

Jacobus G. Ferwerda (15 Oct 1910 – 3 July 1990)

A passionate Dutch 3D Pioneer

Jacobus (Koo) G. Ferwerda (1910-1990) was a Dutch 3D photographer who started with stereo photography at a young age and collected and shared a wealth of knowledge. Ferwerda pioneered in 3D in a time in which solutions for 3D photographers were not there for the taking. He always made grateful and handy use of the developments in photography for his self-designed and -made 3D applications. He became wellknown for his stereo projections and lectures, his in-depth knowledge on the subject and his friendly approach to fellow stereo photographers and 3D enthusiasts. His photographic, technical and mathematical insights were bundled in his book ‘The World of 3-D – a practical guide to stereo photography’, wich has become the standard for investigative and experienced stereophotographers worldwide.



Ferwerda selfportrait, Switzerland, Lac de Tseuzier, 1973

Ferwerda was born in Rotterdam in 1910 (Oct 15th). At the age of ten he saw a stereoview for the first time in a museum. He was intrigued by the magical images right away. At 16 years he got his first monoscopic camera.

Already in 1929 Ferwerda made his first stereo photographs by shifting a small folding camera (4,5 x 6 cm) on a slidebar. He mounted the paper prints of left and right images next to eachother on a piece of cardboard. At that time he also shot his first hyper stereo pictures with an enlarged lensbase. The same year he got a real stereo camera, the Nil Melior 6x13 cm with a filmpack cassette. Through time he made several practical modifications to the camera. With the aid of a special frame Ferwerda transposed the images into 5x13cm transparencies.



Ferwerda in London with his Nil Melior, 1932

Learning the technique

Ferwerda learned about photography in general and the special needs for a good stereo photograph - like parallax and lens base in particular - by trial and error. Ferwerda kept notebooks filled with the data of each photo taken through the years. In July 1935 Ferwerda and a friend took large-base stereo pictures from the Eiffel Tower, using two small camera's - with infrared plates and red filters - ten metres apart. It was one of many examples of Ferwerda's learning and inquiring approach to 3D photography.



Hyper-stereo from the Eiffel Tower, 1935

Ferwerda was an astronomer by education. In 1941, shortly before receiving his doctorate, he became a teacher of mathematics. He knew how to evaluate stereoscopic challenges and next find practical solutions.

During the war, photo material was scarce, but Ferwerda adapted his camera to take 120 roll-film. Several unique stereo photos from 1943 portray Ferwerda - and some others - while camping in the forests in the South of the Netherlands. In this way, Ferwerda combined

several favorite activities while at the same time hiding from forced employment in Germany by the nazi's. On August 9 in 1944 Ferwerda married Hendrien Langelaar. Nobody was there to witness the wedding, as Ferwerda was still in hiding. One month later the liberation of the Netherlands started, on September 12, 1944 with the advance of the Americans in Limburg, in the South of the Netherlands. A few days later several parts in the South were liberated with Operation Market Garden. However, it took until the spring of 1945 before the whole of the Netherlands was liberated. The same year daughter Rinske was born.



Ferwerda camping at Nijnsel, 1943

Dutch Indies

After the war, in 1947, Ferwerda was sent to the Dutch Indies (the later Indonesia) as a reserve-officer. Ferwerda left May 8, 1947, with a large number of other soldiers, with the large troopship Johan van Oldenbarneveldt, just 6 weeks after his son Hans Ferwerda was born. Ferwerda wouldnt see his family for 3 years, as he would return no sooner than 1950.



Looking down from the troopship at boats with merchants at Port Said, Egypt, May 18, 1947.

The Nil Melior 3D camera was taken along to the Dutch Indies. For this adventure Ferwerda had a new rear constructed for the camera in brass, instead of wood. This material would last longer in tropical conditions. The Dutch army was sent to restore colonial authority in the Dutch Indies. However, Ferwerda, (with the rank of captain and later major) was appointed as teacher in mathematics and aerodynamics at military schools and at the Bandung Institute of Technology. He made good use of his time in Indonesia to make many beautiful stereoscopic black and white images of the country and the people.



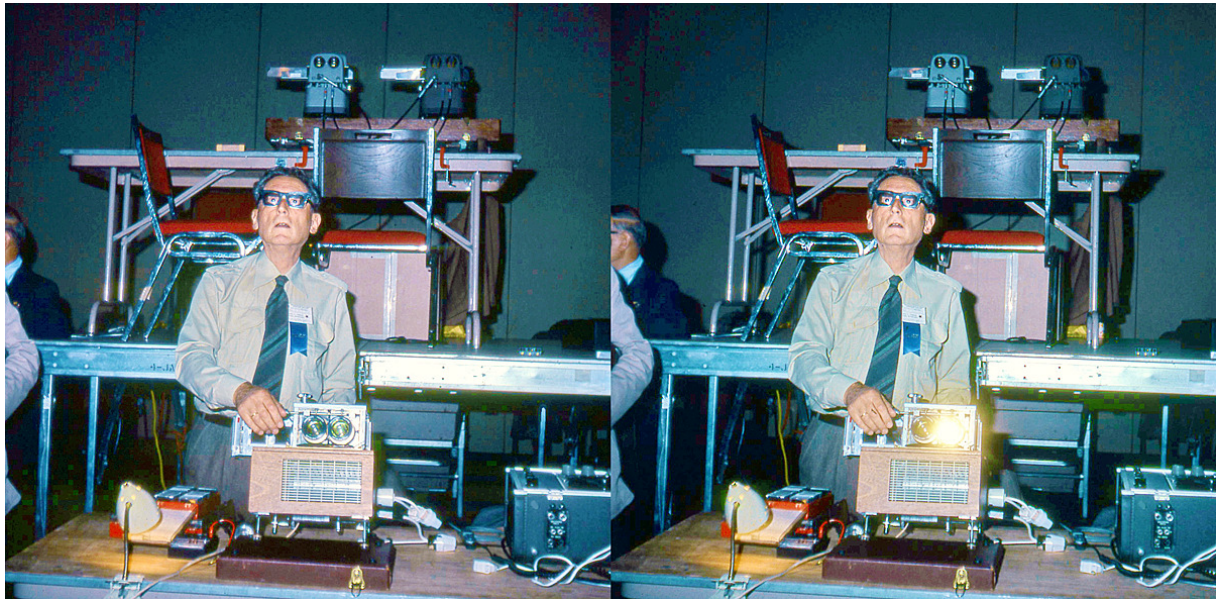
Former resident of the Tjilimus kampung. The man requested to be photographed. He was very grateful to receive prints weeks later, perhaps the first portrait of his life. December 23, 1947

Ferwerda returned home in 1950 and a year later the family moved to the Dutch town of Zutphen. In 1951 the third child, son Tyco, was welcomed.

Stereoscopic projection

Around 1950 the projecting of photographic 2D slides had become a favourite occupation for many. Also new was colour photography; first for 35 mm film. As there were no 35 mm stereo camera's available on the Dutch market, Ferwerda had to wait for the Agfa 120 colour slide film. The Nil Melior was adapted by him once more, to be able to produce smaller (35mm alike) stereoscopic colour slides to fit regular 35 mm slide frames. This also gave new possibilities for stereo projection. Ferwerda had discovered that there was great interest in his 3D images. However, viewing an image with a single hand viewer was an individual event, in which everyone had to wait their turn. Therefore, Ferwerda became more and more aware of the usefulness of stereo projection.

In the mid 1950's Ferwerda experimented with 2 Leitz Prado projectors and polarized filters for the first time. He eventually designed and constructed a setup for optimal stereo viewing without distortion. The projectors were placed on a base with cooling fan, with a filter holder in front of the lenses. When projecting for small groups – on a 1.8 x 1.2 metres large screen, sprayed with the exact right silvery paint - he made sure everyone was seated in the best place for optimum effect.



Ferwerda with a homemade 3D projector

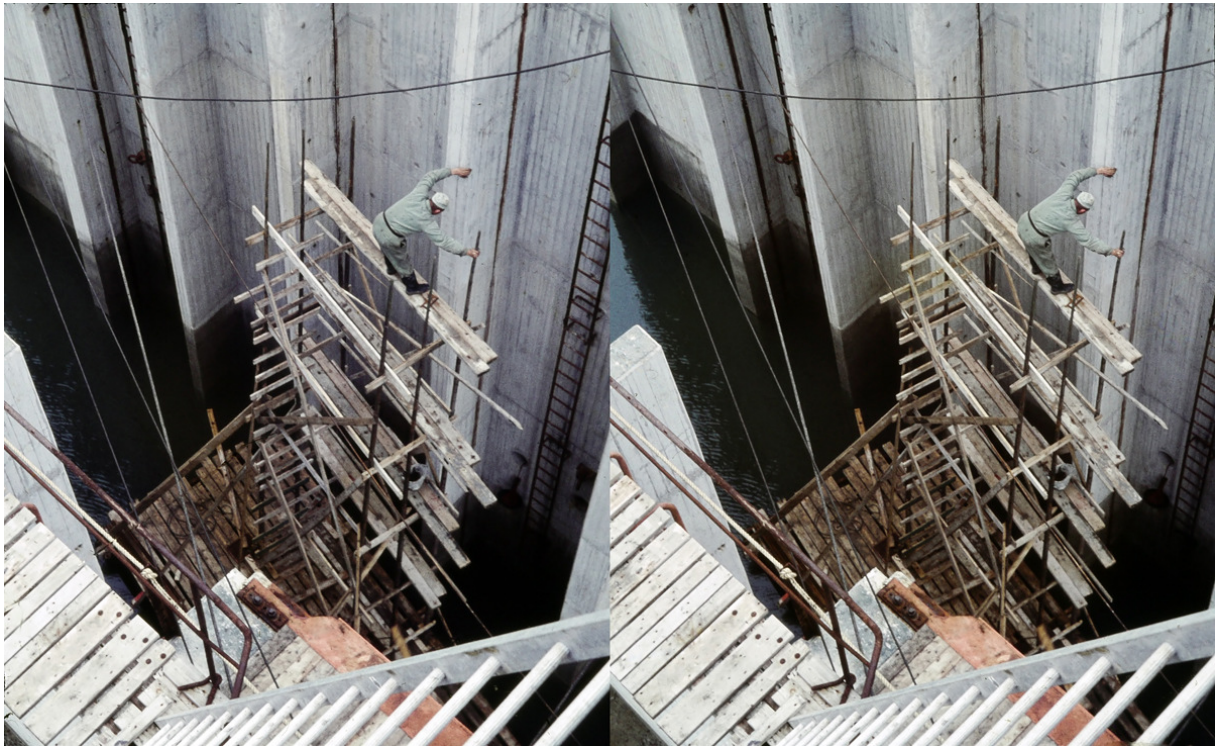
Ferwerda would give his stereo projections for many years to come, in the meantime enhancing his projection setup and other stereoscopic materials. For example, he built his own mounting device for stereo slides. He would use this simple, but highly effective, mounting aid for over 30 years. It was especially important for stereo projection where every small mounting error would be enlarged on the screen, becoming very disturbing for the viewers.

From the beginning, starting in the 1950's, there was great interest in the stunning and inspirational results of Ferwerda's stereoscopic projection shows. Many organizations, in and outside his hometown, invited Ferwerda to show his 3D images on the large screen. It would prove to be great promotion for stereo photography in general.

Delta Works in 3D

Ferwerda became very experienced in shooting hyperstereo images with a large lensbase of up to many metres. Between 1960 and 1970 Ferwerda documented in 3D the process of construction of the Delta Works – and especially of the storm surge barrier in the Haringvliet - in the Dutch province of Zeeland. The Delta Works is a series of construction projects to protect a large area of land around the Rhine-Meuse-Scheldt delta from the sea. In 1953 there had been a terrible flooding of the area.

For a real 3d overview of the immense constructions being built, Ferwerda occasionally used his two 9 x 12 cm cameras from a plane. He had calculated that for an interspace of 10 metres the shutters of both cameras had to fire with an interval of $\frac{1}{4}$ second. He then constructed a setup that made this possible. This resulted in a series of splendid pictures. From all the Delta Works images a 3D documentary with commentary and music was made.



Delta Works Haringvliet, april 1961

Son Hans Ferwerda recalls: “Dad had made a very impressive and valuable 3D presentation of the construction of the Delta Works. It took great effort to make it. I remember he traveled there frequently for many years - during his holidays - from our home in Zutphen to Zeeland, by public transport and moped. He had permanent permission to enter and photograph the site (work island) there. No doubt he had good contacts on site. I understand that years later he handed over the 3D photograph series to ‘Traffic and Watermanagement’, now named ‘Rijkswaterstaat’, the executive organization of the Dutch Ministry of Infrastructure and Watermanagement. The story goes that he visited the site again with my mother some years after that. A series of slides was still inside a box on top of a cupboard then. However they were no longer stereoscopic as they were told that half of the images had been removed, because there was an ‘exact duplicate’ of each one.”



Delta Works, huge pillars for the Zeeland-bridge

Serious about film and photography

Photography in general – not just the stereoscopic kind – was a big thing for father Ferwerda and thus for the family, says Hans Ferwerda: “Father was a great black and white photographer and he won many prizes with his pictures, including the photo magazine Focus and the photoclub in Zutphen. He was an avid film fanatic also, starting with 16 mm film in 1930 and next Double-8 and Super-8.”

For Ferwerda, a film was more than a series of images in a row; there had to be a logical sequence, just like the stereo projections he gave later. He filmed - where possible - according to a script and some things were staged for this purpose.

Ferwerda's short 8 mm movie 'Tegen de Regels' (in English 'Against the Rules') from 1967 was about students who took over power at the Stedelijk Lyceum in Zutphen. The setting for the film was the school where Ferwerda taught mathematics. His students were the actors. The movie won several prizes. This movie and several others by Jacobus G. Ferwerda were digitized by a regional archive and are available online. The earliest movies date from the early 1930's. Click on the following link for the archive; then click 'INVENTARIS' on the page itself and after that click 'FILMS'.

<https://www.geldersarchief.nl/bronnen/archieven?mivast=37&mizig=210&miadt=37&micode=4012&milang=nl&miview=inv2#inv3t2>

Hans Ferwerda: “I have always had great respect for my father's work and his way of working. He was (in everything) very serious. However, he was always busy with his hobbies. And that in addition to his work as a teacher. His study was in the attic and he always was there, editing films or mounting stereo slides, tinkering with cameras or reading photomagazines. I believe I saw him more at school, when I was taking his lessons at the Stedelijk Lyceum in Zutphen, than at home.”

Custom macro camera

Almost logically, Ferwerda was also intrigued by stereoscopic macro photography. In 1961 Ferwerda had replaced the Nil Melior camera for a Stereo Rolleidoscop. He right away revised the shutter, the format and the picture counter and added a flash-contact. The parts of the Nil Melior camera were then used to build a macro stereo camera for subjects up to a distance of just 25 cm. He would also incorporate parts of a 120 roll-film cassette, a mirror and a viewfinder lenshood of a Rolleiflex camera. He also added a moving flash-arm. The special home-built camera had stops of F40, F65 and F80 and pictures with a base of 4, 6 or 9mm could be taken.

Years later Ferwerda would revise his design to make even shorter distance focussing possible. He reduced the minimal



subject distance to just 7 cm. He added distance rods for easy focussing in the field. The camera was fully finished in the late 1970s. To Ferwerda the splendid macro results meant the peak in his stereo career.



Ants with caterpillar, 1979

Sharing knowledge

Ferwerda wanted to share his enthusiasm and experience with others. In 1960 – 1961 he wrote six articles for the Dutch photo magazine *Focus*, under the title of ‘Stereo Photography in Practice’. It wouldn't go unnoticed by other stereo enthusiasts. As Abram Klooswijk would later say in the foreword to Ferwerda's book *The World of 3-D*: “Jacobus G. Ferwerda was an amiable and modest man, who patiently could teach and discuss technical details, but who insisted on high standards throughout the shooting, mounting and projecting processess.”

In 1970 the first initiative for the foundation of a stereo association in the Netherlands was born. Ferwerda was involved from the start. In 1972 Ferwerda and Joop Willink organized a first 3D Day in Soest, where to everyone's surprise more than a hundred members appeared. In 1973, at the first general members meeting, the name Netherlands Society for Stereo Photography was created. In Dutch: Nederlandse Vereniging voor Stereofotografie (NVvS). A. Jager was elected the first chairman, Joop Willink became secretary and Harry zur Kleinsmiede became the treasurer. Ferwerda would regularly write articles about the technical aspects of stereo photography in the *3-D Bulletin*.

Joop Willink wrote in 1990: "In 1970 B. Verhey took the initiative to found a stereo photography club. It was Ferwerda and me who made this into a thriving association, supported by H. Elsinga and others. It took a lot of time and effort, but for the always modest Ferwerda nothing was too much. Ferwerda was one of the founders of the club and a source

of information. He put a lot of time and effort into the NVvS, looking for a usable meeting place, writing articles in our 3D newsletter, taking all sorts of initiatives, for example leading a committee to think through and put on paper the ideal stereo camera, the realization of the 'craft days' and writing books for stereo enthusiasts, both for beginners and the more advanced, and sharing his great stereoscopic images. Koo was always there for everyone who struggled with problems. He did this with advice and action. ... We all owe him a great debt of gratitude."

International reach out

Ferwerda had many international contacts, first especially with British stereo photographers. The first 'International Congress for Stereoscopy' in May 1975 was organised on the initiative of Ferwerda, together with the NVvS. The congress in the Dutch city of Wageningen was attended by more than 200 stereo enthusiasts from seven European countries, the USA and Australia. One of the main goals was to discuss the 'ideal stereo system', a huge interest to Ferwerda. Also, there were lectures, stereo projection shows, an exhibition of stereo equipment and several excursions. At the time, there were only a few people who could make a good stereo slide show and Ferwerda was certainly one of them. Also, an important consequence of the international get together was the foundation of the International Stereoscopic Union (ISU) with Don Jeater from the United Kingdom as chairman.



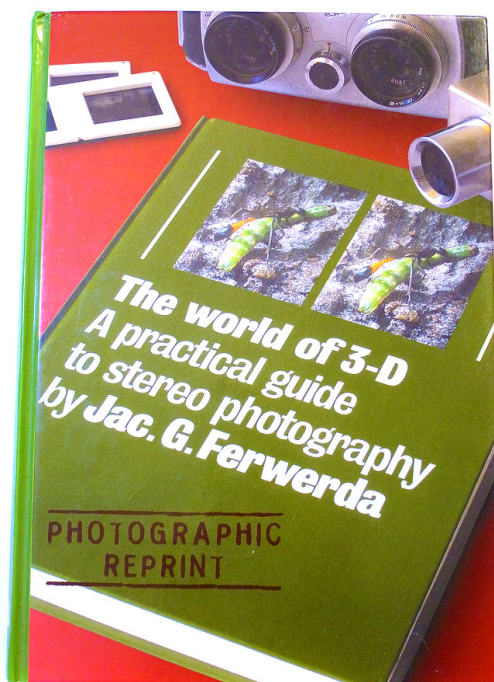
Ferwerda at a convention, The Photo Soc. of America, Hartford - 1979

Peter Siero (born in 1951) in 2020: "I am happy to have known Koo. I knew him in the period 1977 to about 1983. At the time, we had a business building 3D stereo cameras under the name BenS-Stereo. We were in contact with Koo about the technical qualities of our models, as can be seen in his book also, on page 74. Koo was always very critical of the technology we used and we were able to use his knowledge to enhance specifications. Among others we once measured a camera that Koo used for his 3D photography. I also sat on the board of the Dutch 3D club NVvS with Koo for a short time. And I can tell you that his opinion mattered."

The World of 3-D

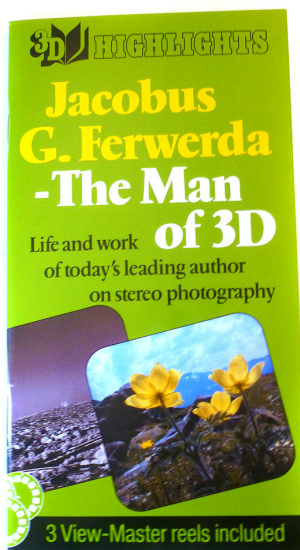
In 1977 the Dutch instructional book 'Stereofotografie Stap voor Stap' (Stereo Photography Step by Step) was published by Harry zur Kleinsmiede. It was written by Ferwerda at the request of the NVvS, to help people get started in stereo photography. Zur Kleinsmiede had lots of knowhow as publisher and the book was a great success from the start. In the book Ferwerda defined and standardized a large number of stereo conceptions in terminology. They would come into general use within a short time.

There was great interest in the Dutch book by Ferwerda and an English, much more extensive, version was to be published in 1982. In preparing this book 'The world of 3-D – a practical guide to stereo photography', which took 3 years, Ferwerda got much assistance from Abram J. Klooswijk from The Netherlands and W.C. Dalgoutte from the United Kingdom. The publication was financed by the NVvS. Ferwerda compiled all his technical and practical experience in the book. Since publication it has been the guide for stereo photographers throughout the world. In 1986 the second edition was printed and published by '3-D Book Productions' founded by Harry zur Kleinsmiede and his wife Mariët de Weerd.



Hans Ferwerda: "In the last years of my father's life, when he could no longer edit photos due to his illness, we recommended that he buy a rotary stereoviewer by Hugo de Wijs. I would put a series of stereo slides in there on certain occasions. That was a difficult job, because one wrong movement or a slide fell apart. But this way everyone could still look at his photos and he could talk about them. Even after his death we kept his hobby alive in this way for a number of years."

Jacobus G. Ferwerda was especially passionate about and proud of 'The World of 3-D'. It was a labour of love, but certainly not without sacrifice. As Jaap Noordam wrote in his 'In Memoriam' in the 3D Bulletin in 1990: "Koo has achieved much of what he had in mind. He had an endless passion for his hobby, which he sometimes even put above his health. He drove himself to get his English book publication technically perfect and up-to-date. His heart and stamina have suffered a lot from the stress, as he told me. Also his family had to give way to his hobby at times. Fortunately, after the hard work there came times in which they traveled a lot together."



Since 1982 thousands of copies of 'The World of 3-D' have been sold worldwide. For Ferwerda the publication of The World of 3-D, based on over 50 years of stereo experience, as well as his appointment as a honorary member of the NVvS, meant the crown of his many 3D activities. The book had new editions in 1986, 1990 and 2003.

In 1989 3-D Book Productions published a 3-reel Viewmaster packet with information on and 3D images by Jac. G. Ferwerda. The amazing infrared stereo image taken from the Eiffel Tower in 1935 is one of the 21 3D images on the reels. There are also stereo images of Ferwerda's Dutch Indies period, the Dutch Delta Works and some amazing macro images, made with his self-built stereo macro camera.

Hugo de Wijs, another Dutch 3D Legend, typified Jacobus G. Ferwerda in 1990 in simple, but sincere and accurate words:

"Last April I have visited Koo Ferwerda for the last time. Hospitable as ever he opened the front door, although he was no longer that agile. His close friends and acquaintances knew he had been struggling with his health for a long time, but that it would go downhill this quickly we did not expect. It was therefore unexpected when I was informed that Koo had passed away. For many of us, and especially for his wife Hendrien and his family his passing will give a great emptiness. Hendrien has always supported Koo behind the scenes and stimulated him patiently in his great stereoscopic hobby.

Koo Ferwerda became a big name in the world of stereoscopic photography. He was a great source of information for the beginning and advanced stereo photographer. Thought-out and well calculated were his solutions to many problems presented to him. His life goal was the stimulation of stereo photography. As a result he wrote two well thought-out books on stereo photography. Also the organizing – together with his wife Hendrien – of the first International Stereoscopic Congress in Wageningen was a great success.

Personally, I happily think back to the many conversations with Koo and the days I spent with him. Many of his acquaintances will miss the stimulant person that Koo was. Personally I

want to thank Koo for his support and advice during my career as a professional stereo photographer.”

This text was compiled by Ronald Schalekamp using texts by Harry zur Kleinsmiede and Wim van Keulen (The Man of 3D - (3-reel viewmaster booklet)) and the 3D Bulletin (NVvS). Added was information supplied by Hans Ferwerda and several people who knew Jacobus G. Ferwerda well. With courtesy of Hans Ferwerda, Carmijn zur Kleinsmiede, Dennis Boersma, Jeroen de Wijs and everyone mentioned in the text. Thanks to Susan Pinsky for some of the images (she herself shot) and for her awesome website .

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Grandmother B. in the kitchen, 1930's



Selfportrait, enjoying the sun, 1938



Hendrien Ferwerda-Langelaar among the reeds and plumes, honeymoon, 1944



Grandfather Ferwerda, 1957



Hendrien Ferwerda at Marmolata and the Geislerspitzen, Italy, 1958



Great-Brittain, Staites harbour, 1975



Husavik harbour, Iceland, 1975