

*Nothing is more beautiful
than the name of the one you love*

. . . in Butterfly Letters

The Inspiring Smithsonian

Kjell Bloch Sandved

THE SANDVED FAMILY (1918)

The Sandved family hails from Denmark, the land of the Vikings, where the Emperor in Hans Christian Andersen's fairy tales had no clothes and where the endemic teak trees grow tall and straight, perfect for the elegant Viking ships which wreaked havoc on their seafaring neighbors far and wide.

Centuries ago, the Sandveds, weary of all the killings in the Viking years, modified their behavior and began making elegant Danish furniture.

They moved and settled down peacefully in the scenic town of Stavanger, in southern Norway, where the family started the "Sandved Nursery" with flowers, petals and peas.

Kjell (Pronounced as "shell") can still see in his mind's eye how the family preserved peas by pressing metal lids down onto cans with a simple lever: one after the other, sealing each can of peas, again and again.

In 1918 his father, Alf Michael Bloch Sandved, had earned his medical degree, summa cum laude, in Berlin and returned to Norway. He brought with him antique French furniture with curved legs and a Blüthner piano, on which Kjell's mother loved

to play classic pieces by Mozart, Chopin and Liszt, later instilling in the boy an early appreciation for classical music.

BEAUTIFUL HARDANGERFJORD (1922)

Kjell was born October 20, 1922, in the Hardangerfjord, Norway, where his father had become the district physician. Protected by the tall mountains, and warmed by the streaming sunshine, local farmers could grow their hay, vegetables, and even grapes.

Numerous waterfalls along the fjord resulted in cheap electricity in the late 19th century, utilizing turbines to create power. One of Kjell's earliest memories, perhaps at four, was sitting in the window looking out at the majestic mountains along the fjord with its numerous waterfalls and picturesque white houses, watching ocean liners passing by while his mother played the piano.



*Reflections in Idyllic farming community, Kjell's birthplace
Hardangerfjord, Norway*

KJELL'S FATHER (1926)

To reach his widely dispersed patients in the fjord, Kjell's father had two choices: his earliest hand-crank-starting Model T Ford or his old-fashioned white motorboat with its straight front bow.

Kjell still remembers a scene with his father when he was five years old. "Somehow I had gotten myself inside the fenced-in turkey yard where the turkey, as tall as I was, ran over and loudly starting gobbling right in my face. I screamed right back until my father suddenly appeared, knelt down, and rescued me." This fleeting memory of his father bending down to save

him from the turkey is the only image of his father still imprinted on Kjell's mind.

His father died in the spring of 1927 from an infection he contracted from a patient.

FIRST LOVE (1927)

Kjell remembers so well his first love when he was about 4 or 5 years old. His mother had rented out two rooms in their large house to an American journalist's family, which included a son and a young daughter, Kari.

One day Kjell's mother was holding him in her arms in the yard, near "his" apple tree. In one hand, he had an apple and in the other, his father's most precious stamp album, given to him as a special keepsake.

Over to Kjell and his mother came that lovely little girl in a colorful red dress, and Kjell melted. All he wanted to do was to give Kari his precious stamp album and the apple. His mother asked him why, but Kjell was too embarrassed to know what to say. His mother, just smiling, gave Kari the apple but held on to the stamp album. To Kjell's sorrow Kari left with the apple, but not with his stamp album.

After that episode Kjell lost his interest in stamp collecting, eventually giving the album to his brother. But he still remembers that little girl's name: Kari Winger. "I still love her in my mind," he adds. Years later he wondered where she had finally settled down.

As a boy, Kjell always loved to go to the nearby baker to get the bread for his mother. The baker always gave him a small cookie. Kjell went home with the bread under his left arm and his cookie in his right hand, happily eating the sweet treat on his way home.

FUN & GAMES (1928)

Before attending grade school, Kjell and the neighbors' children used to fish along the pier and play "hide and seek" games around the neighbors' small white houses until their mothers called them in for dinner.

From his earliest childhood Kjell liked to build and create things. It didn't matter what – just anything. He recalls most vividly one "creation" he made for Kari's brother. Being proud of having learned to speak English, Kjell asked the boy's mother, "May I make a swivel crane for your son?"

"Yes, my boy, you may," was her delighted reply.

Starting with a 10-inch stick in the sand, some spools of thread and an empty matchbox, Kjell added a piece of thick wire to make a small swivel crane and showed the boy how to fill the box with sand and hoist it up a few inches in the air. The boy would swing the box full of sand around in a half circle, depositing the contents a few inches away, and move it all back, emptying it, starting all over again. Repeating it again and again, the children were happily engaged for hours.

WINTERTIME (1929)

During the wintertime the children used to build a miniature five-foot tall ski-jump of compacted snow. Each “ski-jumper” was a Coke bottle filled with ice. The winner was the one who made his bottle jump the farthest.

One cold day, when 6-inch thick broken ice floes were drifting along the surface of the fjord, Kjell jumped onto one from the pier, but slipped and fell backwards into the water.

Luckily for him, the pier-manager saw what happened and jumped in to save him.

When his mother found out she put him, pants down, on her knees to give him a good beating with a bamboo stick always visible in the corner for such purposes. Yet, as much as she wanted to, she just couldn’t and broke down crying.

A few days later, she invited the pier manager up to the Sandved home for a formal engagement, where they shared tea, and as a sign of her gratitude, she presented him with a fine watch.

SUMMERTIME (1930)

On the sloping hilltop above his home, Kjell and his friends used to build a rickety hut in a tall pine tree. Climbing up on a ladder, they connected the hut with a short, horizontal gangplank over to the next much taller tree with a good view of the entire fjord and even into Oslo.

On the top of that tree they built a tiny platform so one person could see all of the passing ships, large and small, throughout the entire fjord. From this vantage point they would yodel in Tarzan style, “Yahooooo!” as loud as they could.

These were treasured Robinson Crusoe years, around 1930, when F.D.R. had a small sign on his desk that read, “*Let unconquerable gladness dwell.*” Kjell still has that small yellowing reprint with other mementos taped up on his crowded walls.

Those were the best of times.

LEARNING (1932)

Independent by nature, Kjell always found self-directed courses of all kinds appealing: engineering, languages, speed-reading, even repairing old-fashioned radios with the separate large circular loud speakers.

In grade school, it became popular to build tiny crystal radio receivers from schematics using a condenser, a frequency regulator, an antenna and a pair of headset phones to listen to music from the nearby radio stations without the use of batteries.

The family’s first radio was the old-fashioned model with 3 glass-tubes and a separate, round, 12-inch diameter speaker.

He eventually became an avid shortwave radio amateur, using Morse code to contact other ham operators the world over.

At nine he was for the first time able to contact America on his short-wave receiver.

He could not have been more impressed when one day he heard a deep, sonorous voice intoning, “This is Schenectady short wave radio station, New York, New York, reporting to the world.”

SAILING & FISHING (1933)

When he was about ten, his mother bought him his first 12-foot long, slender Norwegian high-stemmed “Hardanger Fjord” rowboat. The cost at the time was 50 kroner, equal to eight dollars. Today, a similar boat costs about \$3500. With help from his mother, he sewed and stitched the sails.

Whenever his mother needed fish for dinner, Kjell either baited them from the pier, or rowed the boat just 10 minutes out into the fjord where he angled the small fishes with mussels.

During summertime he used to spear flounders close to shore from his rowboat. Flounders, common along the fjord, would usually hide about ten feet below the surface among ever-present, wave-rounded rocks. When a flounder settles in a patch of fine sand, it “fluffs” up its side fins, concealing its outline.

Surface reflection makes it impossible to spot the flounders, so Kjell built a watertight square, cone-shaped viewing box with a narrow face-fitting opening at the top and a wider piece of glass along the bottom.

Leaning over the side of the boat and looking through the viewing box, he could fairly easily spot a flounder just by the triangular shape of its head.

To catch the fish Kjell used a long, thin bamboo pole ending in a 3-prong fork. As the pole comes hurtling down, the flounder senses the bamboo’s approach, so the boy had to aim his throw about 10 inches in front of the flounder’s face. That day his mother made flounder for dinner.

It was the best of times.

CHEATING CUSTOMERS (1943)

In his late teens and early twenties, Kjell enrolled in various university courses. To pay for the courses he started selling subscriptions for Norway's first encyclopedia of classical music, published by Dreyer Publishing Co., Oslo.

The subscribing customer would pay 10 Kroner (U.S. \$1.50) per month in advance and would receive the book when it was fully printed and paid for a year later.

With articles about the great composers lives and music, such as Beethoven's symphonies, the delicacy of Brahms' piano concerto, the sweet succulence in the Italian Bell Canto operas, the elegance of Saint Saëns, the dramatic violence of Wagner operas, etc. - - Kjell sold subscriptions like hotcakes.

Soon however, he began to realize that his enthusiastic babblings were lies, or at least they were wishful talk designed to earn money.

Back he went to the publisher, telling him straight out, "I am a fake."

"What do you mean?" the publisher asked.

"The information in our sales brochure is full of bone-dry historic facts: Names of known and unknown composers, their works, dates, times, places, conductors, etc."

"What do you mean?" he repeated.

“I have been telling our prospective customers that the book will teach and inform them so they will be able to appreciate classical music more. But this book -- as it is planned -- will become a bone-dry register of who, what, where and when ... customers won't learn a thing. We have to change the format of this encyclopedia so the customer may truly learn to enjoy classical music.

We must give our subscribers what we promise them.”

Leaning back in his comfortable custom leather chair, the publisher had his answer ready: “We can't change things now. You know that. You are the best salesman I have. Go out and sell!”

His negative attitude hit Kjell like a rock in the head, and without thinking, he responded with a strong, loud, “If you won't, I will!”

From the depth of that black leather chair, the laughing publisher's answer came out loud and clear: “Yes, you do that, and in the meantime, just go out, sell and earn money.”

ENCYCLOPEDIA OF MUSIC (1943-50)

Leaving the publisher that spring, Kjell went straight to Oslo University library in search of interesting information about composers, their music and lives.

Returning home with armfuls of books, Kjell sat with his mother in their sunny family garden and made plans. Later, joined by relatives of the composer Edward Grieg and others, they secured financial support.

For the text of composers, their lives and their works, Kjell sought out professional writers fluent in languages, a skill that was to pay particular dividends in his publishing ventures.

After consultations with professionals in classic music for more than a year's time, Kjell had collected all the serious and all the popular articles they needed.

In classic music there is one work that forever has secured its position in front of the rest -- The Mass in B-minor by Johann Sebastian Bach. From the beginning to the end, his Mass in B minor stands as if written in the firmament in Heaven.

Bach spent most of his life composing the piece, finishing it shortly before his death. It is the first, the longest, and most comprehensive Mass ever written, composed as if it were dedicated to God Himself.

Articles on all serious and popular composers and musicians, such as Vivaldi, Mozart, Brahms, Wagner, Chopin, Beethoven, Richard Strauss, and Jazz musicians also, were included in the *Encyclopedia of Classic Music*.

To kick-start sales for the *Encyclopedia of Classic Music*, Kjell printed an inspiring sales brochure using the same yearlong, monthly pre-payment method Dreyer had used.

MAHOGANY COVERS (1945)

During his browsing around at the Oslo University library, Kjell noticed an old book with leather binding and polished mahogany covers and wondered if similar bindings and covers might be suitable for his *Encyclopedia of Classic Music*.

He broached the idea to the owner of Norway's largest plywood factory, the famous Wagnerian soprano, Kirsten Flagstad.

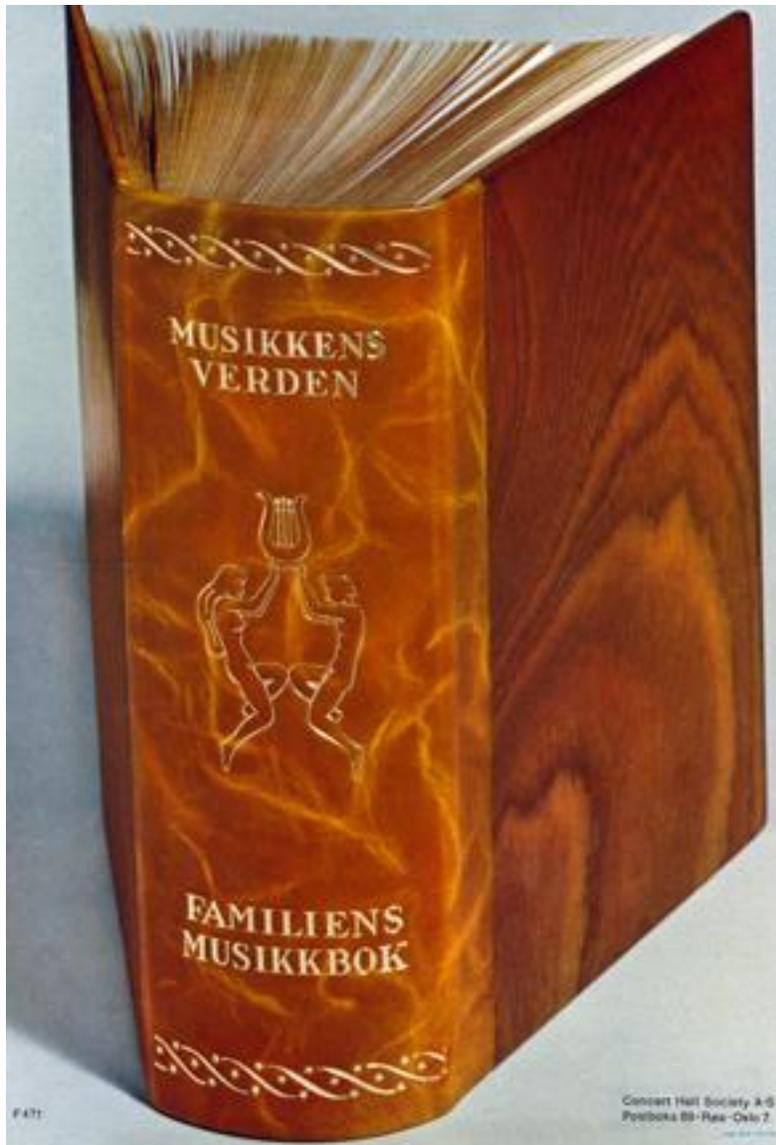
She was enthusiastic from day one; it was just her cup of tea. He proposed each book would be 250 pages, weigh 7 lbs. and have two 7 ½" x 10 ¼" x ¼ -inch thick lacquered and polished African ebony mahogany plates as covers.

Working day and nights, he designed a "20-mahogany plates lacquer-dipping container" about 20 x 30 inches and a foot deep.

This contraption worked slowly, repeatedly dipping 20 plates up and down, up and down into the lacquer. Kjell eventually became "dizzy" (actually tipsy) from inhaling all the lacquer fumes!

After drying, the plates were cut and polished to perfection.

Later his company ended up with a small house full of excess mahogany plates, which eventually were sold for fancy "office-paneling."



Encyclopedia of Music with Mahogany Covers

SUCCESS (1948)

Kjell founded his publishing house in Oslo in 1948, and with its leather-backed and polished African mahogany covers, the richly illustrated **Musikkens Verden** (*World of Music*) became a worldwide success.

Eighty thousand copies were distributed in Norway alone. At that time the population of Norway was just under 3 million, as nearly a fifth of its citizenry had previously migrated to the U.S.

The encyclopedia was revised and published with polished mahogany covers in ten different languages.

English:	The World of Music, Waverley, London	1954
Danish:	Musikens Verden, M.V. Copenhagen,	1955
Swedish:	Musikens Varld, M.V. Goeteborg,	1955
French:	Le Monde de la Musique, Le Sphinx, Brussels,	1961
German:	Die Welt der Musick, Stuttgarter,	1957
Dutch:	Het Wereld der Muzick, Desphinx, Brussels,	1957
Italian:	Il Mundo della Musica, Garzanti, Milan,	1957
Finnish:	Suuri Musiikkikirja, Kustan. Otava, Helsinki,	1959
English:	The World of Music, Abradale, New York,	1958
Spanish:	El Mundo de la Musica, Espasa-Calpe, Madrid,	1962

ROME (1952)

Besides skiing, many Scandinavians love vacation trips to Rome in the wintertime, and so did Kjell.

While sightseeing in Rome, he encountered the loveliest young Danish girl, Kirsten Wegener-Kofoed, and her parents. When Kjell spotted her sitting with her parents on the world famous Spanish Steps in front of the well-known Via dei Condotti shopping street, it was love at first sight.

She was the love of his life.



The Spanish Steps, Rome

SPANISH STEPS (1953)

One day, having lunch with friends on the side-street restaurant next to the Spanish Steps, Kjell stumbled onto two of Europe's largest independent photo-galleries next door to each other, the **ALINARI** and **ANDERSON** photo galleries.

Each company had extensive, yet different archives of 8" x 10" black-and-white and color photographs of internationally known artists' creations, each in competition with each other.

Inspired by the galleries, Kjell suddenly had a new project:
The Encyclopedia of Classic Art.

ENCYCLOPEDIA OF CLASSIC ART (1953-55)

Returning to his publishing company in Oslo with Kirsten, he hired collaborators, writers and assistants to help with the work of creating the new Encyclopedia of Classic Art, *The World of Art*.

By 1955 the new encyclopedia was completed and published with mahogany covers, in the same size and format as the Music Encyclopedia.

Thirty thousand copies were published in each of the three closely related Scandinavian languages, Norwegian, Danish and Swedish.

DINNER WITH LOUIS ARMSTRONG (1956)

In 1956 Kjell learned that Louis Armstrong and his wife were coming to Oslo for a Jazz Concert and wrote him requesting information about him and his music to be included in the worldwide revised edition of his *Encyclopedia of Classic Music*.

After the concert, Kjell was dumbstruck when Armstrong invited him and Kirsten to join them for dinner in their Grand Hotel suites.

At the dinner table the Armstrongs mesmerized their guests with stories and photos going way back to the early 1920s, when soldiers were transported to Europe and they had to leave the “easy” life in New Orleans for the new jazz era and its development in Chicago. Kjell was impressed with

Armstrong's vitality and humor that evening when he demonstrated the horn with and without the mouthpiece.

He was pleased to be included in Kjell's *Encyclopedia of Classic Music*.



Kjell at Dinner in Oslo with Louis Armstrong and His Wife

After dinner, Armstrong brought out numerous articles and photographs Kjell had requested and spread them out on the floor. Kjell could not believe his luck to have access to so much material. It was enough for a separate book.

A short time afterwards, Armstrong went back to their bedroom and returned with 4 or 5 small black leather books -- his "*diaries*," he explained -- and asked Kjell if he would publish them for him.

Kjell, 100 percent dedicated to the completion and revision of his encyclopedia and blissfully ignorant as to the significance of Armstrong's offer -- said no.

Later he was to realize how valuable Armstrong's diaries would become.

After dinner they all went to a friend's large home for music and dancing, an evening Kjell would never forget.

A CLOSE CALL (1960)

In the spring of 1960, Kjell sent the Smithsonian Secretary a copy of the just published revised British Edition of *The World of Music*.

He decided to travel to the Smithsonian Institution, Washington, D.C., to buy photographs for a new book on animal life he had been planning.

Kjell left Oslo one morning en route to Lisbon, Portugal, where he changed planes for the evening flight to Washington, D.C. Settling down, he got a window seat over the left wing's motor where he could watch Lisbon's city lights slowly disappearing into the darkness of the night.

Just after passing Portugal's Azores Islands, Kjell was suddenly shocked by the sight of flames shooting out of the left motor. Believing they were all going down, he was gripped by fear and shaking. This was the end.

However, after a few minutes that seemed like an eternity, the crew was able to extinguish the flames. They turned the plane around and landed in the Azores.

The next morning all the passengers were flown back to Lisbon to spend two days in a hotel as the crew repaired the motor.

PHOTOGRAPHY (1960)

Kjell, not the slightest interested in photography at that time, had brought with him a simple 35mm Kodak camera borrowed from his sister. During the layover, he visited the botanical garden just outside Escorial Castle where he took a picture of a shallow, slow-moving stream full of tiny, white Ranunculus flowers with yellow centers.



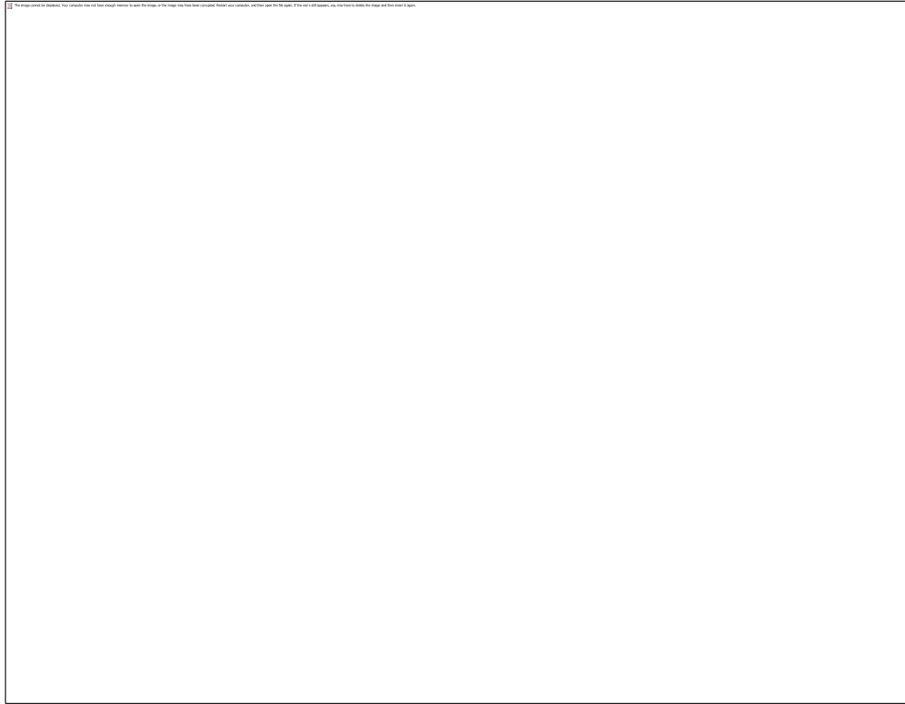
Kjell's first photograph, "Quiet Flows the Stream," Lisbon

Visiting Lisbon years later, he sought out the same lovely area and the beautiful Ranunculus flowers surrounded by a forest.

The stream and trees were long gone. The entire area had been transformed into an industrial city devoid of any trees.

Sic transit Gloria mundi.

DISCOVERY IN THE ATTIC (1960)



Smithsonian Castle

Arriving at the Smithsonian, spring 1960, Kjell was met by the Secretary, who informed him that the museum did not have a photographic archive of animals.

However, he generously offered to provide Kjell with an office in the National Museum of Natural History (NMNH) so he could take his own photographs.

He also introduced him to a professional researcher in the office next door, Barbara Bedette, who was willing to be of assistance to him.

Kjell could hardly believe such generosity, although he had not the slightest interest in photography and said so.

Nevertheless, he was happy for the gracious offer to stay a few days before returning to his publishing company in Oslo.



*Letter 'F' woven into the
wing of a Lepidoptera*

This most extraordinary discovery began that spring of 1960 in the attic of the National Museum of Natural History (NMNH) in the Smithsonian Institution in Washington, D.C.

The visiting publisher and naturalist Kjell B. Sandved was balancing precariously atop a shaky ladder, as Barbara Bedette steadied it from below.

Surrounded by drawers and boxes full of exotic butterflies, Kjell made a surprising discovery. He noticed an old Havana cigar box packed away in a corner.

Opening the aromatic box, there it was: a silvery letter “F” woven into the golden wing of a Lepidoptera. *“I looked at the design under the microscope and marveled at its beauty; it was a perfect letter ‘F.’ Not even a calligrapher could have improved on its delicacy.”*

He was so impressed with the image that he took a photograph of the wing and hung it above his desk, admiring it for months.

INSPIRATION (1960)

After glancing at the image daily, Kjell felt an idea begin to take shape: *“One day it suddenly dawned on me that since I had found one letter of the alphabet, there might be others flying around out there.”* Investigating to see if others had similar ideas, he found nothing. Could he find more letters?

Little did he know then that his revealing discovery was to place him among the world’s most well-known nature photographers.

Since ancient times, scribes and calligraphers have lovingly portrayed the alphabet in different ways in illuminated manuscripts and books, often embellished with human and animal forms. But never before had all the letters and numbers been discovered as written by Nature’s own hand on the wings of butterflies and moths.

“As soon as the very thought sank in, my mind was made up. I was going to be the first to try.”

THE SEARCH (1960 - 1984)

Kjell's intended plan for a comprehensive book of animal life had suddenly evaporated.

Within days Barbara and Kjell had made their decision. But before they could start, however, there was a slight handicap to be overcome: Kjell had taken only one photograph before and knew nothing about photography. Barbara was a paleontologist and knew nothing about butterflies.

Strengthened by his boundless energy and an open mind, Kjell set out on the most challenging quest of his life, a worldwide search for Nature's own alphabet.

He would have to learn, and learn fast.

Although he denies it, Kjell is a man of considerable patience. Learning the art and science of photography became his top priority. For months on end he took classes in micro and macro photography and microscopy until he had mastered the field of close-up photography.

"SEEK AND YE SHALL FIND" (1961)

Loaded with camera gear, film and lights, Kjell embarked upon a worldwide journey, searching for detailed close-up photographs of letters, numbers, signs and symbols, captured without causing any harm to his subjects. No other form on earth has so much diversity in design, behavior and color as Lepidoptera.

PROPOSAL FOR HALL OF INSECTS (1961)

Kjell's first proposal to the National Museum of Natural History (NMNH) was a suggestion for a Hall of Butterflies: the second a Hall of Marine biology. Both proposals were gratefully studied by the directors.

FLAT ON THE GROUND (1964)



Kjell's Open-air, Ventilating Hat

On one of his early Amazonian morning travels west of Manaus, Kjell once passed by a fenced-in pig yard. The lower side of the yard had seepage of water mixed with pig urine trickling down the grassy slope to the nearby pond.

Swarms of thirsty butterflies had discovered the seepage and settled down to the feast, uncurling their proboscis to suck up the aromatic nutritional pig-cocktails.

Relishing the rare opportunity, Kjell, likewise, was soon flat down onto the wet ground, photographing butterflies in close-up for the better part of the day.

Some butterflies used his lens as a temporary rest stop, before they jumped down on the wet grass to enjoy their pig-cocktails.

This fortunate day gave him hundreds of letters, numbers, signs, and symbols from the wings of butterflies; a scene never to be repeated but it has always been remembered.

STORY OF 7 ORCHIDS & 7 BEES (1964)



Why were they all killed?

What an idyllic picture: Seven lovely orchids in the valley of the two rainbows above Kaneohe Bay, Oahu, Hawaii.

Seven honeybees burrowing into seven blossoms, energetically seeking honey and pollinating the orchids.

What's wrong with this picture?

The honeybees visiting the blooms of this orchid are all dead.

The orchid, *Dendrobium stratiotes*, simply does not belong in Hawaii. It is native to the Moluccas and western New Guinea,

where indigenous bees are small enough to reach the pool of nectar within the blossom and crawl back out again to visit and pollinate other flowers.

Once transplanted to Hawaii, however, the orchid's bloom becomes a death trap for the common U.S. honeybee, *Apis mellifera*, itself foreign to the islands. In its drive for nectar, the U.S. honeybee crawls in -- but with its much larger thorax and backward-pointing spines, it becomes tightly wedged into the narrow entrance of the blossom, and is unable to back out.

The dead bees in this picture demonstrate what so often goes wrong when humans introduce foreign species into a new habitat.

This fatal mismatch between the bees and the flowers is rare, but not surprising. Flowers and their pollinators have evolved into finely tuned systems in which the pollinators are rewarded with honey. Orchids, in particular, widely scattered throughout the rain forests of the world, have evolved features that attract specific pollinators. Such exclusivity confers reproductive advantages for the orchids.

Common honeybees, however, will visit almost any flower to steal their reward, but in this case, the large honeybees were trapped in the smaller Hawaiian orchids, became dehydrated and starved to death.

LETTERS, NUMBERS, SIGNS & SYMBOLS (1967)

The most frequently occurring signs and numbers on the wings of butterflies were C, D, F, I, L and M. More difficult to find were letters such as B, H, K, Q, T, X, plus signs and symbols.

As he searched for letters and numbers, Kjell continuously found all sorts of faces and figures, signs and symbols, real or imagined, in the plants and animals he came upon.

For instance, the petals in many *Oncidium* orchids have a tendency towards bilateral symmetry, with each petal having a short horizontal line on one side with a dot above. The pattern is repeated in the neighboring petals, creating an image of a dancing ballerina with festive skirt and a face to match under a fluffy hat. He found the blossoms of another variety formed multiple fluffy hats framing small faces.



Dancing Ballerina – Oncidium Orchid



Orchid Faces in Fluffy Hats

SUNSET THROUGH THE WATERFALL (1969)

Asked about his most inspiring photograph, Kjell doesn't hesitate: "In the late 1960s I rented a plane in Venezuela to fly past and photograph the world's tallest waterfall: the 2,937-foot high Angel Falls. At this height one can regularly observe clouds drifting by."

Afterwards, he flew miles further down the river to Venezuela's most famous Sapo Falls.

Along the bottom of this falls, behind the down-rushing water, there was supposed to be a narrow ledge where a good swimmer would be able to climb up and stand upright behind the roaring waterfall.



*Sunset through waterfall with hanging lianas, as seen from
the 4-6 foot narrow ledge running behind the Sapo Waterfalls,
Venezuela*

It didn't take Kjell long to get there.

He and an underwater camera guide were able to swim through a narrow split in the waterfall and scramble up onto a 5-foot narrow walking ledge behind the waterfall. Standing upright on the slippery ledge, Kjell and the guide tried to speak to one another, face to face.

The roar of the down-rushing waterfall inches away was so deafening that they could not hear a word, even when screaming at the top of their voices.

A few steps further they found themselves looking shoulder-height right into two small nests holding dripping wet young birds. Swallows had clearly discovered this narrow split in the diminishing waterfall to miraculously build nests inches away from the cascading water.

Kjell marveled at the ability of birds to build nests right on the craggy outcroppings on the dripping wet, rocky wall.

Walking further along the slippery ledge, they came to different openings in the waterfall where gracefully hanging lianas yielded hundreds of scenic photographs. One with a sparkling star in the center became one of Kjell's once in a lifetime images.

Kjell hopes to include all the scenes – early morning, noon, evening and night scenes – in the story of his life.



Early Morning's Silver Veil

(1966-1967) GALAPAGOS

DARWIN'S THE "BEAGLE" (1966)

In the past Kjell had enjoyed visiting the Darwin exhibit in the British Museum with its replica of the H.M.S. Beagle that carried Darwin around the world.



"Charles Darwin: The Voyage of HMS Beagle"

In his landmark book, *On the Origin of Species*, Darwin pushed the evidence of life on earth back some 3 billion years, forever teaching us that the only way to learn how life evolves is through amassing vast databases of genetic information.



“In Madagascar there must be moths with a wonderfully long proboscis between ten and eleven inches! This belief of mine has been ridiculed by some entomologists.”

–Charles Darwin, 1862

Now, over hundred and fifty years later, Kjell realized it was just a question of time before the Smithsonian's NMNH would require a Galápagos exhibit. The time had come, and the year was 1966.

With the Colombia rainforest expedition complete and the crew returning to the Smithsonian, Kjell decided to fly over to visit the nearby Galápagos Islands.

He immediately started photographing pertinent habitats and collecting botany and bird specimens for the new Smithsonian Exhibit he had just planned in his head.

First in importance were the endemic finches with their differently shaped beaks, some broad for cracking nuts, others thinner for pulling out wiggling larvae from holes in the branches, etc.

The other dominant items in the Smithsonian exhibit would be the Giant Prickly Pear Cactus, *Opuntia echios*.



Galápagos Cactus-“Tree”

In the Galápagos this cactus grows as tall as stately “trees” all over the Island, with bark indistinguishable from the bark of our North American pine trees.

For transportation back to the U.S. by boat, the interior heavy, convoluted network of fibrous branching had to be removed. Kjell was surprised to find how easy it was to just pull it all out and throw it away. His best helper was the twelve-year-old daughter of the manager of the Galápagos station. She followed Kjell all over during his four-or-so-week stay, and later became the photographer of the Galápagos station. If anyone knows her whereabouts and could inform Kjell, he would be grateful!

Only the exterior, vulnerable bark remained and had to be strengthened. With a 3-foot elongated “paint brush,” Kjell twice painted the entire inside of the “tree” from both ends of his specimen with latex. Then a 7-foot-long strong wooden box had to be made for the cactus tree. Numerous old car inner tubes were cut up in long strips to suspend the cactus bark along the middle of the box. This avoided the possibility of any part of the bark touching the inside of the box should any stormy seas be encountered during the shipment’s return through the Panama Canal to the NMNH.

Next, he sailed over to Isabella Island, watching and filming the gigantic endemic Galápagos tortoises as they laboriously struggled up the steep, rock-strewn pass, finally reaching their common bathing pool where all took part in leisurely swimming, drinking and mating.

It is still a mystery how the Galápagos tortoises navigate their distant return trip to their chocolate-colored “spring water.”

After about five weeks on the job, all was packed and shipped by boat to the Smithsonian NMNH.

At Kjell’s return the director asked him to participate in the monthly Chairmen’s meeting where by now a recurring question kept popping up: “Who told you to do this?”

“Nobody,” was Kjell’s answer. “But years ago I enjoyed visiting the British Museum’s informative Darwin Galápagos exhibit and realized that we also needed a Galápagos exhibit.”

The NMNH hired outside artists to build and paint the exhibit. For authenticity they projected Kjell’s collections of 80 Kodachromes of overall scenes and details directly onto the

exhibit wall. After a few weeks the display of Darwin finches, models and needed specimens were all completed, all true to his slides.

In the morning after the workers had cleaned the exhibit area, all Kjell's scenic Kodachrome slides for the entire Galápagos exhibit and the projector had disappeared.

Well, that happens in life, but the Galápagos exhibit with Darwin still stands as an informative historic sight for the visitors to the NMNH.

SECRETARY RIPLEY (1967)

After his return from Galápagos, Kjell was asked to photograph Secretary Ripley holding in his hand a preserved Galápagos finch specimen that Darwin himself had collected, dated and labeled in his own handwriting. Ripley just smiled, wondered -- hinted to -- but never once asked Kjell why he constantly could come up with his programs, proposals and suggestions. No questions. He just smiled, waiting for Kjell to tell him who the real Kjell was.

The simple answer was that Kjell himself did not know. From his earliest childhood he was just happy creating or helping others. That was all there was to it.

STEPPING OUT OF MY PAJAMAS (1968)

Often, when Kjell gets up in the morning, he drops his pajamas to the floor and steps out. This simple routine reminds him of

the movie he made in 1968 of the seven instars in the life cycle of the grasshopper *Romalea microptera*.

Grasshoppers, a common pest in Florida's numerous orange groves, often feed on the roots of orange trees.

One of Kjell's earliest proposals to the director of NMNH was to create a new hall of butterflies and insects. The museum had earlier on acquired a giant 6-foot plastic model of a grasshopper from the Field Museum of Natural History in Chicago, as they had no use for it.

To document the insect's destructiveness, the NMNH assigned Kjell to travel to the orange grove at the University of Florida, Gainesville, to make a 16mm movie documenting the seven underground instar life cycles of the immature grasshopper *Romalea microptera*.

The finished film would then later be shown in the NMNH for a new hall of Butterflies and Insects.

Each time the immature grasshopper in the ground gets too large for its skin, it crawls up onto the surface to shed its old dry, tight skin, which splits along its back from the head to tail, whereupon the new "instar" grasshopper elegantly steps out of its "too-tight pajamas."

After a few minutes for its new skin to dry, the grasshopper digs underground again to continue to feed on the roots of the orange tree.

This process of the grasshopper crawling up, splitting its too-tight "pajamas" and stepping out of its dried old skin is repeated six more times until its adult winged grasshopper

emerges and flies away, seeking to do more havoc in Florida's numerous orange groves.

NATIONAL SCIENCE FOUNDATION (1970)

In 1970 the National Science Foundation (NSF) had their annual Blue Ridge Conference with a new Smithsonian Antarctic program. Kjell wondered if they might want to project the butterfly and insect movie he had prepared for his proposed insect hall.

Dr. Llano vetoed the idea, as there were no insects to speak of in Antarctica.

The NMNH's entomologists then suggested that Kjell be allowed to show his movie to the attendees at the conference. The movie had several funny scenes that made the conference participants break up in laughter. Dr. Llano was impressed and became in favor of Kjell making an NSF documentary movie of penguin behavior in Antarctica.

ANTARCTICA, ADÉLIE PENGUINS, (1971)

In December 1971, the National Science Foundation, Antarctic Program sent Kjell to McMurdo research station, Cape Crozier to produce a 16mm movie on how the leopard seals prey upon the 300,000-large Adélie penguin colony.

After a two-day stopover with swimming and fishing in a shallow lagoon of the tropical paradise island of Fiji, the NSF

team flew to the Falkland Islands and from there directly to Cape Crozier, McMurdo, Antarctica on a U.S. Navy plane.



Wish We Were in Florida

It's Cold

Adélie Penguins in Snow, McMurdo, Antarctica

The next morning they landed adjacent to the flat surface of another iceberg, nearly the size of Holland.

The main, much larger, Antarctic Ross Ice Shelf had broken in two and was slowly entering the easterly current to eventually round past Cape Horn. Blocking the east-going shipping lanes, the colossal ice shelf was large enough to pose a hazard in the normal shipping lanes.

300,000 NOISY PENGUINS (1971)

Kjell was bivouacked in a large, one room U.S. military portable Quonset hut near the 300,000-large, squeaking Adélie penguin colony.

Heating and food preparation were done alternately by the various researchers. They used a circular coal-fired metal stove with its central pipe going straight up through the ceiling.

It was tight and cozy -- to a large extent.

Antarctica is the world's coldest, windiest and driest continent. The air in Kjell's bed-shack corner was so bone dry that he felt it necessary to nail up on the wall, right next to his bunk, a large dripping wet woolen blanket. It added sufficient humidity to the air and made breathing through his nose easier during the night.

Early each morning a constant stream of nearby Adélie penguins descended the long, sloping hill to the beach.

Using both wings as legs, the penguins bumped, slid, and crawled, side by side with Kjell, down the slippery slope.

Penguins of course can fly in the water but not in the air. Their use of wings and legs reminded Kjell of Darwin's trip to southern Patagonia where the theorist discovered penguins for the first time running on all fours. Darwin called them "Quadrupeds," assuming them in the beginning to be mammals.



Running On All Four

*Spenicus magellanicus, Magellan Penguins are chased ashore.
Falkland Islands*

PENGUINS & LEOPARD SEALS (1971)

Arriving at the beach, Kjell would set up his movie cameras and prepare to film the day's events.

The penguins would congregate tightly together along the water's edge, but none would dare to go out as much as an inch into the water.

Four to seven leopard seals were constantly patrolling the shore, back and forth, back and forth, watching the penguins at the edge of the water. Too slow on land, a leopard seal never tries to pursue a penguin beyond the water's edge.

All the penguins had their eyes fixed upon the patrolling leopard seals that swam just under the surface, only once in a while taking a quick peep at the nervous penguins.

None of the penguins wanted to be the first to leave the safety of the beach. More and more penguins arrived down to the beach

until they all became frantically agitated; cackling, pushing and pulling each other in an unruly, “you go out first” waiting game. Just off shore, their deadly enemies, the leopard seals, are waiting, and swimming back and forth, back and forth.



When one penguin is pushed into the sea, they all form a single line to the sea.

Finally the crowd of penguins along the center of the beach becomes so thick and chaotic that eventually one penguin, the unlucky one in front, is “accidentally” pushed out into the water and immediately grabbed by the waiting seal.

This is the sign for the rest of the penguins to follow suit and they all race out, in one single line of panicky penguins.

Excellent swimmers, most avoid the pursuing leopard seals.



With a quick turn of its head, the leopard seal throws the first penguin way, way up in the air, dives, and grabs it again and again. McMurdo, Antarctica

ICEBERGS -- NATURE'S BALANCING ACT (1972)

The following Antarctic summer, December 1972, Kjell again landed at the Ross Ice Shelf to film the underwater feeding behavior of the Adélie penguins.

This time gigantic stormy weather made filming more problematic. Giant, cascading westerly waves crashed into the easterly end of the iceberg; trying to force it, Kjell reasoned, in a westerly direction.

He soon discovered that his reasoning was wrong.

Ten percent of an iceberg is above water, ninety percent under. The westerly wind lashing into the eastern surface of the iceberg has no effect in the direction the iceberg moves.

It is *not* the strong westerly winds and waves that force the Antarctic icebergs into a westerly direction. It is the easterly water currents that drift the iceberg into an easterly direction until several months later finally delivering the melting iceberg into its own watery grave, miles and miles to the east.

The larger iceberg shown above was slowly drifting onto shore and is the same one shown below, transformed into a much smaller iceberg balancing on one column, fully upright, supported only by a central icy narrow base. After a few days it finally rolled over!



“Why Doesn’t It Fall?” This is the remnant of the previous iceberg one week later after it had drifted ashore. It is still standing upright, only supported by its central column of ice.

Its base is not composed of solid ice. Antarctic “ice” is simply millennia of compacted Antarctic snow. If threatened by winds or waves on one side, air-pressure within the millions of air bubbles on one side acts as a counterbalance, keeping it upright.

It remains upright until the force on one side eventually becomes too great and it collapses.

A remarkable sight to behold!



After having fed, Adélie penguins return to the colony.

THE RETURN TRIP (1972)

After having their fill of shrimp, the Adélie penguins walk back to their colony. Leopard seals under the ice keep track of the shadow of the penguins on the ice as they walk back to the shore. Whenever they meet a gap in the ice coming back, the Adélie penguins hesitate and are fearful to cross the gap, knowing the leopard seals are waiting under the ice for them to cross and can see them through the ice. Then one panicky

penguin jumps across the open ice and all the rest follow. Once across, they walk up to their colony again with their fill of shrimp to feed both the females and the young ones.

KJELL AND THE BABY PENGUIN (1972)

One day, while filming behavior, Kjell noticed an inquisitive baby penguin pulling and playing with his shoelaces. Suddenly the knot loosened and the baby penguin, carried by the momentum of its pull, rolled down the hill a couple of times. Kjell just gently bent down and soon had the young penguin calmly settled on his lap.



Kjell with the Baby Penguin

KEEPING WARM (1972)

All the research team's clothes were made in Japan. They had warm red jackets and white lightweight rubber boots, infused with numerous tiny rubber bubbles, remarkably steady on the icy surface. To get good photo close-ups, Kjell often found himself crawling around on the ground with frozen wet knees for stretches at a time.

A lady cook at the U.S. military kitchen heard about Kjell's crawling around with wet knees, took pity on him and came to his rescue. She sewed a homemade triple layer pad of white plastic for each knee, held in place by sufficient safety pins.

RETURN TO ANTARCTICA (1972)

Kjell returned to McMurdo the following December, the "spring" in Antarctica. This time he had brought with him an underwater movie camera to document how leopard seals and Adélie penguins manage to coordinate their alternate use of the same breathing hole on thick ice.

Adélie penguins and seals can dive up to 1,000 feet and stay submerged for a maximum of 20 minutes before they have to come up and breathe again.

They feed on krill, fish, squids and phyto-plankton, thousands of small crustaceans, often attached to the underside of ice.

It soon became apparent which of the two was the “owner” of the breathing hole: the leopard seal, often “snoozing” with its head right next to the hole.

With a movie camera suspended under the ice, the “cat and mouse” game changed when the restless seal was distracted or when the penguins simply became out of breath.

At one point the leopard seal, dozing off close to the breathing hole, simply prevented the returning penguins from getting a gulp of needed fresh air. One penguin must have been completely out of fresh air because it finally took the desperate chance of suddenly speeding full throttle through the breathing hole, literally an inch past the nose of the surprised leopard seal and made its getaway.

EMPEROR PENGUINS, ANTARCTICA (1972)

On the flat surface next to the iceberg, Kjell saw for the first time a majestic Emperor penguin, making its way further out to join the other penguins. Standing 4-feet tall, the emperor is the largest of all the 16 species of penguins.

Emperor Penguins, Ross Ice Shelf, Antarctica



They're Talking About Us



Dignified Strides



Stop the Traffic



Wish I Could Fly

Passing sideways with measured strides, the penguin didn't even turn its head slightly to take a brief look at Kjell.

Kjell was highly impressed by its truly majestic demeanor.

But when Emperor Penguins get tired of walking, they plop down on their tummies and push.

CRYSTAL CATHEDRAL (1972)

“The most beautiful thing we can experience is the mysterious. It is the source of all true art and science.” - Albert Einstein

We are all impressed by the mysterious.



© Kjell Sandved

The Entrance to the Crystal Cave

So it was for Kjell one weekend when he with two friends went exploring the colossal ice “upheavals,” a mile southwest of the Dutch Antarctic Research Station. They had learned about the ice caves from a cook in the McMurdo Navy dining hall.

Surrounded by tall ice walls, the group discovered a narrow entrance to a relatively deep ice cave. They simply had to explore it.

With lanterns held high over their heads, they entered the narrow opening of the cave, and a new world revealed itself. Nothing could have prepared them for the startling beauty they were to discover.

Thousands upon thousands of large and small ice crystals, infinite in size and surprising in shape, hung suspended as sparkling chandeliers from ceilings and walls.



Crystal Chandeliers

Forming a veritable cathedral, with faces and figures sparkling in the light of their lanterns, to Kjell the crystals were living pieces of nature's own art, constantly growing, constantly vanishing into the air. He and his friends walked in utter silence, except for the crunching sound of ice under their boots.

The small group walked slowly along the cracked surface, their lanterns illuminating the sparkling walls, transforming each figure as they moved by it. Kjell photographed as they went, changing film or lenses carefully, as any dropped item would quickly disappear in a crack.



The Cave Man Playing His Frozen Sitar

Thousands of ice sculptures hung helter-skelter from ceilings, uneven walls and out-croppings, deep in the dark caves under Falkland Islands' Scott's Base, Antarctica.

Inspired by its beauty, they climbed deeper and deeper into the cave. Soon there was no flat area where one could safely plant a foot so as not to lose balance. The ice beneath their feet became too slippery and treacherous to traverse any further.

It was as if walking in a dream world. Kjell was just thrilled. They must have been there for hours.

For days afterward he was literally dreaming about the mysterious underground nations.

Hopefully one day a creative, adventurous television producer will be inspired to explore these majestic caves and their unsurpassed beauty, and open the public's eyes to this, nature's own crystal cathedral, still unknown to the world.

SINGAPORE FIRST TRIP (1973)

In 1973, Kjell traveled to the sleepy, tropical British pearl of Singapore colonized by Sir Stamford Raffles in 1819 and now a veritable cosmopolitan center.

The British colonial civil servants lived just outside the city along the colorful Orchid Lane in small white houses with palms and an abundance of orchids and butterflies -- an idyllic community. In the middle of the lane was a rocky area with a small waterfall, adding to the beauty of it all.

Kjell then traveled further south to the Sumatran rainforest where he photographed the world's largest flower, the unique *Rafflesia Arnoldi*.

The flower, measuring 3 feet in diameter, was named by Sir Stamford Raffles. It grows as a parasite on the root of a liana that comes dangling down from dizzying heights in gigantic old trees and touches the ground, the only area where the *Rafflesia Arnoldi* can grow.

Near a children's school Kjell climbed a tree to photograph some orchids. In his effort to shoot the specimen at the best angle, he climbed to an overhanging branch in a nearby tree. Struggling not to fall while hanging monkey-like in an upside down branch with camera in hand, he got a surprise photograph -- children taking delight in Kjell's unusual photographic methods. The school children heard that Kjell was up in the tree photographing next door to the school. They were told, "Get out and see the American photographer hanging for his dear life upside down photographing some orchids."

They were all delightfully shocked and amused and couldn't believe their eyes -- They expected him to fall down any second. It was his happiest picture ever.



Buki Tingi Elementary School Children

THE FOUNTAIN CRAB (1974)



The Fountain Crab, normally submerged in sand where it pumps oxygenated water and food past its gills. Caribbean

Diving at the Smithsonian Carrie Bow Key marine lab in Belize in the spring of 1974, Kjell wondered how the marine crab *Calappa calappa* was feeding on planktonic microorganisms and dissolving organic material in the stream of water, as he could not observe any particular movements.

Later he brought a crab into the lab and placed it in a shallow, semi-submerged Petri dish half full of water and fine sand. The diminishing level of water in the dish revealed how the crab feeds. Rapid movements of the powerful gills in front of the mouth create a powerful continuous path for the crab to obtain food by siphoning off plankton as it passes its frontal gills.

The resulting “fountain” in the water stream was variably created according to the level of water and the amount of plankton remaining in the Petri dish.

SUCCESS (1974)

“I have never read a book on biology.”

“You do not need to,” she said.

*“I will give you all you need to know
through your eyes.”*

* * * * *

For over a quarter of a century of photographing zebras in Africa, orchids in Malaysia and letters on the wings of

butterflies in Brazil, searching for letters – photographing letters on the wings of butterflies became Kjell’s hobby and joy.

He crawled on the ground, waded chest deep in ponds, and looked into blossoms, leaves and bark to find letters and numbers on the wings of butterflies and moths.

The largest letter he ever found was the iridescent blue letter ‘O’ on the quarter-inch diameter wing of the Brazilian Morpho butterfly.

The smallest letter he ever found was the 3½-millimeter ‘R’ on the Lycinid in Utah.

Combining his photography with poetry, Sandved created the *Butterfly Alphabet Book*, which can be ordered from his website.

Finally, by 1974, Kjell had discovered and photographed all the English letters and the Arabic numerals 0 through 9 in the scale patterns on the wings of butterflies and moths. The most difficult to find was the asymmetrical ampersand, “&.”



Ampersand

Kjell always wondered who in the world came up with that delightfully shaped “&” symbol: up-and-down-and-back-and-forth-curved. In all the years of search, he only found one single “&.”



Heart of Hearts

Wing detail of a Parnassius sp. butterfly, Spain

Take your child by the hand into a field of flowers on a summer’s day, and don’t forget to bring a magnifying glass to look closely and then look closer still. See the sparkling dew drops in the petal of a flower. We can all experience delight in discovering tiny images in nature.

Kjell and Barbara became world famous after they had found all the tiny letters and numbers, signs and symbols written on the wings of butterflies and moths.

THE BUTTERFLY ALPHABET AND BUTTERFLY GARDENS (1975)

The Butterfly Alphabet poster was unveiled in the first 1975 spring edition of *Smithsonian Magazine* by then Secretary of the Smithsonian, Dillon Ripley. Secretary Ripley revealed in that first issue that Kjell had found and photographed all the letters, numbers, signs and symbols from the wings of butterflies worldwide.

Barbara and Kjell then made a beautiful 18” x 24” gold edition “**Butterfly Alphabet**” art print with special gold foil press filament.



The poster created a nationwide interest in a new phenomenon: protection of butterfly habitats, “butterfly gardening,” and eventually the introduction of children’s butterfly garden programs in the American school systems. Today there are over

100 small and large butterfly gardens in the U.S.



Blue Morpho Butterfly at Breakfast, Brazil

MYSTERY OF SECRETARY DILLON RIPLEY (1975)

This genteel, courteous ornithologist was a secret service agent and intelligence officer during World War II and a lover of the mysterious and intrigues. The ever-smiling, courteous S. Dillon Ripley was the consummate gentleman, as was his best friend and brother in arms, the colorful Herbert Axelrod.

Keenly interested in Kjell's unending proposals for suggestions and improvements in Smithsonian displays, Ripley tried for years to uncover the Norwegian's motivation.

Who was this Kjell who constantly came up with new programs again and again, and without any payment?

How come he initiated all this volunteer work, with programs and exhibits for years without any regular salary?

To find out, Ripley sent Kjell to his friend Herbert Axelrod's beautiful home in Long Island, New York, to photograph some whimsical small goldfish in his aquarium while Axelrod himself gave Kjell a virtuoso performance of Mozart's violin concerto.

Kjell had not the slightest idea what was going on and never found out why in the world he had been sent to Axelrod's palatial Long Island mansion. Ripley wanted to find out if Kjell really was the author of the music encyclopedia with mahogany covers that had been translated into 10 different languages. He had to find out why Kjell continuously suggested new programs without asking for any money. Kjell was receiving monthly checks from his own company in Oslo and had no need to ask for a salary from Smithsonian.

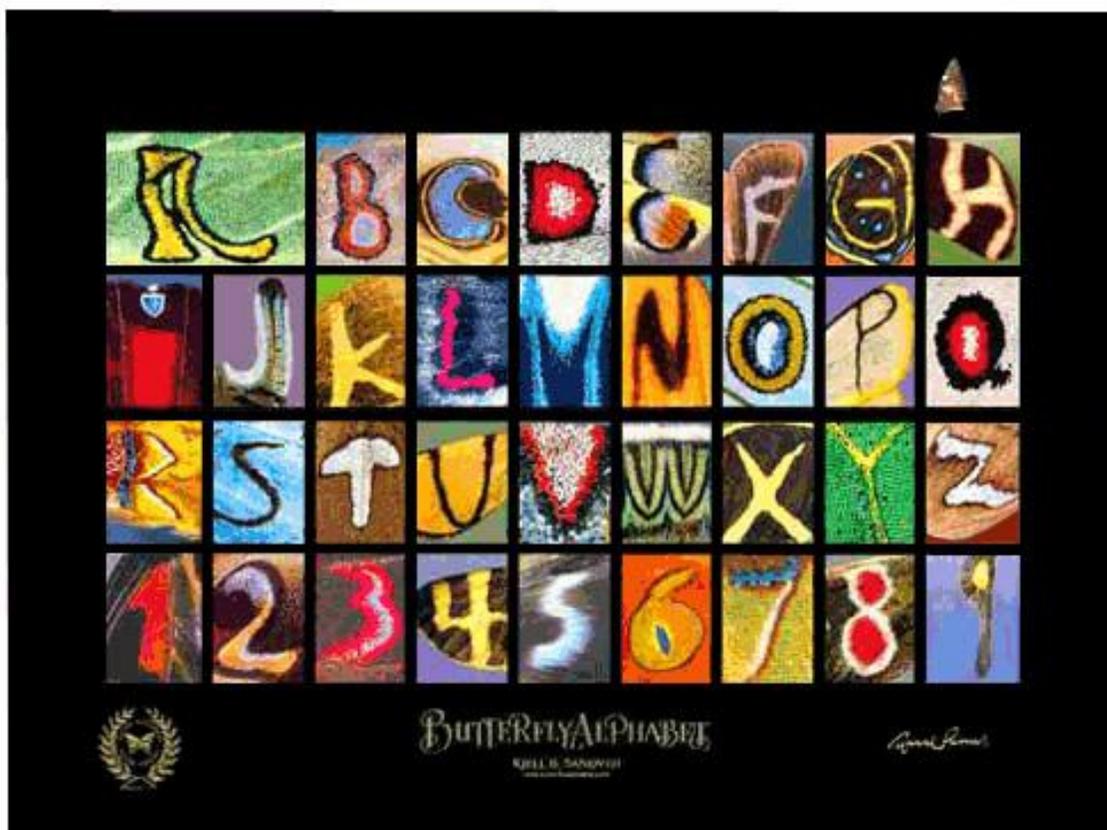
Was it Ripley's hope that Kjell would reveal a special knowledge of Mozart's famous violin concerto by uttering some profound comments on the beauty of Axelrod's performance, thus verifying that he was the creator of his Encyclopedia of Classic Music?

Kjell could never figure out why he was sent to Axelrod's home to photograph the skittish little goldfish. Since childhood

his brain just kept popping up with proposals, some good, some not so good.

He never heard anything about the goldfish again. That was all there was to it.

NAMES IN BUTTERFLY LETTERS (1976)



With hundreds of letters and numbers to choose from, Barbara and Kjell started making individual names for customers with 3 ½” x 5” Butterfly Letters. Each letter is connected to the next with quarter-inch-wide gold strips. With hundreds of different,

colorful letters to choose from, each name becomes a unique original artwork signed by Kjell Sandved!

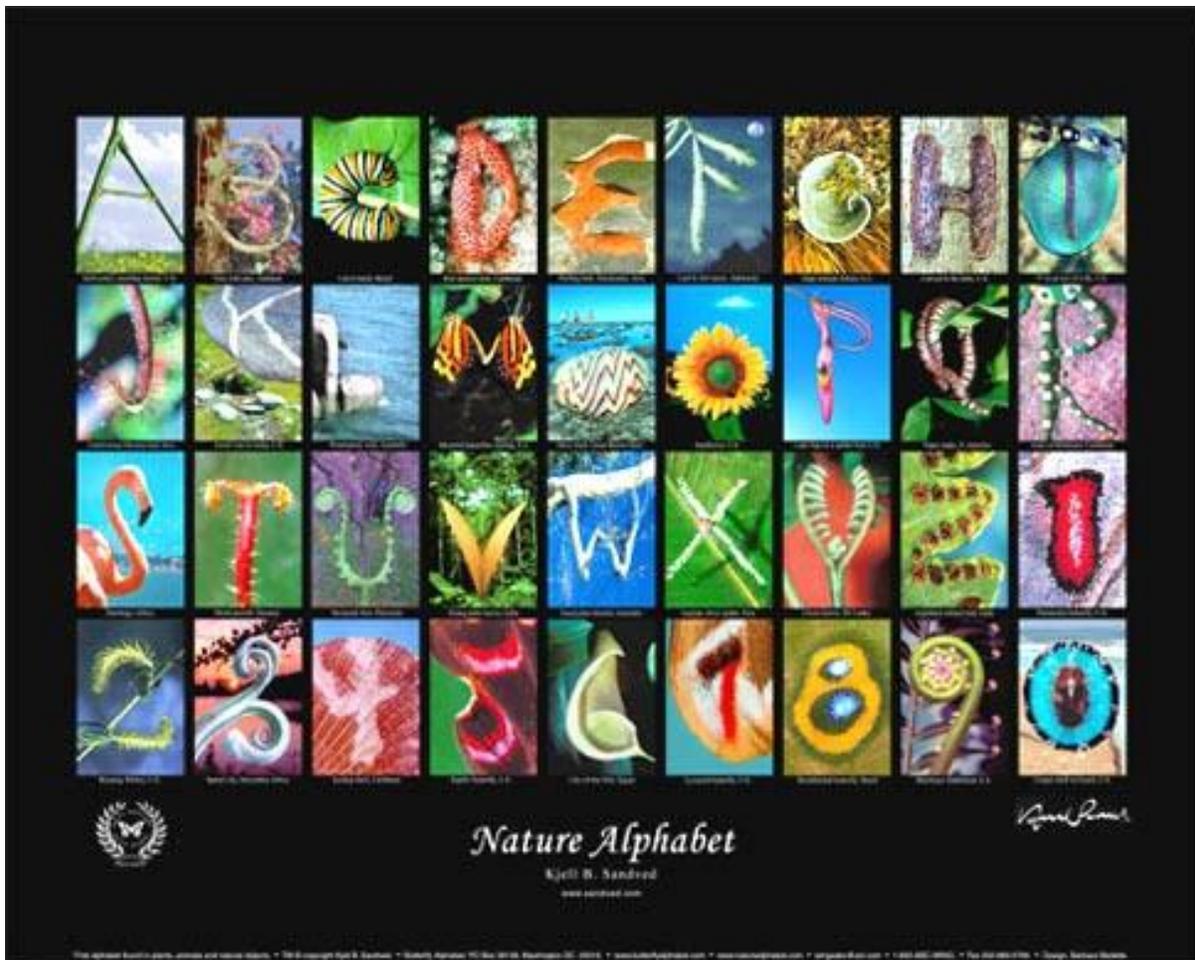
Nothing is more beautiful

than the name of the one you love

in Butterfly Letters

NATURE ALPHABET (1976)

Kjell continued to find designs and symbols, letters and numbers in trees, orchids, beetles, birds, flowers, even in a crab while diving. Soon he had enough letters and numbers from nature to create a completely new NATURE ALPHABET with a story to tell for each letter and number.



An Alphabet for all to see...

In flowers, shells, on land and sea.

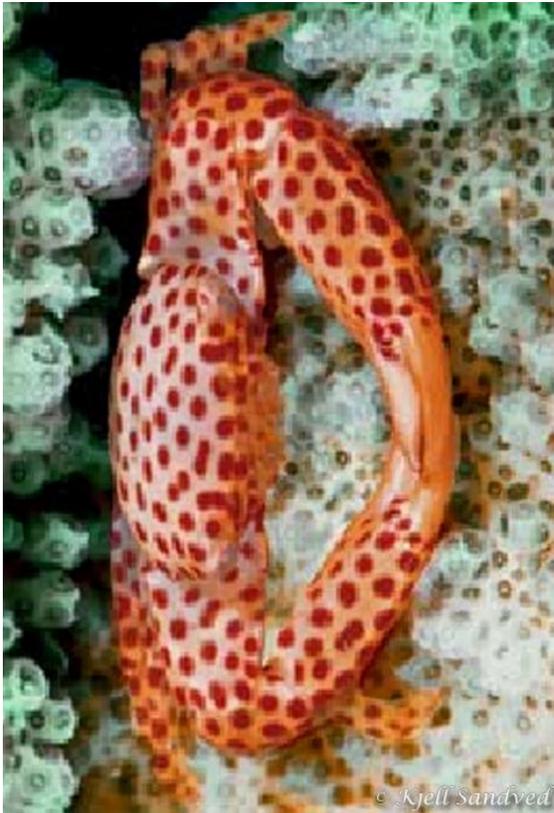
THE CORAL REEF CRAB (1976)

While scuba diving in coral reefs in the Pacific, Kjell noticed the tiny, quarter-inch, red-spotted “Guard Crab.” It finds safety living among the branches of the Pocillopora coral, even feeding on the mucus secreted by the coral.

In return the crab protects the coral from its main predator, the “Crown of Thorn” sea star, by pinching the sea star’s numerous

tiny tube feet until it leaves. If the predator sea star is small enough, the crab simply picks it up and throws it off the coral.

This crab is another of the more unusual members of the nature alphabet, normally holding the claws in front of its body to form the letter “D.”



Red-spotted “Guard Crab” with claws forming the letter D



Viper Snake, Panama

“The letter ‘Q’ was a startling discovery. I was photographing orchids in a tree in the wilderness near the Panama Canal when suddenly I found myself inches away from a coiled snake hanging from a branch. With its head sticking out sideways, it offered the perfect letter ‘Q’” – Kjell Sandved

SINGAPORE, SECOND TRIP (1975)

A few years after he first photographed the world’s largest flower, the unique *Rafflesia Arnoldi* in Borneo, Kjell returned to Singapore. ***What a change!***

The influx of Chinese capital had transformed the sleeping tropical Singapore into a veritable Asian pearl of influence.

Kjell was utterly surprised to see the outreach of the new Chinese possession with not a trace of the former British colony.

From his 20th-floor hotel room, Kjell could count enormous cranes building dozens of skyscrapers in the surrounding areas. Many of the new buildings have thick glass walls right down to ground level in contrast to the dull cement walls of American skyscrapers.

Exit Rule Britannia. Enter hundreds of Chinese skyscrapers with inch-thick glass walls right down to the foundation.

The old narrow “Orchid Lane,” outside of the city, that once provided housing for the British government employees and their servants is completely modernized, and now sits literally in the middle of the city. The waterfall along the narrow lane is still there, now inside a glass-covered air-conditioned miniature “Botanical Garden” with butterflies merrily dancing from flower to flower, seeking nectar from miniature *Oncidium* orchids.

All this now in the middle of the expanding cosmopolitan Singapore!

As favored material for Chinese and Japanese chopsticks, the giant kapok trees, *Ceiba pentandra*, were eagerly sought after until they today have nearly become extinct.

The largest flower in the world, unique *Rafflesia Arnoldi* were nowhere to be found. *Sic transit Rafflesia Arnoldi*.

OUR DEAD SEA FOREFATHERS (1978)

In 1978 Kjell was fortunate to travel with the Smithsonian anthropologist, Don Ortner, his wife Joyce and large family, to the Dead Sea shores, Jordan River.

Their purpose was to locate and excavate an underground tomb holding skeletons and artifacts from one of our 5,000-year old earliest Bronze Age forefathers from the Mesopotamian and Dynastic Egypt civilizations.

They arrived at the large 10th-century, crumbling crusader castle of Kerak, perched high on top of the mountain. There they slept in the central stone hall once reserved for horses.

In those early days the separation between men and women was total. No female could be seen walking alone on any of the narrow streets and school children had to march together from home to home to the schoolhouse.

After a restful stay in the crusader's castle, and two evenings of chicken dinners, the group prepared to start down the mountainside. Their route was by way of a half-mile steep stone road carved in the mountain, a narrow, zigzagging ribbon of a road that ended abruptly at the sandy desert.

From there on it was flat desert road all the way out to the site of early Bronze Age forefathers.

Don, with a steady iron grip on the steering wheel, held the tires of the van exactly at the edge of the precipice, seeing to it that none was an inch outside of the unprotected stone road. Even in his capable hands, the vehicle made a jaw-dropping, back-and-forth descent down the steep mountainside.

Don's two daughters on the right back seat were fully enjoying the "roller coaster" ride. His lovely wife Joyce, however, in the back seat, left side, rode with her left arm stretching up to clutch onto the top of the tarpaulin of the van for dear life. She made that ride down the precipice only once and thereafter remained in the castle, preparing and lacquering the bone specimens collected by others in the group.

Kjell had complete trust in Don's control of the vehicle, knowing he was an honorary brother of the few remaining members of the exclusive internationally known Swiss-Norwegian mountain drivers' club where some members suddenly retired early or just went away.

Once down the mountain, they arrived onto the flat, oppressive, 45-degree-Celsius desert road leading to the Dead Sea. The evaporation here is the greatest in the world, so high in fact, that the Dead Sea is 422 meters below sea level. Not a single tree dotted the desert landscape along the Dead Sea where dryness is just too severe.

Numerous excavation sites revealed this entire area to be a treasure trove of classic artifacts, for years sold to visiting tourists, but recently, however, strictly protected.

Clearly visible, miles away on the other side of the Dead Sea, stood the plateau of the historic Masada, symbol of the ancient Hebrews' resistance against Rome. Rather than surrendering to the onslaught by Rome's legionnaires, all the defending Jews fought to the death in their legendary battle.

To find and excavate a tomb, Kjell had some success with cross-measuring the electric resistance of undisturbed original surface

sand to that of later excavated soil that outlined the presence of a tomb.

A discovery in the first excavated tomb gave indications of the violent nature of our early ancestors along the Dead Sea.

The skeleton showed massive evidence of disease, broken or half-healed bones in the skull, arms, legs and ribs, indicating that the lives of our early Bronze Age forefathers along the Dead Sea 5,000 years ago could be extremely violent.

Kjell could hardly believe what he saw. “And these were our own forefathers?” Kjell wondered.

“They certainly were not mine.”

A 5000-YEAR-OLD LOVE STORY (1979)

In 1979 Kjell again journeyed to the Dead Sea to finalize, collect, and pack material or specimens for the Smithsonian.

One beautiful event Kjell could never forget. He learned that when a person died, the body was first buried in the desert in a shallow sandy grave for a year until all the flesh had rotted away. In the meantime a 15-foot-deep shaft was dug for a permanent burial. A carefully woven straw mat was placed in the center of the tomb; the deceased’s long bones were placed in the middle of the mat and the small bones inside the skull on top.

In front of one such arrangement of bones, Kjell noticed a small brown object in the white sand. Looking closely he saw to his surprise it was a peach pit surrounded by light brown coloration

in the white sand, indicating that the peach must have been fresh when placed closed to the body.

The peach had been placed there 5,000 years before as a food offering to the dead person.

Clearly, the person placing the fruit would have had to run and climb back up the steep mountainside in order to collect ripe peaches and then bring them down into the tomb so at least one fresh peach could be given as an offering to the deceased.

What beautiful 5,000-year-old evidence of love, Kjell marveled.

Another remarkable discovery was the condition of the skeletons' teeth. In one instance a tooth had been ground halfway down to the jaw. This could indicate an effort to get to the nutritious marrow in bones.

Poor nutrition and constant in-fighting among the marauding tribes in the manner of the Biblical "Sodom and Gomorrah" hardly made it a livable area. Excavating their clay abodes and burial practices archeologists continue to find clear evidence of five thousand years of continued violence.

However, the burial practices of the early Bronze Age, over 3000 years ago were quite sophisticated.



Kjell floating high in the Dead Sea with a box of Jordanian ‘Lord’s Cookies’ -- The density of salt in the Dead Sea makes swimmers unsinkable, a unique experience.

This trip held many surprises for Kjell. One was his discovery of a Monarch butterfly feeding on milkweed next to the Dead Sea, reflecting the same interdependency of the Monarch and milkweed as in the U.S. Milkweeds rely on butterflies, moths, bees, ants, and wasps for pollination. The Monarch butterfly is sometimes called the “milkweed butterfly” because its larvae eat the plant.

IN THE EYE OF A CAMEL (1979)

Documenting the area for interesting plants and animals, Kjell one day noticed a camel grazing on some small flowers. The camel would graze on patches of dry vegetation and flowers looking for some morsels to eat.

He suddenly found that strewn amongst the vegetation were patches of what seemed to be small red flowers growing in the middle of spines. These flowers attracted Kjell's attention. Yet, when he looked closer, he discovered they were not red flowers at all, but a cluster of perhaps 30 or 40 tiny red mites congregated close together in each growth of the small, sharp, leafless spines.

To camels, this tiny morsel of a desert plant with its colorful center looks like a harmless flower, an ideal invitation for approach.

As the camel bends down to eat the "flower," the spines penetrate the camel's lip, causing it to bleed and thereby inviting the red mites to enter the camel's bloodstream to pass on parasitic diseases.



Mites Mimic Red Pollen
Spines pierce the lips of grazing camels and goats enabling
parasitic mites to enter the bloodstream. Jordan



Kjell's Reflection in the Eye of a Camel, Jordan

Kjell rode a camel during his Holy Land excursions. During one resting period, when the camel driver had pulled the camel's head down so it could sit, Kjell was delighted to discover that camels, like elephants, have two rows of hairy eyelashes for protection against the constant, blowing desert sand.

Later, examining this photograph of the camel's eye, Kjell was surprised to find that he had captured a reflection of his own white-capped head with a camera in hand standing next to the camel driver's son.

EMPEROR HIROHITO (1975)

Smithsonian Secretary Ripley presented the first butterfly name to the Emperor Hirohito during his visit to the National Museum of Natural History on October 2, 1975. Having attained a PhD in marine biology, the Emperor had a special interest in coral reef and Pacific deepwater animals.

His majesty Emperor Hirohito was greatly pleased upon receiving the butterfly name-plaque. He turned to Kjell and said in broken English, “*You crever Americans!*” Always reliant on his interpreters as a matter of his position, those were the only words the Emperor spoke in English.

GIFT FOR A QUEEN (1976)



The second official name spelled out in butterfly letters was presented to H.R.H. Queen Elizabeth II during her 1976 six-day official visit to the Smithsonian in celebration of the Bicentennial.

BUTTERFLY DRINKING PARTY

On one of his many research trips through the rainforest west of Manaus, Columbia, Kjell had hired two workers from the University of Manaus for an early morning discovery walk along the nearly indistinguishable jungle path.

After a few hours he noticed a half-rotten, but still standing tree with glistening, fermented fluids slowly seeping down its bark.



Kjell Photographing Drunken Butterflies

As Kjell approached, he realized two large Brazilian Nymphalid butterflies were perched on the moist side of the bark, both swaying and staggering about in the most unusual, relaxed manner.

A closer look revealed what was happening: “They were drunk!” In fact, they were so loaded that Kjell could easily pick one up gently to re-position it for a better angle of photography. Undisturbed, they calmly continued to imbibe another butterfly cocktail.

What a surprise! What a delight! The scene came back to Kjell in a dream that night.

EVOLUTION: SEEK AND YE SHALL FIND

250 Million years ago, the largest meteorite known hit the earth nearly wiping out all forms of life on land and in the seas.

Only the simplest form of microbes at the bottom of the ocean remained to regenerate life on earth.

50 Million years ago a huge meteorite hit Central America, creating the Caribbean area as it appears today, again nearly wiping out most forms of life, including dinosaurs.

Nature communicates through sight, sound and chemical means. Keep your eyes open and Nature shall show you the ways evolution works.

As Kjell traveled rainforests the world over, nature taught him the workings of evolution, allowing him to fully realize the evolutionary importance of birds in the rainforests as predators of butterflies and moths.

The food of rainforest birds consists mostly of flying insects they scare up from a resting feeding position.

THE GREAT BARRIER REEF (1976)

Among Kjell's many travels during those years were several to Australia's Great Barrier Reef, where he photographed marine life.



Girl walking picking up starfish, Great Barrier Reef



Great Barrier Reef

EVOLUTION -- PART TWO (1979)

One year Kjell spent the better part of a few summer days crawling around in the green grass of his own backyard where he discovered a new family of butterflies, the “Lycinids.”

This is a worldwide, tropical family of small butterflies, popularly called “Hairstreaks” or “Butterfly Acrobats.” They live and thrive in a small 25-inch by 25-inch patch of grass during their short life.

Evolution seems to be playing a special game with the Lycinid butterflies. In their struggle for survival, this family has evolved behavior and adaptations unique in the animal kingdom.

They have become “*the surprisers,*” “*the bluffers,*” and “*the survivors*” in the world of butterflies.

When attacked by birds or lizards, they avoid their predators by flying a few feet up and then quickly settling back down again in their little patch of green grass.

To protect themselves and to mislead the attackers, they have evolved six tapering, increasingly darker, dominant lines on each wing. These lines point downward to their dark rear end, indicating to their predators that this is where the tasty “fake” head is.

To make this false head even more conspicuous, more believable, this butterfly has added white tipped, highlighted “eye-markings” masquerading as the two eyes with two thin, wavering antennae.

The “fake head” appears to flicker when the insect’s hind wings are moved down, contributing to the illusion of a head, further convincing the predator that the head is at the rear end of the butterfly.

When attacked, the butterfly deceives its attacker by throwing both its wings with the “fake” head and body forward and down in a 180-degree position, much like a cartwheel, to redirect the predator’s attack towards its “fake head.”

The attacker’s reward, a mouthful of dry butterfly scales, is easily re-grown.

How mysterious, the pathways of evolution, when the lowly Lycinid’s 180-degree cartwheel trick or bluff, a behavior

repeated million of times in small plots of green grass the world over, has never been figured out by the far more advanced birds.

Living in the northern hemisphere, we often find that butterflies are beautiful, and in contrast, moths are often thought of as less colorful, hidden in the bark of trees.

In tropical rainforests however, we find moths beautifully adorned in silvery, sparkling white “*wedding gowns*,” embroidered with golden borders and abstract designs seldom found in northern zones, mimicking bird-droppings, mildew, lichens, etc.

These designs’ visibility can also be a delight in the eyes of their enemies: birds of the rainforest whose favorite food is butterflies, moths, spiders, flies, larva and other insects.

Mother Nature gives all living forms means for survival, including the tendency of insects and animals to “cheat” in order to avoid being eaten or running the risk of extinction.

Kjell started finding realistically “painted” images on the top of, or on the side of, or on the underside of various butterflies, moths, spiders and flies.

Based on specific evolutionary traits or needs, different mimicry and concealment relationships have developed during the evolution among birds, moths, butterflies and spiders and other insects. Kjell found two different families of moths: Noctuidae and Geometridae, and two different families of butterflies: Lycaenidae and Riodinidae, which have adapted “false” advertising in order to survive.

Cheating in advertising is normal in nature. Members of the above four different families of butterflies and moths evolved colorful, realistic looking paintings of a fake spider or of a fake fly at the end of each hind wing as a lure to mislead the attacking bird with the following message:

“Do not peck on my central vulnerable body, but peck here on my tasty fake, but realistic painting of an insect.”

Kjell could hardly believe what he saw.

When the bird swoops down to catch its intended prey, the butterfly or the moth that carries a fake image of either a spider or of a fly on its hind wings immediately spreads its wings out to the sides, away from its central vulnerable body as a last “fraction-of-a-second” visual message to the bird: *“Redirect your attack towards the tasty imprinted fake image.”*

The more realistic the image, the greater the chance that the bird will have enough time, literally milliseconds, to redirect its attack towards it, only to receive a beak full of dry butterfly scales, thus allowing the butterfly or the moth to quickly escape and live for another day.

Refinements of paintings on the wings would vary in line with the availability of food and prey, so Evolution was in no hurry. It had ample time for any changes.



Geometridae: Problepsis sp. Moth, Borneo. On the end of its hind wing, there is a distinct and accurate painting of a spider, complete with 8 legs and eyes. This image redirects the bird's attack away from the moth's tasty central body.



Noctuidae: Baorisa hieroglyphica Moth, Malaysia. This moth has evolved two realistic-looking, fake images of the dorsal sides of a spider as invitations for the bird to peck there instead of pecking on the moth's dorsal vulnerable body.



Noctuidae: Baorisa hieroglyphica Moth, Malaysia, shows the detail of the dorsal side of the 8-legged spider for the bird to peck. When the bird swoops down to pick its tasty morsel, it gets only a beak full of dry moth scales.



Lycaenidae: Chlorostrymon maesites, Butterfly, Caribbean. This butterfly has evolved a realistic-looking fake image of the dorsal side of a red-eyed fly on each wing, receiving on dry wing scales.



Riodinidae: Helicopsis acis Butterfly, Brazil. This butterfly mimics the dorsal/ventral side of a long-legged silvery-spotted brown spider. The realistic design of the spider on the underside of each hind wing deflects the attack by birds away from its vulnerable body.

GRAND CANYON (1980)

In the spring of 1980, the Director of the Smithsonian NMNH, Dr. Porter Kier, and his wife Mary invited Barbara and Kjell to participate in a leisurely two-week pontoon trip down the Grand Canyon with twelve tourists.

They were overjoyed to experience the Grand Canyon, one of the Seven Natural Wonders of the World, with the Kiers and

sought out information about Lewis and Clark's earlier expedition along the lower Missouri River.

The Grand Canyon is a billion years old, 190 miles long, 10 miles across, covering an area of 1,900 square miles, with a maximum depth of about one mile.

From day one, Porter took charge, welcoming the participants to experience the Grand Canyon and quickly becoming the most popular participant of the group, reading passages aloud from recounts of Lewis and Clark's 1805 expedition along the lower Missouri River.

The trip was organized with daily rest stops for explorations, lunch and dinner at sandy beaches. As the Smithsonian main paleontologist, Porter shared his knowledge of geology by pointing out various rocks and fossils that others might be interested in.

One of the first adventures was an excursion through Havasu Creek, with a 100-foot falls above the beautiful blue trickling pool.

If anyone in the group disrupted Porter his reading or did not show proper interest in his information, he knew what to do to regain their attention. With a raised voice, he would intone loudly, "Suddenly, where the river is turning ahead of us, you can clearly see the naked mermaid sitting on a rock." He knew how to capture everyone's attention.

The Havasu Canyon was one of the main attractions with varied scenery and the traditional Indian village of Supai. The Supai

village is surrounded by different species of trees, bushes and flowers along beautiful small waterfalls. With its trees and varied vegetation, the valley is considered by some to be one of the most beautiful spots on Earth.

With no rain on the trip, everyone slept in sleeping bags without tents. Once in awhile someone would notice shooting stars in the night sky and call them to everyone's attention. Kjell had no idea that shooting stars could be so common.

The majesty of Grand Canyon's vista during the day and shooting stars at night were a highlight of our trip and became a memory we look back on fondly.

Another highlight of the trip was an impromptu romp. Mostly on impulse, the majority of the travelers all jumped into a mud pool, some in the buff. The swim soon evolved to a free-for-all mud slinging. One girl poured a handful of dripping wet mud onto Porter's head as her idea of nature's own proper shampoo.

Luckily Kjell was nearby and quickly captured a single perfect shot of Porter's "baptism" before the flying mud covered his camera lens, prohibiting any further photography for that day.

Protecting his camera from additional mud baptism, Kjell took two steps backward from the pool and into the crystal clear river water where he discovered several small swimming stickleback fishes slowly moving around nibbling on his toes.

He was surprised the fishes were not afraid of humans, but learned later that tourists often have experienced the same behavior by these fishes.

After the trip was over and Kjell had developed the images, one photo showed a delighted Porter slinging mud around with abandon while one young woman literally ground more mud onto his head.



NMNH Director Porter Kier Enjoying Mud Bath at Havasu Creek

This photo in particular captures the spirit of a mudslinging free-for-all competition and the enthusiastic participation by the director of the world's foremost Natural History Museum. The image is surely worthy of being bronze-sculptured and erected on the Smithsonian Mall as a testimony to a great man with spirit enough to playfully relive his childhood when the occasion arose.

ASTROPHYSICAL OBSERVATORY, ARIZONA (1981)

Before Dillon Ripley retired, he sent Kjell with his closest associate on a plane to the Astrophysical Observatory, Arizona, to admire what Albert Einstein once saw.

Peering into the gigantic telescope for the first time Kjell was entranced like a child at the miracle he was observing: Far, far away through the narrow, perhaps one degree of “tunnel sight,” he could see miles and miles beyond our own solar system into a myriad of universes and far away galaxies replete with stars, suns, real or imagined planets, moons and earths as our own, light years away. He was overwhelmed.

How can we, he wondered, little dusts of humanity, in our blissful ignorance believe that we would be the select or chosen few? There must be an infinite number of us breathing little creatures all over this unending universe of suns, earths and moons, evolving into existence; becoming extinct seconds in geological time; all with a purpose.

Albert Einstein was clear in his response when once asked the impossible question, “Do you believe in God?” His straight answer, “No, I believe in the mystery.” God is the mystery, and we all are getting nearer by the days.

Kjell’s greatest regret was his inability to tell Secretary Ripley of the NMNH that he truly loved him before his death as Kjell was himself hospitalized at that time.

UNDERWATER DENTIST (1983)

A most remarkable underwater movie Kjell filmed was of “The Underwater Dentist.”

The scientists at the NMNH asked Kjell to document how shrimps clean the teeth of the moray eels. Kjell shot the film with a 15mm underwater movie camera at a depth of 25 feet at the Smithsonian Marine Biology Island Carrie Bow Key, 20 miles off the coast of Belize.

At the facility, scientists told Kjell the nearest underwater dentist station next to Mangrove Island was in a six-foot-tall narrow coral growth a quarter of a mile away, which acted as a safe haven for the shrimp to carry out their hygienic duties.

With several long, thin wavering yellow-red-white antennae, the festive colored shrimp, *Lysmata amboinensis*, invites fish to come over to the underwater “dentist office” to have their teeth cleaned of parasites.

This shrimp behavior of attracting “patrons” to their station with their yellow-red-white antennae is eerily reminiscent of the human barber shops of the 1800s, which used the old-fashioned spiraling advertizing cylinders in their storefronts to bring in customers.

The fish’s natural urge to eat the tasty shrimp is restrained only by the more urgent need to get rid of the parasites in their mouth. And even then, the fish’s natural urge to eat instead of get a cleaning is nearly irresistible, forcing the shrimp to keep its

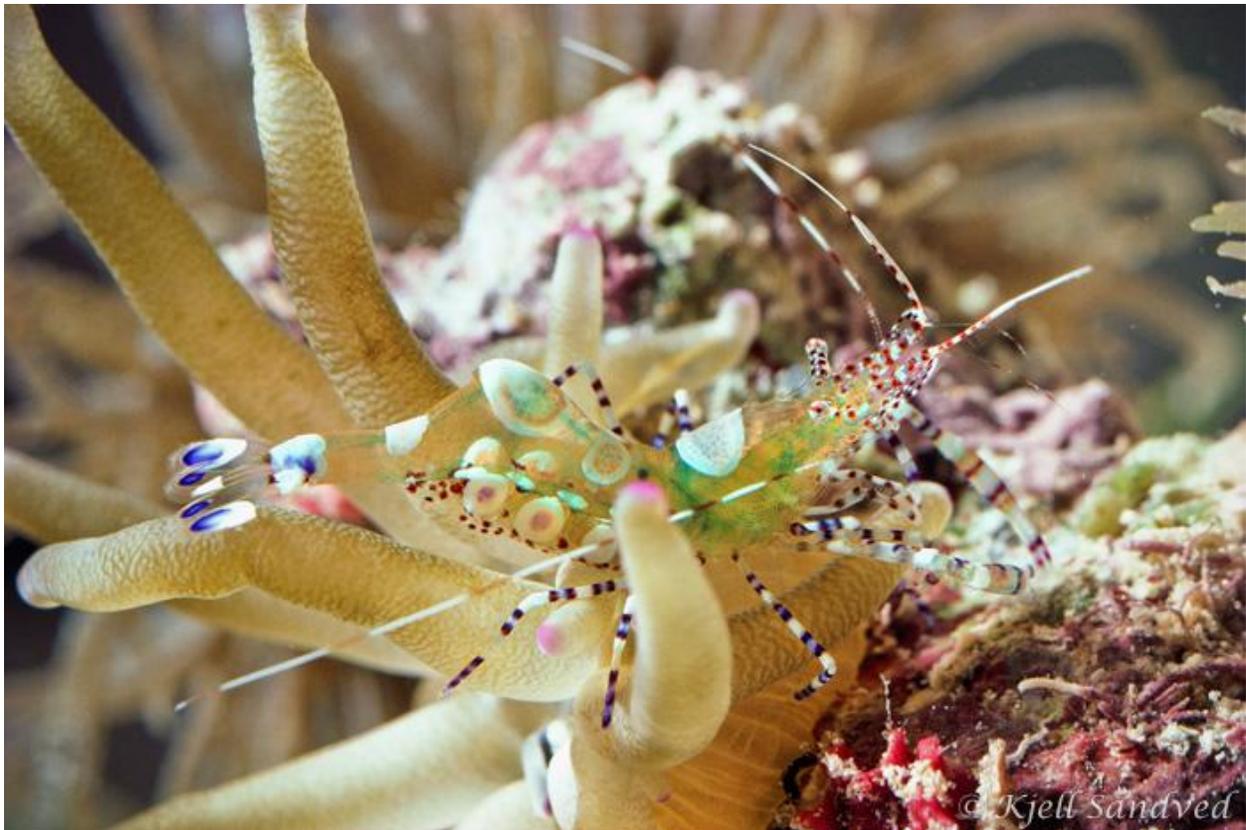
antennae in constant contact with the fish's mouth to calm its innate desire to have a good shrimp meal.

After a few minutes of gentle massaging, the fish gets the message; it opens its mouth to let the shrimp know it's safe to begin the dental cleaning.

Equally remarkable, the various fishes form an orderly queue for the service, none trying to move ahead of other fish waiting to have their teeth cleaned.



***Cleaner shrimp and Moray eel, Caribbean
Symbiotic relationship: Shrimp cleans teeth of the Moray eel.***



The cleaner shrimp sits perfectly camouflaged in the sea anemone. Caribbean

Healthy and happy, the 88 years young Kjell still jogs twenty minutes in the morning and twenty minutes late at night. Through the years he has built up a great debt of gratitude to the Smithsonian secretaries and directors who allowed him to collaborate, assist, propose and fulfill programs he felt could be of some importance to the world's most remarkable Smithsonian Institution.

Kjell will always be grateful to them for giving him challenging assignments that increased his life's achievements much more than he could ever have accomplished himself.

“There's one trait that characterizes our Smithsonian that can't be photographed or printed in a brochure, or placed in a display case. It's that wondrous human characteristic we call enthusiasm.”

--Robert McC. Adams, Smithsonian Secretary Emeritus

“(We) would love to see the world through Kjell Sandved’s eyes. It would be like putting on a pair of magic glasses that revealed nature’s hidden designs, such as the tiny alphabet Kjell discovered in the wings of butterflies and moths.”

--Patricia Chargot, Detroit Free Press

“These Were the Best of Times”

A handwritten signature in brown ink, reading "Kjell Sandved". The signature is written in a cursive, flowing style with large, sweeping letters.

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