SP-1265/E

Peter Creola

Advocate of Space

esa

SP-1265/E
August 2002

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A lawyer with his sights set on the stars and both feet firmly on the ground

European Space Agency
Agence spatiale européenne

Short Title: **SP-1265 "Peter Creola, *Advocate of Space*"**

Published by: ESA Publications Division
ESTEC, Postbus 299
2200 AG Noordwijk
The Netherlands

Editors: Bruce Battrick & Bernard Zufferey
Design & Layout: Carel Haakman
Text: Jean-Bernard Desfayes
Translation: ESA Translation Division
Coordination: Henk Olthof

ISSN. 0379-6566
ISBN: 92-9092-980-4
Price: 20 Euros
Printed in: The Netherlands

Foreword

It is a great pleasure for me to introduce this book about one of the most remarkable personalities in the European space world, with whom I have had the pleasure and privilege of working since I became Director General of ESA.

Like many European institutions, ESA is the result of the initiative and endeavours of committed and talented people working for a common cause. Peter Creola has devoted his whole career to space and has been a passionate advocate of a strong European space presence.

During his 33 years of service to space he has participated in the ups and downs of Europe's development, and was one of the driving forces influencing and shaping European cooperation in space.

Peter has probably been the longest serving Council member in the history of ESRO and ESA. He has also served as Chairman of many committees and boards, including the Administrative and Finance Committee, the Legal Working Group on the ESA Convention, the Industrial Policy Committee, the Ariane Programme Board, and the Long-Term Space Policy Committee.

If Switzerland has been such a strong player in the ESA Council, noted for its ability to 'punch above its weight', it has mainly been due to the commitment, enthusiasm and passion of Peter Creola.

The European space world and in particular the ESA Council will not be the same without this multifaceted personality. I should like to take this opportunity to thank him for his outstanding contribution to the European space effort. His many friends and colleagues both inside and outside ESA will miss him greatly.

Antonio Rodotà
Director General of ESA

Serving space for thirty-three years

«The rarest thing of all is a man who is in nobody's pocket, who is governed only by his heart, his principles and his feelings.»
(Sébastien Roch Nicolas de Chamfort, 1741-1794)

Peter Creola's professional career was contiguous with the emergence and mature blossoming of space technology. He is the only senior Swiss civil servant who experienced from the inside, from start to finish, and at the highest level, the fabulous era in which Europe's space activities were born and grew to fruition. He worked for Switzerland for 33 years, sitting on behalf of his country on many space and astronomy related bodies. Yet throughout this whole period he pushed for the countries of Europe to combine forces in order to be able to compete with the other space powers. So this isn't the story of a space pioneer who just happened to be Swiss, but of a convinced and convincing European.

The sorrows of Young Peter, a Swiss war-time baby

«I love people who dream of the impossible.»
(Johann Wolfgang von Goethe, 1749-1832)

It wasn't easy having a famous mother. Still, being Swiss, Peter's mother was only a minor celebrity; she wasn't in the Beverley Hills, Buckingham Palace or Monaco league. Emma Creola was merely the creator of one of Switzerland's big three cultural icons – together with William Tell and Heidi – the character of Betty Bossy, the archetypal Swiss domestic angel, the ultimate female authority on cookery and housekeeping. Mrs Creola invented this giant of Swiss cuisine. Even today, half a century on, Betty Bossy's signature – which graces the cookery books of Ringier, the country's leading publisher – is that of Peter's mother.

Neither was it easy being the son of Ernest, an Italian father, in the 1940s in Switzerland, a country trapped in the middle of a continent ravaged by a terrible war. A country that managed to stay outside the conflict but was not immune to the whirlwind of racism sweeping through the period. Peter's father knew that, as an immigrant, he had to be twice as good as his new neighbours in order to make his way. Born in Germany, he had moved to Switzerland with his parents at the age of six, and had started his working life as a stonemason. Later on, he found the energy to go to night school (where he met his future wife) and passed his secondary school leaving certificate. This qualified him to manage building sites and eventually start his own business. They were hard times, and things weren't easy for him, but Peter, who was born in Zurich in September 1940, would always remember his parents as brave, self-motivated, and good-hearted.

The young Peter was the grandson of the station master at Thalwil, in the canton of Zurich, and we'll see later how significant this was for him. The images of trains were stamped indelibly on his retina, and the rattling of their wheels would ring in his ears forever. His grandparents also lived in Rüschlikon, from where you can see Lake Zurich and the boats. This view sparked Peter's desire to be a ship's captain. But he was also a child who liked to be alone and daydream. On holiday in Ticino – the southernmost part of Switzerland, where Italian is spoken – he loved to spend time alone in his haven, a tiny patch of grass on top of a big rock.

Primary School in Wolishofen (Zurich), 1949. The young Peter Creola is standing in the third row, second from the left (in the striped T-shirt) in front of the school mistress. Inès, his first love, is sitting in the front row on the far right.

Surprising though this may seem to those who rubbed shoulders with him as an adult, as a child and a teenager Peter had problems relating to his peers, who were stronger and more aggressive. He quickly discovered how to make them laugh. A quip and a pirouette was his way of warding off insults, lightening the mood and dissipating anger. When Peter was 12 and due to start grammar school, his mother, who wasn't very confident about his abilities, asked his teacher whether he would be able to pass the entrance exams. 'I'm sure he will,' the teacher replied. 'But if he doesn't, the grammar school will have lost a comedian ...'

Was he a good student? No … well yes ... He loved writing essays, and he loved history, geography and art. But he hated maths as much as his maths teacher hated teaching him. The sight of 'a + b' was enough to send him into a panic. But when he was asked to write a story about a midnight ride on a steam train, the result was so good – reading as if Peter had been there – that his teacher refused to believe he had written it himself. Peter was outraged. He had been passionate about truth and fair play since early childhood, and he couldn't believe that someone would question his honesty … or his talent. Throughout his life, the memory of this incident would strengthen his resolve to stand up for the weak and underprivileged, both people and animals.

His weakness for the so-called weaker sex – which he is open about and notorious for – kicked in early, when he was seven or eight years old. Her name was Inès. They decided to run away together on a raft which they built by nailing two planks together. They began to plan their escape, using an old map of the world on which they worked out a route from Zurich to the US, hugging the shores of Europe and Greenland. But then an unexpected fly fell in the ointment, in the form of another little boy, who was keen on the same girl! Game but shy, the boys went together to ask the girl to choose between them. Very sweetly, she refused to do so. Here was another life-long lesson for Peter: never believe that anything is yours for certain. As for jealousy, Peter would have none of it; he didn't sulk, and stayed friends with both children. 'I'm strongly opposed to jealousy,' he says today. 'Jealousy isn't love, it's a desire for possession. I've never been jealous, and I never will be.'

Then, however, there was more romantic suffering in store for him. The most serious came when he was 15, the age when you fall in love for the first time. Her name was Irène. Unfortunately, his love was largely unrequited. On top of that, his family had just finished building a little house at Winkel, near the Zurich-Kloten airport. When they moved there, it put an end to Peter's romantic dawn. He was so devastated that he wouldn't speak to his parents and felt the whole world had rejected him. Although this wasn't a condition recognised at the time, he became genuinely depressed. And how did this condition manifest itself? In a spotty back.

Nevertheless, living near the airport had something cheering and soothing to offer a gloomy teenager; you could watch the planes fly past. Already as a child, Peter had imagined he was able to build his own aircraft. In his loft at home, he had feverishly gathered together some wooden slats, 'borrowed' an old sheet and built a wing out of them. The aircraft never made its maiden flight, fortunately for the builder and for Switzerland's future in space. Instead, Peter was given his own maiden flight by his father, who took him out for a spin on a DC-3 over the Zurich countryside between two scheduled flights. The cabin smelt of petrol and vomit, and would have put a less determined person off flying. Later on, Peter's ambition, like that of many teenagers, was to become a pilot for the national airline, Swissair. But his pilot's career was nipped in the bud when he started to become short-sighted, though this didn't prevent him from admiring the Comet, BOAC's first jet airliner, which made regular landings at Zurich airport.

Peter's first memory connected to space goes back a long way, and we know the date. In 1947, Helveticus, a Swiss magazine for young people with an interest in the natural sciences, published a short story by Karl Thöne called 'Into Space Thanks to Atomic Energy'. It was about Niklaus Guggenbühl, a Swiss youngster who, using a fortune inherited from his father in America,

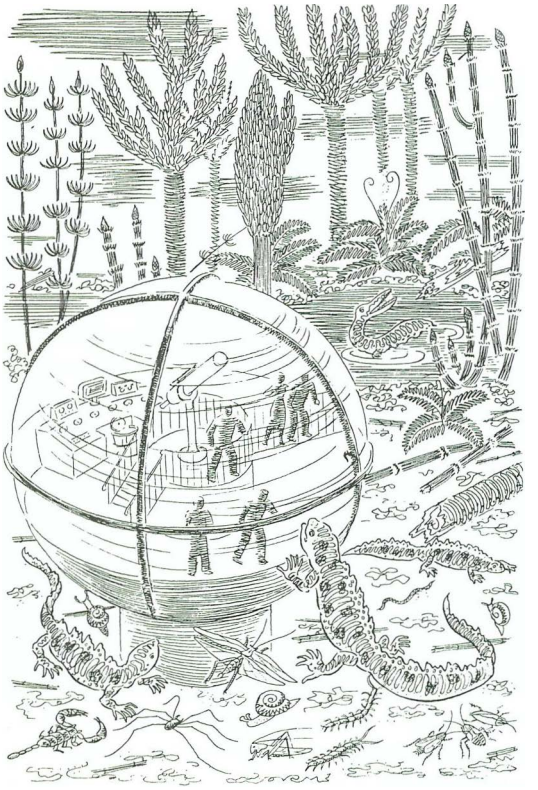


Illustration from the 1947 Helvetius almanac for Karl Thöne's novel 'Into Space Thanks to Atomic Energy'. The Swiss spaceship and its crew of four men and one woman have landed on Venus, inhabited by exotic animals.

provides the funds for Professor Walter Haeberli, the engineer Hans Hauser and the astronomer Oswald Frank to design and build a spaceship that takes them at the first attempt to the Moon, and then to Venus, Mercury and Mars. Quite a journey! Especially since Frank takes his girlfriend along for the ride.

The story was full of improbable things; flying in a straight line to the Moon in four hours at over 60,000 miles an hour, the fantastic plants and animals discovered on Venus, the ruins of a dead civilisation on Mars. All these were myths, if not bad science fiction. But the story also contained many scientific facts believed to be true at the time. It was vividly written, the kind of thing that makes an impression on young minds already asking existential questions about the heavens and infinity. Peter was one of these, and the story made such an impression on him that he kept the book, which was published by Hallwag in Bern. It was the real, though subconscious, trigger for his interest in everything to do with space, an interest which would soon become a passion.

In the mid 1950s, young Creola was aware that satellites would soon be circling the Earth. He was reading the American magazine Popular Mechanics, which told him a lot about the subject. Like everyone else in the Western world, he thought the satellite and the rocket that would launch it were going to be American. Then came the surprise of 4 October 1957, when the USSR pipped the US at the post with its Sputnik and Korolev's Zemiorka rocket. The unexpected competition heightened the already considerable attractiveness of space. It was a fortunate event for Peter, who was languishing after fate had snatched him away from the girl he loved, and the world seemed to hold nothing for him. He plunged into this new fantasy, which opened up infinite vistas.

To keep up with events in space, Peter had to learn English. At grammar school he had chosen to study Italian, and blamed himself for choosing 'the easy option'. Taking the bull by the horns, he began to listen to the English-language broadcasts from the Voice of America and the radio programmes for the American occupying forces in Germany, solely in order to hear the latest news about satellite launches. Little by little, the language of

Shakespeare and Brooklyn slang infiltrated the brain of a young man whose admiration for the US and NASA knew no bounds. A sense of proportion in feelings and opinions would only come later.

So that he could keep in touch with the first faltering steps of space technology and partake in the spirit of the age, Peter became an amateur pyrotechnician. In his spare time, he built a small rocket, powered by a bicycle pump filled with a mixture of ammonium perchlorate and sugar. He fitted the rocket with a clay nozzle and launched it at the Moon … The makeshift motor worked for four seconds, then the engine whistled, coughed and the rocket bounced, ending up in a pathetic heap at the edge of a nearby forest after knocking a large lump of roughcast off the family home. It was the only launch that ever took place from the Baikonur-am-Winkel base.

The Creola family home in Winkel near Zurich, where young Peter carried out his first pyrotechnic test in the late 1950s. In front of the garage door, the famous three-wheeled Messerschmitt, in which Peter got around during his university years.

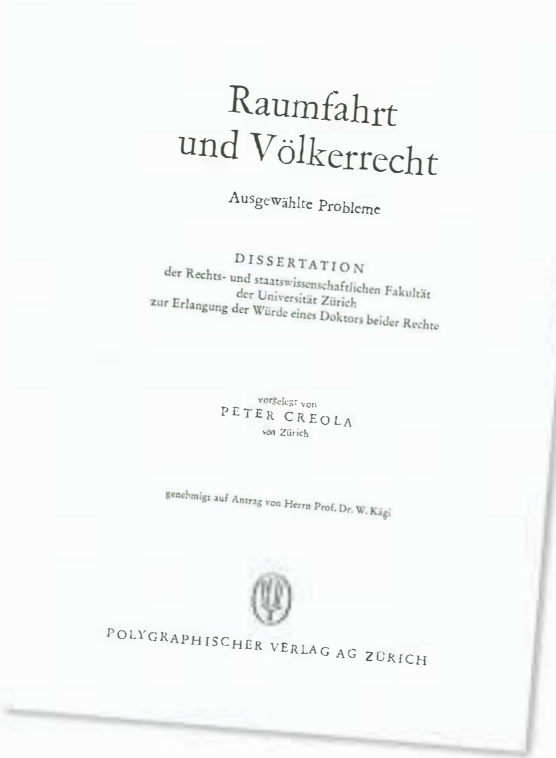
From Peter the Prankster to Herr Doktor Creola

«Who loves not wine, women and song remains a fool his whole life long.»
(Martin Luther, 1483-1536)

Peter passed his university entrance examination without any serious problems. He then had to chose a profession. He considered becoming a designer or a graphic artist, or following in his mother's footsteps as a copywriter, but she actively discouraged him from pursuing that path. He was also interested in biology and architecture, but mathematics were an almost insurmountable obstacle for him. What do you do when you don't know what to do? Law, of course! Like many others before him, Peter grasped instinctively that studying law opens doors to areas you didn't even know existed.

Reading dry books and analysing complex statutes and legal compendia wasn't Peter's cup of tea, but he got down to the task, though rather diffidently. He found many things to enjoy in student life, and compensations outside the university for his hard study. He was a good friend and a good socialiser. He also had much success at the wheel of his Messerschmitt, a narrow aeroplane fuselage with three wheels attached, an avant-garde mini-car in a city where young people still got around by tram or bicycle. The bohemian Zurich lifestyle gave him time to nurture his passionate curiosity about the conquest of space – and other conquests …

One of the few lecturers at the university whom Peter liked was Werner Kägi, a renowned expert on international law. Kägi quickly picked up on his student's main interest. He too was attracted to the vast field of legal studies related to space which was opening up before his eyes. Like all academics, he wanted to firm up the subject without making too much of an effort himself, using the research skills of his students and assistants. He therefore suggested that Peter devote his compulsory seminar paper to space law. For Peter, this was an unexpected opportunity and a call to action. At last it seemed possible to do something which was both useful and fun; he was finally seeing the point of his legal studies and able to make use of them.



Raumfahrt
und Völkerrecht

Ausgewählte Probleme

DISSERTATION
der Rechts- und staatswissenschaftlichen Fakultät
der Universität Zürich
zur Erlangung der Würde eines Doktors beider Rechte

vorgelegt von
PETER CREOLA
von Zürich

genehmigt auf Antrag von Herrn Prof. Dr. W. Kägi

POLYGRAPHISCHER VERLAG AG ZÜRICH

'Raumfahrt und Völkerrecht' ('Space Flight and International Law'), Peter Creola's doctoral thesis, published in 1967.

At Zurich University at that time, it was still possible to begin a doctoral thesis without having passed your bachelor's degree. This is what Peter did, skipping the intermediary qualification and turning the subject of his seminar paper, 'Space Flight and International Law', into a thesis. 'You'll become the Swiss Jules Verne, voyaging to the depths of space …', joked Werner Kägi amiably. Peter, however, saw himself more as Michel Ardan, the 'holy innocent' with leanings towards journalism, depicted by the French novelist in his unforgettable 'From the Earth to the Moon.' Once he had set off in this new direction, Peter experienced early and striking success. His first article, 'Legal issues raised by a lunar mission', was published in 1962 by the Neue Zürcher Zeitung, the internationally renowned Zurich daily newspaper.

In spring 1967 Peter's doctoral thesis, 'Space Flight and International Law' was accepted with summa cum laude, the highest possible distinction. It's true Peter had taken his time over it; no fewer than 18 terms passed before he was able to put the full stop at the end of his tome. But his natural tendencies to live life to the full, for love affairs which tended to be turbulent, for dreaming, and what he called his 'innate laziness' were not the only reasons.

In the 1960s, space technology was developing at a phenomenal rate, and the legal problems associated with it were multiplying. Unlike aeroplanes, which must be piloted throughout their flight, terrestrial satellites are subject to the same laws of physics as celestial bodies. They follow their trajectories independently of the arbitrary state boundaries established on Earth. The right of satellites to overfly sovereign territory – which nobody was able to oppose at that time – was already a pressing question. The Space Treaty was in the process of being laboriously drafted by the United Nations, but was only ratified in December 1966. As Peter was still working on his thesis at that time, he was finally able comment on the treaty. His finished work consisted of 130 high-powered pages in which discussion of legal issues stood shoulder to shoulder with pure, hard, technical analysis and a nice pinch of visionary genius.

The evening before Peter was due to hand in his thesis, something which had until then seemed like science fiction become an imminent reality. Geostationary orbit – which Arthur C. Clarke had conceived of during the war and written about in 1945, in a Wireless World article entitled 'Extraterrestrial Relays' – became technically possible. A significant chapter in the conquest of near space was beginning. Peter realised that his thesis would be incomplete without a section on this development. He typed it straight out in the small hours of the morning before he submitted his work.

Geosynchronicity raised many issues, particularly in relation to the allocation of satellite positions and the distance between these positions on the narrow ring which now hypothetically circled the Earth, 23,000 miles above the equator. At the time, it was believed that the minimum possible space between satellites was two degrees, which would allow only 180 geostationary satellites to orbit the Earth. In his thesis, Peter argued that saturation of the 166,000-mile-long geostationary orbit would breach the right of free access to space. 'The scale of the international law issue won't be appreciated until the orbit has been extensively used for years,' he wrote. This was an important insight, even though the saturation point seems relatively distant even today.

So Peter Creola finally qualified as 'Herr Doktor.' But the title didn't pay the rent. He was an admirer of the strong, concerted effort that the US was making to catch up with its Soviet competitor. However, because he was unable to move to America, he turned to the Swiss recruitment adverts. Opportunities for lawyers specialising in space law were not growing on trees. Various job applications led nowhere. Then one day, Werner Kägi told him the Department of Foreign Affairs in Bern was looking for an in-house lawyer who was interested in the new issues raised by the exploration of space.

In the whole of Switzerland, who other than Peter could have a better claim to the job? He went to Bern, where he was interviewed by Ambassador Thalmann, Head of the International Organisations Division, and his deputy. Even though Peter's hair was a bit long for a potential diplomat, the interview went well. He was hired by the Scientific Affairs Section to work on space-related issues, and seconded part-time to the international law division to work on issues of space law. These were complex tasks for the unique kind of specialist that Peter was – unique in all senses of the word. His thesis was published on 16 December 1967 and he started his career in the Federal Administration on 18 January 1968 – a career that would end only in September 2002. These thirty-four years coincided with the period in which space science grew from infancy to maturity, although the most spectacular phase, the colonisation of space, is yet to come.

The monks of Gurtengasse

«The planets may influence men, but cannot undermine their free will or raise them above the circumstances in which they find themselves.»
(Johannes Kepler, 1571-1630)

Peter wasn't bothered about leaving the teeming, trendy, slightly mad metropolis of Zurich for the rural, provincial slow-paced capital, Bern. 'I was very fond of Zurich, particularly some areas, like Wolishofen,' he says. 'At the time when I remember it, it was idyllic, criss-crossed by two-axled trams trailing carriages with open platforms. Now the concrete and traffic has spread everywhere, and I can't stand the aggressiveness and pace of that city any more.'

The Scientific Affairs Section where Peter began working in Bern dealt with CERN (the Geneva-based European Organisation for Nuclear Research, where the world's top physicists worked), ESRO (the European Space Research Organisation in Paris, which was basically concerned with developing scientific satellites, and of which Switzerland was a full member), and CETS (the European Conference on Satellite Telecommunications in London). The Head of the Scientific Affairs Section was Etienne Vallotton, a future ambassador whom Peter considered a real gentleman. He gave a lot of freedom to both Peter and Patrick Piffaretti, his colleague from Ticino, who was also starting out on his career in the department. With his characteristic dry wit, Vallotton nicknamed them the 'monks' because they worked separately from everyone else, like hermits, in a small office in Bern's old town, at No. 5 Gurtengasse. They were in a unique and privileged position. Space problems were not yet an issue for the Federal Administration, so those working on them were not drawn into the rivalries and conflicts inevitable in larger government departments.

As a fledging civil servant, Peter had to start by familiarising himself with the files on scientific, legal, energy and transport issues. This meant straddling three Federal Departments, i.e. ministries, although he was officially part of the Foreign Affairs Department.

Peter was responsible for drafting communications on space affairs from the Federal Council (Switzerland's government) to Parliament. It was he who wrote the paper on the UN Space Treaty submitted to Parliament. He found

that although the majority of senior officials were well disposed towards the new field of space activities, there were a few reactionaries who were sceptical about it. In general, however, he was agreeably surprised by his colleagues' positive attitude, and nothing could shake his belief in the potential of space. 'We must remember that, at the time, space wasn't a major concern for the government or members of Parliament,' Peter Creola says. 'I freed them up from having to think too much about the subject. For them, I was "Mr Space", and it's true that space was the only thing I was interested in. I was on a single track, but I resisted the attempts that were made over the years to get me off it. Three times I was invited to pursue the classic "diplomatic career" path, and each time I said no.' This is a fine example of Peter's perseverance and abnegation in an environment swarming with ambitious careerists.

His first official trip was to attend a meeting in Paris of a European Space Conference working group that was monitoring the deliberations of the UN Space Committee. 'It was my first chance to speak on behalf of my country,' says Peter, 'and it brought a flush to my cheeks. At the end of my statement, which I can't remember much about, I was rather pleased with myself. The French delegate then spoke up, sounding very agitated. He said: 'Mr Chairman, we already discussed this issue fully at our last meeting. There's no point in going over the same ground again.' It was a bit of a cold shower for Peter, but the incident didn't teach the young diplomat to hold his tongue. Quite the contrary.

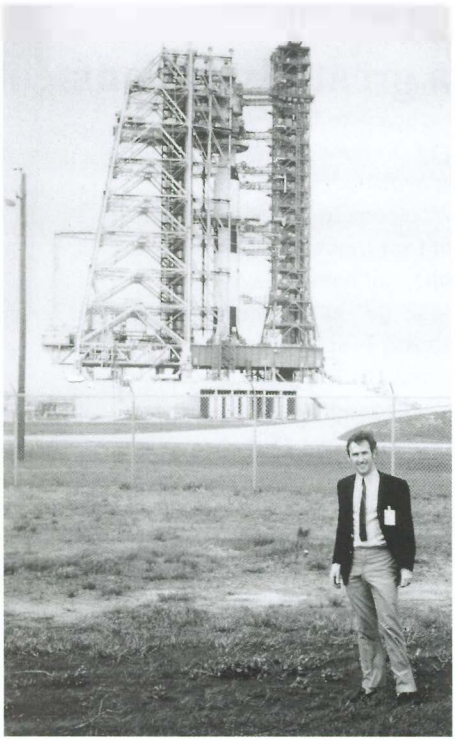
Intelsat, a baptism of fire and a great disillusionment

«Wage war on evil all the time
Though peace is good, I know.
What use is peace, for all its good,
Against a godless foe?»
(Jean de la Fontaine 1621-1695, The Wolves and the Sheep)

In February 1969, Peter attended the Intelsat Conference, his first big meeting with participants from all over the world. Its purpose was to decide how the roles of the various countries who were working to establish the space telecommunications systems of the future would be split up. In 1964, the US had established provisional regulations for a worldwide satellite telecommunications system. Peter's boss – who was charged with leading a delegation of four people, including two officials from the PTT, the Swiss national post and telecoms body, to the conference – told him: 'The idea of you coming with us to Washington hasn't been ruled out.' Not only did Peter end up participating in the initial discussions in the American capital, but he spent a further 11 months – over a period of three years – in tough negotiations in the city.

At the time, the Americans stood head and shoulders above any other country in the technical expertise needed for satellites and their launchers. Naively, they imagined the conference would last a maximum of four weeks, at the end of which all the countries involved would sign an agreement which the Americans themselves had concocted, and which didn't constitute any progress on co-management for their Intelsat partners. Peter Creola was about to experience the full extent of American imperialism in space.

The year was 1969, the year of the first lunar landing. Before they had even put a man on the Moon, the Americans were already sure they were going to win this first leg of the space race. Peter made a pilgrimage to Cape Kennedy, where he had his photograph taken in front of the Saturn V of Apollo 11, already installed on the launch pad. But in 1969, the Vietnam War was also in full swing. Up till then Peter had been vehemently pro-American despite his left-wing leanings (he was never active in any political party, but described himself as a 'non-practising Anarchist'). Now he was about to experience his own cultural revolution.



Peter Creola in July 1969 at Cape Canaveral in front of a Saturn-V rocket and the Apollo-11 capsule that took Armstrong, Aldrin and Collins to the Moon (Armstrong and Aldrin made the first lunar landing on 21 July 1969).

Before crossing the Atlantic, Peter had been briefed on the political situation which dominated US-European relations. Patrick Piffaretti, who was very pro-European but also very Gaullist, had warned him of Washington's tendency to throw its weight about. Peter had already read, with keen interest and mounting concern, the worrying reports by Reinhold Steiner, scientific advisor to the Swiss Embassy in Washington, about the true behaviour of Comsat – the corporation mandated by the US Congress to deal with space telecommunications – under the provisional Intelsat regime. Comsat had a large majority (57% of votes) within Intelsat, but was also the executive body of the provisional organisation. It was therefore acting as both judge and jury, and was using this dominant position to award 90% of contracts to American industry simply 'Quia nominor leo' ('Because my name is The Lion'), as the Roman storyteller Phaedrus once put it.

'I'd been brought up to believe in justice and equality,' says Peter. 'Then suddenly I found myself faced with a lopsided structure that perfectly illustrated the contempt and imperialism of the people who really controlled the international organisation. In Washington, I often heard it said that the principle of 'one country, one vote' was completely outmoded. What's more, the American delegation, which was responsible for keeping the minutes of proceedings, took the liberty of changing the thrust of statements from the floor or of cutting them as it saw fit. An American secretary at the conference – who had a soft spot for me – told me what was going on. Representations were made and the business was quickly cleared up. Still, I was deeply disillusioned. At a time when space was still just an ultra-theoretical subject of study for me, I was fascinated by the United States. As soon as I got close to things on a practical level, the US fell off the pedestal I'd placed it on, and the illusion that I was taking part in negotiations where fair play prevailed fell too. When your ideals shatter, you feel personally betrayed.'

The death of the Creolan Ideal wasn't only a bad thing. It made Peter realise that it was in Europe's interests to develop its own space capabilities. This idea was reflected in the basic principles of best practice which Peter had drawn up himself, and which he now expounded in front of the august gathering on behalf of Switzerland. Predictably, Washington didn't like them. However, the principles that caused such displeasure had not been dreamt up

by Peter on his own, but worked out in consultation with the interested parties. Peter's bosses rarely told him how to do his job. For his part, he derived great pleasure from engaging in activity which benefited his country. Reciprocally, the burgeoning originality and professionalism of the young civil servant were recognised at the highest level.

Peter took to Washington like a fish to water, even though he still thought of himself as shy. Crucially, he was one of the only delegates who was involved in nearly all the activities of the committees, and who was therefore able to get an overview of the issues at stake. His studies had taught him how to distinguish between the fundamental and the decorative; between useful compromises and artificial arrangements that wouldn't hold water. He was passionate about technology, and therefore comfortable in discussions with technicians. He used the skill he'd developed as a boy – lightening the atmosphere by what he called 'clowning around' – and this made him a valued participant in meetings and negotiations that got bogged down in obscure points of law or economics. He tried, often successfully, to reveal the true colours of delegation heads, sifting out the wheat from the chaff. Instinctively, he knew that a good speech should make its listeners laugh, and stimulate their imaginations and intellects. His jokes grabbed his listeners' attention, his visionary passages encouraged them to sympathise with his point of view, and his intellectual arguments brought them round to his way of thinking. The technique, which he elaborated over the course of many meetings, was Machiavellian in essence.

The Intelsat Conference ended on 21 May 1971, having lasted two years. On that day, US President Richard Nixon made a speech whose enthusiastic tone was deeply hypocritical, given that the law of the jungle was still in force. Still, Europe had much to be happy about. It had made its voice heard and introduced some degree of fairness into the international organisation. The most significant victory was the decision to progressively transfer Intelsat's management from Comsat to a truly international executive organ. At that memorable meeting, Peter

One of the Intelsat Conference meetings in Washington DC, chaired by the Head of the Swiss Delegation, Etienne Vallotton (second from the left).

and his colleague Reinhold Steiner, the scientific advisor to the Swiss Embassy in Washington, found a huge bunch of roses by their seats. It had been put there by the representatives of the smaller countries in recognition of the trail-blazing role which the representatives of Switzerland had played in the negotiations, a role that many of them had felt to be of benefit to all.

On his return to Switzerland, Peter wrote a report for Parliament which was to serve as the basis for its decision on approval of the Intelsat agreement. It was a 100-page doorstop, and gave a faithful and detailed account of the difficulties facing States that are up against a superpower's monopoly.

The report said: 'While being perfectly aware that a worldwide satellite telecommunications system can only be set up through international cooperation, the United States persisted in attempting to maintain and perfect its technical supremacy in this field … At the start of the negotiations, the US insisted it should have a right of veto in the Intelsat Assembly. In the end it dropped this claim but, on the other hand, refused to grant the Assembly the right to determine the overall policy of the organisation, as a large number of delegations, including Switzerland, had requested … At the start of the negotiations, the Americans took a stance which would have totally forbidden Intelsat members from establishing any other satellite system for their public regional telecommunications services. This is an important point, as the Americans made the supply of launchers for any European satellites dependent on the Europeans' agreement to this condition …' The paper continued in this vein. It was Peter's style to deliver clear explanations in language that was not always diplomatic.

The main bone of contention was Article XIV, which made European States dependent on American goodwill in order to be able to obtain launchers for satellites which might compete with US industry. Free-market dogma is mitigated by convenient exceptions in the United States, which expects other countries to do what it says, not what it does. Many participants in the Intelsat Conference didn't enjoy the experience – particularly the Europeans, whose concerns were often treated as negligible by the US representatives. The upshot was the birth of the Europa III launcher programme. This wasn't in itself a very promising project, but it was swiftly succeeded by the Ariane launcher, which became and still remains a thorn in the side of the American space industry.

Looking back over a period of 30 years, Peter concludes: 'In order to have a future in space, Europe must be autonomous. In this context, competition and cooperation are not mutually exclusive, quite the contrary. The possession of a full space capability is the basis of all genuine cooperation: both partners take each other seriously because each is capable of carrying

out alone the project that they hope to work on together. Equality between partners is the necessary condition for such a partnership. I've often been accused of knee-jerk anti-Americanism. That's not at all true. I was motivated by the desire never again to see Europe in a position of inferiority in which it was forced to accept skewed, one-sided co-operation agreements, as happened at the Intelsat Conference.'

The Eye of Washington

In the 1980s, a 'Space Business' exhibition was held regularly in Montreux, on the shores of Lake Geneva. The lynchpin of the exhibition was a Swiss employee at the US Embassy in Bern, Daniel Schaubacher. At the opening dinner in 1988, Schaubacher came up to Peter's table and asked him what approach Switzerland would be taking in the negotiations between Europe and the US on the International Space Station. Peter, who was responsible for Swiss space affairs, told him the discussion had reached a deadlock because – as had happened in the Spacelab negotiations – it had become clear that America was being shamelessly manipulative and throwing its weight around. 'What do you want from us? Switzerland's going to sign the agreement in the end,' snapped Schaubacher, derisively. 'No,' replied Peter. 'As long as I keep my job, Switzerland will never sign that kind of agreement.' The tension was mounting. 'Watch your back, Mr Creola; we have a file on you,' said Schaubacher. 'How very flattering!' Peter replied. His adversary could no longer control his anger, and accused Peter of taking bribes, which to his twisted mind was only the possible explanation for Creola's pro-European, pro-Ariane stance. The incident went no further, even though some of Peter's bosses thought the threat warranted diplomatic intervention when they were told about it.

Before ESA, the European space sector was a twin-headed creature with no real power

«Human history becomes more and more a race between education and catastrophe …»
(Herbert George Wells, 1866-1946)

Once the Intelsat affair has been settled and the agreement adopted by the Swiss Parliament, Peter resumed work on two hot files. One concerned ESRO, the organisation mainly responsible for satellites in Europe (of which Switzerland was a full member, as mentioned earlier). The other concerned ELDO, almost the twin body of ESRO, but specialising in launcher development. Switzerland had only observer status in ELDO, because of the country's neutrality and the potential military uses of rockets.

ELDO was in permanent crisis. Its attempts to develop the Europa launcher – with a first stage based on the British military rocket Blue Streak, a French second stage and a German third stage – failed one after another, despite promising beginnings. In 1971 ESRO was also going through a teenage crisis, with the members of the organisation agreeing on fewer and fewer things. The last in the string of disagreements came when France denounced the Convention, and was soon followed by Denmark. Both were attempting to put pressure on ESRO to embark on application satellite programmes and reduce its involvement in scientific satellites.

It was in this difficult context that Peter arrived in Paris in November 1971. He would stay there until 1980. He was the Swiss delegate to ESRO, but only an observer in ELDO. 'The main thing I observed was the women working for ELDO, who were very tasty,' he says today, nostalgically. 'But I felt very close to the organisation and to its head, General Aubinière. I wanted to help salvage ELDO, because it seemed to me to stand for the future of Europe in space. In my monthly reports to Bern, I increasingly urged Switzerland at the very least to take part in the Europa III programme, if it could not see its way clear to join the organisation.'

In all respects, this was a fabulous time for Peter. As the Swiss representative in ESRO, he didn't yet have the status of permanent delegate (which he was to introduce a little later). Though not a diplomat, he had diplomatic status. In this type of forum, autonomy and freedom to act were a real advantage.

Those high up the Swiss hierarchy were not particularly interested in space affairs, which were perceived as not sufficiently 'political' – meaning they were not an election issue in Switzerland. Other senior civil servants were distrustful of Peter, who appeared to have too much freedom to do his own thing and didn't behave like the others. Later on, Peter would find out that one of his superiors had been taken aside for a quiet word about him, and told: 'Don't forget that one of your jobs is to keep Creola in his place.' They might as well have tried to stop Etna erupting. The scathing response to the superior in question was: 'Either you throw Creola out or you accept him as he is.'

Peter says: 'I lived through the period in which Europe consolidated its presence in space. Wearing the two hats of ESRO member and ELDO observer was a full-time job. When necessary, the Federal Council of course decided which programmes Switzerland would participate in, then they would hand over to me. I was given few formal instructions and had to take decisions with major consequences for Switzerland. When I did so, I tried to defend my country's best interests. That was the case in the 1971 package deal, which included Meteosat, Aerosat and OTS, and in the massive 1973 deal covering Spacelab, Ariane, Marots and Marecs. Looking back, I realise I enjoyed a great deal of freedom.'

There were genuine and ongoing conflicts of interest in ESRO. The scientists fought like rag-pickers. There were particularly heated battles between scientists in favour of exploring the solar system and astrophysicists who were set on observing the galaxy and beyond. It was up to the politicians, the representatives of the Member States, to separate the warring parties and set the priorities. As a Member State, Switzerland had voting rights, and therefore had the power to influence the direction of the organisation. Peter quickly picked up on this. He learnt through experience, and sometimes to his cost, that procedure and content are intimately linked. The ambiguity is particularly noticeable when senior executives are appointed in international organisations. Then, the most powerful countries throw their weight around and forget about the rules of democratic proceedings. Peter might well be a committed European, but he couldn't neglect the interests of the country that had appointed him.

National interests arose, for example, in the case of Reinhold Steiner, who had left his job in Washington and applied to be head of ESOC, the control centre for European space missions, based in Darmstadt, Germany. Steiner's first application failed, after a procedural loophole blocked the Swiss candidate and let his Italian competitor through. From that point on, Peter realised he needed to make it his personal mission to win over every foreign delegate if he ever wanted to see a fellow-Swiss rise to a senior position in the European space hierarchy. It was no accident that, four years later,

Reinhold Steiner was appointed to the post for which he had previously been rejected.

As the representative of Switzerland at the very heart of the organisation, Creola was, for Swiss research and industry, the focal point for all collaborative efforts in space matters. This was not surprising, as he was the only Swiss civil servant working full time in the space field. Businessmen came knocking at his door before the scientists got there, and in greater numbers.

'I'd barely arrived in Paris,' says Peter, 'before I took an angst-ridden call from Eric Muller, the director of CIR (Compagnie Industrielle Radioélectrique, now Alcatel Space Switzerland), which was based in Gals, in the canton of Bern, near the Neuchâtel border. His telemetry system, which he had pitched to ESRO in response to a call for tenders, had been rejected in favour of a competitor simply because it was slightly more expensive. "Can you do anything to help me?" he asked. I sat on the Administration and Finance Committee of ESRO, but I didn't have much experience of contract negotiations. The amount of money in question was 750,000 Swiss Francs (about €500,000), a significant amount for CIR at the time. So I turned the heat on at the Committee meeting: CIR's bid was deemed technically excellent (which was true) and Switzerland's industrial return was lower than it should be (which was also true). I threatened to review our entire financial policy. At that point in the meeting Roy Gibson, then the Administrative Director of ESRO, requested a break.' Gibson – who eventually became the first Director General of ESA – was highly intelligent and a formidable negotiator. His dry British sense of humour appealed strongly to Peter, and together they would go on to form a powerful partnership. During the break in the meeting, Gibson consulted his experts and his files. He reached the conclusion that, on second thoughts, CIR's bid was very attractive and could reasonably be accepted. 'Muller was over the Moon,' says Peter. 'The survival of his company probably depended on getting that contract.'

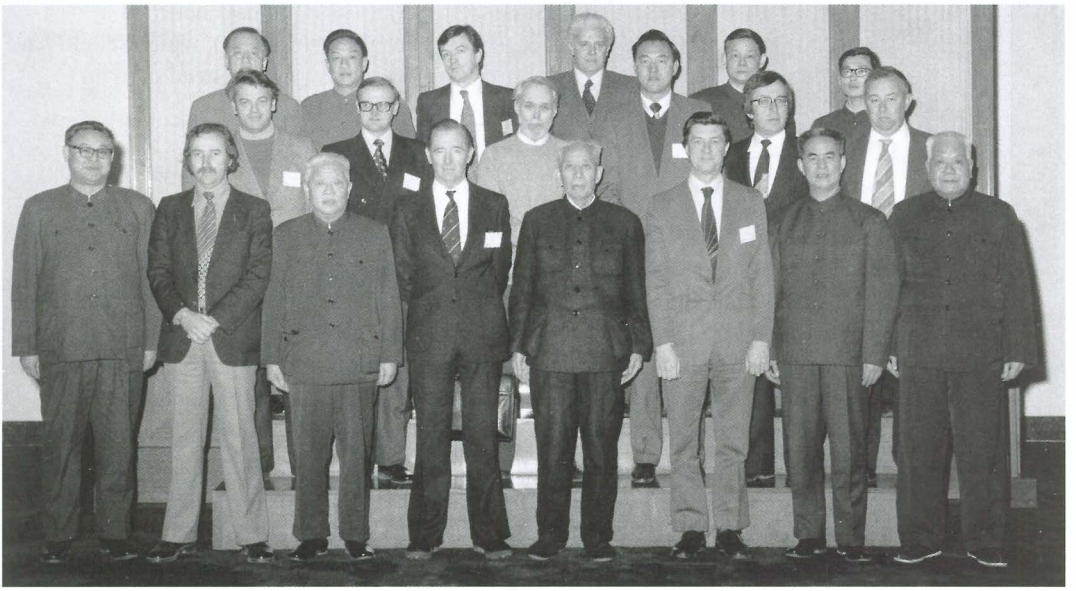
As the Swiss representative on European space affairs, Peter always enjoyed contact with businessmen and scientists. This contact was freely available to him. The industrial and scientific communities quickly understood that behind the civil-servant façade was a man passionately devoted to his profession. 'Relations are much easier when you feel the other person is genuinely interested,' says Peter. 'My legal training had taught me to draft precise documents, my passion for space and my taste for the technical side of things helped me to understand industrialists and scientists, the challenges they faced and the anxieties they experienced. I've always liked visiting factories, seeing and touching the hardware and the ironmongery. They knew

I was responsive to originality of design and understood the rigorous management methods needed to put ideas into practice.'

The Peter Pan of space

'Peter, the Swiss delegate on the ESA Council, was very obviously not from the same mould as his fellow Council members. His ability to read the daily papers and the Council documents at the same time shows that he was both truly gifted and a man apart. Both an iconoclast and a traditionalist, he gave our organisation two powerful weapons; enthusiasm for space and a boundless confidence in Europe's capabilities. Year after year, he tenaciously deployed these qualities for the greater good of ESA and Switzerland. When he made a quarrelsome remark in Council, people sometimes said he was going too far, and they weren't always wrong. Peter, however, was always the first to realise when he had done so. In any case, excess is always preferable to indifference. Without a doubt, this delegate was not like the others, he was the European Peter Pan of space, and he deserves recognition from the Agency and from his country.'

Roy Gibson



Roy Gibson, ESA's first Director General (front row, fourth from the left), during the first visit of an ESA Delegation to China in 1979.

The birth of the European Space Agency: a forceps delivery

«'Everything passes.
Space
erases
all the echoes.'»
(Victor Hugo, 1802-1885, The Jinnees)

At the end of the 1960s, and for a good portion of the following decade, the main problem which dogged satellite builders was the need for a decent launcher. As early as 1968, the European Space Conference at Bad Godesberg boldly declared that Europe was 'henceforth determined to launch its satellites on a European launcher.' That statement long remained nothing but wishful thinking. Half a dozen years later, European satellites in the ESRO series (used to study solar astronomy and cosmic radiation), HEOS (used to study the interplanetary magnetic field) and TD-1A (used to study 15,000 stars in the ultraviolet range) were still being launched by American rockets. Geos (used to study the magnetosphere), which should have been launched in 1976 by a Europa rocket, was moved instead onto an American Delta.

OTS, the experimental communications satellite, also had to use a Delta, despite the high price of this launcher. What is more, the Americans made the launch conditional on an agreement that the satellite would not be stationed more than 10° west of Greenwich (so that it could not service the American continent). That was the American interpretation of freedom of trade and industry. Then, on 14 September 1977 the Delta launcher exploded, only 54 seconds after ignition. Here was yet another reason why a reliable European launcher was needed. But it was to be another two years before the first successful Ariane launch.

In November 1971 the Europeans had been traumatised by the explosion of the Europa II launcher, which had been the first to lift off from the new space centre in Kourou, French Guiana. It was a brutal shock, but it occurred at the right time, shaking things up just when they seemed to have been irredeemably jeopardised. It was no longer possible to ignore the fact that ELDO's launcher was a failure. The Americans put pressure on Europe

to take part in the post-Apollo programme. The Germans seemed keen on it because of their Spacelab project. But the French, always determined to go their own way, were trying to impose their L III S project. The acronym stood for 'third-generation substitute launcher', i.e. a substitute for Europa III, the planned successor to Europa II, whose fate had now been sealed.

Peter recalls: 'The European Space Conference, the ministerial-level meeting held on 20 December 1972 in Brussels, was a turning point in the history of Europe in space. I can still hear the British Minister, Michael Heseltine, saying: "We need a European space agency". It was a liberating statement, showing everyone a way forward in which ill fate could be averted and the sorry beast called ELDO could be laid to rest. It opened the way for the creation of a new organisation, one that was capable of becoming NASA's equal, putting an end to the old sterile twin-headed structure. The Conference ended with a proposal for a trade-off: "I'll help with your launcher if you support my space laboratory." And that is what happened.'

The historic European Space Conference of Ministers in Brussels in December 1972. The Swiss Delegation was composed of, from left to right in the first row, Messrs Rütschi, Vallotton (Head of the Delegation) and Creola; in the second row, Messrs Quinche and Favre. (photo Belga)

In 1972 a long period of negotiations began. They were particularly tough within the committee composed of senior civil servants from the European Space Conference. The shape of the future ESA Convention was hammered out in a working party which Peter chaired. At the same time, he was also chairman of ESRO's Administrative and Finance Committee. This combination of activities gave him the chance to perfect his negotiating skills. He already knew how to put forward proposals, persuade others, make debates lively, and how to be provocative from time to time. He learnt how to synthesise disparate proposals, and how to pick the right moment for suggesting constructive compromises without letting himself be thrown by delegates' aggressive outbursts, theatrical gestures or narrow-mindedness.

The European Space Agency – born from the merger of ELDO and ESRO – was established three years later, in 1975. But even before the birth, rows were raging around the baby. The first contentious issue was the name. 'In the days of ELDO and ESRO,' Peter recalls, 'the French names for these two bodies were CECLES (standing for 'Conseil européen pour la mise au point et la construction de lanceurs d'engins spatiaux') and CERS ('Conseil européen de recherches spatiales'). It was clear that so many acronyms were damaging to the image of the organisations. I argued for the use of a single acronym, ESA, which was clear and comprehensible in all the relevant languages. My point of view was plain good sense and seemed to have the support of the majority. But France, which wanted to use the acronym ASE, formally opposed it. So I jokingly proposed that the Germans call the organisation EWO, since German was also an official language.' This row between lawyers – more like second-hand car dealers, some would say – was less unproductive than it might seem. Peter accepted defeat on the issue of a single legally valid acronym, but made Switzerland's acceptance of this compromise conditional on agreement that the Agency would use the acronym ESA in all its dealings with the outside world. 'To my great surprise,' he says, 'this proposal was accepted. It was decided that each country would use its own acronym in official documents, but that only ESA could be used in external relations. That was all that mattered to me. I was proud that I had managed to impose the name by which the Agency is known today. A single name creates personality. And without that, the Agency could never have become NASA's equal.'

Conference of Plenipotentiaries in Paris, in May 1975, for the signing of the ESA Convention. On the left of the Swedish representative, signing one of the documents, is the Swiss Ambassador to France. Standing behind him, from left to right, Michel Bourely, ESA Legal Adviser, and Peter Creola, Chairman of the Credentials Verification Committee.
(photo ESA)

In practical terms, ESA began to function long before the Convention entered into force in 1980. In 1975, it was expected that the countries who were signatories to the Convention would take several years to ratify it. In the interim, ESA would remain a legal fiction without public impact. Something had to be done. Peter explains: 'I realised that using the legal structure of ESRO, the predecessor of ESA, we could move forward. Its founding act didn't speak of the creation of "the" European space research organisation, but of "a" European space research organisation. By voting to change the name of an existing organisation, the ESRO Council members were able to put their new ESA hats on. They were helped by the fact that ELDO had been in liquidation for three years, and that all its programmes had been discontinued.' Creola's slight of hand was accepted with quiet enthusiasm. He was also fighting for the establishment of a true executive body to run ESA, rather than simply a secretariat that would serve only as a depository for the conflicting desires of the organisation's Member States.

A further development, which was more directly relevant to Switzerland, was also taking place. This concerned the new agency's system for approving participation in its optional programmes. The governing principle was that all countries wanting to take part in such programmes had to sign up at the outset. However, in the case of Switzerland, participation in each programme was subject to parliamentary ratification, which took nine months at the very least. This was obviously too long for the system to work efficiently. Astutely, Peter decided to turn the principle on its head so that all the countries that had signed the Convention would automatically be deemed to be participating in all the optional programmes unless they had formally requested not to do so. In this way, the acceptance of the ESA Convention in its entirety by the Swiss Parliament would effectively mean agreement to take part in all the optional programmes. The government would still have the final decision, as it retained the right to say no to any individual optional programme. When a Swiss Member of Parliament became concerned that he or she would not have a say in such decisions, Federal Councillor Pierre Graber, who was then Foreign Minister, told him: 'Yes, that's true, but you will be regularly updated on developments.' The subject was closed. Ever since, the Swiss Parliament votes an annual budget for space activities, but does not differentiate between the optional programmes to which the government decides to sign up. In the purest tradition of Swiss compromise, the government never makes a decision without the approval of the Federal Space Affairs Committee, which is chaired by a Member of Parliament. So honour is saved all round.

Peter says: 'Equality among ESA Member States is of prime importance. "One country, one vote" means democracy, which is exactly what was missing in Intelsat. I've always fought attempts to weight votes by size of

country. It gets up some people's noses when I joke that Switzerland pays part of Germany's contribution to the Agency's mandatory activities. But Germany is able to take advantage of a clause in the Convention (and I should know, because I chaired the original drafting group) which stipulates that no Member State shall be liable for more than 25% of the total contributions. On the basis of Gross National Product, the Germans would have had to pay 27%. The difference is obviously made up by the other Member States, over and above their normal contributions. So discussions and negotiations must take place freely among equals, if they are to feel like members of the same family.'

Peter Creola believed it was crucial that the public be able to see how its money was being spent. He campaigned, among other things, for all space missions to be equipped with cameras and filmed during flight, if possible in real time. Mission managers usually objected to this, because it reduced the mass available for the scientific payload. But the case of Giotto in 1986 – the first big success story of European space research, in which a man-made machine encountered the core of Halley's comet – showed that making mass calculations from a purely scientific perspective was short-sighted. Peter says: 'On the Night of the Comet, we ought to have been able to distribute photographs of the historic encounter immediately to all the politicians, scientists and journalists who were on the spot at Darmstadt. But this didn't happen. All we had were some images which were incomprehensible to the uninitiated, and we weren't even sure what had happened to the probe itself. We had to wait for months before we were able to see the first real photo of a comet's core, an image that was stunning and unforgettable. So, we missed out on a fabulous opportunity for publicity. It was as bad as if there hadn't been any cameras when Apollo 11 landed on the Moon.'

'He was always looking for the right solution.'

In all the discussions in which he takes part, Peter devotes 200% of his energy to listening, even if he finds it hard to sit still. He can follow debates in great detail because he does his homework better than others. He has a very analytical approach, always looking for a solution that will be acceptable to everyone, but will also stand up to scrutiny once the matter is closed. As he is often a step ahead in his thinking, he sometimes seems like a magician who is able to pull unsuspected answers out of a hat. He has also made good use of the fact that he comes from a small country which can't be accused of trying to grab the lion's share. Before deciding on any course of action, he always asks himself two questions: 'What would be best for Europe? What could help Europe move forward?' Things would be much easier if everybody thought like that.

Hanspeter Schneiter (Contraves)

How L III S ended up as Ariane

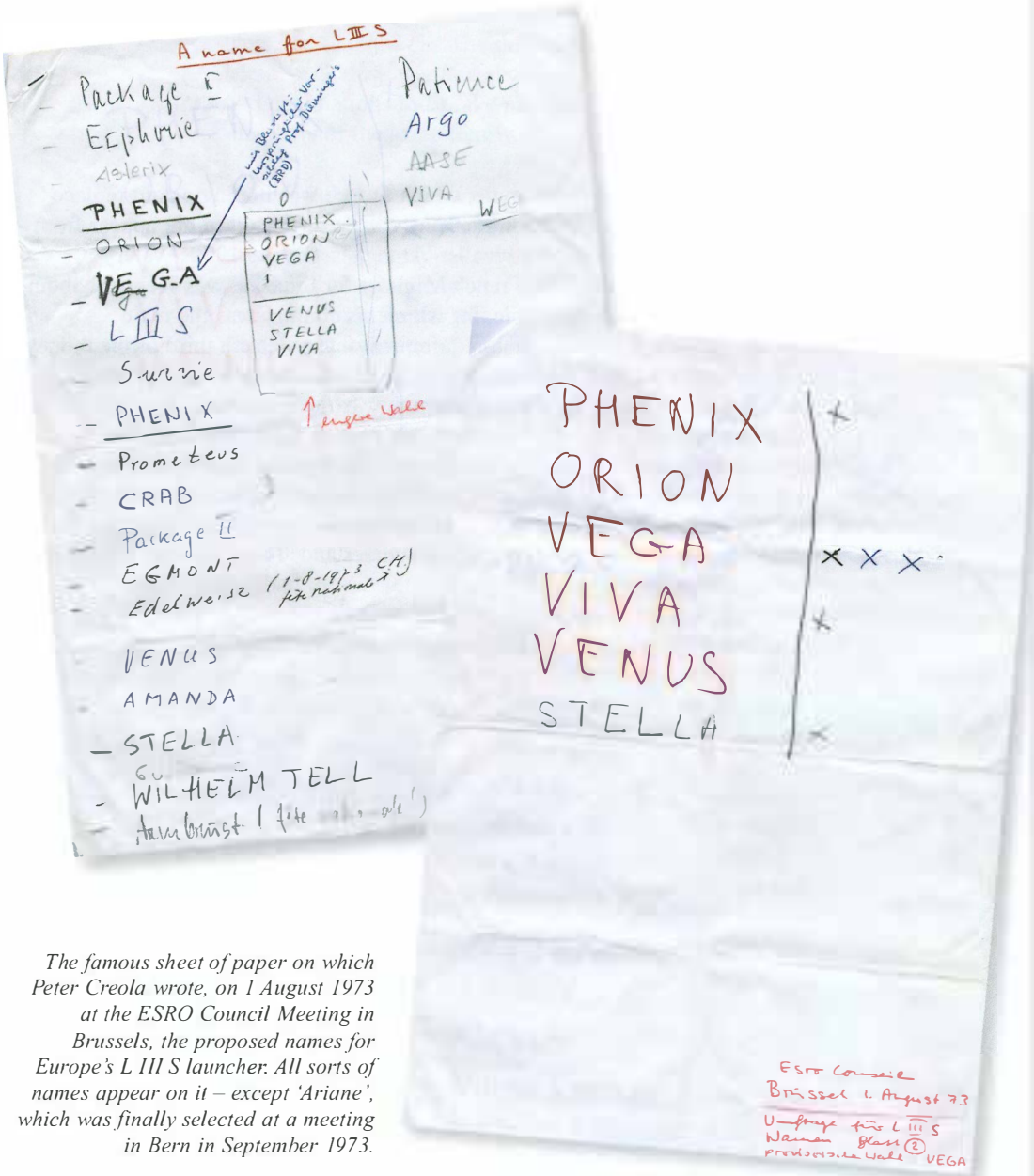
«One man alone in his attic, if he cherishes a desire which is strong enough, can set the whole world on fire from his attic.»
(Antoine de Saint-Exupéry, 1900-1944, Espagne Ensanglantée)

The L III S launcher programme, which France was hoping would replace the moribund Europa III, didn't have as easy a birth as it might appear from a distance of 30 years. Peter recalls: 'At the start of the 1970s, Valéry Giscard d'Estaing, then the French Minister for Finance, was sceptical about the chances of this programme, for which his country was the main contractor. When he imposed a requirement that at least a third of the money for the project must come from foreign participants, he no doubt thought he was putting an end to it.' The programme was the brainchild of CNES (Centre National d'Etudes Spatiales), the French space agency. It lost no time in mounting a Europe-wide promotion campaign, mobilising its best troops to tour the capital cities. They did a good job, returning to Paris with guaranteed financial backing for 38% of the project by foreign countries participating in the project, including Switzerland. The challenge had been accepted and won.

Frédéric d'Allest, a former director of CNES and the first Chairman of Arianespace, chose this moment to come to Switzerland and, together with Peter Creola, argue the case of Ariane to politicians and industry. 'Ariane,' he told them, 'is part of a Gaullist outlook, ferociously independent of America.' Many people, in Switzerland and other European countries, were sceptical. Peter, however, played a key role in drumming up interest in Ariane among the Swiss political and business communities. With characteristic determination, he painted a glowing picture of the common interests which could be served by taking part in the Ariane adventure.

In 1973 the launcher was not yet called Ariane. How could European public opinion be swayed by something known as 'L III S', or 'third generation substitute launcher'? Peter recalls, with an expression of mock surprise: 'When I suggested changing the name, everybody gave me strange looks.' Peter then passed around a sheet of paper and asked the delegates to jot down their suggested names. Some jokers suggested 'William Tell' (the meeting happened to be taking place on 1 August 1973, the Swiss national holiday). A moraliser suggested 'Patience' and a classicist 'Prometheus.'

Only one name, 'Vega', picked up three votes. In September, at a meeting in Bern, the French delegate lodged a formal objection to the name Vega, because it was similar to that of a popular brand of beer. Paris, however, agreed to take part in negotiations about the names 'Phoenix', 'Penelope' and 'Ariane.'



The famous sheet of paper on which Peter Creola wrote, on 1 August 1973 at the ESRO Council Meeting in Brussels, the proposed names for Europe's L III S launcher. All sorts of names appear on it – except 'Ariane', which was finally selected at a meeting in Bern in September 1973.

Peter recalls: 'A whole continent was embroiled in a row between competing interpretations of classical mythology. Germany vetoed Phoenix, because the ashes of Europa and ELDO were still too hot. Penelope also got the thumbs down. People didn't fancy waiting 20 years like Odysseus' wife, as the maiden flight was planned in six years' time. Only Ariane was left. Ariane – the French name for Ariadne – used her ball of string to help Theseus escape from the labyrinth. There were sceptics, both male and female, who thought the overtly male shape of the European launcher didn't suit a woman's name. Finally, they threw in the towel. Ariane quickly became a popular name. From 1977 onwards, it was also known on the far side of the Atlantic.

In 1974, however, Giscard was elected President of France. One of the first acts of a man who favoured the American connection over Europe in this instance was to temporarily halt all awards of development contracts for the planned European launcher. The other countries who were participating in the project were furious. Switzerland objected officially to the French foreign ministry. A pompous letter on the subject, in which Peter had a hand, accused France of 'acting outside the constraints of international law.' The international pressure had the desired effect, particularly because the protesters were unintentionally supported by repeated examples of America's stranglehold on space that were constantly frustrating European scientists. The 'Nixon Doctrine' – which decreed that no American launchers should be supplied for missions that threatened America's dominance of the satellite market – was in full swing. The final straw came when the TD-1A satellite, which had already been programmed and mounted on an American Delta launcher, was threatened with replacement by an American satellite. That was enough for Europe. From then on, Ariane had a clear run.

At the start of his campaign on behalf of Ariane, Creola put his full weight behind the claims of Swiss industry to be given the prime contractorship for the launcher's fairing. He says: 'I felt it was important that we build a visible part of the European rocket, a part which also had a dynamic function during the launch. The jettison of the fairing is a risky manoeuvre, a very stirring moment in the launch process, and the success of each launch depends on it. Thanks to the visibility of the fairing, the whole Swiss nation knew it had been built in their country, and that they had contributed in full to Europe's space adventure.

At that time, the fairing was the only component of the launcher for which Swiss industry was capable of assuming prime contractorship, given its modest contribution of 1.2% of the programme's funds. However, the technical competition was tough. Aeritalia had designed the fairings for the Europa I and II rockets. But during the last launch from Woomera, Australia, the fairing had failed to separate. The same thing happened on the first

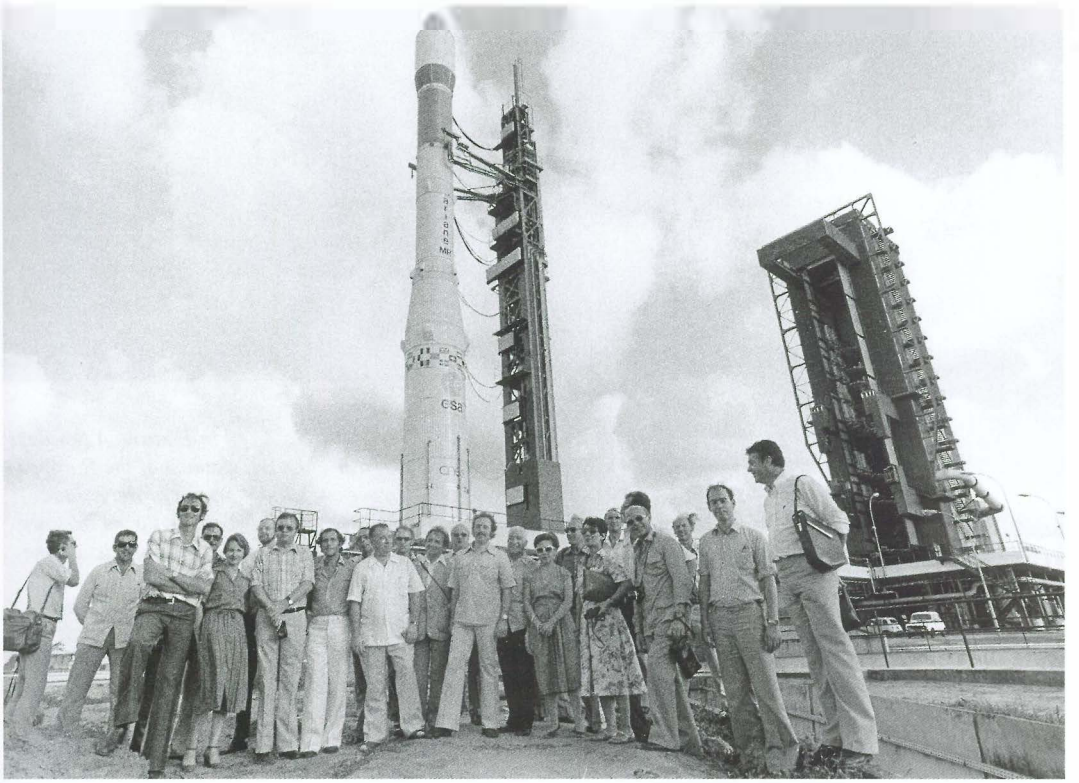
launch from Kourou, in French Guiana. The fairing was not properly earthed to the body of the rocket, causing a short-circuit that had contributed to the launch failure. 'When you've never built anything similar before, you need enormous powers of persuasion,' Peter recalls. 'One thing which influenced the decision to give the contract to Switzerland was the fact that, after the dissolution of ELDO, the Swiss were, together with the Belgians, the strongest advocates of European independence in space matters. The French engineers at CNES, who were responsible for Ariane, were already convinced that the technical offer of the Contraves consortium was the best. They also felt their little Swiss friends deserved something for their support, even though we hadn't been full members of ELDO.'

Frédéric d'Allest confirms: 'In the beginning, there was no intention to give Switzerland responsibility for the fairing. The Italians were favourites, because they were already familiar with the technology. In the end, Peter and members of Swiss industry, who had no direct experience in the field, won us over with their arguments and secured the prime contractorship. The partnership worked perfectly.'

Hanspeter Schneiter, the head of the Contraves' space division, was taken completely by surprise when his friend presented him with the laurel wreath. 'We've won,' Peter told him, phoning as soon as the decision was made. 'Won what?' Schneiter replied, unable to take in the good news immediately or grasp the enormity of the task which now faced him. Nothing is ever entirely won, or lost, in the building of Europe in Space.

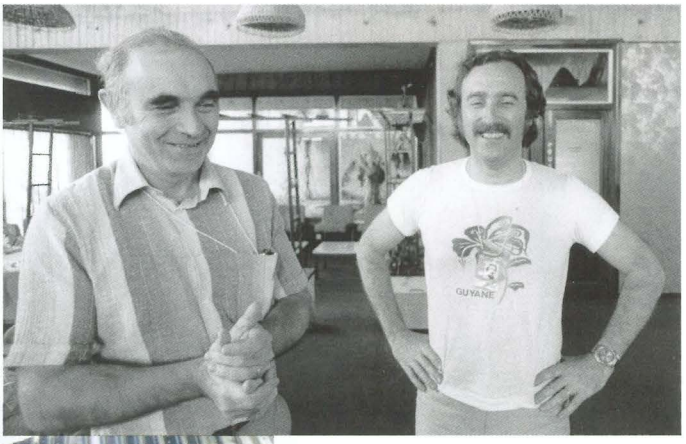
Ariane was a technical challenge, but it was above all an emotive political issue for Peter. He was an avid supporter of the beautiful rocket, which still existed only on the drawing board. He says: 'I was ashamed that Europe didn't yet have its own satellite launcher. That's why I set out to become chairman of ESA's Ariane Launcher Programme Board, which was responsible for the project. A German delegate was competing with me for the post. I told him: "Listen, I chaired ESRO's Administrative and Finance Committee for three years, and I chaired ESA's Industrial Policy Committee for three years. It hasn't been a lot of fun, let me tell you." The German burst out laughing and withdrew his application.'

While CNES was in charge of the technical and financial management of the Ariane project, ESA – which was still a very young organisation – was responsible for overseeing the work of the French agency, making sure the timetable was adhered to, and keeping an eye on its financial planning. The branch of ESA responsible for that supervision is the Ariane Launcher Programme Board, which Peter chaired until 1981. He was able to follow this fabulous adventure from the outset, and stay with it until the first launch



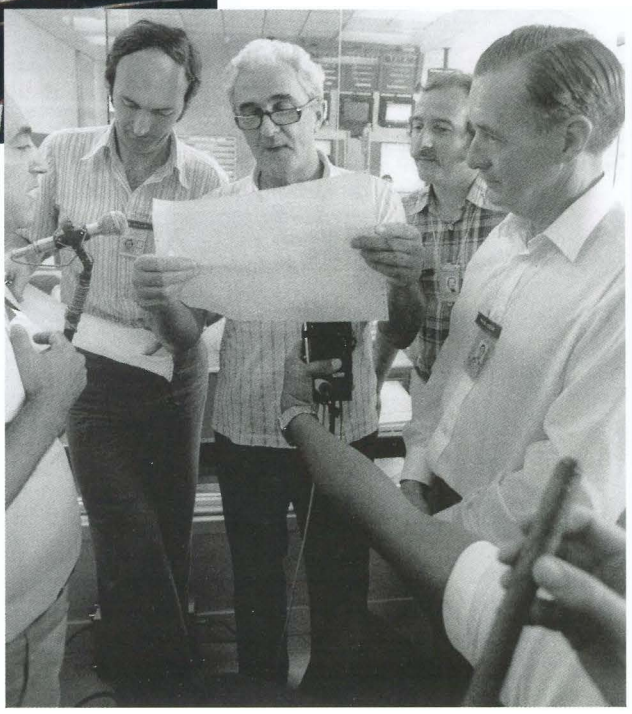
Meeting of the Ariane Launcher Programme Board in Kourou, French Guiana, on 5 February 1979, held in conjunction with filling tests on an Ariane rocket at the ELA 1 launch complex. The Delegates of the States participating in the programme were seeing a fully assembled Ariane launcher for the first time.

On this print, Peter Creola has identified the Delegates on a tracing-paper overlay.



At the Guiana Space Centre (CSG) in December 1979, Hubert Curien, Chairman of CNES and future French Minister for Research, and Peter Creola, Chairman of the Ariane Launcher Programme Board, manage a smile despite the fact that the first countdown for the new European launcher had just been aborted. It was resumed and the rocket launched successfully a few days later.
(photo Sygma)

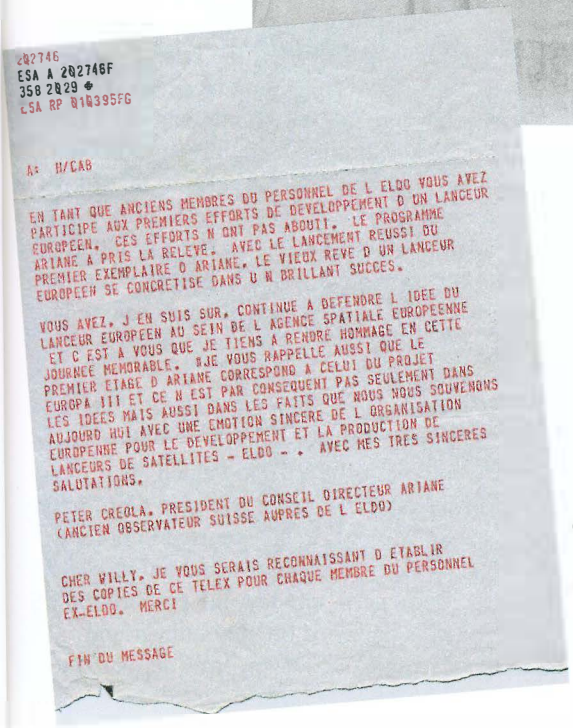
December 1979 in Kourou. A few days before the first launch of the European rocket, the Chairman of the Ariane Launcher Programme Board bestows the legendary kiss on the skirt of one of the 47-metre-tall rocket's first-stage engines. *(photo Yves Sillard)*



First confirmation that the Ariane payload had reached the right orbit following the first launch on 24 December 1979. From left to right, Frédéric d'Allest, CNES's Director of Launchers, Albert Vienne, Director of the Guiana Space Centre in Kourou, Peter Creola, and Roy Gibson, ESA's Director General .
(photo Sygma)

On the evening of 24 December 1979, after the successful L-01 launch, Peter Creola explains to a local female audience captivated by his enthusiasm how the name 'Ariane' was chosen for the European launcher. He is holding the crumpled sheet of paper on which he had written down the first suggestions from the members of Council on 1 August 1973.
(photo Sygma)

Euphoric reaction of the Swiss representatives attending the first launch of Ariane L-01. They leapt onto the fairing container, to loud applause from all present.
(photo Sygma)



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EN TANT QUE ANCIENS MEMBRES DU PERSONNEL DE L ELDO VOUS AVEZ PARTICIPE AUX PREMIERS EFFORTS DE DEVELOPPEMENT D UN LANCEUR EUROPEEN. CES EFFORTS N ONT PAS ABOUTI. LE PROGRAMME ARIANE A PRIS LA RELEVE. AVEC LE LANCEMENT REUSSI DU PREMIER EXEMPLAIRE D ARIANE, LE VIEUX REVE D UN LANCEUR EUROPEEN SE CONCRETISE DANS U N BRILLANT SUCCES.

VOUS AVEZ, J EN SUIS SUR, CONTINUE A DEFENDRE L IDEE DU LANCEUR EUROPEEN AU SEIN DE L AGENCE SPATIALE EUROPEENNE ET C EST A VOUS QUE JE TIENS A RENDRE HOMMAGE EN CETTE JOURNEE MEMORABLE. ■JE VOUS RAPPELLE AUSSI QUE LE PREMIER ETAGE D ARIANE CORRESPOND A CELUI DU PROJET EUROPA III ET CE N EST PAR CONSEQUENT PAS SEULEMENT DANS LES IDEES MAIS AUSSI DANS LES FAITS QUE NOUS NOUS SOUVENONS AUJOURD HUI AVEC UNE EMOTION SINCERE DE L ORGANISATION EUROPEENNE POUR LE DEVELOPPEMENT ET LA PRODUCTION DE LANCEURS DE SATELLITES - ELDO - . AVEC MES TRES SINCERES SALUTATIONS.

PETER CREOLA, PRESIDENT DU CONSEIL DIRECTEUR ARIANE
(ANCIEN OBSERVATEUR SUISSE AUPRES DE L ELDO)

CHER WILLY, JE VOUS SERAIS RECONNAISSANT D ETABLIR DES COPIES DE CE TELEX POUR CHAQUE MEMBRE DU PERSONNEL EX-ELDO. MERCI

FIN DU MESSAGE

On the evening of the first Ariane launch on 24 December 1979, Peter Creola, as Chairman of the Ariane Launcher Programme Board, sent a cable to all former ELDO employees, by then ESA staff members, which began: 'On this memorable occasion, I want to pay a tribute to you...'

took place on 24 December 1979. CNES kept its word, taking only six years to develop and launch a rocket which had originally been its baby, and which had become, step by step, the symbol of a Europe that was about to emerge as a major space power.

Frédéric d'Allest says: 'Through all those years Peter played a morally crucial role. He was unyielding in his adherence to his principles, and the avowed enemy of woolly compromises. He knew how to remind the larger countries of their duties by evoking the spirit of a common interest and the legitimate ambitions of Europe. He fought well, and I take my hat off to him.'

Peter has an iron fist but a heart of gold. This showed when Ariane was launched for the first time, and all those who had taken part in the project were overcome with emotion. 'I cried for joy,' Peter confesses. It is true that a maiden launch in which three stages that have never been tested in space all work perfectly cannot be taken for granted. To ward off the evil eye, the Swiss chairman of the Ariane Launcher Programme Board had climbed onto the launch pad at Kourou and planted a passionate kiss on the metal skirt of the beautiful rocket, which weighed 210 tonnes and stood 47 metres high.

A little before the launch campaign, at a cocktail party, Peter had met a German friend, Klaus Iserland, a former member of ELDO at the time of the Europa launcher, who had become the representative of Dornier in France. 'You'll see, it won't work. The first launch never works,' the former student of the Federal Polytechnic of Zurich and engineer at Contraves had warned Peter. Peter's hackles went up. 'Bet you a month's wages it'll be a success,' he snapped. After taking the time to think it through, and to realise that his adversary was reluctant to honour the bet, he lowered the odds. 'OK, I'll bet you a case of wine. But it had better be a good one.' When Peter came back from Kourou on 30 December 1979, after the historic launch, he found a letter from his friend Klaus which said: 'I've never been so happy to lose a bet.' A case containing 12 bottles of wine, over ten years old, was solemnly delivered a little later on.

Peter didn't win all his bets. One of those he lost was with Raymond Orye, the Head of ESA's Ariane Department. Peter had bet – partly to avoid tempting providence – that Ariane would never be used to launch an American satellite. He had thought Washington would never give permission for a satellite, a piece of cutting-edge technology, to be exported in order to be placed in orbit by a foreign launcher. His pessimism proved unfounded a few years on, in May 1984, when the Spacenet 1 satellite, the property of US company GTE Spacenet Corporation, was launched on the ninth Ariane flight under the banner of Arianespace. 'I too,' says Peter, 'was delighted to lose that bet.'

The decisive step had already been taken well before the first Ariane launch, at the time when ESA, as overall manager of the Ariane programme, signed a launch contract with Intelsat. This was final proof that Europe was no longer tied to America's apron strings when it came to launchers. Signing the contract was a gamble which Roy Gibson, the first Director General of ESA, took in the face of two unknowns. He didn't know whether Ariane would be a technological success, because it had never flown. He didn't know whether a real desire existed among the ESA Member States to embark on series production of the launcher. Despite these unknowns, he picked up his pen and wrote a half-page statement that gave Intelsat's governing council a full guarantee, while maintaining the freedom of decision for the countries participating in the Ariane programme. In 1983, the seventh Ariane flight carried an Intelsat V satellite, ushering in the period of the launcher's commercial exploitation.

The rest is history. The Ariane 4 series was a commercial success. For years it won more than half the market for commercial satellite launches, and ultimately laid the ground for the slightly unsteady beginnings of Ariane 5, which is now ready to take over.

Ordre du Mérite awarded to the Ariane project team, in the presence of Peter Creola, by the French Industry Minister André Giraud in Paris on 19 February 1980. In the centre, Roger Vignelles, Head of the Ariane Programme. *(photo P. Morère)*

First visit by Swiss Members of Parliament (Hess, Savary, Aregger, Züger and Jenny) to the Guiana Space Centre (CSG) in 1994.

At the inaugural ceremony for the second Ariane launch complex (ELA 2) in Kourou in 1985, Peter Creola wore a Swiss station-master's cap.

A little money and lots of ideas: the case of PRODEX

«Think like a man of action.
Act like a thinking man.»
(Henri Bergson, 1859-1941)

There are often advantages to being a small country like Switzerland – for example, quick decision-making and flexibility in the face of change. Peter Creola would certainly not have had such a free hand within the complex administrative structures of a larger state. Despite these advantages, however, a major problem came up in the 1970s, concerning the funding of scientific instruments in countries without a national space agency.

In the case of Switzerland, the national contribution to ESA covers the construction, launch and exploitation of all the satellites and probes included in the programmes in which the country decides to participate. But the scientific instruments flown on the satellites and probes have to be paid for by national institutions. In Switzerland, however, university grants from the National Fund for Scientific Research cannot be counted on to generate the money needed for such scientific instruments. Funding from universities and scientific research bodies is insufficient to ensure Switzerland's sustained participation in space experiments. Only once did the National Fund scrape the barrel and find three million francs (€2 million) for such an instrument. The money was given to the University of Bern and used to build a mass-spectrometer to be flown on the European satellite Geos, the first scientific satellite in the world specifically designed to operate in geostationary orbit. The government-funded Geos spectrometer measured the Earth's magnetosphere from 1977 to 1979.

For several years after this experiment, Swiss scientists and equipment manufacturers lacked the funds to participate in European space missions. This situation depressed Professor Johannes Geiss. In the early 1980s, he shared his feelings with his friend Peter Creola. Their conversation sparked an idea. The idea was soon passed on to Ernst Trendelenburg, the Head of Space Science at ESA. Trendelenburg liked to go for a drink with his circle of friends, of which the Swiss delegate was an active member. He was a man of remarkable drive and efficiency. He used to bring only a single sheet of

A4 paper to working meetings. 'If you need to make more notes than that, the subject under discussion isn't important,' he said. 'And if it is, my staff will know all about it.' Trendelenburg liked Peter's proposed solution to the funding problem. The idea was to create an optional programme with a scientific purpose alongside the mandatory ESA Science Programme. It was enthusiastically accepted by Roger-Maurice Bonnet, Trendelenburg's successor, in the form of the 'Scientific Experiment Development Programme', dubbed PRODEX (an acronym based on the French 'PROgramme de Développement d'EXpériences Scientifiques').

PRODEX did not always run smoothly. However, it had the merit of being open to Member States who didn't have a space agency of their own that was able to fully fund national projects. This was the case of almost half of the 15 countries belonging to ESA. When the Agency needs to supplement scientific payloads, it calls on member countries to put forward ideas for experiments. Those who do so have to guarantee funding for their experiment if it is selected.

In short, the selection process – which was worked out by Jean-Pierre Ruder of the Federal Education and Science Office, and Stéphane Berthet, who now works for the Swiss Space Office – is as follows: for an experiment to be considered, it first has to pass the ESA selection process. Only once the Agency has made its selection does PRODEX step in. The designated institution then has to decide who its sub-contractors for the project are to be. At least half the money required has to be earmarked for work to be done by national industry. There are two advantages to this system. Firstly, the development of scientific instruments can legally be funded through ESA. Secondly, it encourages the transfer of technology between research institutes and national industry. A state funds only its own projects, so the geographical return on investments is – at least in theory – 100%.

Switzerland was the country that initiated this opportunity and, in the early days, the only one to take advantage of it. In effect, Switzerland was taking part in an optional programme that had been invented by itself to meet its own needs – a typically Creolan legal manoeuvre. From 1986 to 2001, a total of 26 proposals or responses to Calls for Ideas – in the fields of solar-system exploration, space-based astronomy, material sciences, and space biology and medicine – have been funded in this way. The Swiss Confederation has provided 95 million Swiss Francs (€63 million) for these projects. But it is no longer alone. Five other Member States without national space agencies – Austria, Belgium, Denmark, Ireland and Norway – have used this funding system, as well as two non-ESA members, Hungary and the Czech Republic. Belgium, which also has the largest space budget of the half-dozen ESA Member States involved, has now become the main user.

The 'Swiss with the bow-tie' never got to chair the ESA Council

«If you can meet with triumph and disaster
And treat those two impostors just the same...»
(Rudyard Kipling, 1865-1937, Nobel Prize 1907, 'If')

In 1980, with Ariane firmly established, Peter asked to be sent back to Switzerland and rejoined the Scientific Affairs Section. He headed it for eight years, while retaining personal responsibility for major space issues. His remit ranged from CERN to molecular biology, taking in ESA, ESO and the environment. He soon got rid of his responsibility for the environment, however. At his suggestion it became a section in its own right, since environmental affairs actually involved little contact with scientific and technological organisations. The separation proved to be a good move on Peter's part, as the Seveso dioxin affair and other environmental disasters occurred soon afterwards.

His Swiss activities didn't exhaust Peter's energies, and he still harboured European ambitions. With his many talents and worldly wisdom, he could legitimately aspire to the highest office. Finally, after chairing half a dozen committees with varying remits, he thought he had a chance of becoming Chairman of the ESA Council. ESA's 'Swiss with the bow-tie' had acquired a reputation, and not only for his good humour and kind words. He did well in the first round, but a straw poll indicated the existence of a consensus that the new head of ESA should be a European Union candidate, a Dutchman. Creola was beaten.

'He applied for the job 10 years too late,' says a close observer of the European space scene. 'Those who voted against the Swiss candidate were afraid of allowing too strong a character to take over the Agency. What's more, the appointment had become increasingly political. The Dutch candidate had the advantage of belonging to the European Union, whose influence was seen as beneficial.' It was a blatant case of pro-EU discrimination but, in all fairness, the Swiss candidate was not entirely blameless.

Peter himself has mixed views on the matter. 'The Chairmanship of the ESA Council would of course have been an honour for me and my country,' he says, 'and I didn't receive that honour. Well, never mind. I consoled myself with the thought that the job was a heavy responsibility, ring-fenced with constraints. Ultimately, after spending some time as Chairman, Gaele Winters said I was lucky not to have got the job.' By way of compensation, Peter had the satisfaction of seeing the establishment of the Long-Term Space Policy Committee (LSPC), which he had been calling for, and was appointed as its Chairman.

In the 1990s, Peter was also to have the satisfaction of chairing ESO, the European Southern Observatory. The Swiss government had dragged its feet before agreeing to join this organisation. Finally, Switzerland realised that ESO opened the way for scientific collaboration, European autonomy and the capacity to observe the southern hemisphere. Peter Creola was president of the ESO Council during a difficult period in which the organisation was in conflict with the government of Chile, which was blocking its work. There too, his experience in human relations brought unhoped for results. Peter recalls: 'I had to break down the barriers between the two camps. Together with Ricardo Giacconi, who was at that time the director of ESO, we set up a meeting in Santiago with all the Chileans concerned. The atmosphere was fairly tense at our initial official meeting. But things become more relaxed in the course of less formal gatherings. The atmosphere grew constructive, and finally even warm. Each side realised that the other wanted a solution, not more problems. Concessions were made on both sides, so everything worked out without anyone losing face.'

Meeting of the Finance Committee of ESO (European Southern Observatory) in Brescia (where Europe's NTT telescope was tested before being transported to Chile) on 7 and 8 September 1987. Peter Creola, eighth from the right, was then Chairman of ESO. The NTT was financed by the ESO membership entry fees of Italy and Switzerland .

(photo ESO)

An ESO Council Meeting chaired by Peter Creola on 7 June 1995 in Garching near Munich. First on his left is Ricardo Giacconi, ESO's Director General, and fourth and fifth on his left the Swiss Delegates, Stéphane Berthet and Gustav Tammann.

Inaugural ceremony for the VLT (Very large Telescope) in Chile, in the presence of the King and Queen of Sweden. On Queen Sylvia's left is Ricardo Giacconi, ESO's Director General. On the King's right is Chile's President, Eduardo Frei, and next to him Peter Creola, ESO Council Chairman.

A long-term visionary and self-taught futurologist

«The purpose of the human venture into space is to renew our species through accepting the challenge to create new civilisations on new worlds.»
(Robert Zubrin, Entering Space, 2000)

'Obstacles make the strong stronger,' Saint-Exupéry wrote. Peter Creola wasn't the kind of man to throw in the towel because his application for the ESA Council chairmanship had been rejected. For a long time he had been nursing an idea – to conduct a multi-disciplinary study which would set the objectives for European space research over the next 50 years. The ESA Council felt morally obliged to give him this compensation. It invited him to chair a new body which he had himself invented to create a forum for reflection about space. This body would be called the 'Long-Term Space Policy Committee (LSPC).'

Familiar with the current situation, our budding futurologist began by making comparisons with past endeavours. The science of aviation, for example, had taken 44 years (from the first flight of the Wright brothers to the supersonic flight of Chuck Yeager) to solve the technical problems of flight within the Earth's atmosphere. Spacecraft had not developed in such a linear fashion. Right from the start, space engineers had conceived of a 'single stage to orbit' (SSTO) vehicle, i.e. a spacecraft that could reach orbit with one stage only and return to Earth. Fairly recent projects, like the British Hotol (horizontal take-off and landing) and the American X-33 (vertical take-off, horizontal landing), were unhappy heirs to this concept, since work on them was halted in the research or development phase. Two-stage to orbit (TSTO) spaceplanes, like Germany's Sänger project (combining two components that would take off and land horizontally), fared no better.

In short, despite the breathtaking achievements of the first 12 years, and apart from regular improvements to these, there has been no real progress in the field of space transport for at least two decades. It is true that the technical difficulties are enormous, but the intellectual laziness of the

launcher industry which resists technical breakthroughs – possibly to protect a business that is more lucrative than reusable launchers might be – must also take much of the blame.

The analysis of the LSPC Chairman is that: 'The resistance to change on the part of launcher people is partly due to their fear that reusable launchers would sound the death knell for consumable launchers. Launchers that can only be used once are manufactured in series, at great expense.'

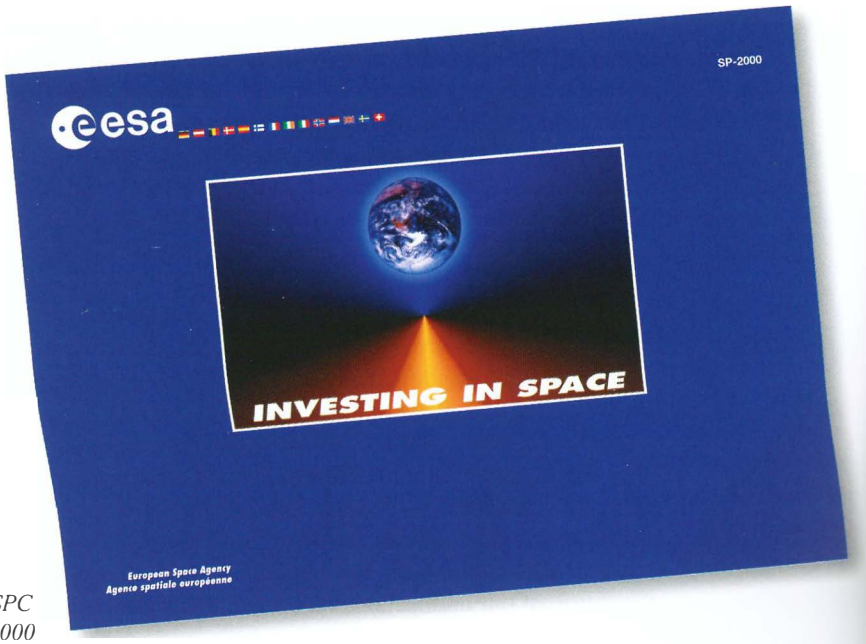
Peter Creola insisted that his coterie of futurologists should not be drawn solely from the national delegations. He achieved a useful balance in which one third were representatives of ESA, one third were drawn from industry and one third were scientists. 'The work was both fascinating and frustrating,' he says. 'It's difficult to shift people into visionary mode. Self-censorship soon kicks in. Attempting to imagine methods of power production on the Moon, they slip back into a hackneyed debate on transport costs. One time, I was driven to despair after we had listened to three or four young engineers from ESTEC who had been personally invited to a hearing. I'd asked them a very simple question: "How do you see the state of space transport midway through the next century?" We were all expecting them to talk about ionic and aerobic propulsion, anti-matter or even teleportation. Instead, they came up with lame derivatives of Ariane or Delta. I almost kicked them out. Some young specialists are totally lacking in vision. Their brains are already fossilised.'

Peter adds: 'Some scientists are too specialised. I like to wind them up by asking: "When's the final report on the Universe due in?" Once I told a physics professor that he was the kind of person who would calmly count the number of ions present in a comet that was hurtling on a collision course with Earth. There are many famous scientists who are far too concerned with their own specialist subject and unable to keep the overall end goal in view. Like the researcher who was asked to study a house: "From the outside," he replied, "I can't analyse the whole thing at once. But I can learn a lot from the window. Then I'll move on to the house." Even the window proved too complicated, so he turned to the screws, and then to their threads – the screw/wood interface. He studied their rate of corrosion and ageing, and he ended up knowing everything about screws and nothing about houses.'

Peter was also taken aback by public indifference towards anything other than the immediate future. He says: 'The maximum amount of thinking ahead that people are able to do is to imagine their grandchildren. They have no interest in the long-term survival of the species. Their minds shut down when confronted with the threats that our day-to-day activities pose to the future of our civilisation. Yet a 5% annual increase in the energy

consumption of the planet will result in a 17,000% increase in 200 years' time. "But I won't be around," they retort. As for me, I'm interested in the future. A civilisation built on growth has only two choices: to collapse or to expand into space.'

The bulk of the Committee's work over the course of several years is described in two reports published by ESA in 1995 and 1999. The second of these summarised three challenges facing Europe at the start of the 21st century. The first challenge was independence – not a surprising conclusion, coming from a man who had experienced the Intelsat negotiations. 'Much more is at stake here than just independence,' says the report. 'It is Europe's sustained prosperity, enhanced quality of life and creative cultural identity.' The second was the challenge of planetary management: 'The threat to the Earth's ecosystem makes it vital that Europe be a leading force in the worldwide effort to ensure sustainability of our civilisation on the planet.' The third was entitled 'The Challenge Beyond': "Over the last 10,000 years, numerous civilisations have come and gone on planet Earth. Ours is the first truly global one, multi-dimensionally intertwined, full of promise yet threatened in many ways. The next millennium may show whether this technical and global civilisation is also comparatively short-lived or becomes a stable form of human evolution, mastering the problems on its home planet and eventually spreading out into the Solar System. If we fail to meet this challenge, our technological civilisation may turn out be the shortest lived of all of the great civilisations that have shaped human history.'



The second LSPC Report, ESA SP-2000

Farewell dinner after the last meeting of ESA's Long-Term Space Policy Committee (LSPC) in a Brazilian restaurant in Paris on 12 April 1999. From left to right, Brian O'Donnell (Ireland), Hans-Peter Richarz (Germany), Jens Langeland (Denmark), Peter Creola (Chairman), Hans Balsiger (Switzerland), Jacques Breton (France), Alvaro Azcarraga (Spain), Tracy Harris (ESA), Karl-Egon Reuter (ESA), Michèle Dubois (ESA), Michel Praet (Belgium), Géraldine Naja (ESA), Peter Linssen (Netherlands), Peka Tanskanen (Finland) and John Shrimplin (United Kingdom).

In this report the Committee was clearly concerned about being realistic. It set out a twenty-point action plan as a first response to the challenges of the future. The twentieth point proposes the creation of a European space policy. Today, this is actually happening. Peter Creola will not be part of it, and neither will most of his colleagues. He recognises that: 'The same people can't go on forever. We're growing old. It's up to the next generation to ensure that this institute becomes the focus for thought and imagination we so badly need. Roger-Maurice Bonnet put the problem in a nutshell: "Unless Europe wakes up, the Solar System will be Terra Americana in the 21st century".'

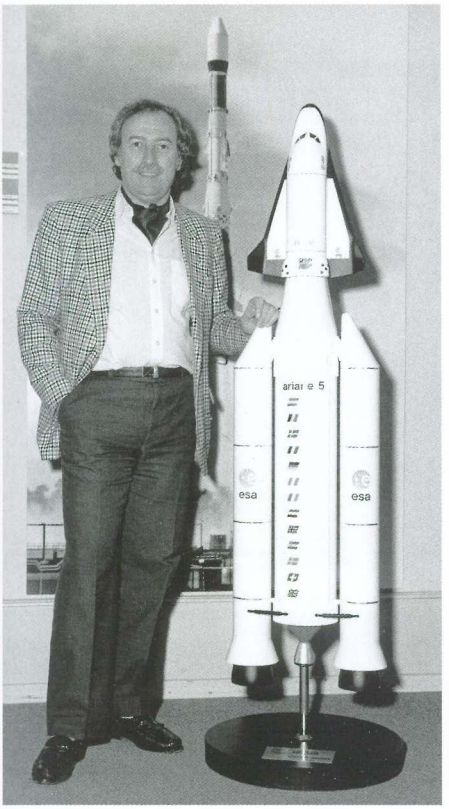
The failure of Hermes was Europe's failure

«I could never be an astronaut because I'm useless at maths. But if I won the lottery, I'd go like a shot .... even if I had to clean the toilets...»
(actor Tom Hanks, September 2001)

The Hermes spaceplane could have been the cornerstone of European space policy. It would have achieved and surpassed the goal of a full space capability for Europe, that is Europe's mastery of all areas of orbital flight, from putting small payloads into orbit to launching astronauts and bringing them back safely. 'Yet another identity issue,' Creola roars, as indignant as at the time of the Intelsat Conference. 'It's outrageous that European astronauts have to hitch a ride on a Soyuz or Space Shuttle to get into space.'

The budget for Hermes (€13 billion) did not seem exorbitant, representing as it did about twice the development cost of Ariane. 'In my opinion,' says Peter Creola, 'the Hermes programme would have brought together numerous technologies – a priceless benefit for Europe. Hermes was the ideal crew transport and rescue vehicle for the Space Station. It would have been a perfect complement – smaller and less expensive – to the American Shuttle, whose technology dated from the 1970s, and a modern replacement for Soyuz, a launcher from another era that was entirely unsuitable for present needs. With hindsight, it is clear that if the development of Hermes had not been dropped, it would have become the vehicle of choice, and the cheapest option, for carrying personnel back and forth from the International Space Station.'

Switzerland had been the first ESA Member State authorised to participate in the funding of Hermes. Even a scientist like Hans Balsiger, who chaired the working party of the Federal Space Affairs Committee, recommended that Switzerland participate. Not as a matter of principle, but because it was impossible to argue that scientific projects had missed out on funding because of manned flights. In fact, the opposite is true. Creola says: 'When space technology does well, space science does well too. What's more, everyone knows that astronauts are the best ambassadors for space activity. You only have to see the popularity of Swiss astronaut Claude Nicollier, the enthusiasm aroused by each of his public appearances in Switzerland, to appreciate this. The fact that the Swiss space budget is what it is today (685



Peter Creola remained a passionate advocate of the Hermes spaceplane, which the Ariane 5 launcher could have placed in Earth orbit. This combination would have given Europe complete autonomy in space activities, including manned flights.
(photo Markus Senn)

million Swiss Francs or €460 million for the period 2002-2006) is at least partly due to the positive public image our astronaut gives to space. He and his European colleagues are underused in the public relations sphere.' The former head of the Swiss Space Office goes so far as to argue that astronauts should not be selected solely on the basis of their previous training.: 'If you take into account the impact that astronauts can have on public opinion in their country,' he says, 'then at least one astronaut should be selected from each of ESA's 15 Member States.' It is a pity we are currently so far away from this goal.

The Hermes spaceplane was perhaps the first casualty of the lack of visibility affecting manned projects. Support for the Hermes programme even fizzled out in France, the country that was the prime contractor. Scientists – principally Hubert Curien and, later on, Claude Allègre, both former French Research Ministers – protested against these 'prestige' projects which, they claimed, took funds away from scientific research. It is true that the presence and survival of human beings in space doesn't come cheap. Still,

Strength of conviction

«For me, Peter has always been, and remains, a visionary. He has never doubted for a moment that our efforts to explore and research space are immensely valuable. In addition to this personal conviction, his enthusiasm is highly contagious and he has remarkable powers of persuasion, based on a combination of humour and professionalism. His incisive arguments are capable of completely disarming his opponents. For thirty years, he has infused the space programme with unparalleled energy, both in Switzerland and in Europe. His retirement seems unthinkable to me, or only a mirage. Anyway, I still know where to find him.»

***Claude Nicollier**, ESA astronaut (veteran of four space missions, including the first Hubble Space Telescope servicing mission).*

today not only the US and Russia but also Japan and China have their own human spaceflight programmes. The Japanese are working on the Hope-X which, combined with their modern H2A launcher, could one day become the Japanese rescue vehicle for the International Space Station. Also, we may soon see 'taikonauts', Chinese astronauts, on board a reusable Shenzhou (an improved Chinese version of Soyuz). Among the space powers, only the Europeans will have failed to stand on their own two feet in the field of space travel.

Peter Creola has still not come to terms with the way in which Hermes was dropped. He now passes the job of completing this mission on to his partners and successors: 'The most important task is to rekindle political will and popular opinion in favour of total European autonomy in space. It's a major weapon in the fight for European sovereignty. Without it, Europe is like a land-locked country with no direct access to the sea.'

A Space Day organised by the Banque Cantonale Vaudoise (BCV) in Lausanne on 3 May 1991. From left to right, Peter Creola, Klaus Iserland from Arianespace, ESA Astronaut Claude Nicollier, Michel Mayor, Professor of Astronomy at Geneva University and the first man to discover extra-solar planets, and Mr Pahud, Director of BCV.

A Reception in Geneva for ESA's Swiss Astronaut Claude Nicollier on 3 September 1992, one month after his first space flight. On the right, Jean-Marie Luton, ESA's Director General; on the left, Peter Creola, Head of the Swiss Delegation to ESA.

(photo Alain Morvan)

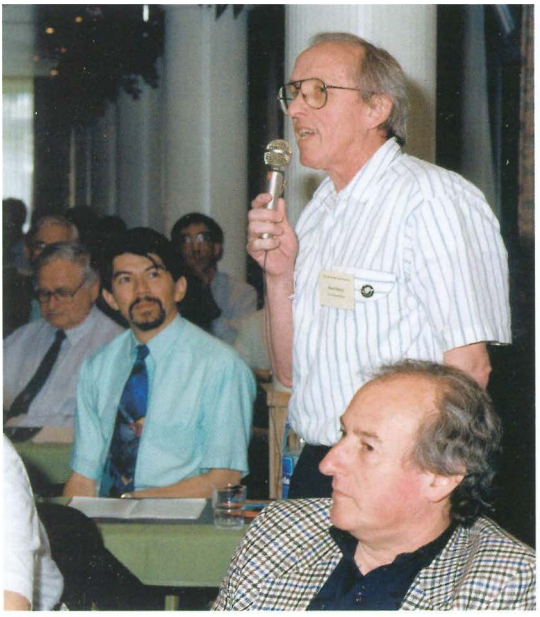
Following Claude Nicollier's fourth space flight in December 1999, the Swiss Space Office (SSO) and the management of Contraves (part of the Unaxis group, of which Pilatus, manufacturer of the PC-12 business plane, was then also a member) held a reception for the ESA Astronaut in the southern Swiss canton of Ticino in spring 2000. From left to right, Messrs Schneiter and Odermatt from Contraves, Nicollier, Creola, Somaini (Contraves Director General), Berthet (SSO) and the Pilatus test pilot

Flying visit to Ticino, in southern Switzerland, in a Pilatus PC-12, in honour of ESA Astronaut Claude Nicollier, after his fourth space flight. From left to right, Messrs Berthet (SSO), Nicollier, Schneiter (Contraves) and Creola (SSO).

Return to the Moon: The Beatenberg Workshop

«The art of flying is only just being born, but it will be perfected, and one day we will travel to the Moon. Do we truly believe that we already know everything which there is to be discovered, or that we have developed these things to a point at which nothing more can be added to them? For the love of God, let us admit that future centuries will still have something left to accomplish.»
(Bernard Le Bovier de Fontenelle, 1657-1757)

In the early 1990s, Hans Balsiger, a physics professor at the University of Bern, chaired an ESA working group on a return to the Moon. His report concluded that a return to the Moon should be a priority for Europe, and for the human race. Peter Creola and the author got together to find the best way to publicise Balsiger's conclusions. Peter proposed that Balsiger organise, in Switzerland, the first large-scale international meeting of all the big space agencies and the top lunar experts, to discuss a return to the Moon. The Swiss Confederation and ESA agreed to co-fund the meeting. It took place at Beatenberg – an epic setting in the Bernese foothills, opposite the Eiger, Mönch and Jungfrau – from 31 May to 3 June 1994, 25 years (give or take a couple of months) after the first lunar landing by Armstrong and Aldrin.



With the microphone, behind Peter Creola, Prof. Hans Balsiger of the University of Bern, a convinced advocate of a return to the Moon, at the International Lunar Workshop in Beatenberg (CH) in spring 1994.
(photo ESA)

Against this fabulous backdrop, the cream of space research and lunar specialists met, in a seemingly radiant mood. Roger-Maurice Bonnet, Head of ESA's Science Directorate, set the ball rolling: 'The main question at this time is not "why" a new lunar programme is needed, but "how" it can be set up.' Professor Johannes Geiss – whose solar sail had been the first non-American scientific instrument to be carried by Apollo 11 and had been deployed on the Moon even before the American flag was raised – agreed with

Bonnet: 'The experience of the Apollo astronauts gives us a solid foundation for a more systematic exploration of the Moon.' American astronaut Harrison Schmitt went even further: 'A lunar space station would have a key role to play in supplying alternative fuel sources to Earth and various resources to future explorers of the Universe.' Schmitt, a geologist, had been the only real scientist on the Apollo missions and, together with Eugene Cernan, one of the last two men to set foot on the Moon. He was also one of the strongest proponents of the use of helium 3, a potential fuel of the future, which is found in abundance on the Moon.

In the heat of the moment, Europe seemed to be shaping up as one of the main players in a return to the Moon via the LEDA mission, the first stage in an ambitious programme which planned to culminate in a human presence on the Earth's natural satellite. LEDA had a budget of €350 million. One day an American engineer, in the manner of an Amerindian wise man, cautioned: 'If you try to do too much with too little, you are likely to end up with nothing. Better to try to do a little less, then you have a small chance of ending up with something.' Peter Creola had been listening carefully to the US delegation's account of the Clementine mission, which had detected ice at the lunar poles without being able to physically examine it. While doing so, he had been pondering an idea about a European project that would run on the lines set out by former NASA administrator Dan Goldin: 'Faster, cheaper, better.' Peter added his own stamp to the marching orders of his American competitor. The project also had to be: 'More spectacular, more symbolic and more popular.'

A few months after the Beatenberg Workshop, Creola came up with the idea of a robot mission to the Moon's south pole, to be called ELSPEX – that is, the European Lunar South Pole Expedition. Its purpose would be to explore the most interesting area of our natural satellite, the Aitken Basin, whose mountains are permanently sunlit while the depths of its craters have never been touched by the Sun and probably contain ice. Aitken, the Dutch astronaut Wubbo Ockels had told Peter, is a key area for research into the origins of the Moon. Secondly, the whole of the southern sky is permanently visible from the Aitken Basin. Finally, the region presents the best possible conditions for a lunar base. The three main concerns of lunar research – science that was 'of the Moon, from the Moon, on the Moon' – could be thus concentrated in a single site.

'I was convinced,' says Peter, as the creator of this concept, 'that the turn of the millennium, with all its attendant symbolism, was the best time to muster the necessary strength and find the motivation that would make it possible to accomplish this mission within the existing financial constraints.' The mission would cost about €250 million in all. It would be paid for in part by

industry, which would sponsor the work assigned to it. But most of the money would come from the general public through publicity campaigns and fund-raising schemes. The final stroke of genius in Peter's proposal was that Arianespace should allow the project to use the last series-produced Ariane 4 free of charge. The European launcher would dispatch to the Moon's south pole a probe containing several robot vehicles like the American 'Pathfinder', which had delighted the world by exploring a few square metres of the planet Mars in 1997. The robot vehicles would then race each other to the south pole, as Amundsen and Scott had done in Antarctica 90 years before.

Peter Creola hoists the ESA flag on the 'Blüimlisalp', the majestic Lake Thun paddle-steamer he helped to save. This episode took place in May 1994, on the occasion of the Beatenberg Workshop on a return to the Moon. (photo ESA)

It was the spring of 1996, and there were only four years left in which to develop the probe, which was to be called 'Euromoon.' A strong group of supporters formed around Wubbo Ockels, and there was indeed a lot to get excited about: Europe was about to embark on a commando mission the Americans had not even begun to dream of.

It was not long, however, before things started to go wrong. Some small and medium-sized enterprises, such as Fokker and Contraves, had given their agreement in principle to funding the project. But the larger ones – like Aérospatiale, Alenia and DASA – refused, saying they would only work when they could bill. The ESA Council was also wary of Peter's unconventional fund-raising methods. And some Member States were hostile to any good ideas they had not come up with themselves – unless, of course, they came from the US. Peter Creola admits: 'I'm always surprised by the way some of my colleagues react. Faced with this kind of project, the first thing they ask is: "Has NASA already done it?" If the answer is yes, they say: "Then what's the point?" If the answer is no, they shake their heads wisely and intone: "That's because there's no point."'

The final nail in the coffin was the failure of the first Ariane 5 launch. From then on, Arianespace had to count on every last Ariane 4 to meet its order book and compensate for the delay in the commissioning of the new launcher. Once again, it was a regrettable failure.

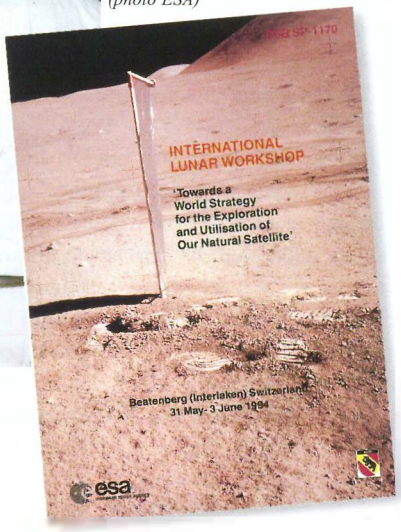
«There's more to Creola than his act'...»

«Peter is constantly performing. But behind his act, you soon find a man who treats everything which falls within his domain seriously and competently. Those who don't know him well think he never does any work. In fact, when he believes in something or someone he works like a Trojan round the clock. He's a lawyer, but he knows a lot about technology and science. He learns quickly, without getting bogged down in technical details. Ariane was his great love. However, even at the time of Geos, the first scientific space mission to which Switzerland had contributed an experiment, Peter showed an unusual grasp of the subject in his ability to follow developments. This ability was even more marked in the case of Giotto, the European mission to rendezvous with Halley's Comet. To all those who complained about not having enough money for their experiments, he would answer: "It's no use writing to the Finance Minister: To get the money, you have to go for a drink with the people who hold the purse strings." This sums up Peter's entire, eminently practical, philosophy.

I hope he thinks of me as a friend. I think he does, because he didn't need much persuading to let me drive his boat. I think the fact that I could steer his vessel scored more points with him than my knowledge of physics.»

Hans Balsiger (University of Bern)

The Beatenberg International Workshop on a return to the Moon (31 May – 3 June 1994). On the left: Heinrich Ursprung, Swiss State Secretary for Education and Research. On the right: Riccardo Giacconi, Director General of ESO. For once, Peter Creola, in the centre, had forgotten his famous bow tie; to make up for this lapse of memory, he made one from a paper napkin!
(photo ESA)



Cover of the Proceedings of the Beatenberg International Lunar Workshop, showing the famous solar sail designed by Prof. Johannes Geiss of the University of Bern, the only non-American experiment carried on Apollo 11.

His hobbies – trains and boats – are the key to his personality

«Only those who are mad enough to think they can change the world manage to do so.»
(Pascal Lafond)

It's impossible to understand all the multiple facets of Peter Creola's personality – a distinguished lawyer, a talented negotiator, a self-confessed womaniser, an amateur engineer and a licensed futurologist – without reference to his more down-to-earth hobbies. Although hobbies is perhaps not quite the right word, since boats are among his most cherished possessions. His name sounds like it could have two roots; 'croire' (believe) and 'créer' (create). He is a man who believes in what he does and creates what he is not yet able to do.

His liking for beautiful toys that work like real machines, real trains, real boats, goes back – according to him – to a present his father once gave him which he has kept ever since. It was a small steam engine his father had built with his own hands. Little Peter immediately saw what a simple, effective, totally brilliant machine it was. He had to wait until he was 12 years old to be given his first electric train as a Christmas present. It was a Märklin locomotive which had cost 20 francs – a small fortune at the time – and two carriages. When he opened it, he went mad with joy and started to build a network of railway tracks, but he did not yet have enough patience to finish such a long-term project. In his head he could already see the finished track, and that was enough for him.

Later on, he would learn how to finish what he set out to do. First, his doctoral thesis, which he dragged out over a good half dozen years. Then, when he restored a small house at Miglieglia in the Malcantone district of Ticino. After that, he fantasised about a house in Bern, and he and his wife worked every weekend and holiday for years to do it up. Finishing the house left an emptiness inside him, which he tried to fill by building a working steam locomotive, a project which he had begun in Paris. His idea was threefold: to build a scaled-down machine that was accurate to the tiniest detail (insignificant as it might appear to the uninitiated), conformed to world standards, and was capable of working like the original.

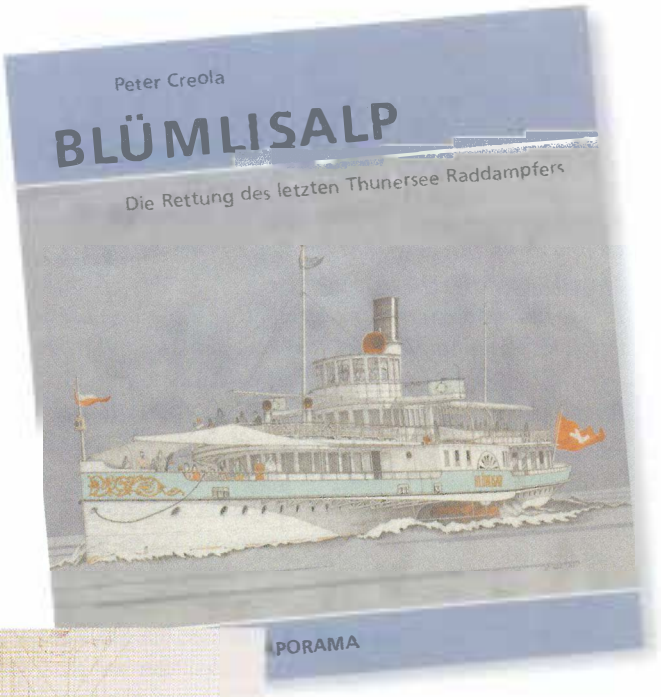
Peter chose to base his model on the Waldenburg WB6, a steam locomotive built in 1912, of which the only surviving specimen was in the Transport Museum at Lucerne. It took 3,657 hours, spread over eight years, to build. Peter taught himself all the necessary skills: cutting and shaping sheet-metal and wood, turning and milling, iron and copper plumbing, casting a mould for the wheels, and so on. Before painting the engine, he set it in motion on rollers, to make sure everything worked properly. It did, but it also belched out much dirt. It took many hours to take the engine apart and clean each component, before proceeding with the paint job that would make it an authentic, ultra-realistic, masterpiece. The model – one sixth the size of the original – won first prize at a prestigious model-making competition in Lucerne.

Though it came close to perfection, the model incorporated many compromises because it had been scaled down. Today, with a flash of wit, Peter says: 'A fanatical model-maker will always end up opting for a 1:1 scale, a life-size model, because that's the only way to build without compromises.' That certainly proved true of Peter himself. One day, he found an article in a magazine about a small steam boat like those that ply the North American lakes. It set off a spark of interest, a 'fünkli', as they call it in Swiss-German. 'Fünkli' would be the name of Peter's steam-boat project. At first, he planned to spend his retirement years on it, as in the mid-1980s he had neither the money nor the time. Then he threw caution to the winds. Better to get into debt, he told himself, than dream about something when you don't know whether you will ever be able to do it.

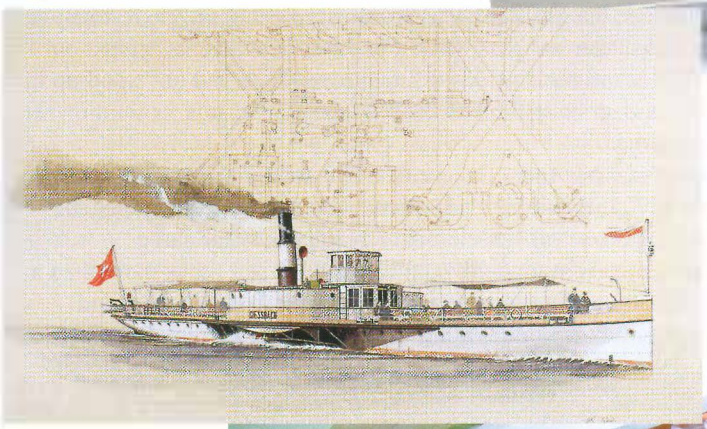
In 1985, Peter gave the plan for 'Fünkli's' hull – which he had designed himself – to a naval ship-building yard at Stansstad, on the banks of Lake Lucerne, in the canton of Nidwald. Despite doubts from the professionals about how stable the craft would be, Peter decided to equip it with a cabin big enough for two people to cruise in comfort or eight people out for a swim or a couple of bottles of wine.

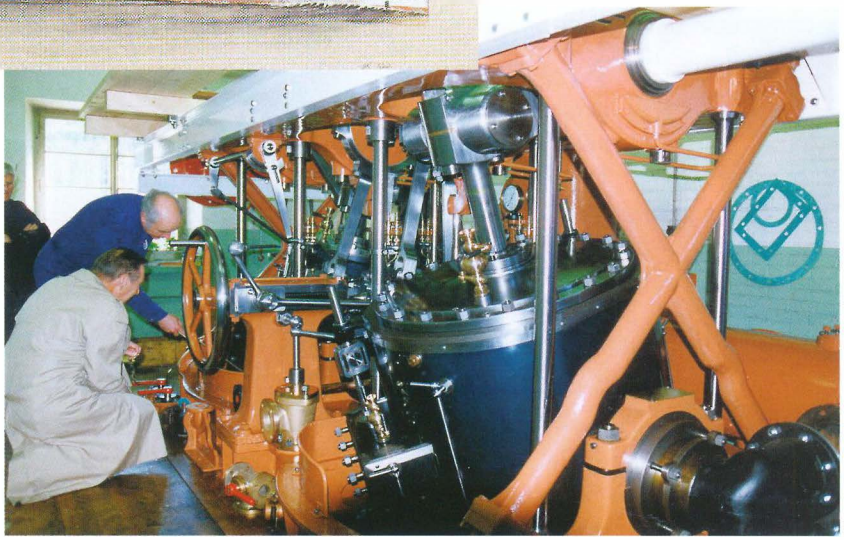
At the Swiss Transport Museum in Lucerne in 1986, Peter Creola has just won first prize for a 1:6 model of a 1912 steam locomotive, the Waldenburg WB6, the sole surviving example of which can be seen in the background.
(photo Blick)

In the station at Waldwil, a portion of the 1:87 diorama designed and built by Peter Creola, which won him the first prize for railway models at the Swiss Transport Museum in Lucerne in 1997.
(photo Daniel Wiedlisbach)



The cover page of Peter Creola's book (Ficher/Vaporama, 1992) on the campaign to save the last paddle-steamer on Lake Thun, the 'Blümlisalp'





The steam engine from the 'Giessbach' (right), rescued by Peter Creola from the Lake Thun paddle-steamer (above) and renovated in the Vaporama workshop by Werner Steiner with the help of a donation from Contraves, Zurich.

‘Fünkli’, the space community’s think tank

«Row, row, row your boat
Gently down the stream...
Merrily, merrily, merrily, merrily
Life is but a dream.»
(English traditional ballad)

‘Above all, don’t fall into the trap of perfectionism. You’ll find out what changes need to be made once you are on the water.’ This wise counsel came from Peter himself. It was the voice of experience. His boat was launched on Lake Lucerne in May 1987. It was still pretty basic, but worked perfectly. ‘Fünkli’ was moved to Lake Thun three years later, when Peter had a chance to meet Werner Steiner, the greatest Swiss specialist in steam-engine restoration. Steiner scrutinised Peter’s engine, took it in for improvements, ironed out some design faults and replaced the components which had not stood up to regular use. He ended up so fond of the boat that he became its joint owner.

Over the years, Peter has spent thousands of hours and about 100,000 Swiss Francs (nearly € 70,000) on his ‘lady friend.’ He is somewhat apologetic about it: ‘Building a one-off middle-of-the range car to the same specifications as a current model would cost a thousand times more than a mass-produced version. The same is true of spacecraft. Launchers and satellites are never mass-produced, but they have to be extremely reliable and able to resist severe conditions.’

The ‘Fünkli’ has given tremendous pleasure to its builder, and to the many passengers from all walks of life he has invited to spend a few hours of peace and quiet on board. ‘When you’re on the water, nothing else matters,’ Jean-Jacques Dordain, now ESA’s Director of Launchers, once said about such a boat trip. Peter echoes his words. ‘The rhythm of a steam engine is very close to the human heartbeat,’ he says. ‘The way a boat rocks on the water unconsciously reminds you of the peace you knew in the womb. Add to that the setting and the atmosphere, and you’re well on your way to avoiding psychotherapy bills. On board the ‘Fünkli’ you are far away from your worries, both physically and mentally.’

Nevertheless, quite a few ideas have germinated on board ‘Fünkli.’ Even when rocked by the gentle waves of a Swiss lake, Captain Creola did not completely lose sight of his strategic objectives. He used the boat trips to build close relationships of trust with other people, moving slowly and

putting them under no pressure. He liked to invite politicians, both men and women, to spend some time on board. Rather than bombarding them with ideology or trying to win them over, he would use the opportunity to get to know them on a personal level. Opinions tended to spring up naturally in the course of conversation.

During one such outing on the 'Fünkli', Peter suggested to a group of Members of Parliament that the Swiss Federal Constitution – which at that time was in the process of being revised – should give the Confederation, i.e. the central government, responsibility for space-related matters. At the time, there was no constitutional or legal basis for such a responsibility. His suggestion did not fall on deaf ears, and the matter was settled accordingly. 'It was the only victory in the whole of my political career,' a Swiss Member of Parliament from a minority party, who had successfully argued the case for the constitutional amendment, gratefully told Peter later on.

One day, catastrophe struck, when 'Fünkli' lost its mooring bay. Moorings for hire on Lake Thun were few and far between. Peter therefore requested 'political asylum' for his boat from the BLS company. BLS was responsible for the Bern-Lötschberg-Simplon railway, but it also ran steamers on Lake Thun and had a large shipyard on the outskirts of town. At first the company said it could not help him. But when he talked it through with the BLS sailors, he managed to soften them up. Peter's strengths were his ability to listen to people, understand them, appear sympathetic to them and finally win them over. These traits had been part of his character since childhood and adolescence. He was not a strong believer in talent, but he did believe in education, and in building on the enthusiasm of one's early years.

On board the 'Fünkli' on 4 June 1996: Kaspar Villiger, Swiss Minister of Finance (third from left), Adolph Ogi, Swiss Minister of Defence (second from right), and the Mayor of Thun (far right), together with their wives.
(photo Creola)

Peter Creola taking command of the 'Fünkli' in November 1996; the steamer captain is wearing the sweater that Astronaut Claude Nicollier wore during his first space mission.

The 'Fünkli's' steam engine - as bright as a new pin.

The 'Fünkli' on Lake Thun on an autumn day in 2001.
(photo Werner Steiner)

What was Creola's secret? A very simple one....

«Beat your breast, for that is where your genius lies.»
(Alfred de Musset, 1810-1857)

The thing that captivates most of the people who speak with Peter Creola is his straightforwardness, his ability to draw people together, his positive aura, and the way he comes over as both interested and attentive during his conversations with technicians and politicians. Hanspeter Schneiter, an engineer and the former head of Contraves in Zurich, worked on space matters from 1964 onwards. Now retired, he still acts as a mediator for ESA in industrial affairs. He knows Peter Creola well, since Peter was his necessary interlocutor as well as his friend for thirty years. He has seen the Head of the Swiss Space Office in action and understands his tactics better than anyone.

'Peter's itinerary covered four important areas,' says Schneiter. 'First of all, he is one of few people at his level who wants to get politicians interested in space. Secondly, he sets out to meet his opponents and try to convert them to his point of view. But, thirdly, he doesn't stop there, he also tries to get his message across to the vast majority of people who know nothing about space. Finally, he has a small group of converts whom he needs to keep motivated and get the most out of.'

André Pugin, the engineer who founded the company APCO Technologies (a Swiss SME whose main focus is on space), agrees: 'Peter is totally unique in the small world of space affairs. He's like the last dinosaur, because he has had a hand in all the important developments that have taken place in Europe over the last 30 years. He is a doctor of law, but he also has a better mastery of technology than many of the engineers I come across. He's familiar with all the launchers down to the last detail, and you can't fob him off with any specious explanation. He's easy to get along with, but everyone respects him.'

The main principle among the many that Peter holds dear is that a good civil servant should have a stake in the public good and be able to persuade people right across the political spectrum. Several times, Peter managed to convince Members of Parliament to travel to Kourou. He believes such invitations should be issued as a matter of course, for in his experience the politicians always return from French Guiana as convinced supporters of

Freddy Engström, then ESA's Director of Launchers, with Peter Creola, surrounded by Swiss Members of Parliament (Epiney, Onken, Reimann, Schüle) and by representatives of ESA, in front of the model of the Ariane 5 launcher at the Guiana Space Centre (CSG) in Kourou in 1998. (photo ESA)

space activities. Peter says: 'People are moved when they see the flags of the ESA Member States, including the Swiss flag, flying together over the entrance to the Guiana Space Centre, which is as big as a Swiss Canton, when they experience the solemn and exciting rituals surrounding the launch, and the outburst of joy when a launch is successful. Every politician who has been to Kourou, without exception, told me, sooner or later: 'I didn't realise how important it has become.'

André Pugin, who has seen Peter perform in Kourou for the benefit of Swiss Members of Parliament, says: 'He's a great actor. During visits to the Space Centre he gave a truly professional guided tour. At meetings with officials he followed protocol to the letter. During canoe trips on the Maroni he was the perfect excursion companion. By the hotel poolside he was an equatorial monarch holding court for his guests.'

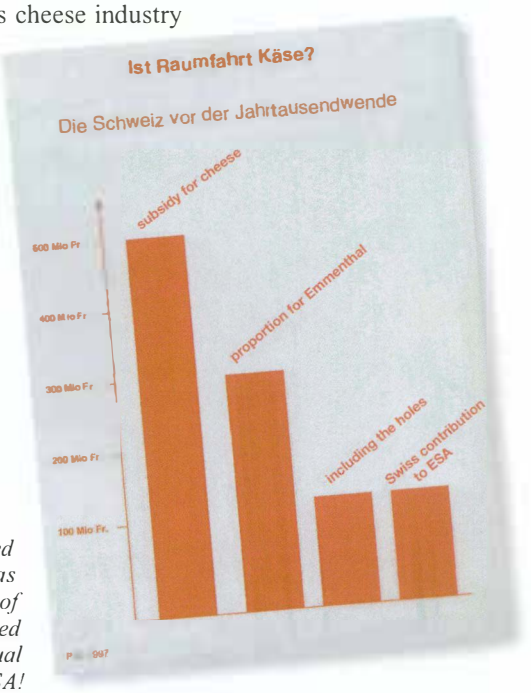
Everybody agrees that the reason why this man – who was at all times an amateur in the full sense of the word – was at ease in all discussions, negotiations and conferences was that – even though he claims to be lazy by nature – he prepared for deliberations with great care, unlike many who consider themselves to be much more serious. A member of his close circle says: 'In meetings, it was like he had ants in his pants. He kept getting up, walking around, going out and coming back in, but he always had one ear tuned to what was going on, and 200% of his attention focused on it. His fast-moving, analytical mind allowed him to jump ahead of the discussion. He was already thinking up solutions while his colleagues were still bogged down with the problems.'

Like his friend Jean-Jacques Dordain – whose brilliance as a negotiator he greatly admires – Peter Creola become an expert at avoiding the pitfalls of negotiations. He is happy to let people in on his secret, which is based on

Peter Creola with Jean-Jacques Dordain, now ESA's Director of Launchers, on the right, and the Belgian representative, Jacques Vautrequin, on the left, in October 1995 on the occasion of the ESA Ministerial Conference in Toulouse.
(photo Anneke van der Geest, ESTEC).

good common sense: The first thing you need to know is where you want to go. Then you have to decide which ground you cannot concede. Once you have done this, you know where you may be willing to make concessions. In the discussion itself, you have to develop a feel for what you can demand, shift your ground where necessary and figure out what others may be prepared to give up. 'I'm no good at chess,' Peter admits, 'but I have a feel for what people are able to concede without losing face. A good compromise is often one that spreads dissatisfaction around equally.'

Peter is not afraid to use strong images and striking examples to tell people about the benefits of 'affordable' space – space which every Swiss citizen can easily afford because it costs the individual taxpayer no more than the price of a mug of coffee every two months. He likes to get the audience laughing on his side. As Head of the Swiss Space Office, he once compared the subsidies given to space projects and the cheese sector: 'Financial backing for the Swiss cheese industry reached €350 million in 1997, of which 200 million was for Emmenthal alone,' he said. '40% of Emmenthal cheese is made up of holes, so the holes are worth 80 million. The €80 million which Switzerland contributes to ESA every year is exactly the same amount that goes to pay for the holes in Emmenthal.' QED!



Subsidies for the Swiss cheese industry in 1997 amounted to 500 million Swiss Francs, of which 300 million was for Emmenthal alone. Since 40% of the volume of Emmenthal cheese consists of holes, the holes received 120 million, exactly the amount of Switzerland's annual contribution to ESA!

Peter finds the right arguments to counter the opposition. He explains to those concerned with protecting the environment that space activities are much more environmentally friendly than industrial activities, and indeed than most human activity on Earth. 'Take-off looks deceptively polluting,' he admits. 'There's a burst of fire and noise as an enormous amount of energy is released. But once a spacecraft is in orbit or travelling through the galaxy it is autonomous: it produces its own energy, is completely silent and doesn't disturb anybody, and it has to be totally reliable throughout its active life because its inaccessibility means it can't be repaired. People involved in space don't often think of using these arguments when they're called on to justify their activities.'

Peter's communication skills and sense of the theatrical have led him to do things for their dramatic impact in ways unheard of on the part of a senior civil servant. It is thanks to him, for example, that the first European postage stamp carrying a picture of Ariane was a Swiss stamp. He managed to convince the stamp-making division of the Swiss postal service to do this. The 80-centime stamp came out in September 1979, three months before the first Ariane launch and well before the equivalent French stamp, which was issued in 1981 for the Paris Air Show at Le Bourget. The reason for this delay, on the part of the country that had done most for Ariane, has been revealed by ESA's resident philatelist, the Belgian Jean-Louis Collette, who still finds it funny. Before putting its stamps on the market, the French postal service asked Collette what he thought of them. He almost fainted: instead of a picture of the European launcher, there was one of an American

The first postage stamp in honour of Ariane was issued on Peter Creola's initiative by the Swiss PTT on 6 September 1979, 109 days before the first Ariane launch.

In 1991 the Swiss PTT also issued a stamp depicting the large Ariane 4 fairing, for which the Swiss company Contraves was the prime contractor; and the Giotto space probe, in which the University of Bern played a major role.

Meeting celebrating 25 years of European space activities in Brussels in June 1998. From right to left, Charles Hanin, former Belgian Minister and Chairman of the two historic Ministerial Conferences in 1972 and 1973, Peter Creola, Jan Stiernstedt, Head of the Swedish Delegation, and Massimo Trella, ESA's Inspector General.
(photo ESA)

Saturn V, the launcher used for the Apollo lunar missions. The French had to start again from scratch.

Because of his active role in the negotiations on the ESA Convention as Chairman of the Drafting Committee, as well as his legal expertise, Peter was known unofficially as the 'Guardian of the Convention.' The title was first conferred on him by Karl-Egon Reuter, a former Head of Cabinet at ESA. 'As one of the people who drafted ESA's founding act,' says Reuter, 'Peter knew all its ins and outs. He was therefore often able to act as a mediator at Council meetings and to have a decisive influence on the outcome of conflicts. Also, he was often able to successfully resist pressure from countries who make the largest contributions to ESA and would have preferred decisions less faithful to the letter of the Convention.' The Guardian of the Convention sums it up in a statement set in stone: 'I'm convinced that the text of the Convention document is ESA's constitution. As such, it is gospel, and not open to manipulation for short-term political gains.'

A true vocation

«It's no exaggeration to say that Peter didn't consider space merely as his chosen profession. For him, space was a vocation to which he was passionately committed, with an almost religious intensity. I've rarely met anyone who identified so personally with his professional activities. The love of Peter's life was called Ariane. She was a rocket which, with Peter's help, was successfully built by the ESA Member States. Her beauty seduced Peter to such an extent that one day, when he was able to get close enough, he kissed her passionately. It's true he was also capable of throwing tantrums, particularly when Council was dragging on into the lunch break.»

Karl-Egon Reuter, former Head of Cabinet, ESA

'You tend to say someone has a strong character when they have a bad character.' This, however, does not apply to Peter Creola, at least, not according to his friends. They all speak spontaneously of his charisma, his commitment, and his free spirit, which is so rarely encountered in a senior civil servant. If he was sometimes unpleasant – and he can be when he wants to – it was for one of two reasons. Either the matter under discussion did not interest him or no longer interested him, or his feathers were ruffled by the stupidity, bad faith or incompetence of the people he was speaking to. State Secretary Charles Kleiber, with whom he had a close, almost scheming relationship, pays him the following compliment: 'In this job, if you play by the rules people think you're a stuffed shirt, and if you don't, they think you're eccentric. Peter was able to assert his right to be different without stepping off the edge, and while always maintaining his rigour, charm and fighting spirit. He didn't always toe the line but, thanks to his ability to communicate forcefully, he stands out as a fine example of a public servant.'

His devoted friend Hanspeter Schneiter enthuses: 'The extraordinary thing about him is that he always asks himself: "What can I do to move things forward?" In every project and decision, at ESA and at an international level, he always asked himself what he was able to do to advance the European cause. Of course, the fact that he comes from a small country without any ambition for supremacy has helped him to think this way.'

Peter Creola has always looked after the media, both formally and informally. Here he is seen talking to Pierre Langereux, Editor in Chief of the French magazine Air et Cosmos, in Paris in November 1992 .
(photo ESA)

When Peter Creola took the floor, he was always listened to attentively. Here he is at ESTEC, Noordwijk, in the Netherlands, shortly before the Euromir 94 mission.
(photo ESA)

Cultivating good relations with politicians and industrialists has always been one of Peter Creola's leitmotivs. Here he is seen with a group of Members of the Swiss Parliament visiting Contraves in 2000; and above, Patrick Piffaretti, Peter Creola and Umberto Somaini, Director of Contraves, standing inside an Ariane fairing.

«Good can come only from space...»

«One day when I am old and grey,
I will lift up my head and see
Flames burst from the sad planet which today
Believes it's civilised eternally.
Earth-Moon, Earth-Moon,
A rotten world, a world grown old,
This clown leaves you tonight, bids you
Farewell.»
(Boris Vian, 1920-1959)

As the time comes to retire from the activity to which he has devoted all his professional life, Peter has mixed feelings about his personal achievements.

– He experienced success, including the many successes described above, notably Intelsat and Ariane. There were also others, like ISSI, the International Space Science Institute, the brainchild of Johannes Geiss that was set up in Bern with the support of Roger-Maurice Bonnet. In 1995, Peter raised a large part of the funding for the Institute, where scientists from all over the world join forces in a multi-disciplinary effort to analyse the raw data from many different spacecraft. Another success was the reorganisation of what has become the Swiss Space Office. This involved a complex reshuffling of departments from three ministries to bring them under the roof of a single ministry – the one that had the highest strategic position. Yet another success was the 'Blümlisalp Affair', the rescue operation for the last paddle-steamer on Lake Thun, in which Peter's involvement was decisive. He told the full story in a charming book entitled Vaporama, published by Fischer Verlag in 1992, the cover of which can be seen on page 59.

– Some satisfaction he owed to others as much as to himself. This was the case with the Swiss Delegation at ESA. Peter says: 'In such a small world, strewn with cunning pitfalls, our Delegation has always been a strong and active one, which has exercised its right of co-management to the full. It doesn't have an inferiority complex, it's not over-sensitive, and it's courageous. It has stood up in turn to French arrogance, Anglo-German subservience to America, German inflexibility, Italian manoeuvring, and to all the anti-space, bureaucratic attitudes it has come up against.'

Peter Creola flanked by Heinz Riesenhuber, German Research Minister (left), and Prof. Sandro Fontana, Italian Research Minister, in Granada, Spain, in November 1992. *(photo ESA)*

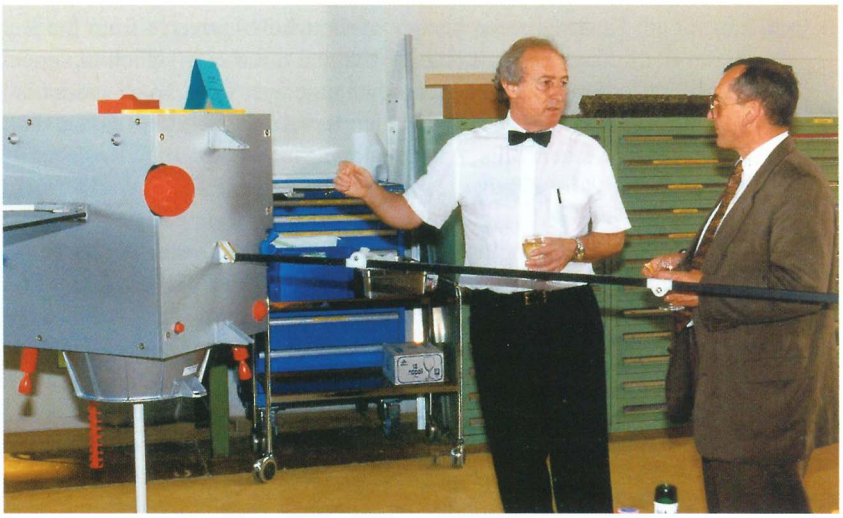
The Council Chamber at ESA Headquarters in Paris in 1992. Swiss Delegates Jean-Pierre Ruder, Peter Creola and Roland Hofmann are seated in front of the wall tapestry. *(photo ESA)*

The Swiss Delegation at the Ministerial Conference in Edinburgh in November 2001. From left to right in the foreground: Patrick Piffaretti, present Head of the Swiss Space Office (SSO), Charles Kleiber, Secretary of State for Research, and Peter Creola. In the background, Jean-Pierre Ruder from the Federal Office for Education and Science, and Peter Knopf from the Ministry of Foreign Affairs. *(photo ESA)*

– Peter also has his doubts. He witnessed the birth of ESA, and despite its ups and downs, his faith in the organisation is still rock solid. He says: 'ESA must be the space agency for the whole of Europe, not just a federation of national agencies. National space agencies can play a role which complements that of ESA, but they should be fully integrated into the overall scheme of Europe's space presence. ESA must stand firm, have the courage of its convictions, be innovative and courageous, and possess indisputable internal capabilities. A divided European space presence will never be taken seriously by the other space powers. And its competitors will take advantage of every opportunity to divide and rule.' For Peter, political will among the ESA Member States, and their adherence to the Convention, is the only way in which ESA can flourish and make its presence felt. 'The world of politics,' says Peter, 'takes account of public opinion only, not of scientists and engineers. It's therefore of capital importance to give ESA a strong public image. But precisely the opposite is happening. Some Member States, protecting their own interests and wary of ESA's potential to overshadow their national space agencies, have the irritating habit of cutting down on publicity for ESA's achievements. They're afraid of adverse public reaction. That's a mistake. The public only rejects ideas that haven't been explained properly.'

– There have been failures, too. Peter's biggest disappointments were Euromoon and Hermes. There were also lesser failures, like Alpsat – another project with Creola's signature on it. He had conceived the idea of the development and construction by students of a micro-satellite under the guidance of retired engineers and university professors. The payload was to consist of a few gems of Swiss micro-miniaturisation, including a miniature camera built by CSEM (Centre Suisse d'Electronique et de Microtechnique), onboard electronics, etc. The micro-satellite would be so light that its launch would cost almost nothing – peanuts compared to the cost of a conventional mission. Yet it would still show Europe and the rest of the world that a small country was capable of building a complete space system, just like the big boys. Peter says: 'I was already imagining this little mission hitting the front pages of the tabloids. I could see the headlines: "Schweizer Weltraum-Enthusiasten jubeln: Jodl im Weltall" (Swiss Fans Go Wild for Space: Yodelling in the Universe). The construction of the satellite was ultimately taken over by engineers. It grew to a mass of 200 kg, and its cost also grew, to 50 million Swiss Francs. Launching it like hand luggage on a conventional mission was no longer an option. Without its driving force, nothing more could be done, and the project fell by the wayside. I wasn't too disappointed because I had a thousand and one other things to do. Still, it was a shame.'

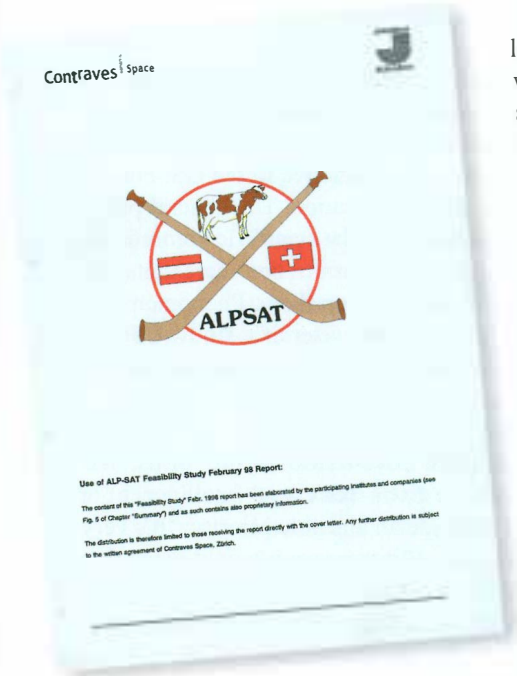
Peter says: 'It's strange how I can't get away from space. It's only from up there that you can see the unity of the whole Earth, how beautiful and fragile it is. Space isn't a cure-all; and we still have to look after, and continue to



The Alpsat model built by Contraves, a micro-satellite developed by Switzerland and Austria in the late 1990s. On the right, Christian Ayer, Secretary to the Swiss Parliament's Finance Committee.
(Doc. Contraves)

look after, our planet, to manage its resources as best we can. But long-term salvation can only come from space. Its potential to provide energy and resources is enormous. We could operate factories in space or on the Moon. The Moon is a gift to us. Together we make a good couple, a twin planet. Human beings could have one place for living and another place for working, like a house and an office.'

However, this dearly-held belief of Peter's brings with it an enormous sense of frustration, because true space exploration is dragging its feet. There is currently no return to the Moon planned, no manned mission being sent to Mars, no signs of extra-terrestrial life, no progress on anti-gravity. Peter says: '"Terraforming", that's to say the transformation of the planet Mars into a second Earth, is of crucial importance to humanity. Yet a human landing on Mars, which in the Apollo period (1968-1975) people thought would take place at the end of the 20th century, is no longer a burning issue. Carl Sagan once said: "In the long term, it's too dangerous to put all our eggs in the basket of a single spaceship, the Earth." The idea of a back-up solution is still poorly understood, and is therefore rejected. Christopher Columbus fitted out three ships when he set out in search of the New World. But apart from a few visionaries, human beings refuse to think further than a generation ahead. The human brain is a remarkable thing. It's capable of



The logo for the Alpsat mission designed with a coded acknowledgement by Hanspeter Schneiter from Contraves.
(Doc. Contraves)

taking in the history of the whole Universe from the Big Bang to the present day, but isn't able to imagine the way in which our species could evolve, to conceive that it could change over time. Even sadder is the way in which some people believe in eternal life, but don't give a damn about their own descendants. After me comes the flood, they say.'

'I've always emphasised the long-term potential of space as an instrument for managing our planet, as a driver for the evolution of life on Earth, and as a tool for knowledge and exploration. There's a lot of talk about new models and so on, but what we need is action. The Earth is a tiny island in a vast ocean. Unless we learn to sail the ocean, we will drown on our island. I always keep in mind one of the theories explaining the disappearance of the entire population of Easter Island. The symbolism is striking. The people of Easter Island, so the theory runs, perished because they used up all their resources. They burnt the last tree trunk before working out how to build rafts that could have carried them to other shores. The same thing is happening now: short-term vision is likely to prevail.'

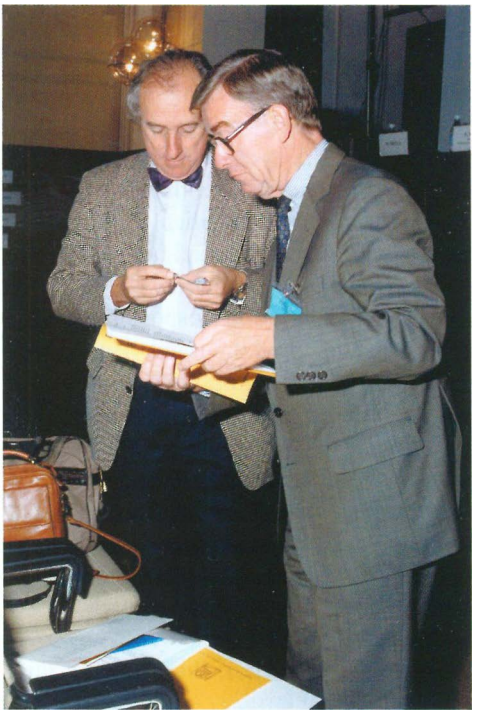
Surprisingly, Peter also supports the investigation of UFOs. Though never a strong believer in their existence, he asks himself why scientists are so reluctant to take the phenomena seriously. He says: 'In the 1960s, APRO (the Aerial Phenomena Research Organisation) was active in the US. For a while, I was the Swiss point of contact for this organisation. The general public is fascinated by UFOs. Faced with the refusal of the scientific community to show any interest in them, they unfortunately turn to con-merchants for explanations, and the con-merchants grow rich on them. Phenomena that we cannot understand are at the root of all genuine scientific study. UFOs need to be brought within the ambit of scientific research.' A task that Peter leaves to his successors.

He believes that research into intelligent extra-terrestrial life forms, like that carried out by the US SETI (Search for Extra-Terrestrial Intelligence) or Mega-SETI programmes, should be made an absolute priority: 'It's very hard to believe we are alone in the Universe. If it were so, it would mean that we owed our existence to an improbable sequence of extraordinary coincidences. The fact that we existed at all would in itself be fraught with risk, and our existence would be doomed to an early end. There's a primal need to prove that intelligence – that is, the ability not only to understand nature but to change it by altering its evolutionary course – and long-term survival of the species are not mutually exclusive. Unfortunately, there are many indications that we are incapable of solving the problems which we have been "intelligent" enough to create. We're genetically programmed to survive immediate danger, but not to adjust our actions to take account of its long-term consequences.'

One of Peter's favourite examples is the overpopulation of the Earth. Human beings know that the Earth is unable to take on an extra billion mouths to feed every 12 years. Population levels therefore need to be stabilised at a level which will not deplete our natural resources and bring about the collapse of the whole ecosystem. Peter says: 'Talking about this problem is taboo. Many religions and political parties irresponsibly continue to preach the creed of going forth and multiplying. Contact with an alien civilisation would prove to us that an intelligent life form "out there" had been able to overcome similar problems, despite the inherent contradictions. Until extra-terrestrial life has been discovered, we have the enormous responsibility of preventing intelligence from dying out only a hundred thousand years after its first appearance. For the time being, the Earth is the only place in the Universe which is self-aware, able to ponder it origins and its fate. This is an extraordinary position to be in, one in which we effectively function as the "brain of the Galaxy". It seems far too risky for an organism of the Galaxy's size to concentrate all its intelligence in a single spot as small as our Solar System. One solution open to us is to populate the Galaxy. This would spread intelligence, certainly, but would also spread love, art and beauty, conserve them and remove them from the threat of extinction through the potential destruction of the Earth. Another solution is to discover "the others" who can give us the assurance that we do not bear the burden of this responsibility alone.'

Peter's nostalgia is composed of both bitterness and serenity. He is somewhat bitter because he plunged headlong into space in order to escape from the problems he faced on Earth in his youth, but has not managed to achieve everything he wanted there. At the moment when he is leaving the limelight, all his old phobias come crashing down on him, and he feels the weight of the world. He says: 'I can't get away from the feeling that we have lost our impetus. Present-day astronomy is focused on "terranautics" which – like the European Earth observation satellite Envisat – reveal the pitiful state of "spaceship Earth" without showing us how to do anything about it. Meanwhile, travel to other planets remains a dream we cannot afford. Yet we are spending vast sums of money on the Olympic Games, parties, pet food, beauty products, and so on. Across the world, the dream is turning into a nightmare.'

However, Peter is also leaving with the calmness of mind that comes from knowing that many things await him beyond professional life. He says: 'I have contributed, in my own fashion, to Europe's emergence as a space power. It was an amazing experience, and one that gave me much joy, both professional and personal. Now, I'm closing that book forever.' He has no regrets as he moves on to voluntary early retirement, keeping in mind the three stages of retirement which another of his bitter-sweet sayings sums up:

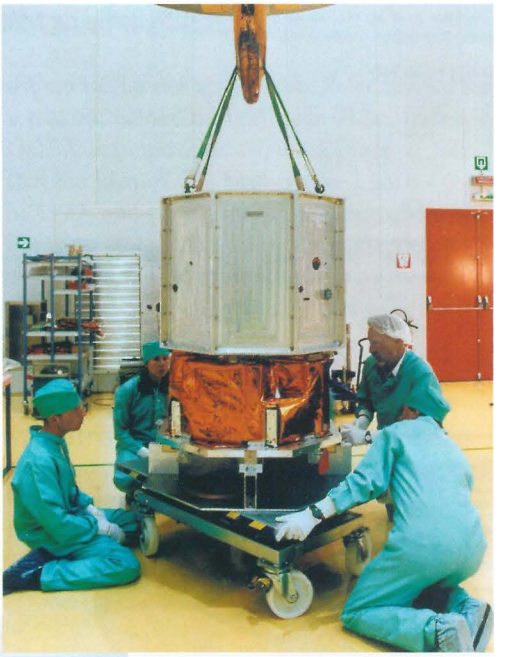


Peter Creola with ESA's Director General Reimar Lüst, on the occasion of the latter's retirement from ESA, in Paris in October 1993.
(photo ESA)

'In the first stage you're free from having to work, and doors are open for you to actually do the things you're interested in, whether they are services you can perform for people or advice you can provide them with. A couple of years later, the doors are still open, but mainly from politeness. Three years on, only pity keeps them open.' Peter, however, knows that he can depend on a strong, calm, steadfast loving relationship with Rosemarie, 'a woman with who I am delighted to be spending the autumn of my life.' He has prepared for this autumn with almost as much energy as he previously devoted to his professional activities. After sitting through 185 meetings of the Councils of ESRO and ESA, it is understandable that he hankers after calmer climes, where friendship and leisure can take centre stage. But this passionate man, who has always gathered a following around him, is able to say today, without blushing: 'My free time will belong to me alone. I'm not afraid of being alone, or of becoming a nobody.'

Meeting with Russian Cosmonaut General Alexei Leonov at Star City on 6 October 1994, on the occasion of the launch taking the first ESA Astronaut, Ulf Merbold, to the Mir space station. From left to right, Marius Le Fèvre, Director of ESTEC, Alexei Leonov, Peter Creola and Jacques Vautrequin, Head of the Belgian Delegation in Moscow *(Photo ESA)*

Baikonur, October 1994. Peter Creola borrowed a cap from a Russian Air Force Colonel, after the excitement of the launch of ESA Astronaut Ulf Merbold.



The Ariane 5 Final Assembly Building (BAF) at the Guiana Space Centre in Kourou in early August 1997. The Teamsat team is busy integrating the YES satellite (Young Engineers Satellite). Following the failure of the first Ariane 5 launch, no payload was planned for the second qualification flight, but intervention by Peter Creola led to the rapid implementation of the Teamsat concept.
(photo ESA)

Visit to ESTEC in Noordwijk, in The Netherlands, in September 1999. Swiss Secretary of State Charles Kleiber and Peter Creola standing in front of a full-size model of the Envisat Earth-observation satellite.
(photo ESA)

«Hope is like a star. We may never be able to travel to it but, like navigators, we may reach our destination by following its light.»
(Michel Eyquem de Montaigne, 1533-1592)

«Hope has saved me from despair on Earth.»
(Peter Creola, 2002)

Bern, Spring 2002

The Swiss Space Office (SSO) team in April 2002. At the back, from left to right: Patrick Piffaretti, Daniel Fürst, Brigitte Zumwald, Stéphane Berthet, Anne-Françoise Brand and Peter Creola. In front, from left to right: Daniel Neuenschwander, Pascale Richard and Pascal Vinard.

Acknowledgements

Once again, it was the ‘Fünkli’ that provided the inspiration.

As one of the founding fathers of the PRODEX Programme, Peter invited the staff of the PRODEX office for a trip on the ‘Fünkli’ on Lake Thun. In the context of a review of Swiss PRODEX activities, the trip took place in July 2001 and it was during this trip that the idea of this book arose. I have known Peter since joining ESA in 1977, and we began reminiscing about the good old days. An avalanche of amusing stories and interesting anecdotes spiced our conversation. It occurred to me that a written version of these very personal stories and anecdotes would be a valuable addition to official historical documents.

This brochure was prepared with the full support and close cooperation of the Swiss Space Office (SSO). Jean-Bernard Desfayes, a well-known Swiss journalist, space enthusiast and a good friend of Peter’s agreed to do the writing, following a series of interviews with him.

Over the past years Peter has been active in so many areas and has interacted with so many people that it would have been easy to write a book ten times the length of this one. However, maintaining strict limitations and concentrating on the highlights led to unavoidable omissions. The natural consequence of the selection of material is that not everybody with whom Peter has interacted and who has contributed to his rich experiences can be mentioned. Nevertheless, everybody's contribution has been warmly welcomed.

To describe human involvement in well-known historical developments in an anecdotal and captivating manner is no easy task. Jean-Bernard Desfayes has done a marvellous job. When you read this book, you hear Peter talking!

Henk Olthof
Head of ESA’s PRODEX Office

Peter Creola

Curriculum Vitae

Born 30 September 1940, Zurich, Switzerland

Law Studies, Zurich University

Doctoral Thesis: Raumfahrt und Völkerrecht (Space Flight and International Law), 1967

1968-1971	Expert on space matters, Federal Department of Foreign Affairs, Bern
1971-1980	Permanent Swiss Delegate to ESRO and ESA, Swiss Embassy, Paris
1980-1988	Head, Scientific Affairs Section, Federal Department of Foreign Affairs, Bern
1988-1997	Advisor on European Space Cooperation, Federal Department of Foreign Affairs
	– Head of Swiss Delegation to ESA Council
	– Swiss Delegate to ESO Council
1998-2002	Head of Swiss Space Office (SSO)
	Head of Swiss Delegation to ESA

International Offices Held

1972-1975	Chairman, Administrative and Finance Committee, ESRO
1974-1975	Chairman, Legal Working Group on ESA Convention
1975-1978	Chairman, Industrial Policy Committee, ESA
1978-1981	Chairman, Ariane Launcher Programme Board, ESA
1987-1990	Vice-Chairman, ESA Council
1989-1990	Chairman, Intergovernmental Committee on Renegotiation of the Ariane Series Production Declaration
1993-2002	Chairman, Long-Term Space Policy Committee, ESA
1994-1996	President, European Southern Observatory

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