repeatedly behind the lines, in order to straighten out the blades. This made it light for the Romans...

36.56 / Roman soldiers

The experienced strategists used their advantage to the full and established over the centuries a giant empire - based on the technical know-how of a Celtic tribe.

37.09 / voice-off Dieter Kraft, sword-cleaner

“The advantage resides simply and thrillingly in the fact that I am holding a blade in my hands which because of the material it is made of can be many times more resistant, more elastic and sharper. And they were very dependent on it, because the Roman empire did not expand through peaceful marriages but through military expansion.”

37.31 / Soldier

It's only a facet of world history. But with great consequences. For thanks to the famed “Ferrum Noricum” the triumphal march of the empire cannot be held up.

37.44 / Map

The whole Mediterranean falls under their domination. They absorbed the South and West of Germany. Under Emperor Trajan, the empire reaches its biggest extension.

38.01 / Map

The whole of Gaul belonged to it, large parts of Britain, and vast territories around the Black Sea.

38.13 / Houses under starry sky

The fateful day on which the Celts of Chiemgau were surprised by the impact of a comet started a chain reaction which continued during the

following centuries.

38.26 / Comet in the sky (computer animation)

The bringer of disaster, which originated at the beginnings of our solar system, had taken light-years to reach Earth.

38.36 / Man under starry sky (computer animation)

It brought death and destruction to humans. And foreign matter, the discovery of which ignited bitter feud among scientists as well.

38.49 / Comet in the sky (computer animation)

The event that shook the world then, in the 5th century BC, is not unique.

38.58 / Comet (archival material, black and white)

In 1908 a comet destroyed wide stretches of land in Siberian Tunguska.

39.08 / Smoke cloud

An explosion of devastating effect.

39.15 / Cloud (archive material, black and white)

Russian scientists took photographs of the destruction. As far as the eye can see - trees mowed down, stripped trunks - strikingly broken off at an angle, like matches. And this was a picture taken twenty years after the impact.

39.33 / Crater lake (archival material)

Luckily, only few people came to suffer, because the area was thinly populated.

39.40 / Man (archival material)

Reportedly, this missile from space was considerably smaller than its cosmic colleague from Celtic times.

39.51 / Space (computer animation)

Not often do cosmic bodies present a danger for Earth. Many miss the blue planets by thousands of kilometers and remain unnoticed even by astronomers.

40.05 / Man in observatory

Nonetheless we remain vigilant. For dark vagabonds are underway, “dark comets” which not even telescopes can make out.

40.16 / Dr Michael Rappenglück, archaeoastronomer

“When these comets, the dark comets, approach Earth, they are hard to discover from Earth. These ones we have no control over. And that’s why these dark comets are a big problem, because we make them out too late with our instruments. And depending on its orbit, an object like this can approach very, very rapidly. That means, we don’t have too much recourse...”

40.42 / Dark comet (computer animation)

According to new calculations, a catastrophe like the one suffered by the Celts is more probable than had been thought until now.

40.51 / Asteroid (computer animation)

In 2029, the asteroid Apophis will pass at a distance of only 40,000 kilometers to the Earth. Minimal deviations could cause a collision. Defensive action is still of the domain of utopia.

41.08 / Jupiter (computer animation)

On their way through the atmosphere, interplanetary objects bring in unknown compounds. Valuable probes for investigating the universe.

41.21 / Stone

The Chiemgau comet brought us possibly pre-solar material with crystalline structures. They might some day be useful for creating transparent materials. A new inspiration for creative minds.

41.40 / Hand

The minuscule pellets of carbon, which helped Celtic smiths to create wonder-weapons, have properties which give hope for new spectacular discoveries to the team from Würzburg.

41.55 / Carbon pellets

They react like magnets and are electrostatically charged. Experts are not yet able to interpret the significance of this phenomenon. It has been

established that the enormous power of the impact scattered the strange formations all over Europe.

42.13 / Pellets in a glass

It will take decades until the fiery dragon of iron, ice and methane reveals its last mystery.

42.25 / Fire

Can the solution to the mystery revolutionize life in the XXI century, like it did for the life of the Celts and the Romans more than 2000 years ago?

42.36/ End of text

42.40/ beginning credits

43.15/ End of film.