

## A Vision of Harmony : The Art of Dominic Man-Kit Lam

by

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**My Mentors (2013)** by Dominic Man-Kit Lam



SHANGHAI ART MUSEUM

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# Lam Man-Kit, Dominic: An Appreciation

What is a “Renaissance Man”? Of course the term comes from the time of the Renaissance period, when the great masters of art were also scientific inventors. Since the 19th century, however, science and art seemed to have parted ways - so much so that in the early 20th century the English critic C.P. Snow saw fit to talk about the “Two Cultures” which, to rephrase Kipling’s famous saying, means essentially that “art is art and science is science and never the twain shall meet”. That is until we meet the inimitable Dr. Dominic Lam Man-Kit! In him the two cultures collide into a form of artistic combustion that is in ample display in his paintings. He is indeed a rare phenomenon in today’s Hong Kong and to meet such an extraordinary man and become his instant friend is, for me, both a great privilege and a pleasure.

Lam Man-Kit – I shall call him Dominic – is not only an exceptionally accomplished scientist. Having first studied physics and biomedicine, he then distinguished himself in teaching (at Harvard and other universities), research (having published over 100 articles and 5 books, including over 17 in distinguished journals like Nature) and scientific invention (he holds 17 patents in medicine). He is also, at the sametime, a truly outstanding artist. What seems even more remarkable to me is the fact that, after decades of staying in America, he chose in 1997 to return and moved his life as well as his biotech business, to the place where he grew up: Hong Kong, and it’s here that his career in art, science, business and philanthropy has continued to prosper. As a philanthropist and businessman in Hong Kong he has also created a unique style in his art. Such a feat is no easy task, but Dominic has made it appear so easy and effortless. Science meets art in his creative horizon as a matter of course, as he plies between both with equal dexterity. Given the pressures of Hong Kong’s hurly-burly lifestyle, I often wonder how he can ever find the time to do so many things on several fronts at the same time. But he does, and seems to have more time to spare for pursuing the “good life”, for Dominic is also a bon-vivant who has a knack for

all the pleasures that life can afford him. One of his mottos, which I have adopted as my own, is: “Be the first to enjoy and the last to worry” (先天下之樂而樂，後天下之憂而憂). Perhaps the epithet “play-boy” would fit him even better – not in the usual sense of a womanizer, which is already a worn-out cliché, but more in the postmodern vein of aesthetic play and pleasure. For I believe that Dominic has derived a great deal of personal pleasure from his various fields of “play”: he has played with science and medicine, which challenged his intellect and imagination; he has played with business and industry, from which he has accumulated enough wealth not only to be financially independent but also to be a philanthropist (having brought Project Orbis, the flying eye hospital to China in 1982, and established the non-profit World Eye Organization in 1999). Above all he has played with his art, which has always inspired him and given him an unending source of pleasure and meaning. All these “plays”, especially the last, have culminated in his latest invention - a new technique of painting, which was named “Chromoskedasic” by Bryant Rossiter, a former Kodak director (see *Scientific American*, November 1991).

“Chromoskedasic painting” (also known as NanoArt, since the paintings are based on light scattering of nanometer size particles) can be considered a by-product of his scientific practice, for he first accidentally discovered it in 1980, while developing black and white photographs of the retina. The story of how he came about this new invention has been told many times by other people, especially in the news media. I call this an instance of serendipity, of finding something unusual when one least expects it. This can also be applied to scientific inventions, such as Isaac Newton’s discovery of gravity (when, as legend would have it, one day he was watching apples falling from a tree) or James Watson’s discovery of the “double helix” (when he was lying on the banks of the River Cam in Cambridge, England). The principle and technique of Chromoskedasic painting and Dominic’s artistic achievement in this new medium hold secondary importance to me when compared to that initial moment of wonder, when accidentally a new world was unfolded in front of his very eyes (pun intended). I would have given anything to be on that spot

with him and observe the process of his amazing finding! I can also imagine what a pleasure it must be as he prepares such “science stuff” in his dark-room by overlaying different strengths of photographic solutions such as developer, activator, stabilizer, fixer, etc. on black and white photographic paper under various lighting conditions and then takes the paintings out for further touching-up in his art studio or living room to achieve their multi-hued and often colored effects. When I first walked into his living room during a visit, I almost stepped on one of his paintings!

Professor Chu-Tsing Li, one of the world’s leading authorities in Chinese art, wrote a special article on Dominic’s paintings in which he said that the process is most suitable for abstract or semi-abstract expressions and that Dominic’s endeavor has injected a new life into traditional Chinese art. As a layman I can only marvel at the imaginative landscapes that Dominic has created. They remind me of a group of celebrated photographs I once saw on the front corridors of MIT : they were created by an MIT scientist (whose name I have forgotten), whose original purpose in taking these scientific photographs was to capture the image of extreme speed, such as when a bullet pierces an apple at initial impact. That scientific discovery is now displayed proudly for everyone to see, as a beautiful work of art. But I think Dominic has gone further than that. He has turned the Chromoskedasic process into a subjective art form to begin with, from which he has also created a unique universe that is both artistic and spiritual. I can only use the Chinese term “yijing” (which can be vaguely translated as artistic world or “inscape”) to describe it, for I believe its inspiration stems from the Chinese artistic tradition. The rest — the technical details of shading and color, the unusual effects created by light and chiaroscuro, or as another leading authority in art, Tsong-Zung Chang has so elegantly called it: the alchemy of light — will leave to the specialists to comment. But then, Dominic has already received all the accolades from them.

Allow me to add one more anecdote. Dominic and I first met at a public lecture which paired us as joint speakers to an audience of high school teachers. We were supposed to embody the “two cultures” of science and humanities respectively, but I immediately knew that my role was redundant, as he could speak on both subjects with equal ease — and more. To the amazement of everyone except himself, at the urging of the moderator and our dear friend Yau Lop-Poon, Dominic ended his talk with an instantaneous recitation of several classical Chinese poems from memory. Friends later told me that he had a mental “repository” of several hundreds of classical poems, long or short, which he memorized from childhood. According to him, this kind of “rote learning” proved very helpful later on when he was studying human anatomy and had to memorize all these Greek or Latin sounding medical terms.

Somehow I felt then, as I listened to his recitation and looked at his painting being projected on the screen, that there must have been some connection between poetry and painting somewhere in the depths of his creative consciousness. Perhaps the words of poetry had been transformed into images in his mind, which were then refracted onto his black and white photographic paper and turned into Chromoskedasic landscapes of mountains, oceans and clouds. A good illustration of such a transformation is his famous painting *Promises to Keep* (Figure 1)<sup>1</sup>, which was his imagistic interpretation of Robert Frost’s even more famous poem “Stopping by Woods on a Snowy Evening”. Here one immediately sees the obvious link and interaction, and a most striking one at that.

In short, Lam’s creativity has clearly come from a unique combination of his genetic composition, life experience and personal memory. My intuition was further confirmed when Dominic told me that indeed he likes to watch clouds from the window of his living room, especially the rapidly changing colors at sunrise and sunset. What an enviable idyll: Dominic lives in perfect harmony with his art, even amid the hustle and bustle of Hong Kong.

I have used the word “play-boy” to describe Dominic. I should also underscore the “boy” part of this epithet, for he seems forever young at heart and extremely energetic. Perhaps the word “energy” is also central to our understanding of his art as well. Unlike the typical traditional Chinese paintings, there is tremendous energy in his Chromoskedasic strokes and in his other works using more traditional media such as ink, acrylic or enamel. Every time my wife and I visited his studioresidence together with other friends, we felt energized, as if his paintings had miraculously cast their glow onto our hearts and illuminated our souls right on the spot. For anyone who knows Dominic well, such is as it should be, he would not have settled for anything else when it comes to his art and his life.

*Professor Leo Ou-Fan Lee*  
Chinese University of Hong Kong  
Professor Emeritus of Chinese Literature at Harvard University



1



## Stopping By Woods On A Snowy Evening

*Robert Frost*

Whose woods these are I think I know  
His house is in the village though;  
He will not see stopping here  
To watch his woods fill up with snow.

He gives his harness bells a shake  
To ask if there is some mistake.  
The only other sound's the sweep  
Of easy wind and downy flake.

My little horse must think it queer  
To stop without a farmhouse near.  
Between the woods and frozen lake  
The darkest evening of the year.

The woods are lovely, dark and deep.  
But I have promises to keep,  
And miles to go before I sleep,  
And miles to go before I sleep.

1. *Promises to Keep* (1990) Chromoskedasic painting (52 X 100 cm)

# The Multiverse of Dominic Man-Kit Lam

In his recent book and accompanied symposium on the most influential artists in the history of Hong Kong, Professor Laurence Tam, the Founding Chief Curator of the Hong Kong Museum of Art, had the following observation: “Professor Dominic Man-Kit Lam is an extremely fine artist and one of the greatest colourists of his generation. He has invented a novel painting medium as well as a unique calligraphic style, both rare and important artistic achievements. Accordingly, I have selected Professor Lam as one of the eight most important artists in the long history of Hong Kong art”. (1)

In both Eastern and Western cultures, art and science have traditionally been considered as two distinctly different disciplines, even though artists and scientists often share the same passion for experimentation and creativity (2). Throughout history, there have only been a few examples of true geniuses who managed to excel in both fields. In the West, Leonardo da Vinci (3), the most learned man of the Renaissance, continues to remain a very rare example of greatness in both disciplines, as he excelled not only in the fields of painting, drawing and architecture, but also in the leading scientific and engineering projects and ideas of the period.

In the East, few have pursued and excelled in both disciplines. Professor Lam has, however, broken the ice (4). He is a world-renowned scientist with many important publications in prestigious journals such as Nature, PNAS and Scientific American (5-10). He also holds a number of patents on edible vaccines and neurological disorders that have global impact (11-13). Moreover, a number of internationally renowned art scholars consider Lam to be an outstanding artist (14-26). Furthermore, for Lam, art and science blend naturally and seamlessly. According to Professor Chen Xie-Jun, Director of the Shanghai Museum, Lam’s art is scientific and his science is artistic (27).

Because of his achievements as Professor of Ophthalmology, Director of the Center for Biotechnology at Baylor College of Medicine in Houston, and founder of the first biotech company in Texas, Lam is known as the Father of Texas Biotechnology, and has been awarded the U.S. High Tech Entrepreneur of the Year Award, the U.S. Presidential Medal of Merit, and many other honors and awards including the Asia Society Man of the Year (28). In 1989, Lam was invited by President George H.W. Bush to be a member of the prestigious President’s Committee on the Arts and Humanities, and was the first Asian to be so honored.

Philanthropically, since the late seventies, Lam has participated in many charitable causes, such as the Retina Research Foundation founded by Dr. Alice McPherson, by donating his paintings and time. His major collectors include Mr. George Mitchell of Mitchell Energy,

Madame Dominique de Menil of the Menil Collection, and many others. In the early eighties, Lam assisted Dr. David Paton, Founder of Project Orbis, in bringing the famous flying eye hospital to China, first in 1982 and many times subsequently. In 1999, Lam established the World Eye Organization (WEO) to prevent and treat eye diseases for the poor, and has to-date built 9 such eye centers in China (29). In 1992, he invented “Edible Vaccine” which was selected in 2000 by Time Magazine as one of the ten most important inventions of the century (11), and in 2001 by MIT’s Technology Review as one of five patents that will transform business and technology (12).

Artistically, Lam’s early training in Chinese literature, calligraphy and painting gives him the inner strength and intellectual power that foster his life-long passion and creative drive in art. Interestingly, these might also be the same qualities that led to his success in scientific research. It is also plausible that three of Lam’s most important and original contributions to artistic creativities to-date, namely the Chromoskedasic process (9,10,14), his unique calligraphic style (25,31) and his Nine Court Diagrams to promote harmony (22) are the direct results of his formal training in physics, visual physiology and Chinese philosophy.

The importance of Lam’s invention of the Chromoskedasic process cannot be overstated and is perhaps what has made Dominic Man-Kit Lam one of the most outstanding Chinese artists in history (1,9,10,14,15,16,20,23). Simply stated, through a serendipitous discovery, Lam in 1980 succeeded in creating colors on black and white photographic paper using only colorless photographic solutions (9,10). In this manner, Lam the artist had also invented a totally novel painting medium, which is very rare in the history of art. This new form of artistic presentation can facilitate an artist’s entry into a new world of abstract artistic manifestation. The result is an amazing spectrum of visual effects with contrasts of motion and stillness, fullness and emptiness, colors, shades and hues that were previously unattainable (9,10). Thus, Lam’s painting of the universe and stars are more realistic and appealing because the mechanism of colors produced by these heavenly objects are the same as that produced by his Chromoskedasic process, that is, by light scattering rather than selective color absorption, the mechanism by which dyes or pigments produce color.

To recognize the significance of Lam’s breakthrough in Chinese calligraphy, one must realize that throughout the 5,000 years of Chinese history, there have only been a handful or so of unique calligraphic styles. This is in part because of the difficulty to create novel calligraphy that still retains its meaning. But it is to a larger extent also due to the fact that almost all Chinese children are obliged to learn and practice one or more of these calligraphic styles from the age of 2 to 4, resulting in an effect known in biology as imprinting (1,25,30,31). Since Lam had trained under the Nobelists Professors Torsten Wiesel and David Hubel at Harvard Medical School in the early seventies, he knew this phenomenon well. One day about twenty years ago, Lam suddenly realized that one way to break this imprinting might be to write up-side-down or blind-folded, so that the normal eye-brain connections are broken or compromised. After years of practice, Lam succeeded in creating his own calligraphic style which Professor Laurence Tam has named “Calligraphy of the Mind” (1,25,31).

Finally, Lam's creation of the "Nine Court" paintings was based on his firm belief that World peace cannot be attained without different peoples on earth understanding and accepting one another's culture and philosophy. Since "Nine Court Diagram" is the most ancient and fundamental basis of Chinese philosophy, culminating in Harmony among Heaven, Earth and Man, Lam has used these visual imageries to help attain peace among nations and harmony among people.

During the past several years, Lam's works have been met with great acclamations by critics from abroad and the general public alike. His four meter long painting entitled "Millennium Odyssey II: From the Great Wall to River Thames – Embrace the World" was exhibited at the Barbican Centre during the London Olympics, and received a Gold Medal (32), the first time medals for art have been awarded by the Olympics Organization. Lam's one-man show at the Shanghai Art Museum (33) in October 2012 was a major success. It was a retrospective of over 100 paintings entitled "A Vision of Harmony: The Art of Dominic Man-Kit Lam", a combination of Lam's artistic, scientific and philanthropic journey over the past 40 years.

In part because of Lam's invention of "Edible Vaccine", the World Health Organization (WHO) held its "1st WHO Meeting on Development and Clinical Trials of Influenza Vaccines that Induce Broadly Protective and Long-lasting Responses" at the Hong Kong Baptist University from 24-26 January, 2013 (34). In celebration of this international conference attended by 250 of the world's leading experts in influenza and vaccines, Lam was asked to give an art exhibition in addition to giving a speech on "Edible Vaccines against influenza". The exhibition entitled "Through the Viral World : From Quarks to Multiverse" was held at the conference site from 23 January to 19 February 2013. Lam's exhibition was such a great success that WHO has invited him to move the show to the WHO Headquarters in Geneva and subsequently perhaps to other WHO Centers around the world, in part as a mechanism to enhance the global health awareness in Disease Prevention and to promote public and government support.

To conclude, Professor Dominic Lam's artistic importance is perhaps best summarized by Professor Chen-Ning Yang, the first Chinese Nobel Prize Winner in Physics in 1957 and a learned art lover, calligrapher and poet, who wrote in his own calligraphy: "Man-Kit's paintings are imbued with inspiration and techniques. No scientists in history have ever demonstrated such artistic talents." (35).

Cyril Boisson  
Art Curator

12 March 2013

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和諧之視野



林文傑藝術展



# **A Vision of Harmony**

## *An Art Walk with Professor Dominic Man-Kit Lam*

Professor Dominic Man-Kit Lam, honored as a contemporary “Renaissance Man” by Professor Leo Ou-Fan Lee<sup>1</sup> of Harvard University, is an extraordinary talent in art and science, as well as a very successful businessman and philanthropist. In addition to these personal attributes, his many fortuitous and invaluable opportunities contributed to shaping his unique and legendary art journey.

### ***The Art, Science and Philanthropy of Vision***

First, Lam’s art and science have always been intimately intertwined, best exemplified by his discovery of the Chromoskedasic process in 1980. Lam probably would not have pursued this serendipitous discovery if he was not trained in physics<sup>2</sup>. The theoretical clarification and practical application of this process were greatly accelerated by his fortunate and unforeseen meeting with the famous Kodak scientist, Dr. Bryant Rossiter in Houston in 1989<sup>3</sup>. The artistic merits of Lam’s Chromoskedasic process were first recognized by Johnson Tsong-Zung Chang, one of the most important art critics of our time, who curated Lam’s first one-man show in Hong Kong in November 1990 and wisely called Lam’s Chromoskedasic painting “The Alchemy of Light.”<sup>4</sup>

### **Brush and Ink Friendship**

Second, Lam’s major experiences in Chinese painting, the backbone of his subsequent artistic development, began in 1972 when he was teaching at Harvard Medical School and was invited to be an advisor of the Huntington Disease Foundation in Los Angeles. He travelled to LA every few months and met the famous Chinese artist, Professor Johnson Susing Chow, whose family had just emigrated there from Hong Kong. Professor and Mrs. Chow treated Lam like their son. He even stayed at their home and Chow became Lam’s first formal mentor in painting, teaching him in particular the art of painting orchids, bamboos and rocks, as well as calligraphy, which are the basis of traditional Chinese art.

In the late seventies to early eighties, Lam spent a lot of time in China and Hong Kong for Project Orbis, a DC8 airplane equipped with ophthalmic equipment staffed by volunteer specialists to fly around the world to provide free education, eye care and surgery for the poor around the world. This project was founded by Professor David Paton, who was at the time Chairman of Ophthalmology at Baylor College of Medicine in Houston.

During these visits, Lam had many opportunities to visit Chinese government leaders. It was a very difficult lobbying job to gain their permission to have Orbis visit China, because China then was not yet as open a society as now. Orbis was finally permitted to fly to China (Guangzhou) for the first time in October 1982 (Figure 1a) 30 years later, in March 2012, Orbis flew to Guangzhou again to celebrate its 30th anniversary of serving in China (Figure 1b).

When these leaders knew that Lam loved art, they routinely took him to visit some of the most important artists of the time. When these artists learned that not only was Lam an eye specialist, but also loved to paint orchids and bamboos, they often collaborated with him and taught him their ideas and techniques. Unlike in the West, artistic collaboration, affectionately called “Brush and Ink Friendship” (筆墨緣), is a time-honored and common tradition that originated over 1,000 years ago. Lam’s artistic horizon and skills were very much



1a



1b



elevated by these memorable encounters, and these artists all became Lam's life-long mentor-friends (亦師亦友). Among those who were dearest to Lam included Zhao Shao'ang and Yang Shanshen in Hong Kong, Li Keran, Li Kuchan, Dong Shouping, Huang Zhou, Fan Zeng, Wu Zuoren, Huang Yongyu and Bai Xueshi in Beijing, Liu Haisu, Chen Shifa, Guan Liang, Zhu Qizhan (Lam helped to treat his cataract) and Xie Zhiliu in Shanghai, Guan Shanyue and Li Xiongcai in Guangzhou, and Ya Ming (Lam helped to treat his children's eye disorders) in Nanjing.

The most memorable of these friendships has even been immortalized with a collaborative painting in 1982-83 entitled *Plum, Orchid, Bamboo, Ganoderma and Rock* (Figure 2) by Zhang Daqian, Zhao Shao'ang, Guan Shanyue, who were the leading artists of Taiwan, Hong Kong and Mainland China respectively, and Lam, who resided in the United States. Furthermore, this painting symbolizes the unity of all people of Chinese origin around the world.

## Philanthropy of Vision

Many of the artists Lam met in China, Taiwan and Hong Kong since the seventies also volunteered to donate their works for charity auctions and sales to benefit Orbis, since they appreciated very well the importance of healthy eyes. In addition, from 1980-1997, Lam donated his paintings in support of the Retina Research Foundation (RRF) of Houston founded by world-renowned ophthalmologist Dr. Alice McPherson (Figure 3).



From 1999 to the present day, Lam has been using the proceeds from the sales and auctions of his works to benefit many charitable foundations, especially the World Eye Organization (WEO) (Figures 3a-3j) that he established after he returned to Hong Kong in 1999. In December 2012, Lam was invited by Po Leung Kuk (PLK), a major charitable organization in Hong Kong, to write the Chinese characters of the 12 Chinese Zodiac signs, and have them etched onto 12 9-litre bottles of Romanee Saint-Vivant Grand Cru (Figure 4a-4b) made by a famous French wine maker, Nicholas Potel, for auction at the PLK Charity Wine Gala Dinner held on 12 January, 2013 (Figure 4c-4e). These 12 bottles of fine wine were auctioned for over 1.5 million dollars (HKD) and the proceeds were donated to PLK's Special Children Development Fund and Medical Assistance Fund. Hence philanthropy, especially that of vision, has also been intertwining with Lam's visual art and science for over 30 years.



3a



3b



3c



3d



3e



3f



3g



3h



3i



3j




Charity Wine Gala Dinner



Proceeds raised will be donated towards the Kuk's Special Children Development Fund and Medical Assistance Fund

12<sup>th</sup> January, 2013 (Saturday) 6 p.m.  
Convention Hall, HKCEC, Wan Chai

### THE UNIQUE ZODIAC SERIES GOES PUBLIC AUCTION

Romanée Saint-Vivant Grand Cru by Nicolas POTEL in a series of twelve 9-liters bottles

Bottle etching | Calligraphy by Professor Dominic Man-kit LAM, with signature of Mr. Jackie CHAN and the Grand Cru owner

#### About the Lot

Mr. Nicolas POTEL produces only one barrel (25 cases) from the Romanée St Vivant Grand Cru each year. The series is equivalent to half of the barrel and is the only quantity released to the public for the year 2011.

The wine has been bottled in a unique set of 12 salmanazars (9 Liters bottles) to allow slow ageing for natural fermentation and ease of cellaring. It can be kept for 50 years and consumed after 2016.

Professor Dominic Man-kit LAM, international recognized artist, would paint the 12 Chinese Zodiacs which would be etched onto each bottle. Furthermore, Professor LAM, Mr. Jackie CHAN and the Grand Cru owner would sign on the bottles and wine certificate which made the lot a unique one. You would never be able to find any other as precious as this lot!

#### Romanée Saint Vivant Grand Cru

Built in 13<sup>th</sup> Century, the vineyard is situated east of the entire boundary formed by La Romanée Conti Grand Cru and Les Richebourg Grand Cru. Only about 1000 cases of wine are produced each year.

#### Nicolas POTEL

Nicolas POTEL has become a remarkable winemaker since 1998. He is noticeable by his insistence in using biodynamic grapes and not to apply oenological products to allow the wine ferment as its natural terroir and character with high quality.



#### Professor Dominic Man-kit LAM

Former professor of Harvard Medical School, the founder and chairman of the World Eyes Organization, and the inventor of Chromaskedasic painting. In 2012, Professor Lam was awarded a Gold Medal at the Olympic Fine Art Exhibition in London for his painting entitled *Millennium Olympic Odyssey II: From the Great Wall to River Thames - Embrace the World*. The proceeds from sales of his paintings are all donated to charities over the world, including his *Voyage of Discovery: Universe* which was acquired by a foundation for USD\$1,000,000.



From top left to right, up to down: Rat, Ox, Tiger, Rabbit, Dragon, Snake, Horse, Goat, Monkey, Rooster, Dog, Pig



#### Mr. Jackie CHAN

Internationally acclaimed action star and director. The third Chinese who has breakthrough the Hollywood. In 2006, Jackie was recognized as one of the 10 Most Charitable Celebrities by Forbes Magazine.

4a

4b



4c



4e



4d

## Art of Vision

A major turning point in Lam's artistic development occurred in October 2000, when Johnson Chang introduced him to Maestro Ju Ming (Figure 5). Upon studying Lam's works which were printed in his book entitled *A New Millennium A New World*, Maestro Ju felt that Lam's themes were too broad, and techniques too vary for most people to grasp the essence of his works. Ju suggested that Lam should concentrate on a major theme based on what he is most familiar in real life, just as Ju's own mentor Yingfeng Yang had taught him. That was why and how Ju developed his signature and world famous "Tai Chi" series as Ju has been practising Tai Chi since his youth.

In August 2001, while Lam stayed in Ju's studio for two weeks, Ju told Lam that good artistic creations should be based on "truth" (or familiarity), "kindness" (or compassion) and "beauty", thus suggesting that since Lam had spent 30 years in vision research, that must be the most familiar and passionate subject for him. Right there, Maestro Ju spread out a 4-ft piece of paper and asked Lam to paint the retina. Lam created 35 paintings within one week (Figures 6-10). From then on and over the next few years, Lam focused his paintings on vision and eye using the Chromoskedasic process and other media. An example of this endeavor was his collaboration



with 106 art students of Mr. Kinsan Chung (Lam's friend) in a symbolic painting for WEO in 2002 (Figure 11). Another one of Lam's favorites was the painting he dedicated to his Harvard mentor, Professor Torsten Wiesel on his 80th Birthday in 2004 entitled *Bliss of Vision* (Figure 12).

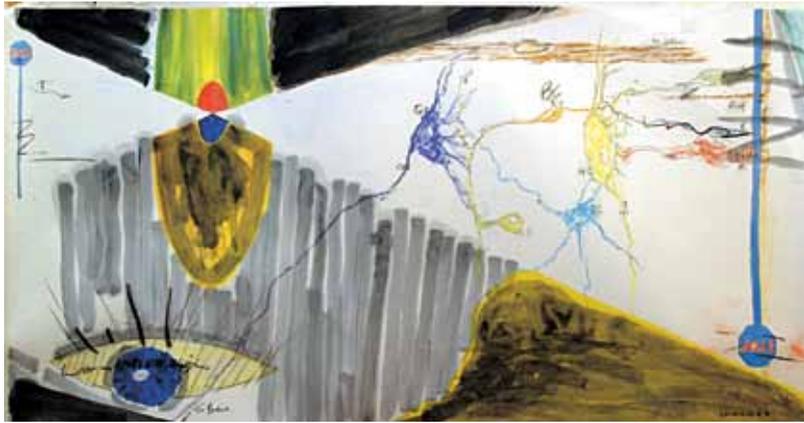


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14

Back in 2001, Lam was so delighted that Ju invited him to learn sculpture and used Ju's tools and materials at Ju's homes in Taipei and Qingyuan (Central Taiwan) for developing novel artistic ideas (Figure 13). Most serendipitously, on 11 September 2001, Lam created a sculpture that he was most fond of. Lam decided then to name the sculpture *Peace: Homage to the Heroes of 911* (Figure 14). (Please refer to the book authored by Dominic Lam: *My Mentors* for details<sup>5</sup>)







## The Nine Court Diagram

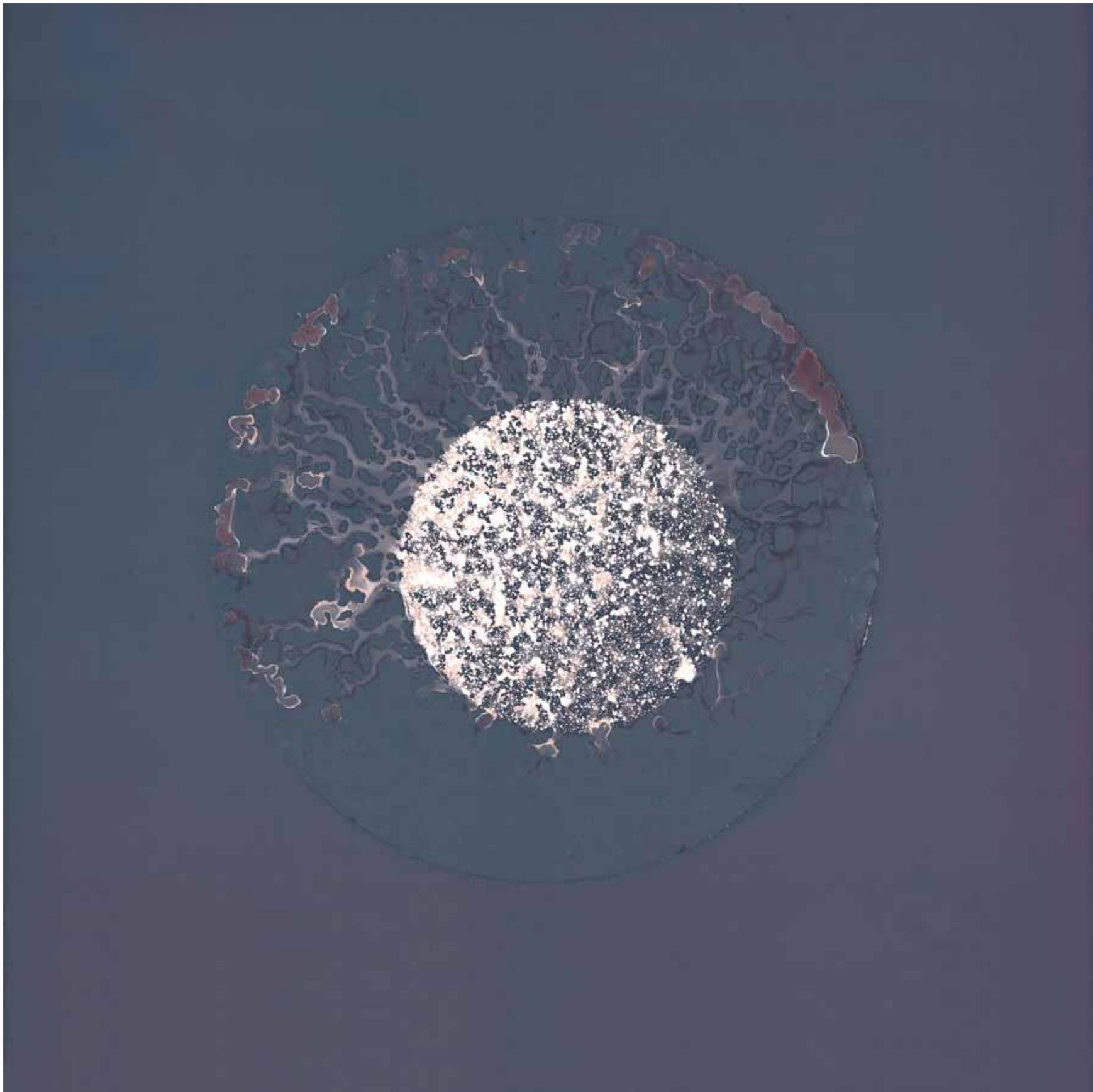
After creating a series of “eye” paintings, Lam then applied his Chromoskedasic process to continue with the “eyes”. Owing to the special characteristics of the Chromoskedasic process, the “eyes” were gradually evolved into “stars” (Figures 15-19).

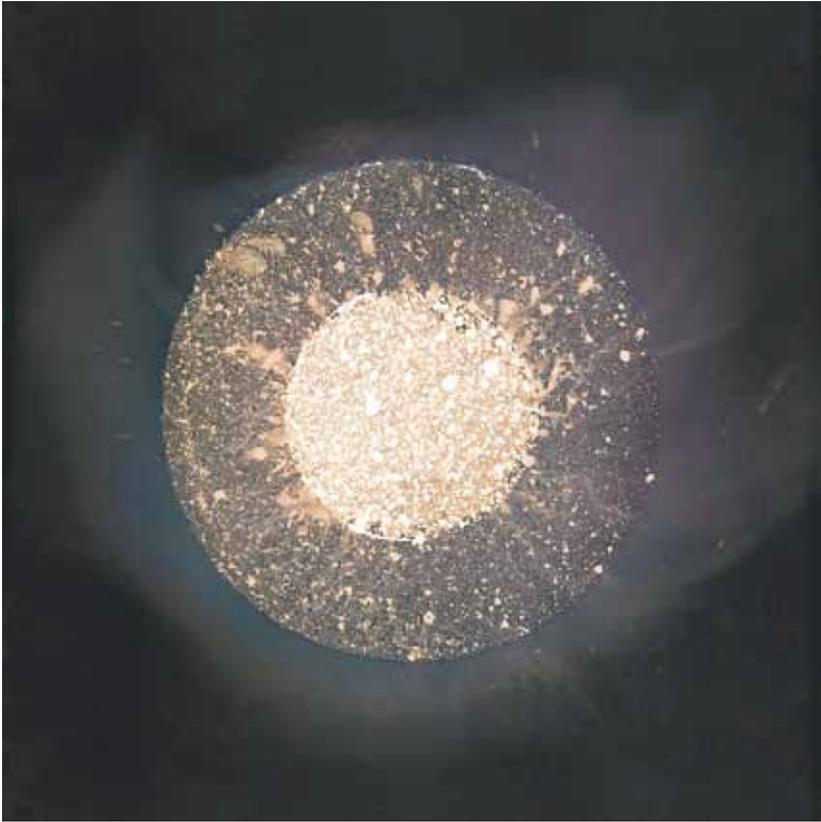
Later on, the stars were expanded to a painting series entitled *Many Moons Many Universes* (Figure 20). In 2009, in response to Louis Vuitton’s invitation of a solo exhibition, the “moons and universes” were further developed into other work series such as the *Voyage of Discovery – Universe* (relevant paintings will be introduced in the next section).

In 2005, after seeing Lam’s Chromoskedasic paintings of the eyes, stars and universe, his old friend Johnson Chang inspired Lam to learn about “Nine Court Diagram” and related subjects which represent the earliest philosophy and culture of China from over 5,000 years ago.

The “Nine Court Diagram” is the fundamental 3X3 iteration of magical squares, and have been invested with spiritual qualities by ancient cultures such as Persia, Egypt, China and India. Their mystical aspect aside, the squares elegantly depict mathematical balance and internal harmony.

Lam has created many works depicting the basic principles of this philosophy. An additional dimension is added by overlaying the squares with an equally important and recurrent theme of Chinese philosophy, namely: man’s respect for the heaven (天), for the earth (地), and for each other (人), the outcome of which is peace (和), a Chinese character composed of the radicals “(禾) rice” on the left and “(口) mouth” on the right, meaning that all people who eat rice (the most common food in China) should be at peace with one another (Figures 21-39).

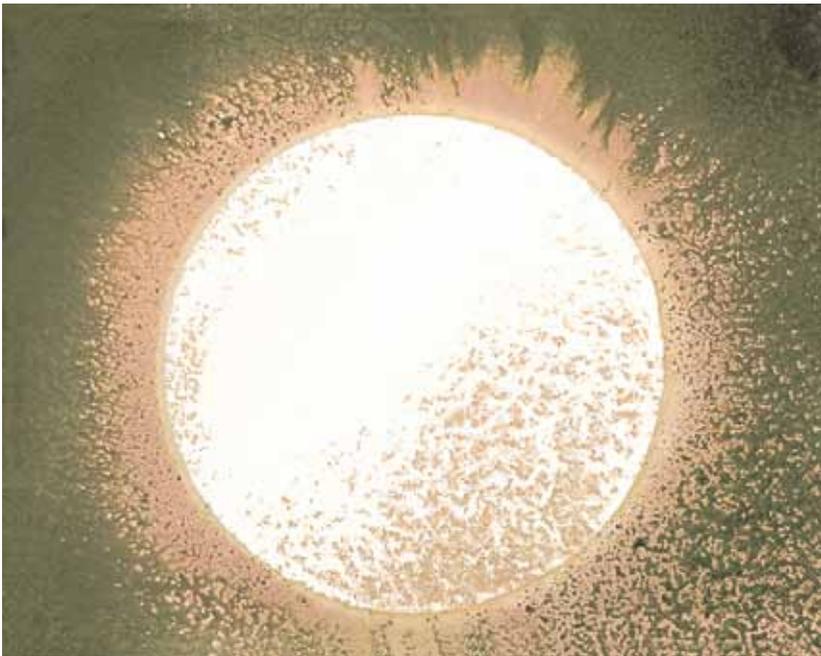




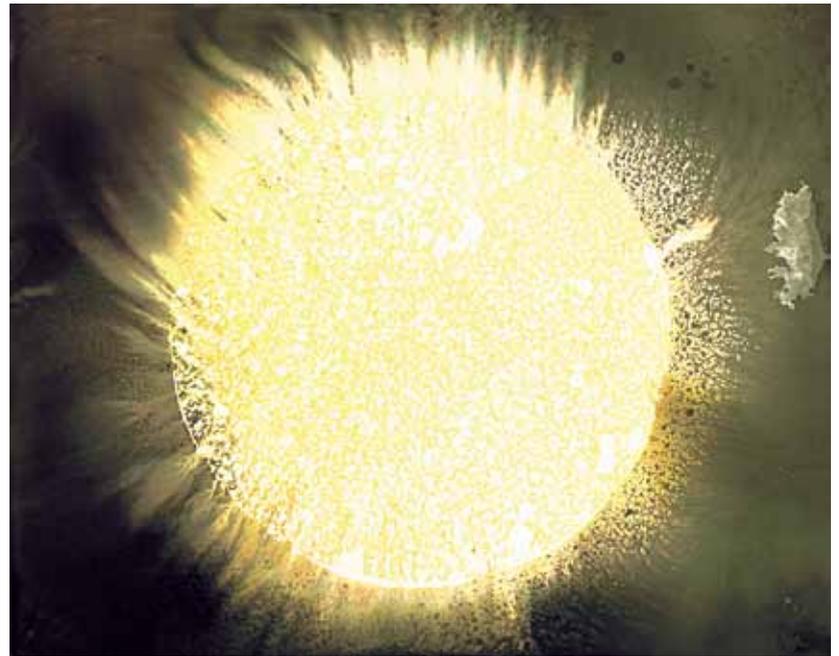
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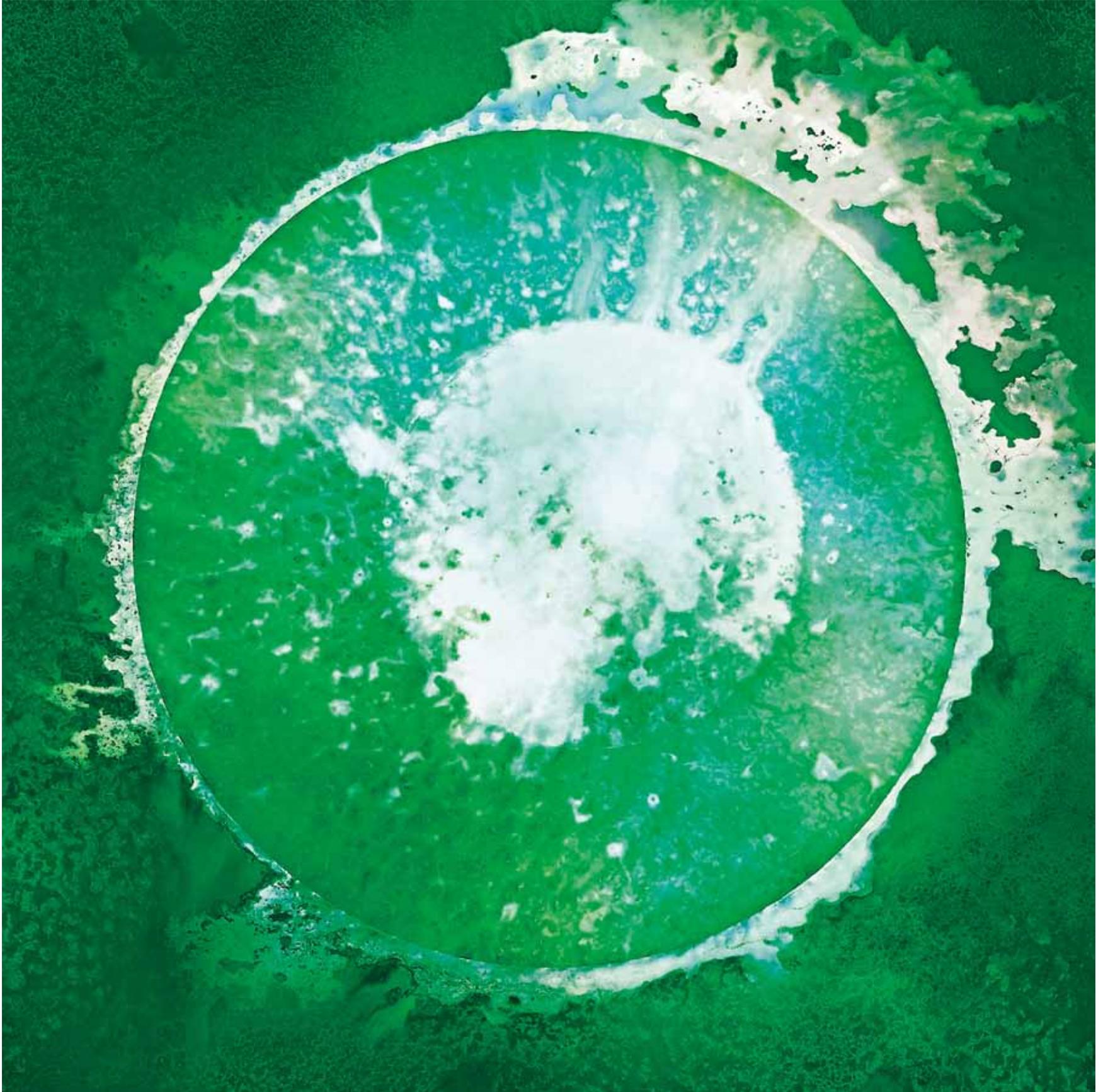
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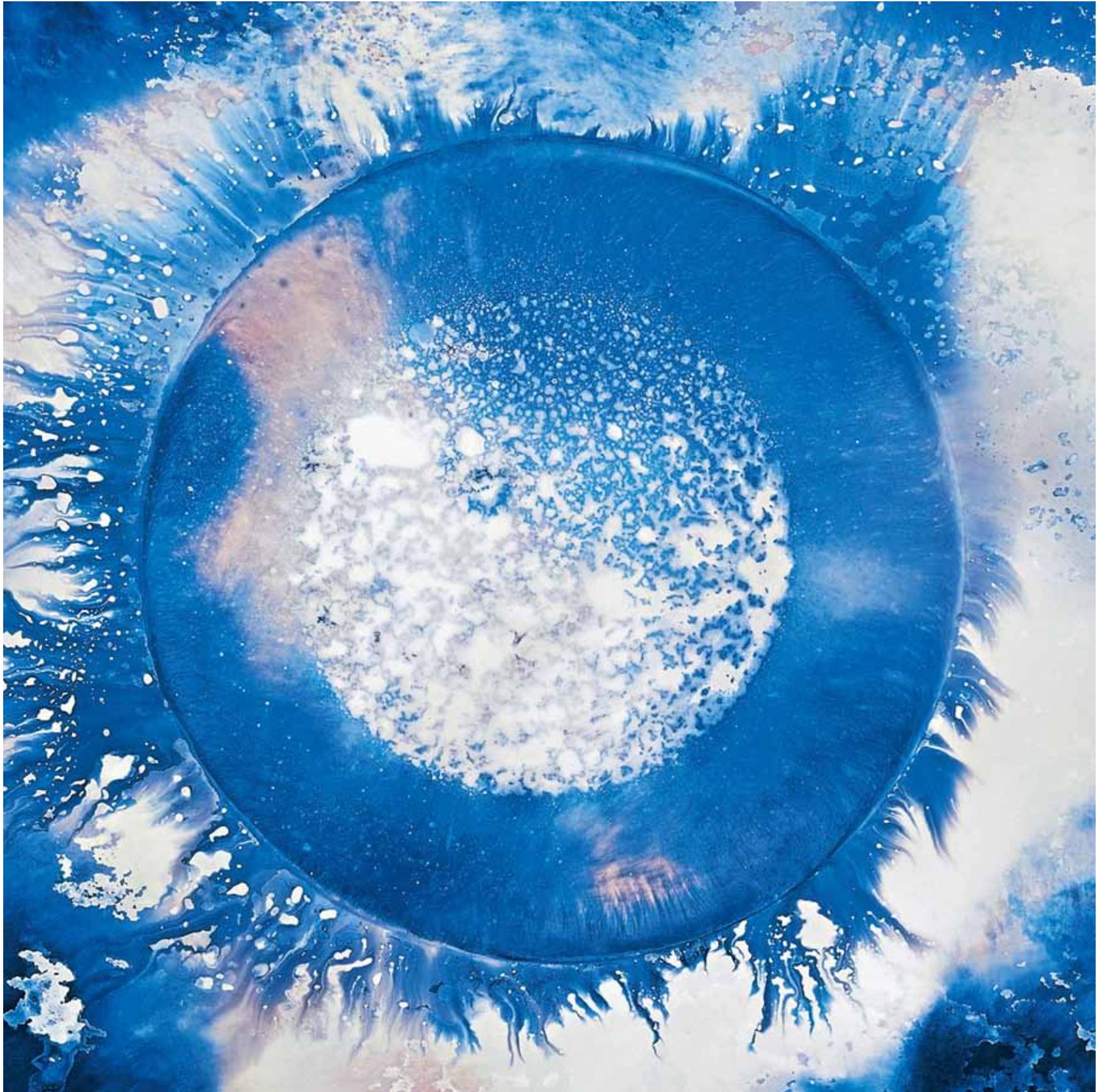


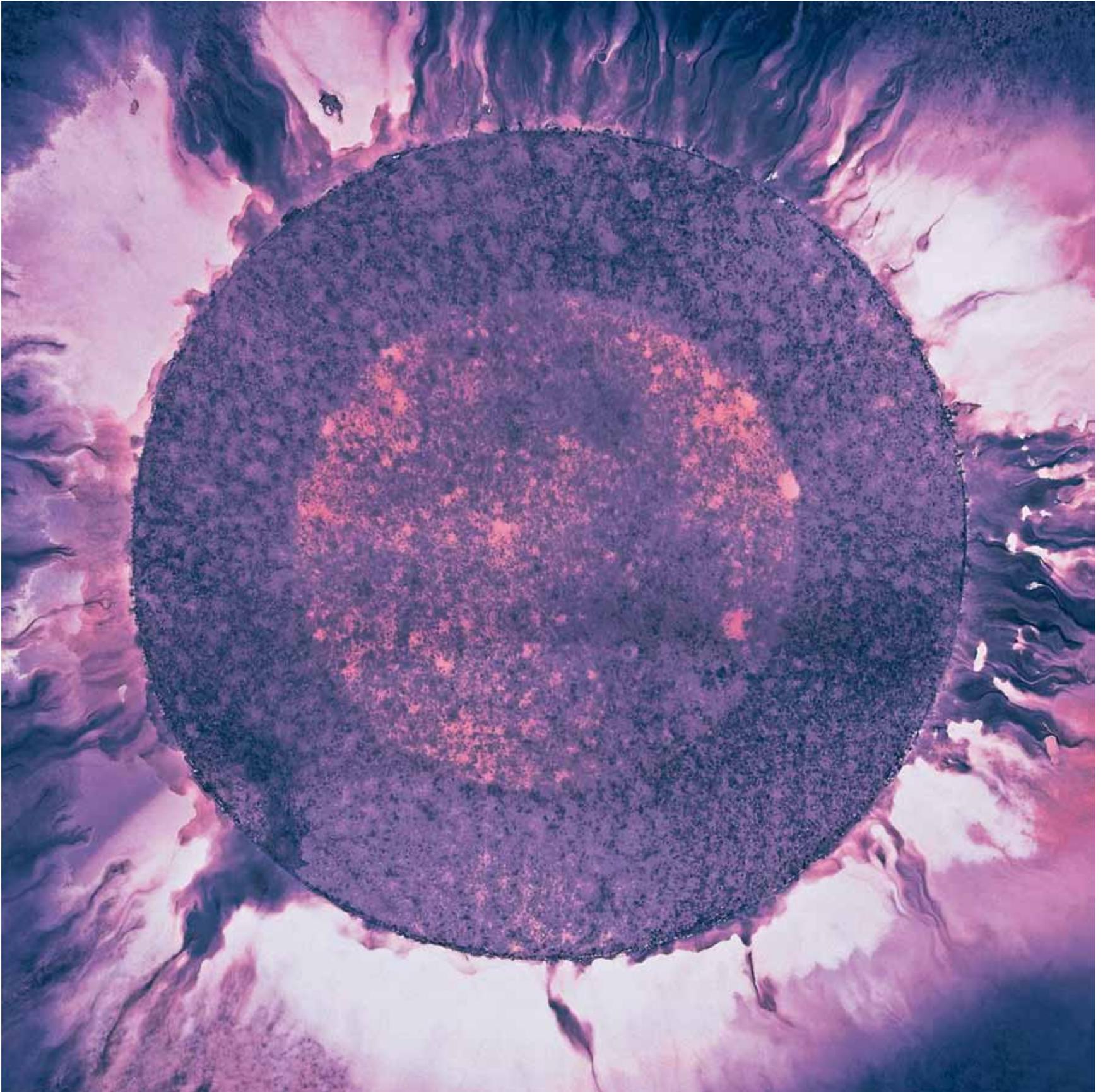
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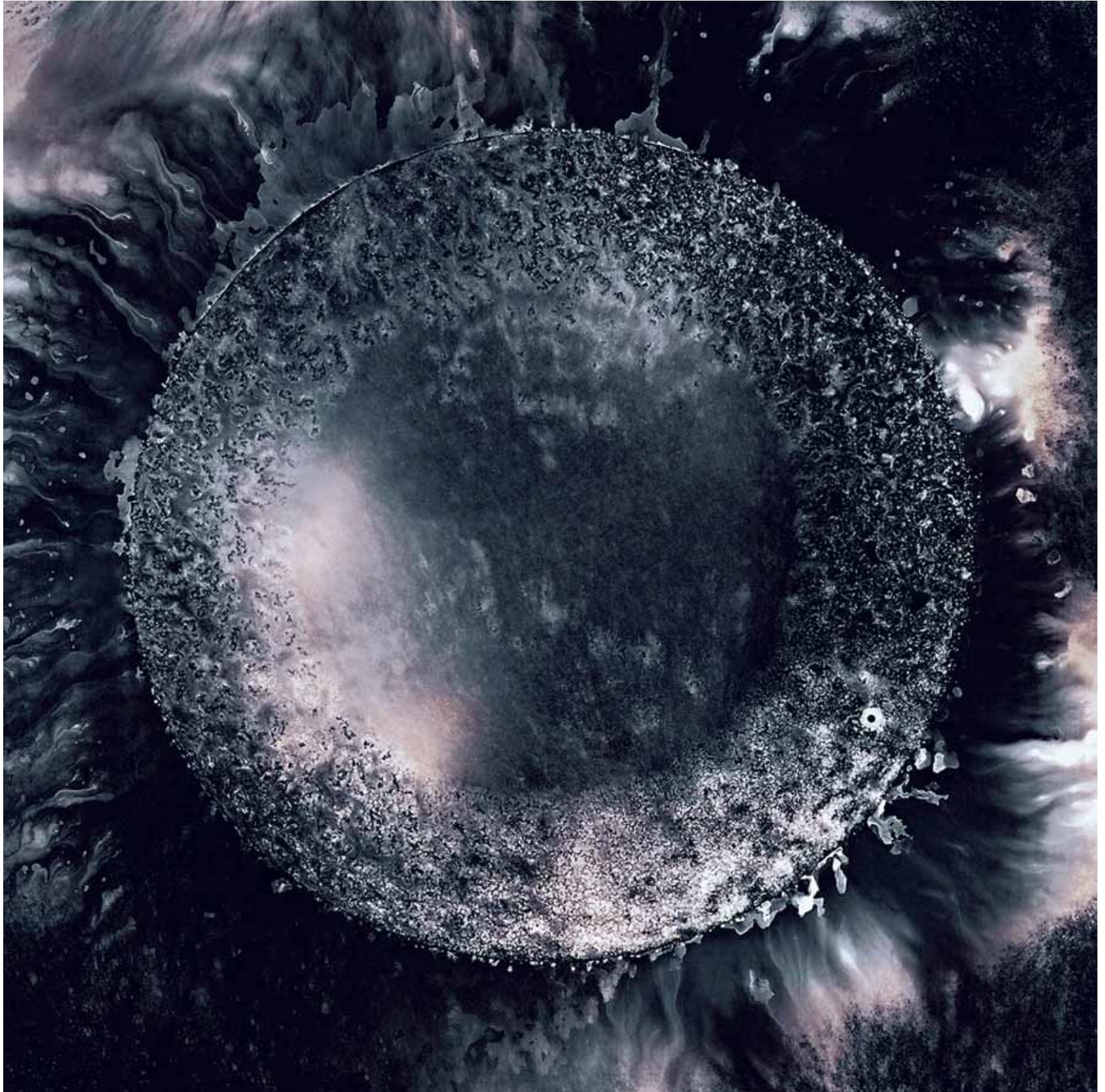








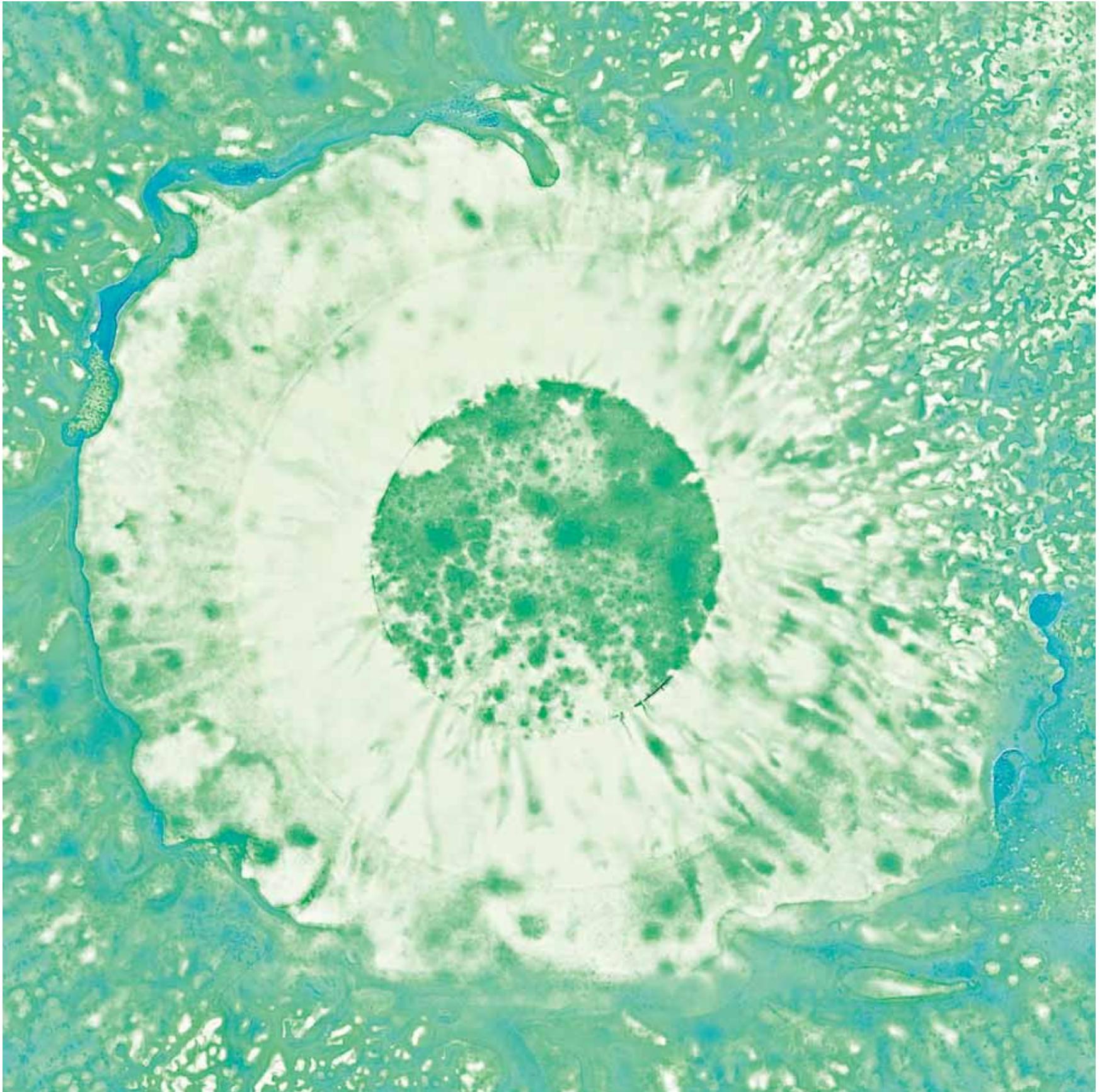




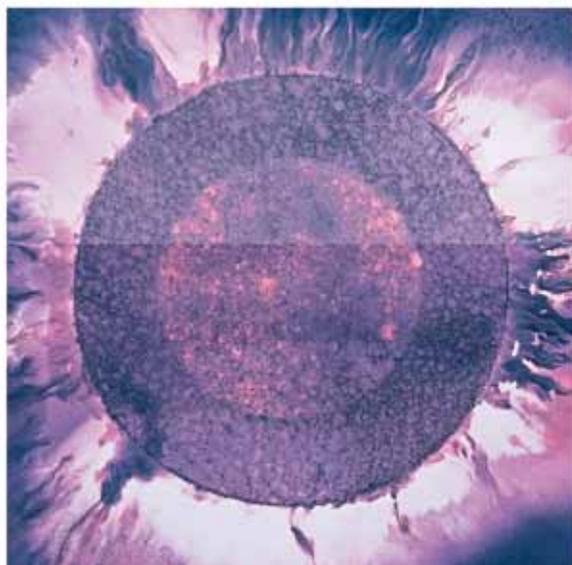
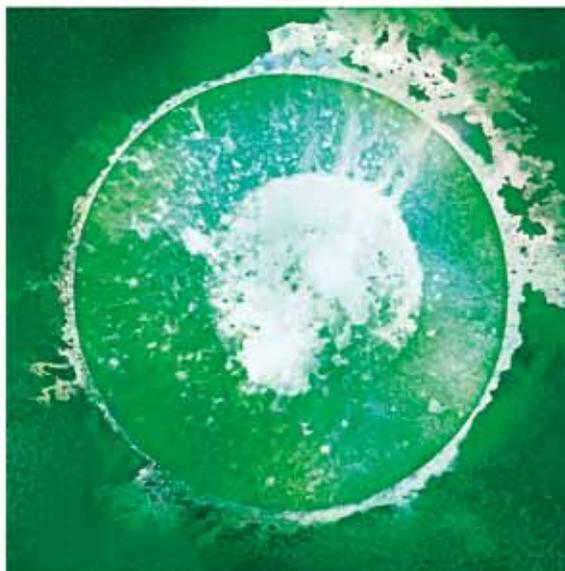
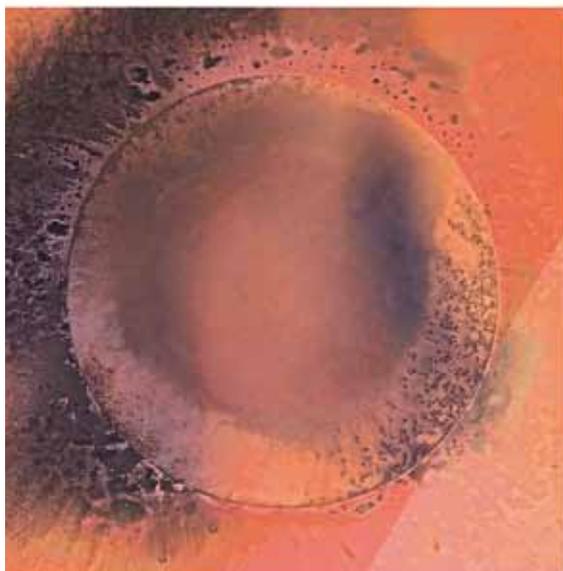
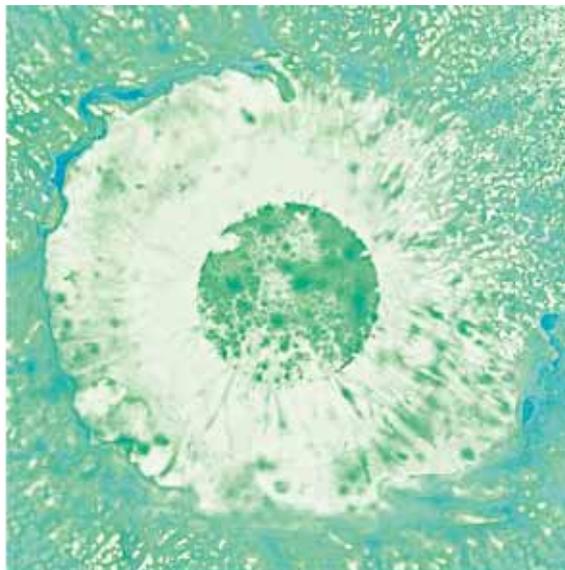


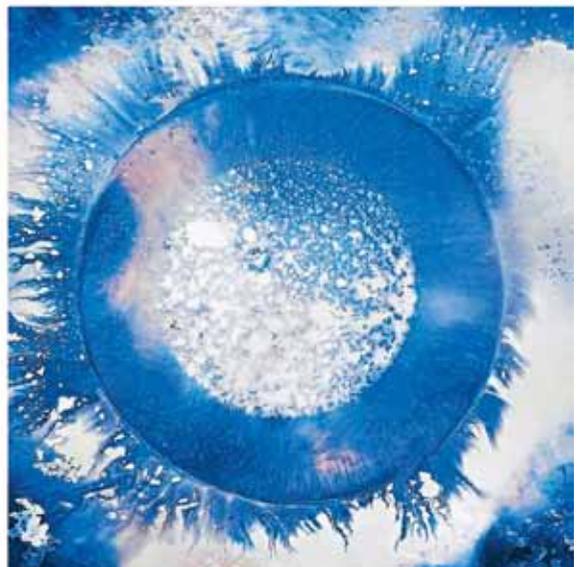
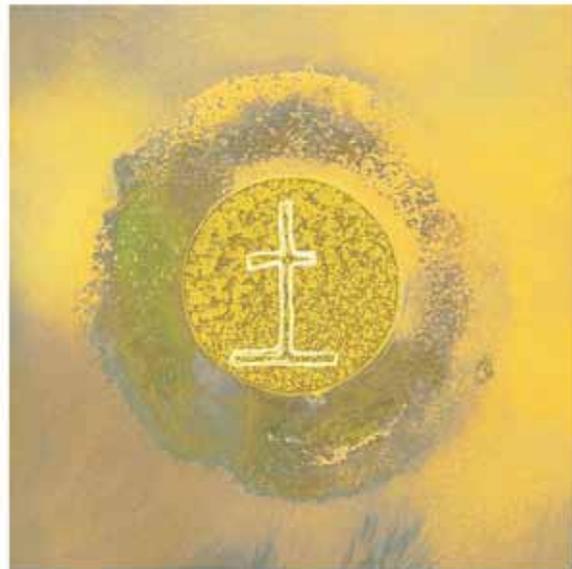
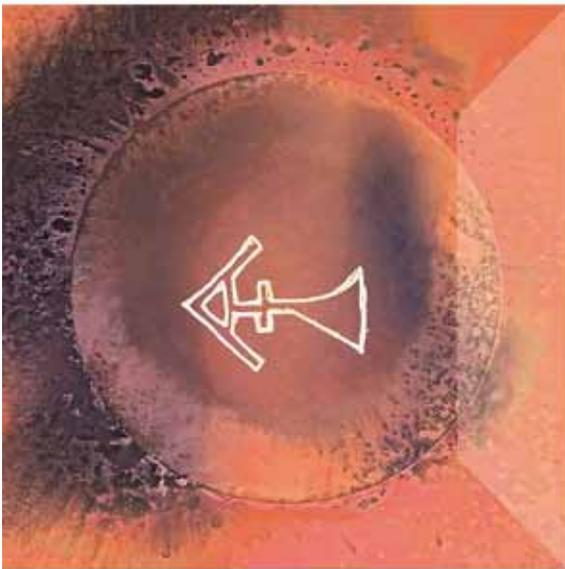
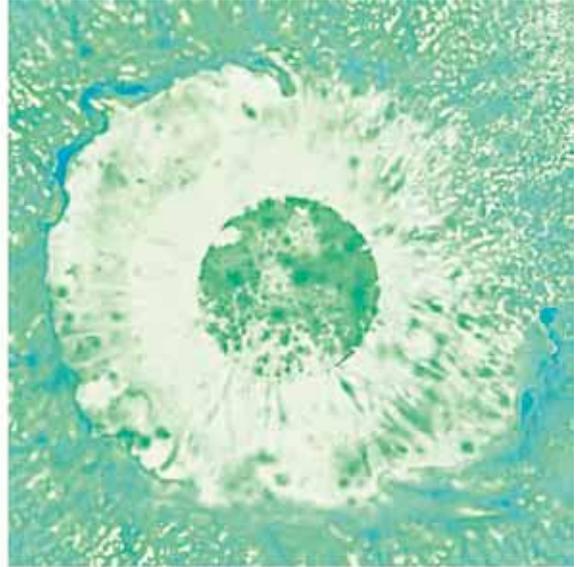
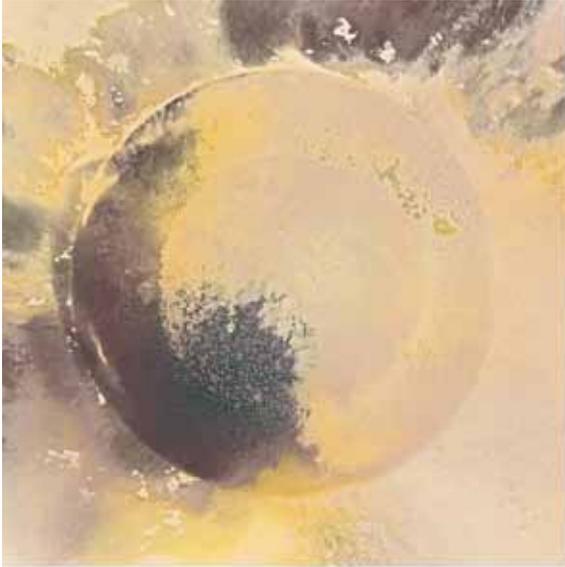


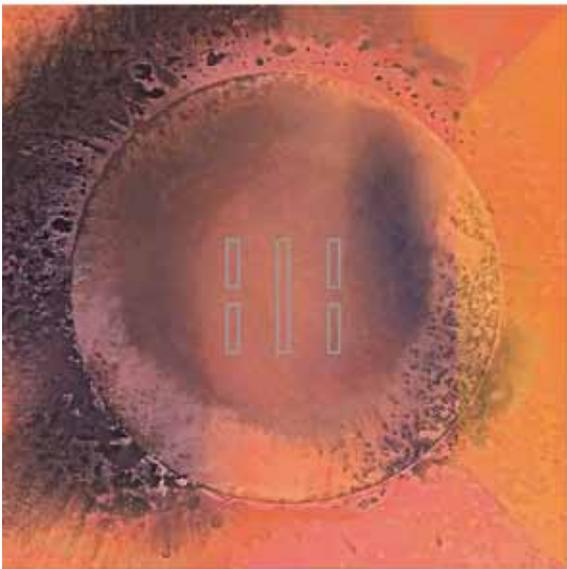
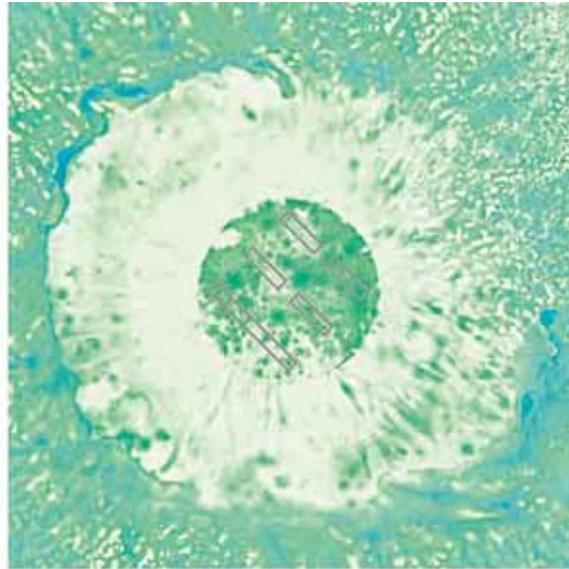


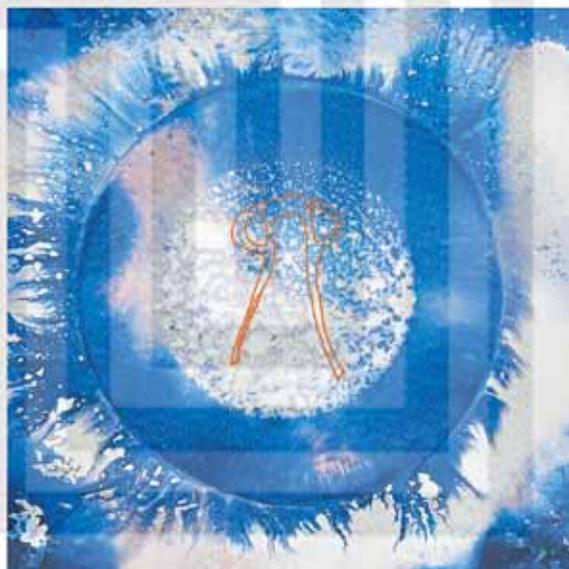
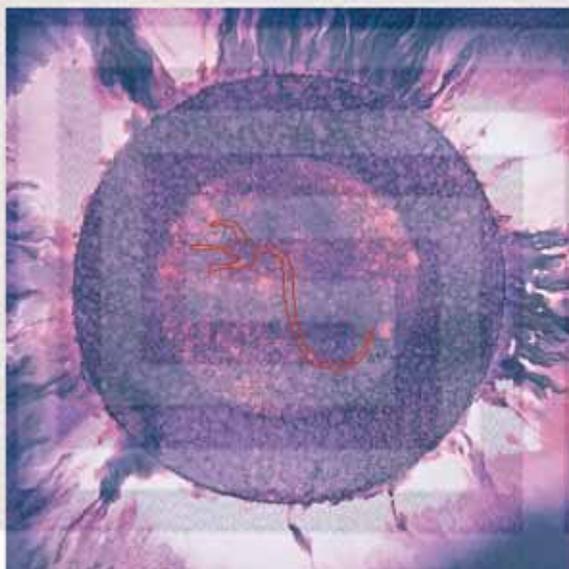
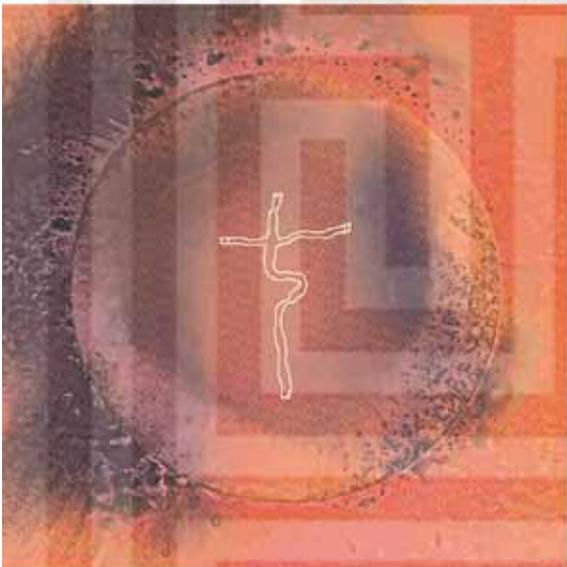
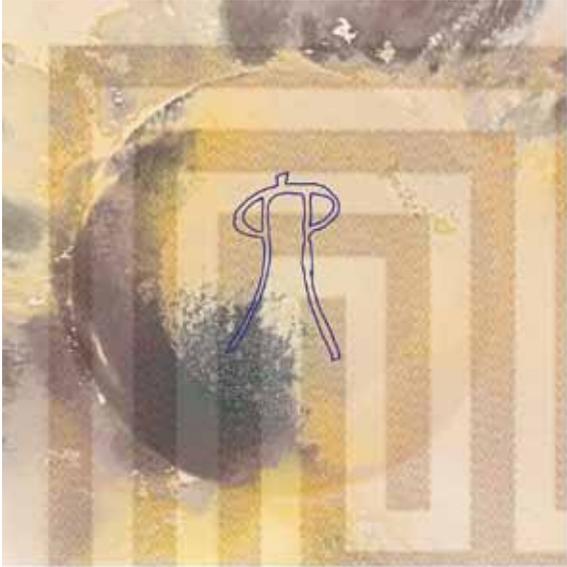


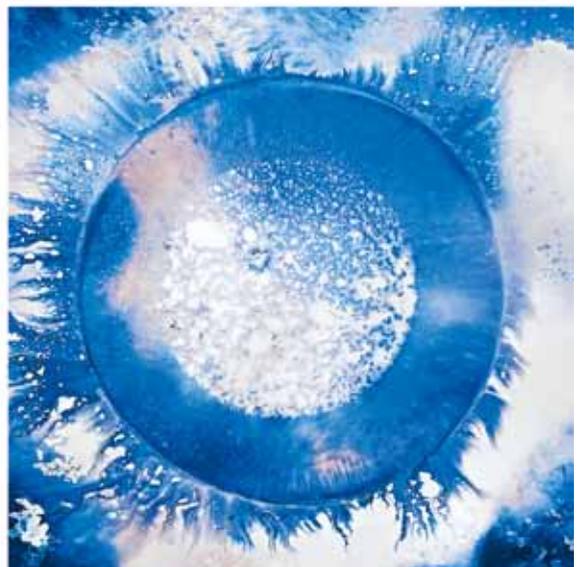
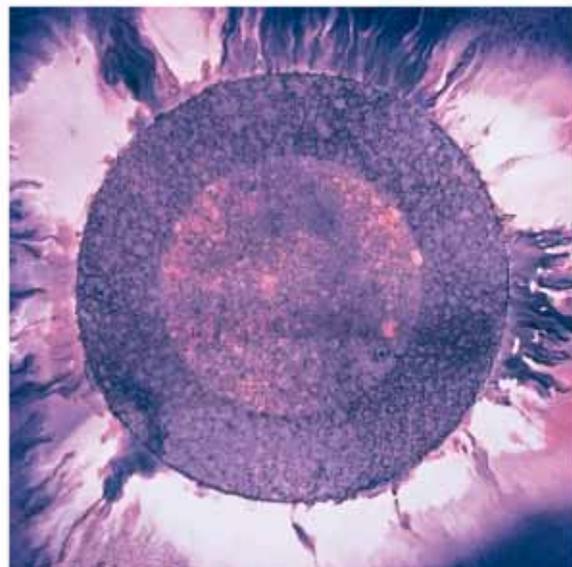
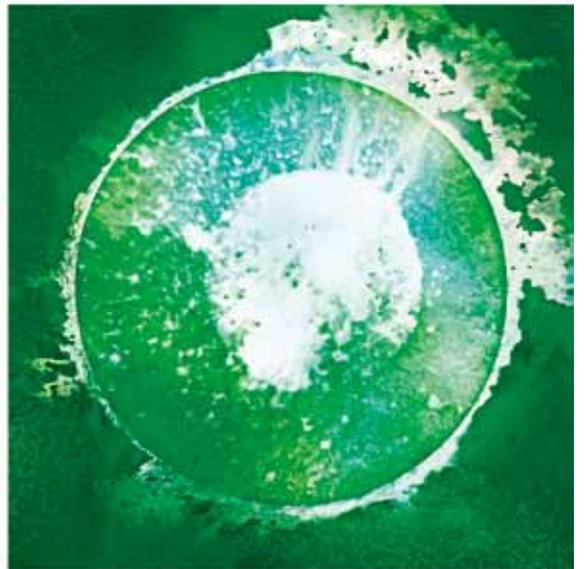
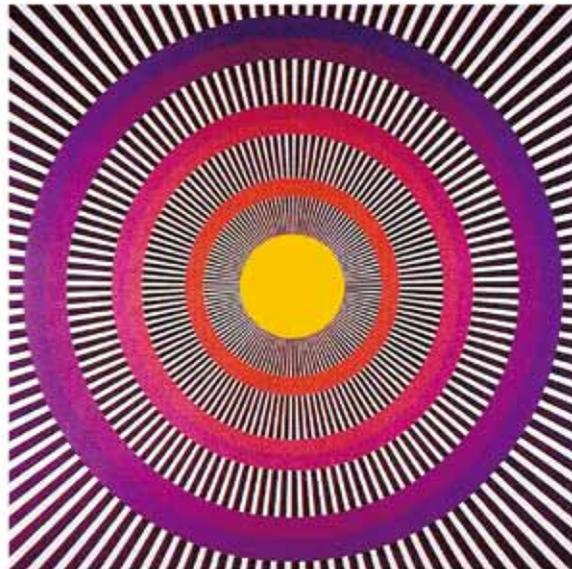
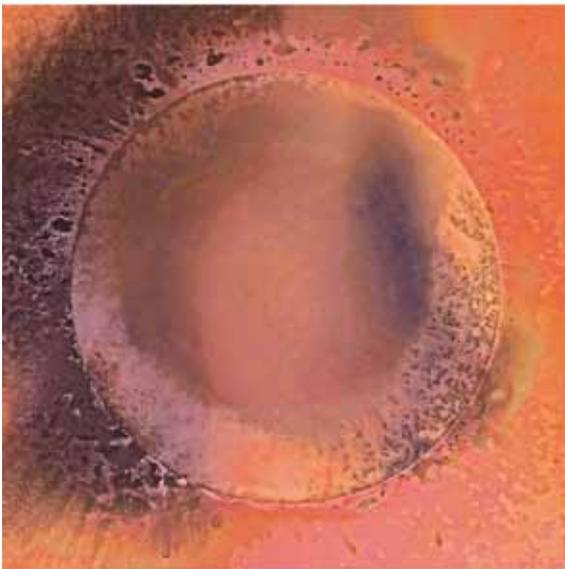
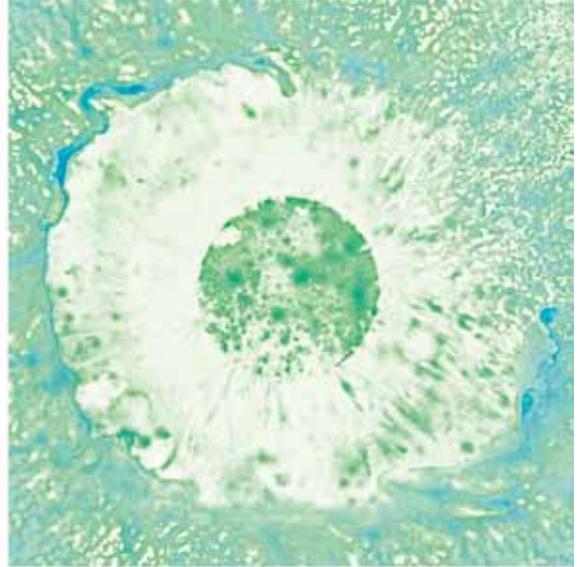


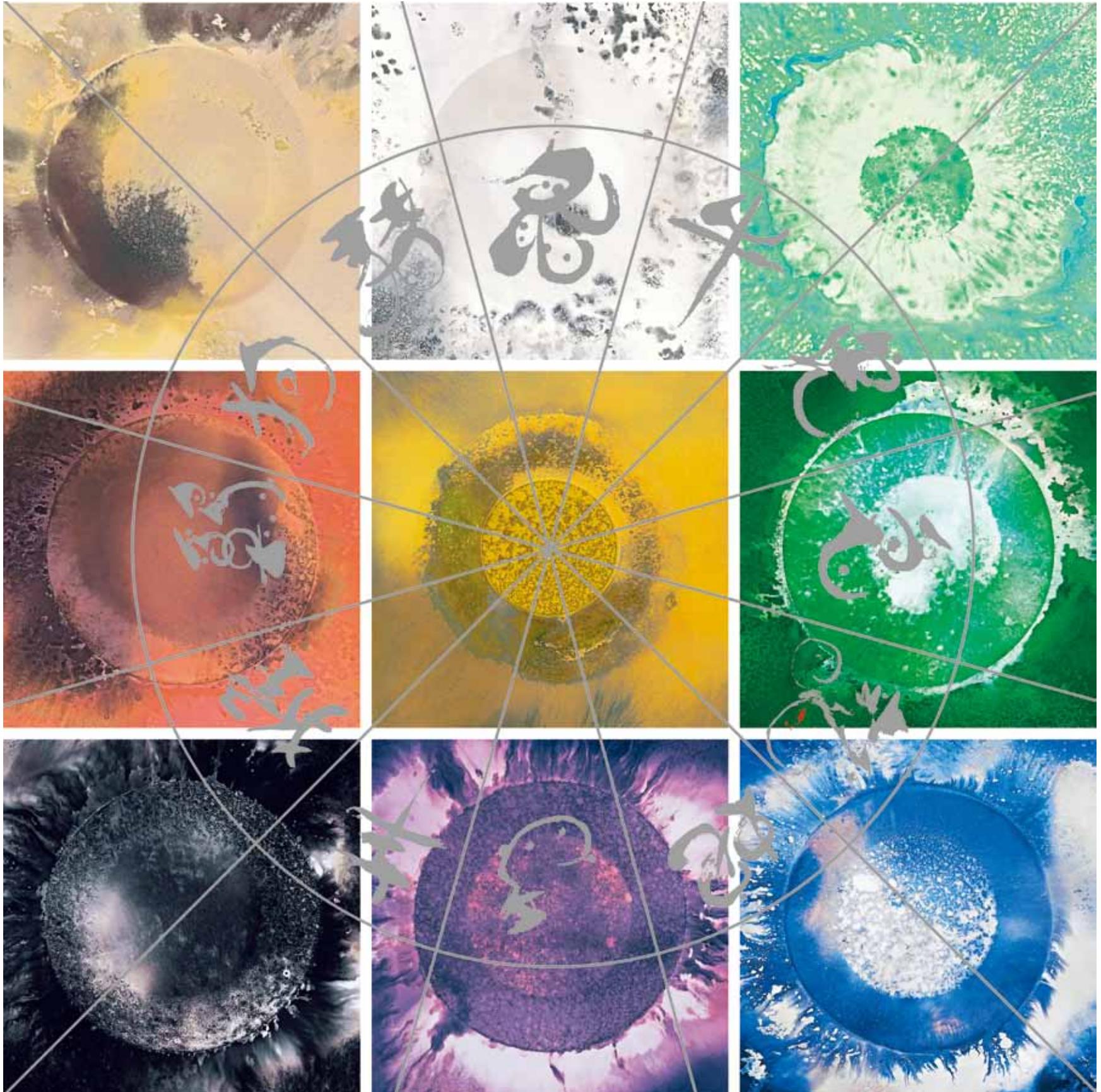




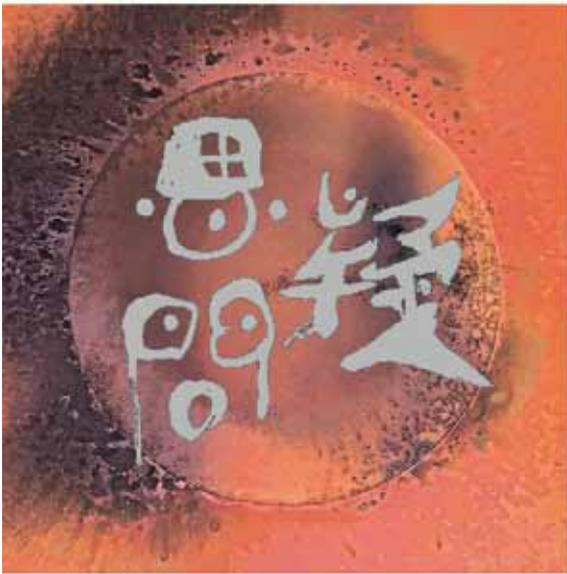
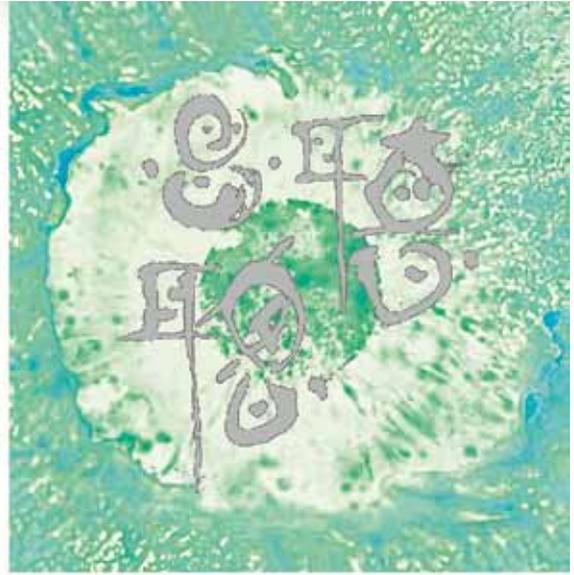
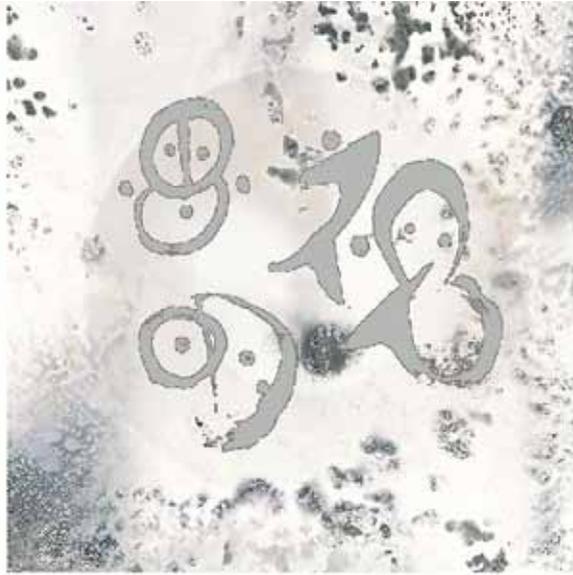


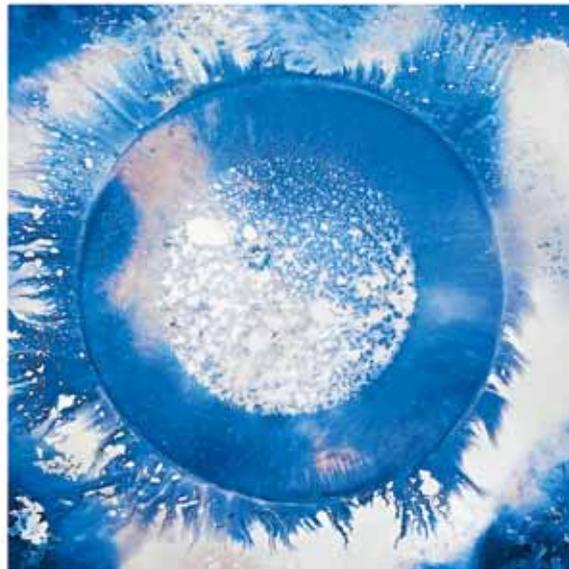
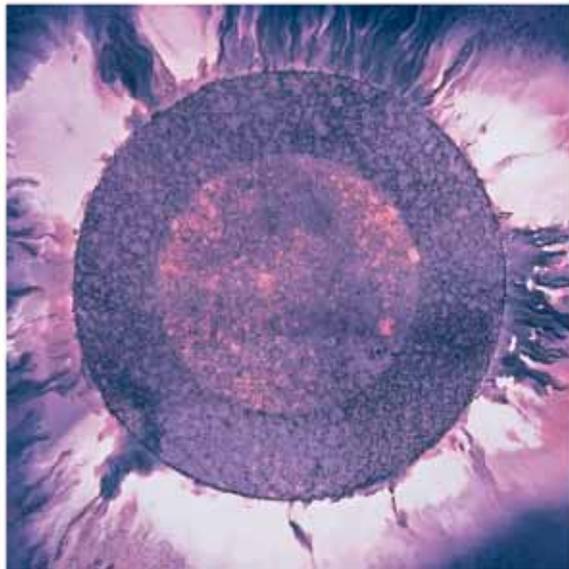
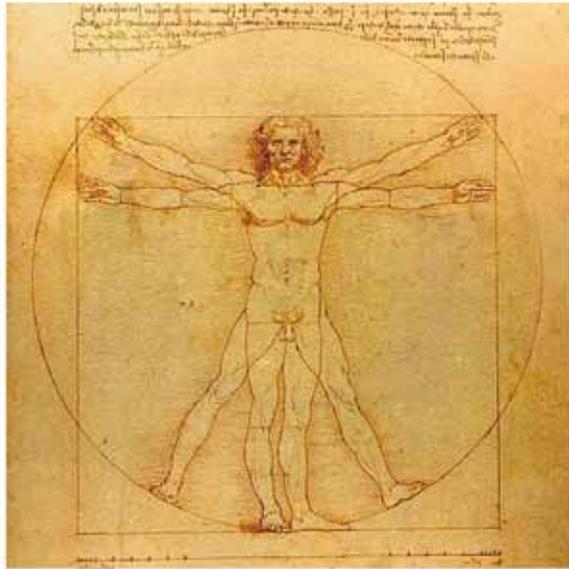
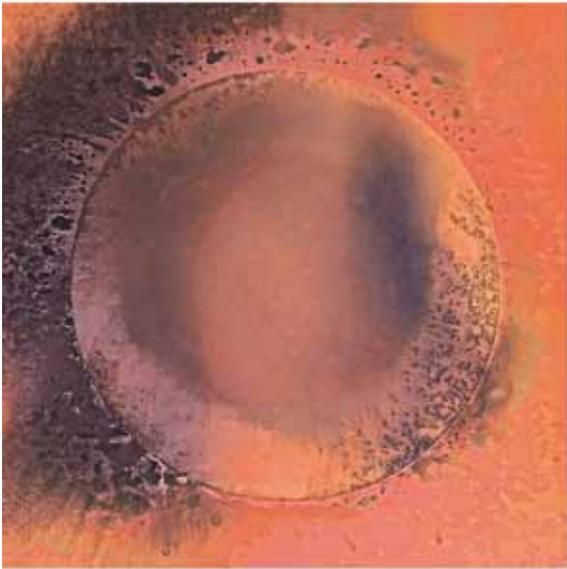
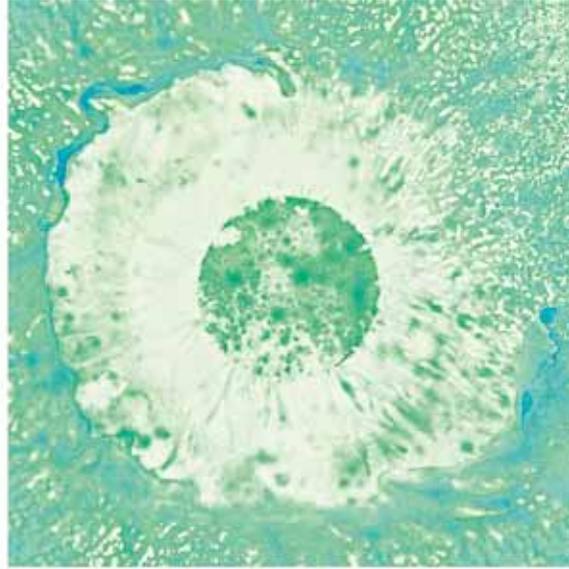


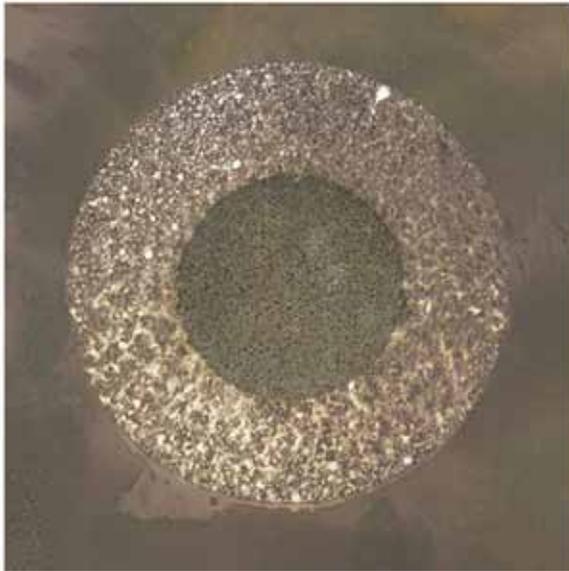
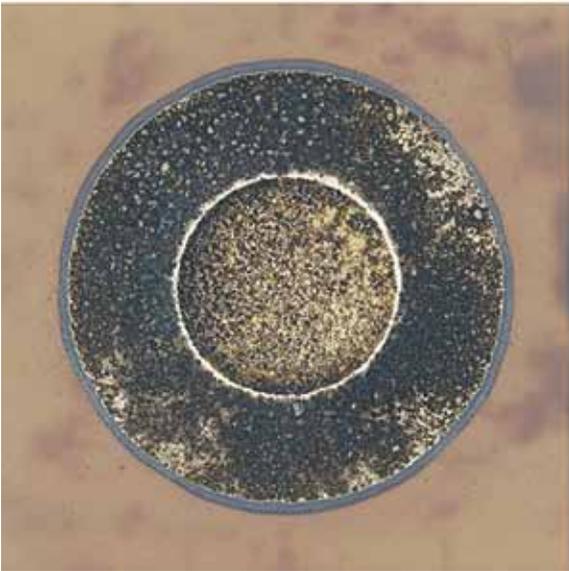
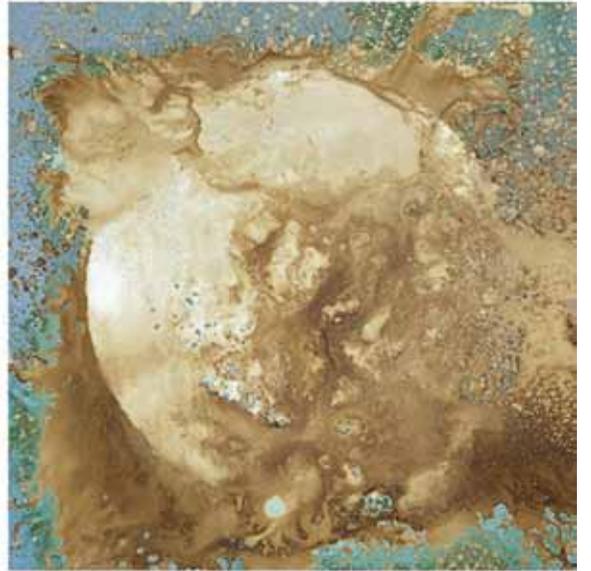
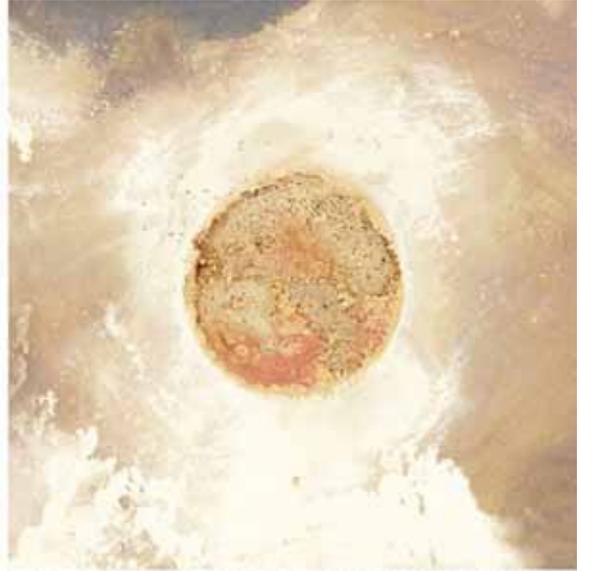












## Interpretation of the Nine Court Diagram

<p>六白乾在西北：深秋屬金，大地已有寒意，北方露白。武曲星座。</p> <p><b>6 White Qian is Northwest:</b> Deep autumn belongs to Metal, the earth is cooling, the north is whitening. Wu Qu Constellation.</p>	<p>一白坎在北：深冬屬水，天地白雪皚皚，萬物冬眠。貪狼星座。</p> <p><b>1 White Kan is North:</b> Deep winter belongs to Water, snow falling on the earth, all living things sleeping. Tan Lang Constellation.</p>	<p>八白艮在東北：冬春交界屬土，萬物等待重生。左輔星座。</p> <p><b>8 White Gen is Northeast:</b> The winter/spring boundary belongs to Earth, all living things awaiting rebirth. Zuo Fu Constellation.</p>
<p>七赤兌在西：秋收屬金，穀物收成。破軍星座。</p> <p><b>7 Red Dui is West:</b> Autumn belongs to Metal, crops are harvested. Po Jun Constellation.</p>	<p>五黃中宮在中：中宮屬土，萬物生長之地。廉貞星座。</p> <p><b>5 Yellow Zhong Gong is Central:</b> Central Court belongs to Earth, the place where every living thing resides. Lian Zhen Constellation.</p>	<p>三碧震在東：春天屬木，萬象初生。祿存星座。</p> <p><b>3 Green Zhen is East:</b> Spring belongs to Wood, all living things begin to grow. Lu Cun Constellation.</p>
<p>二黑坤在西南：夏末屬土，萬物被炙，期待豐收。巨門星座。</p> <p><b>2 Black Kun is Southwest:</b> Summer's end belongs to Earth, everything is burnt, awaiting harvest. Ju Men Constellation.</p>	<p>九紫離在南：夏天屬火，大地炎炎，萬物速長。右弼星座。</p> <p><b>9 Purple Li is South:</b> Summer belongs to Fire, the earth is burning, all living things grow rapidly. You Bi Constellation.</p>	<p>四青巽在東南：春夏交界屬木，萬物衍生。文曲星座。</p> <p><b>4 Blue Xuan is Southeast:</b> Spring/summer border belongs to Wood, all growth accelerate. Wen Qu Constellation.</p>

### Exploring the Universe

In 2009, Lam was invited by Louis Vuitton (LV) to give a one-man show at LV Maison in Hong Kong. The curator Jonathan Thomson<sup>6</sup> informed Lam that 2009 was the 40th anniversary of the first man on the moon and LV wished to celebrate this historical occasion with an exhibition entitled “Voyage of Discovery”<sup>7</sup>. After viewing LV’s venue, Lam created a 1.2m (H) by 15m (W) Chromoskedasic photopainting (Figure 40) describing

the evolution of the Universe and combining the essence of western science and Chinese philosophy. With the use of vividly bright colors and multi-layered composition, the painting has brought the billion-year voyage of the boundless Universe setting off from its beginning to the audience’s vicinity, allowing us to experience and feel the greatness and mystery of the galaxy. Voyage is a passage involving both time and space, which cannot succeed without any of the two elements. After serious consideration, in addition to creating the long scroll painting representing the space of the voyage, Lam also applied computer technology to transform the *Voyage of Discovery – Universe* into dynamic images (DVD), and let time interact with space. Furthermore, the DVD is accompanied with an enchanted piece of music, exclusively composed for Lam by Michael Siu-Tin Lai, and performed by Michael himself and Sunny Kwong Yeung.

In addition, Lam has created many series of “time-lapsed” paintings depicting the Universe and “the



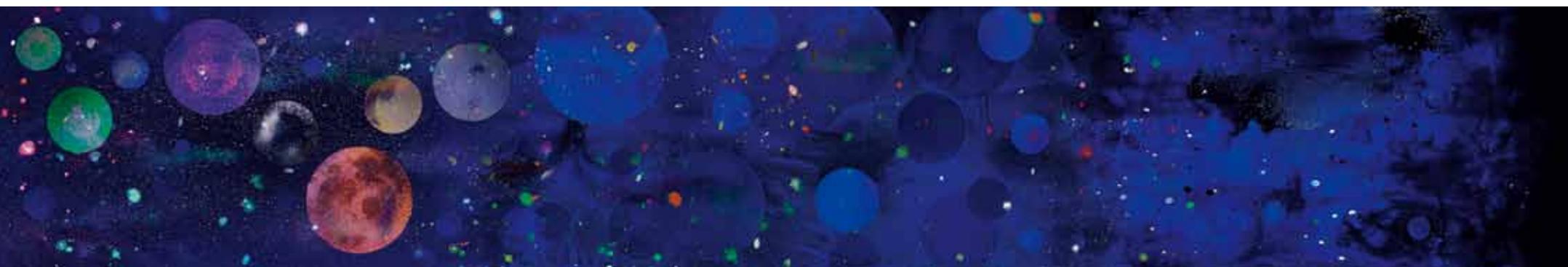
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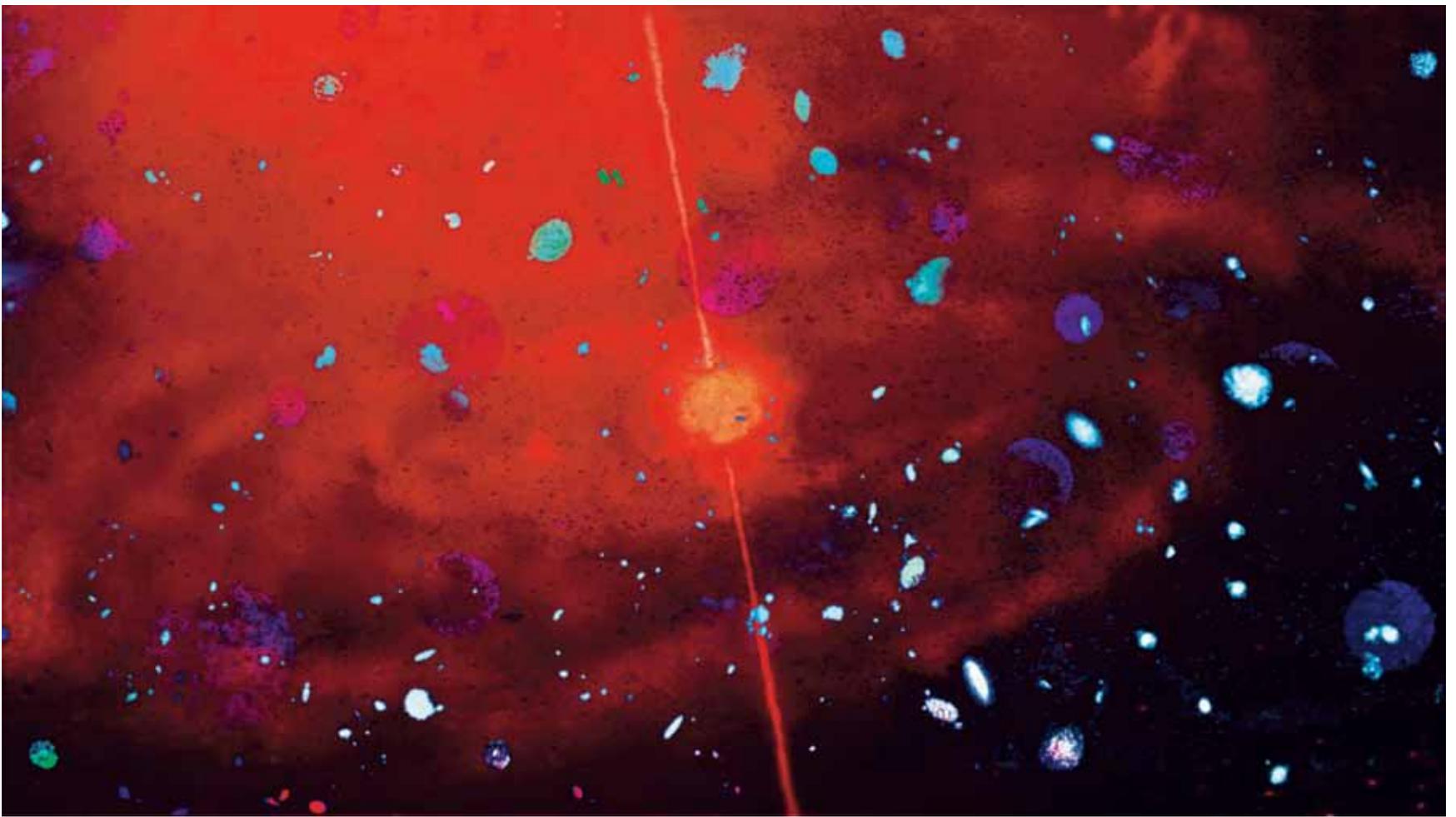




Multiverse<sup>8</sup> (Figures 43-69) as well as the “Beginning of Life”(Figures 70-75). Two of which, entitled *In the Beginning* (Figure 41) and *Space-Time Continuum* (Figure 42) respectively, symbolize the birth of the earth and the ever-evolving Universe were shown at the Landmark Hong Kong in May and at the Shanghai Art Museum in October, 2012. They will continue to be displayed in Lam's exhibitions subsequently in other cities of China, Europe and America.

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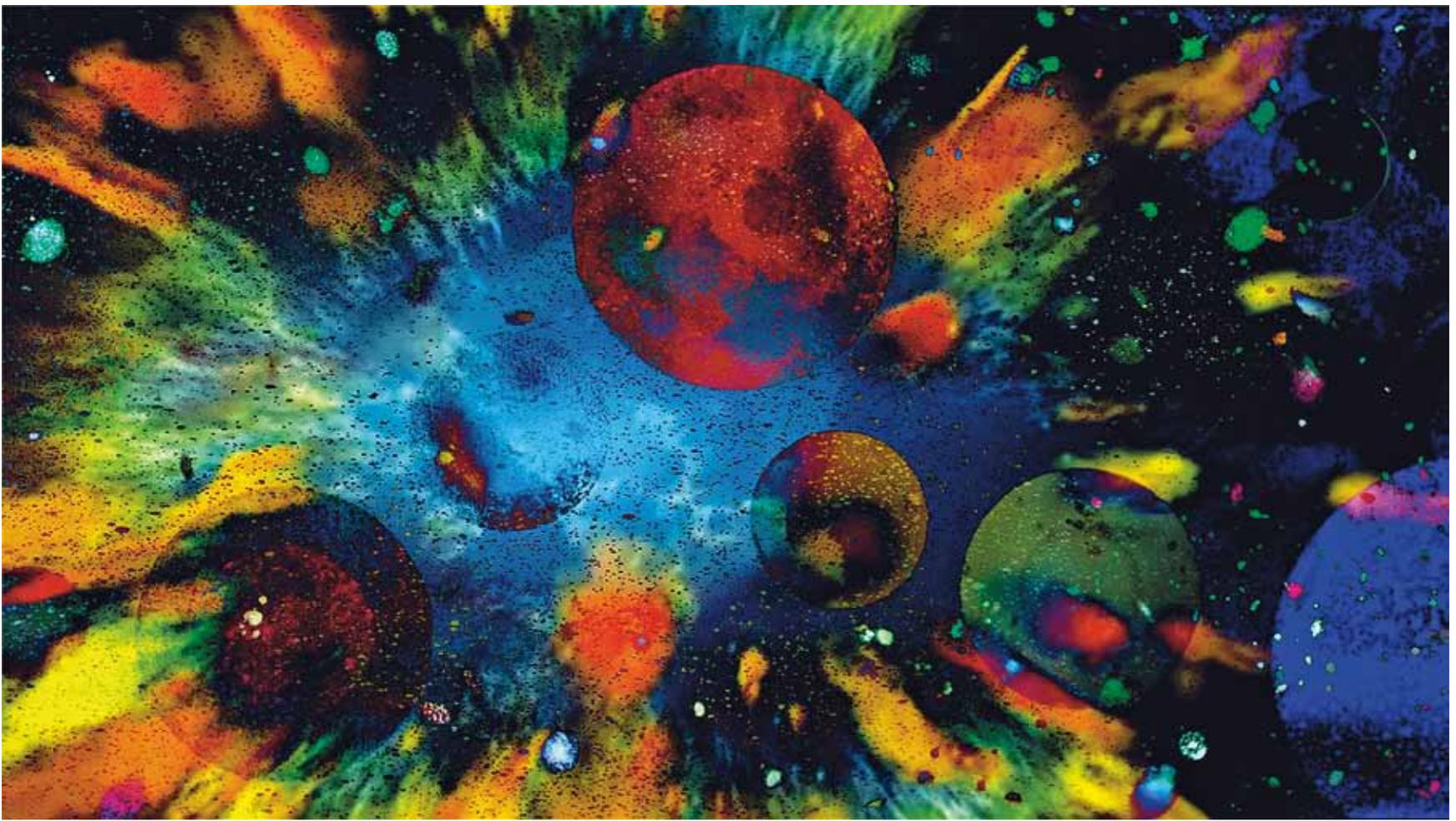


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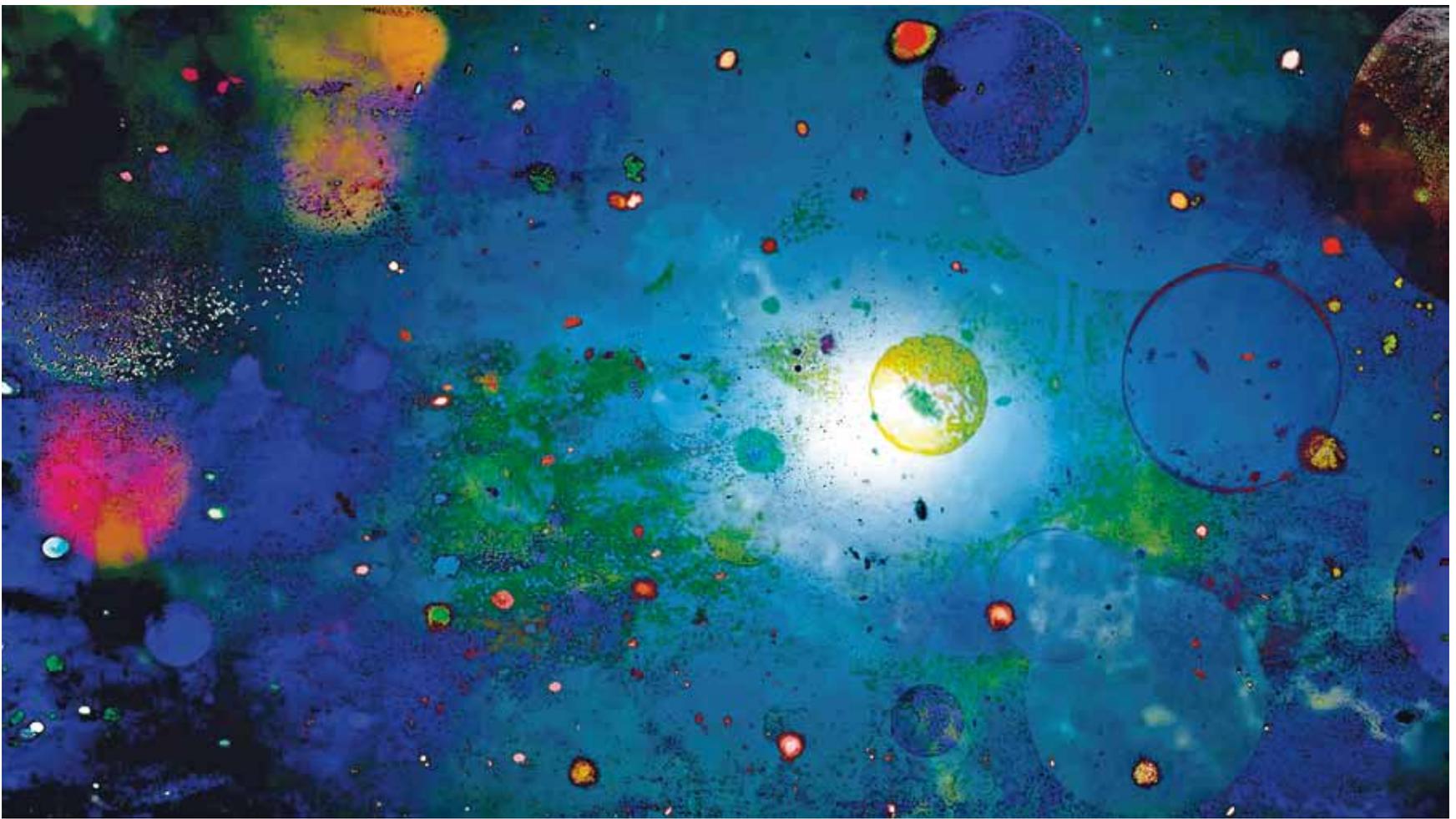
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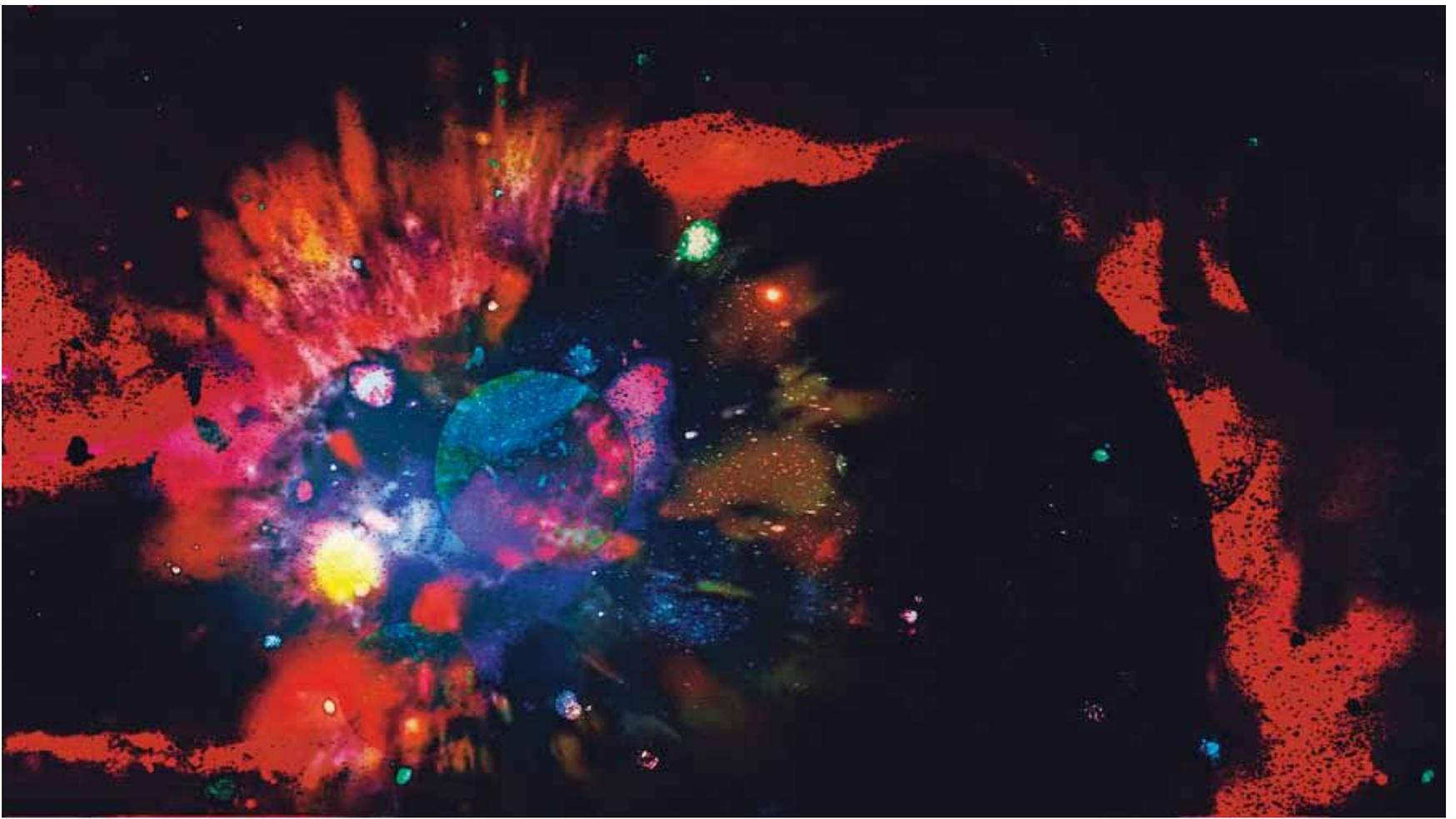


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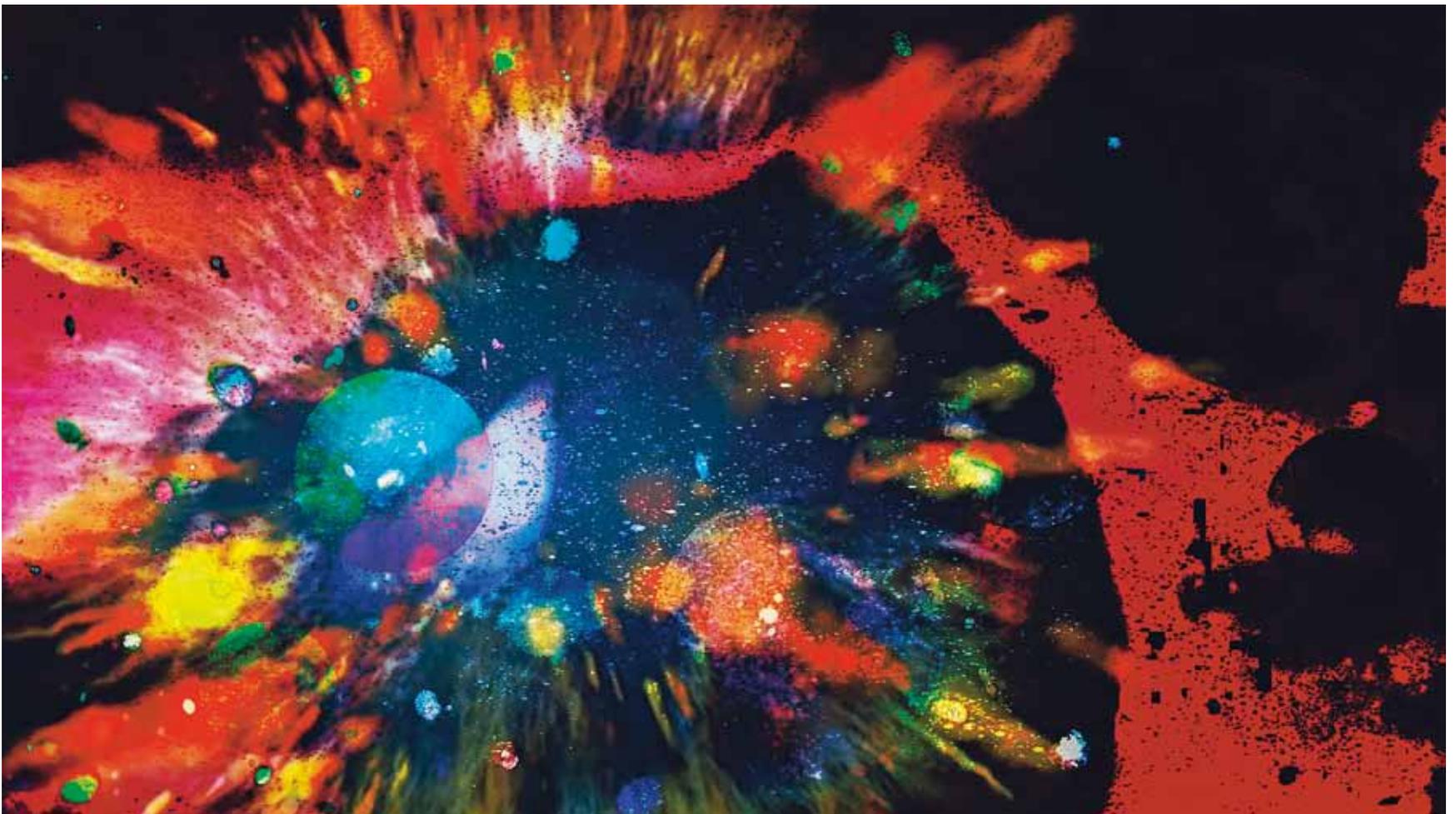


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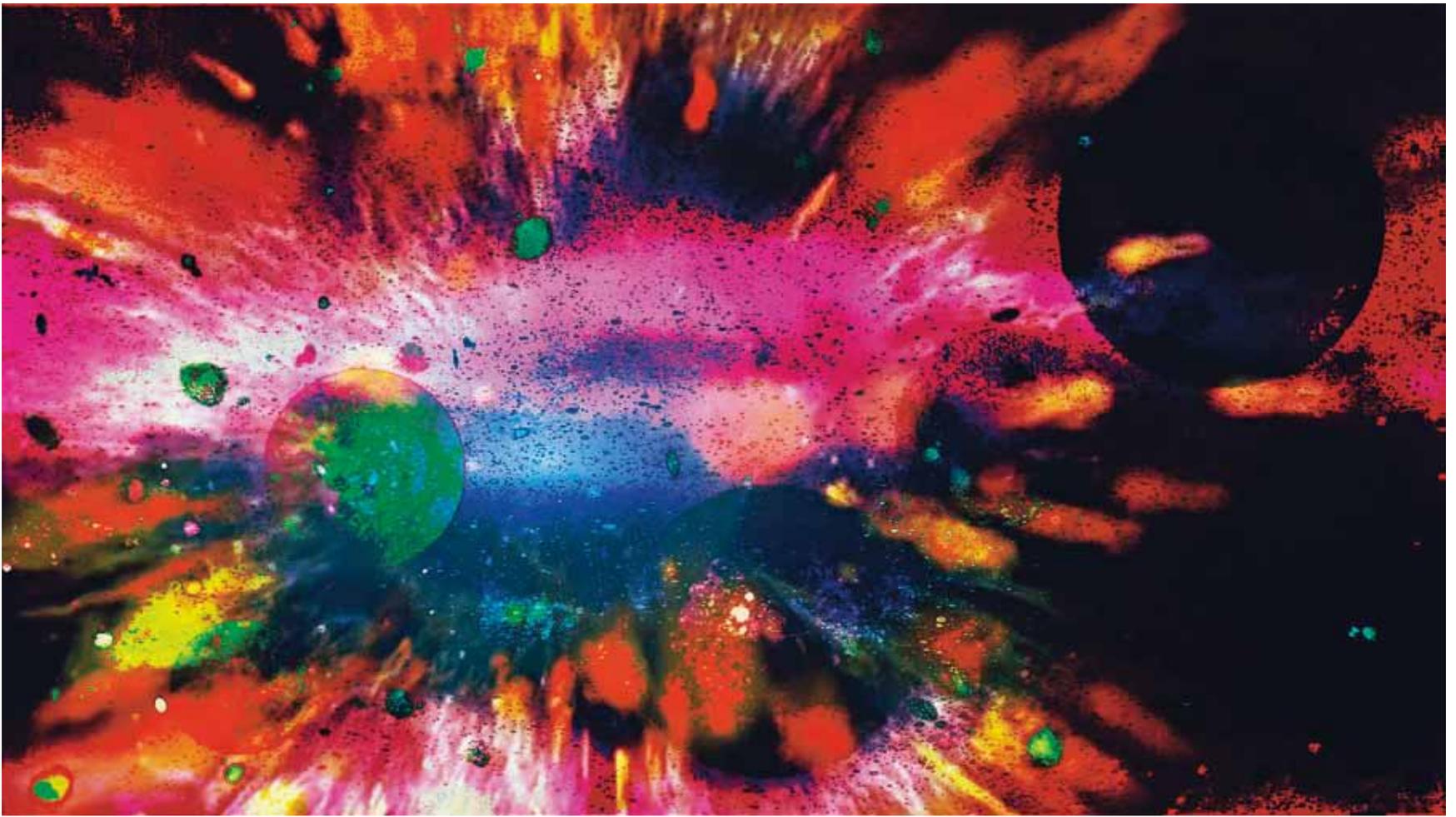
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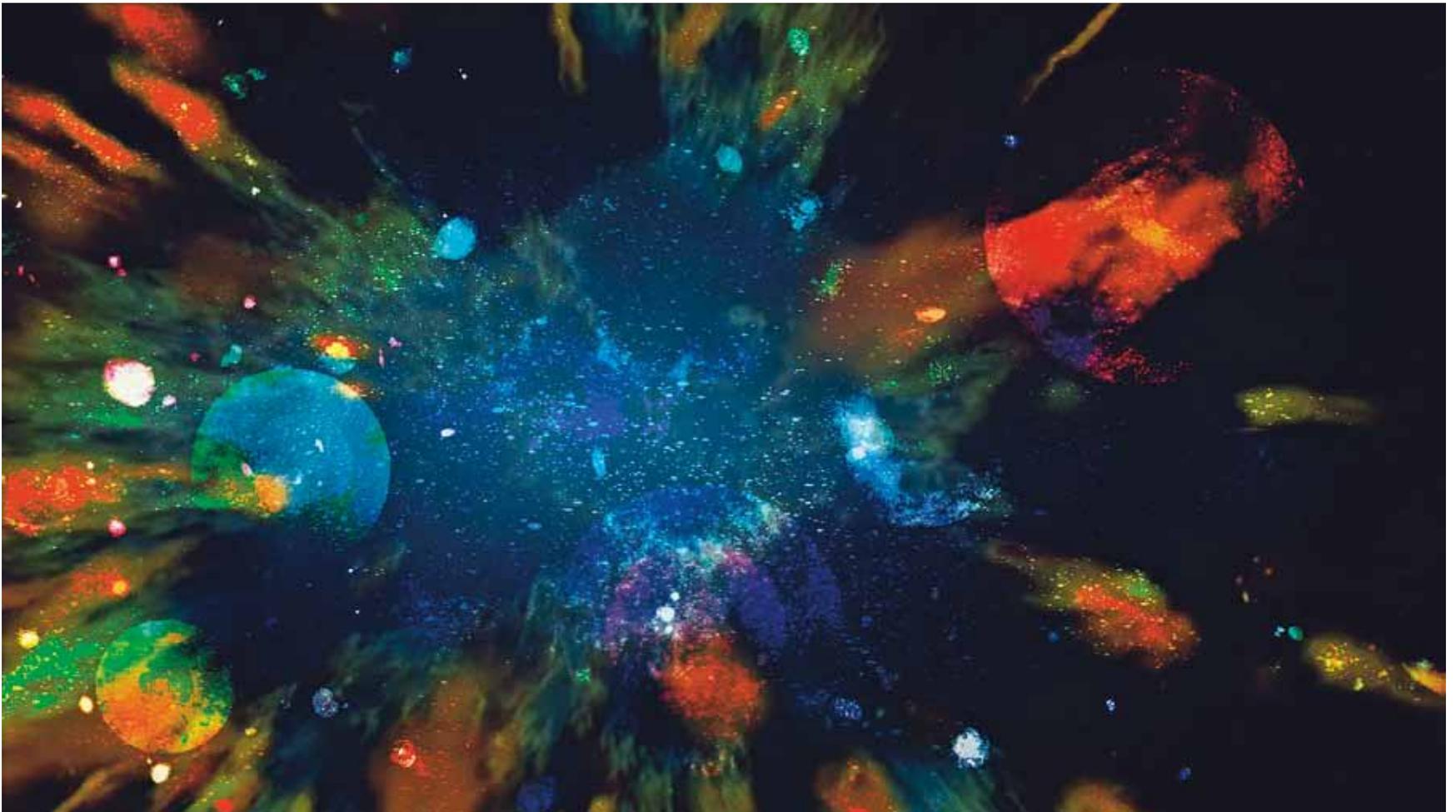
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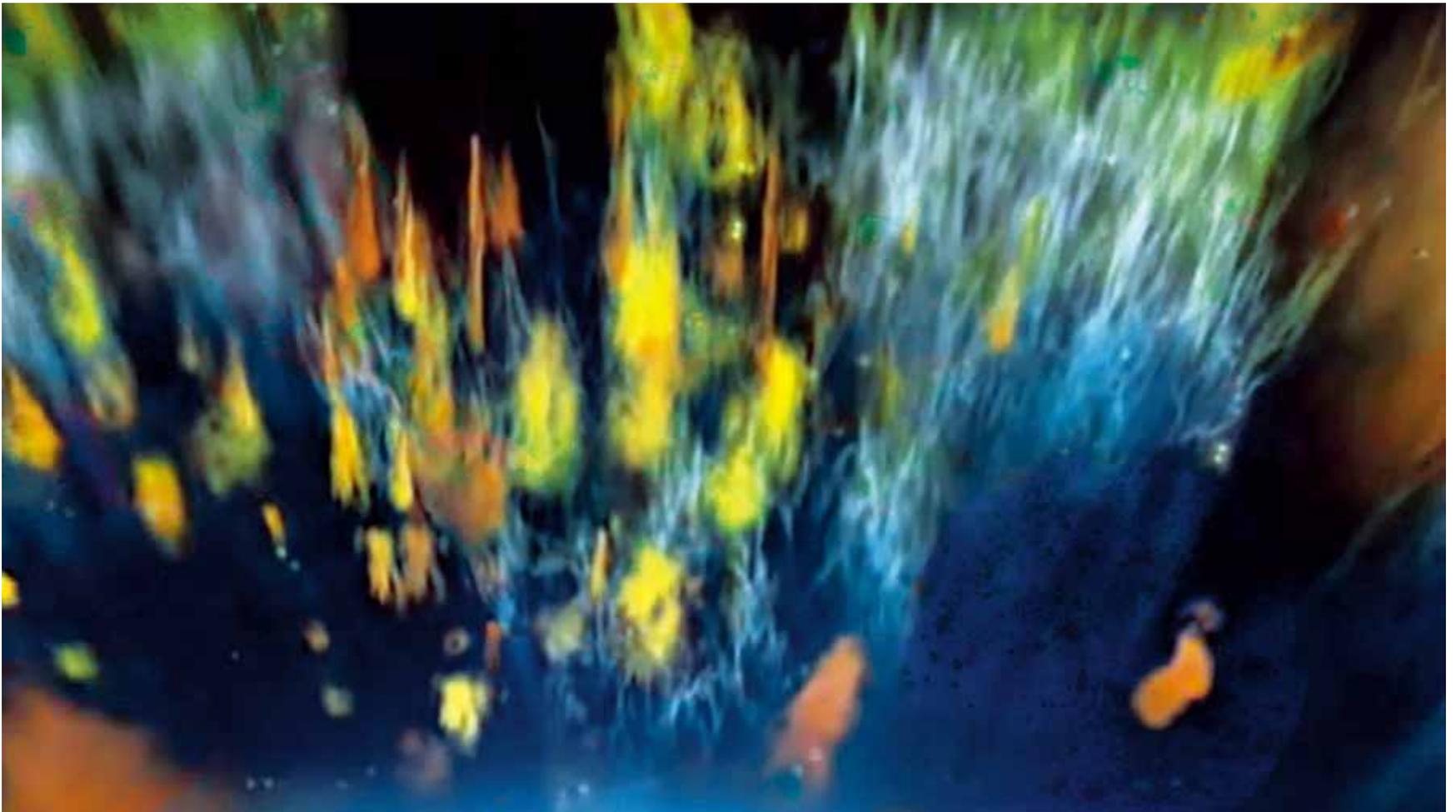


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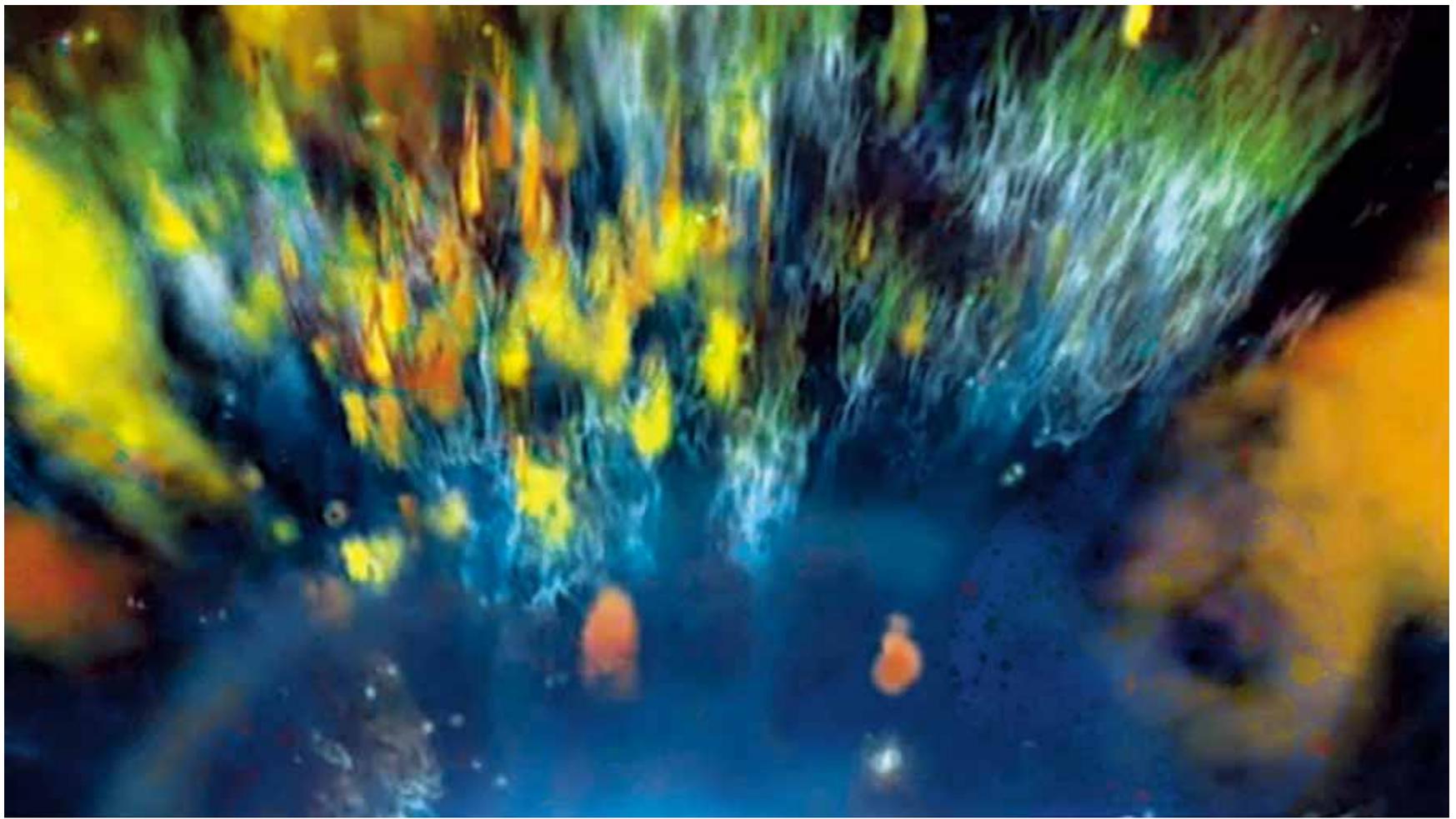
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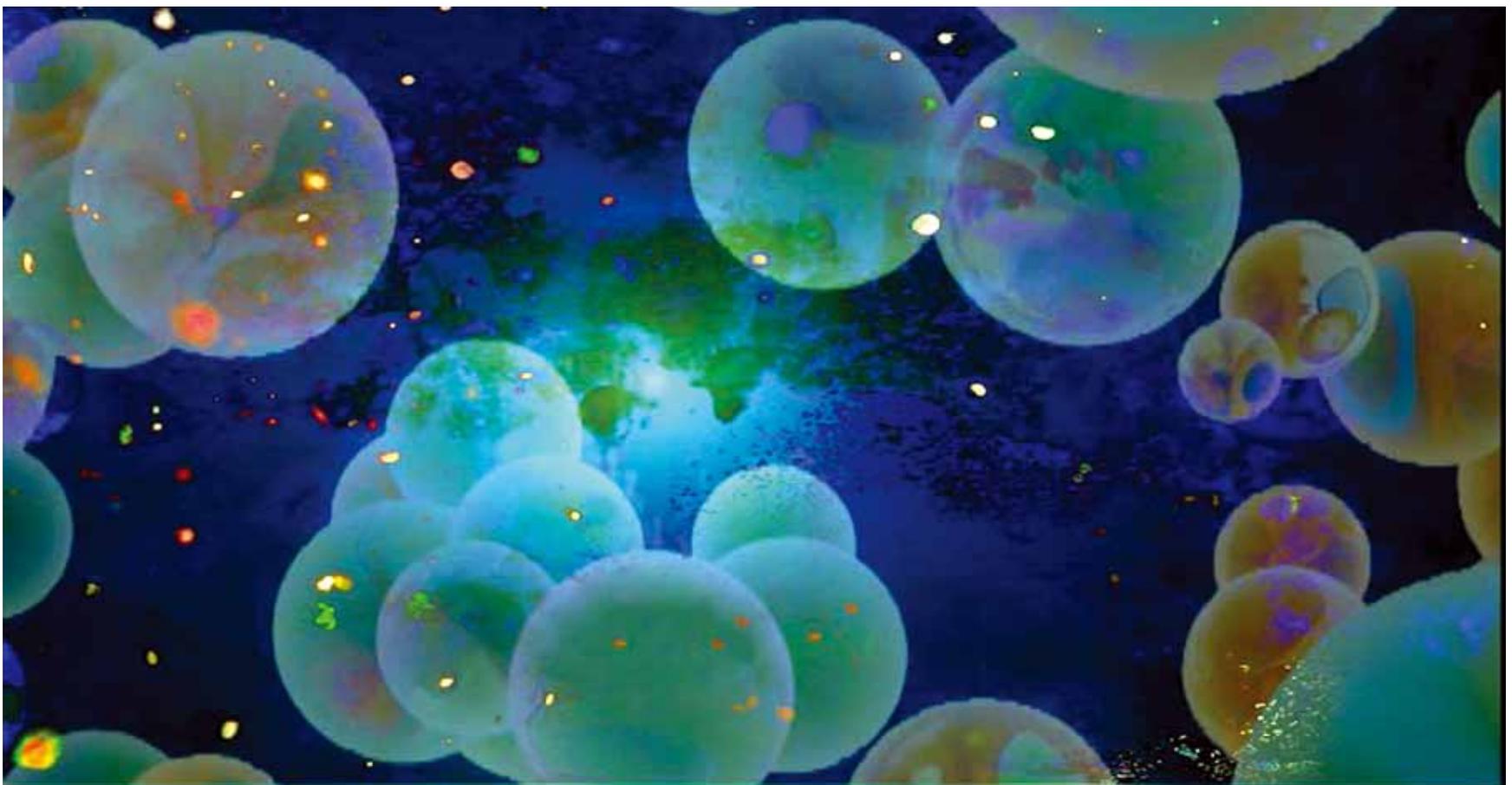
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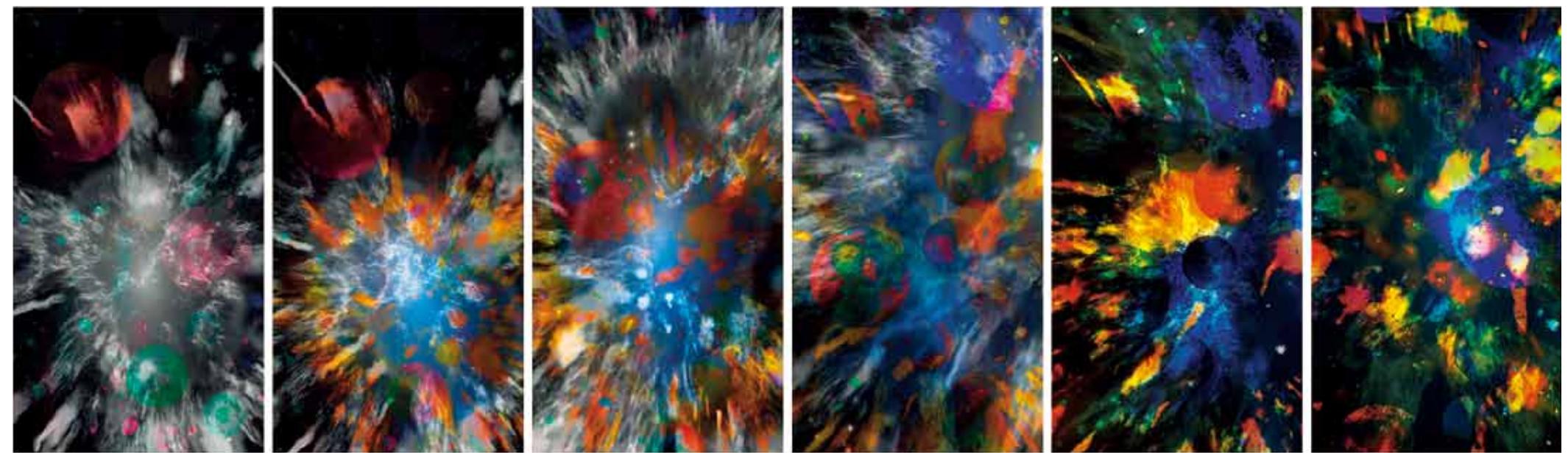
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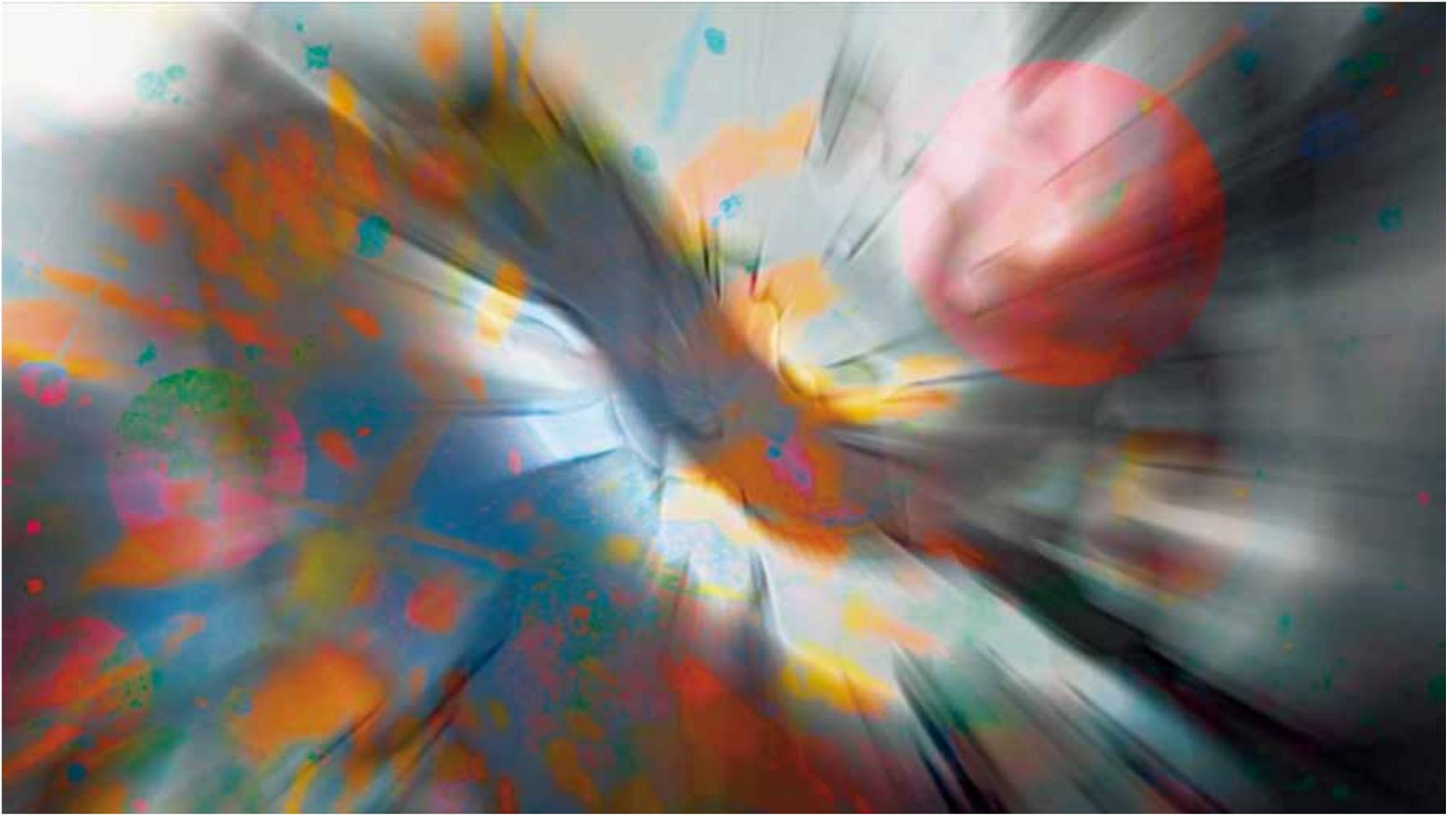
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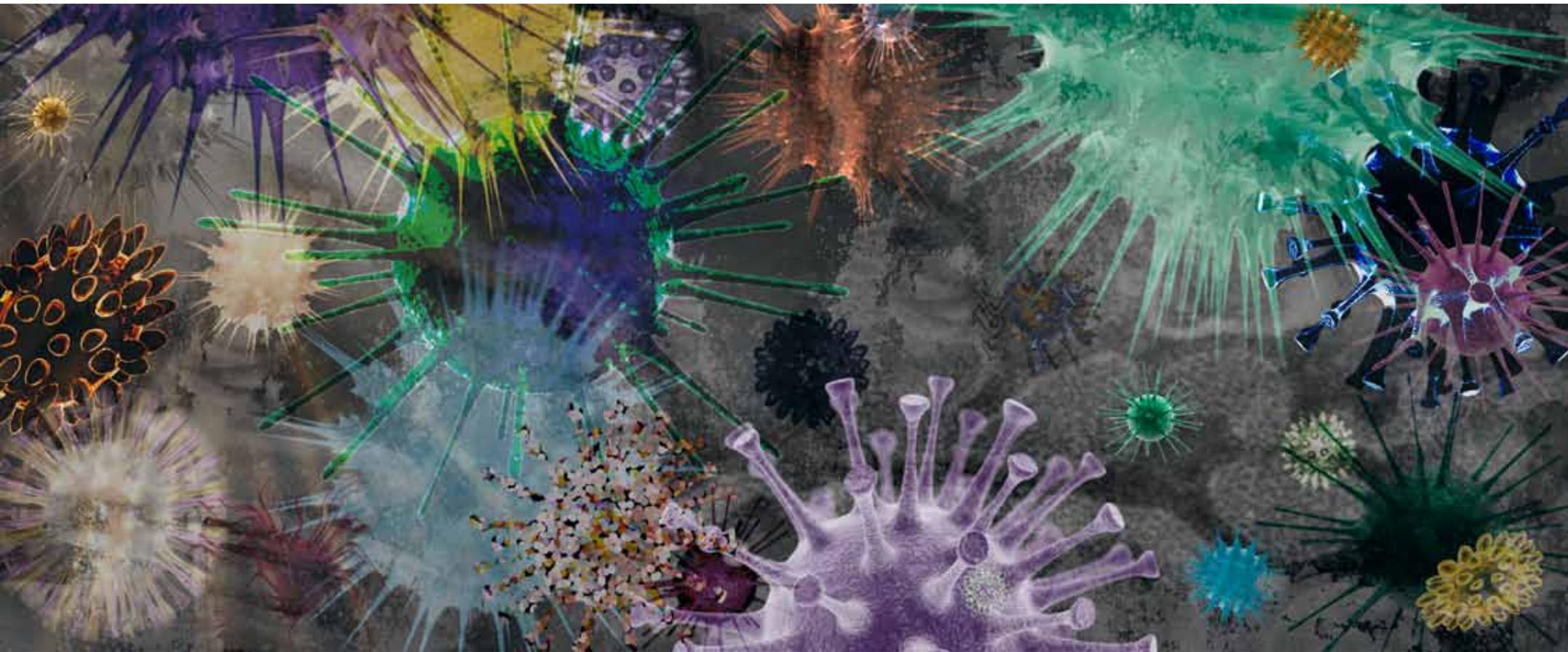












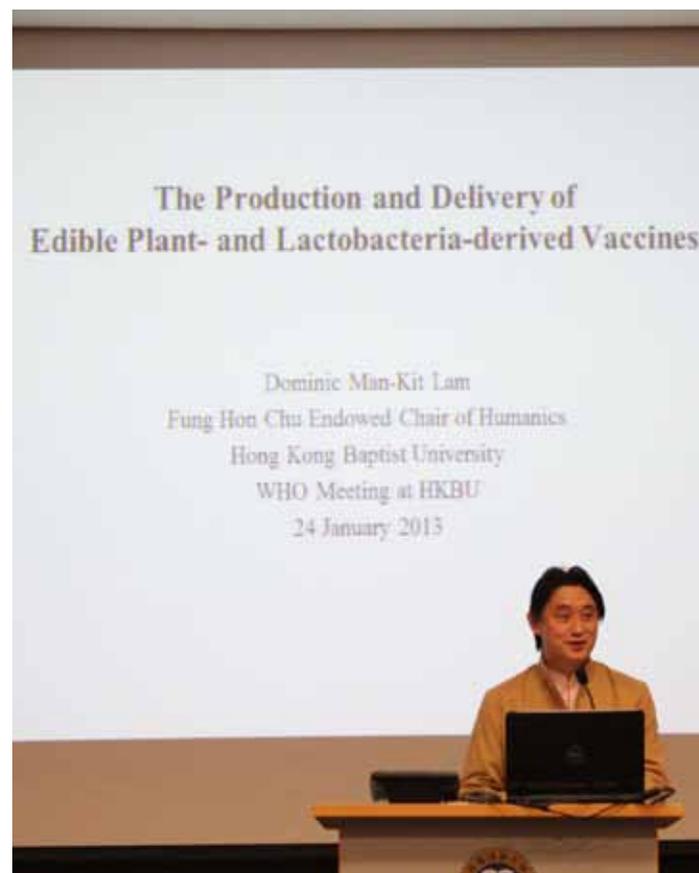
76a



76b



76c



76d



76e

### **After the Rain: A Better Tomorrow**

In April 2012, Lam used the rainbow colors to create a 7-panel series painting entitled *After the Rain* (Figure 78). The painting depicted our gorgeous motherland with abstract images. The stunting waterfall in the painting symbolizes the wealth and happiness of our nation and people, as well as a better tomorrow after the rain (such as the global economic crisis) of Hong Kong .

On 1 July 1997, Lam was invited by the Hong Kong Convention and Exhibition Centre (HKCEC) to hold



a solo exhibition to celebrate the return of Hong Kong to China. In 2012, Lam was again invited by the HKCEC to have another one-man show celebrating the 15th anniversary of Hong Kong 's return to China. *After the Rain* was created to commemorate such a special occasion. In fact, this oil painting is the color version of his 8 x 8.8m ink painting entitled *A Galaxy on Earth* (Figures 79a-79b) created for permanent display at the Diaoyutai State Guesthouse in Beijing, China.





79b

79a





## ***The Olympics: A Symbol of World Peace and Harmony***

### **Happiness and 2008 Beijing Olympic Games**

In addition to athletic events, art competitions formed part of the modern Olympic Games from 1912 to 1952 with the founding of the International Olympic Committee in 1894 and the initiation by French Baron Pierre de Coubertin who promoted the education of mind and body. The art competitions subsequently evolved to include art and cultural events for promoting harmonious relations, mutual understanding and friendship among the participants and others attending the Olympic Games.<sup>9</sup>

In 2004, Lam was invited by the Beijing Olympic Committee to design a symbol for the Beijing Olympic Games. Lam has been in love with Chinese calligraphy since he was a child and even invented his own calligraphic style<sup>10</sup> through his knowledge of the physiology and development of the eye and brain. One day, as he was looking at his favorite Chinese character (and favorite philosophy in life): “樂”, meaning happiness, Lam instinctively created an Olympic Happiness design (Figure 80) to symbolize his wish of “Peace for the World and Happiness for all People.”<sup>11</sup> For those who know Chinese, they will immediately recognize that this is a graphic pattern of the character “樂”. Lam’s design, which integrates the logo of the Olympic Games (5 rings) with Chinese calligraphy, helps further extend the message of global harmony, art and sports across cultures all over the world.

In a cover article entitled “At the Athens’ Olympic 2004” published by *Yazhou Zhoukan (Asiaweek)*, Harvard Professor Leo Ou-Fan Lee had this observation, “...Dominic Lam’s character ‘Happiness’ (樂) in his painting bears a deeper meaning. The five rings (usually regarded as the five continents of the world) are balanced on a symbolic platform of man (人) (in white acrylic) with his arms stretching out. Moreover, only the meticulous audience can realize that on top of the rings, there are little symbols of the gold, silver and bronze awards. When I saw this painting, the enchanted music of Beethoven’s *Ode to Joy* embraced me.”<sup>12</sup> This painting was used as the 2007-08 New Year greeting card and calendar by the Hong Kong Olympic Committee and sent to all 205 member nations.



## **Millennium Olympic Odyssey I and II**

Lam was also invited as one of the featured artists to create a painting for the 2008 Beijing Olympic Games. It was a very special and memorable event. On the one hand, Beijing inherited the Olympic torch from the 2004 Olympic Games which took place at the origin of the inaugural Olympic Games, Athens, 2,000 years ago. The 2008 event seemingly was a “new start” of this international event for this new millennium. It was also a significant milestone in China’s modernization and openness to the world. Lam visualized this extravaganza by painting *Millennium Olympic Odyssey: From Athens to Beijing* (Figure 81), depicting a voyage through the four ancient civilizations and three major religions. In fact, that painting is an extension of Lam’s another piece of work entitled *Smoke Flower Rain* (Figure 82) which depicted his emotion towards the prosperity of our nation during the National Day of the 50th anniversary of China (Figures 82a-82d).

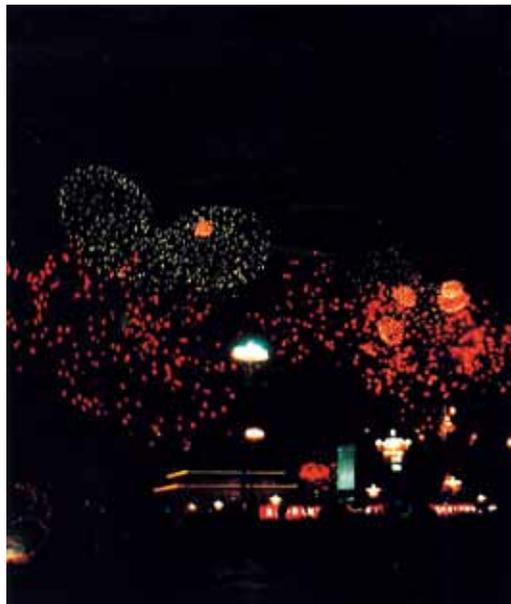
In 2011, Lam was once again invited to be a featured artist of the 2012 London Olympic Games. His painting: *Millennium Olympic Odyssey II: From the Great Wall to River Thames – Embrace the World* (Figure 83) was awarded a Gold Medal<sup>13</sup> among the thousands of paintings submitted by the 204 member nations, and was exhibited at the Barbican Centre, London during the Olympic Games. It is not just Lam’s personal achievement in art, but also an honor to the art arena of Hong Kong and China.

Moreover, for the 2008 Olympic Games, Hong Kong was selected as the city to host the equestrian competitions. Lam’s first Chromoskedasic painting *To Run* (Figure 84) was chosen and printed on the commemorative stamps celebrating this event on 8 August 2008. In an inspirational article published in *Yazhou Zhoukan*, Perry Lam<sup>14</sup> insightfully suggested that this painting by a Hong Kong artist, Dominic Lam, represents the freedom that Hong Kong people cherish and enjoy.





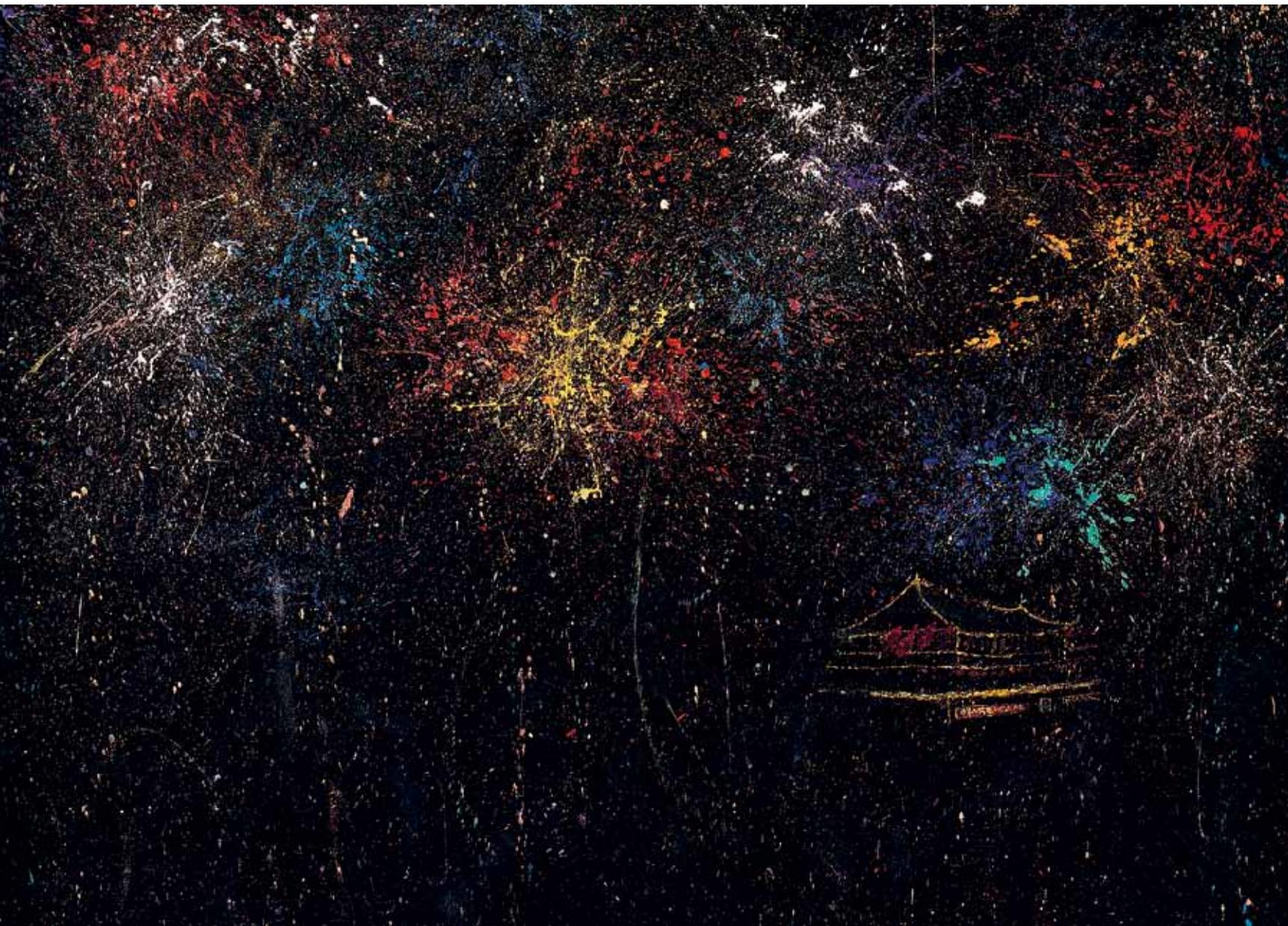
82a



82b



82c



### Smoke Fire Rain: Ode to Fireworks

A historic night of glitter and flair  
to celebrate modern China's fiftieth year  
As thousands gathered at Tiananmen Square  
while billions more around the globe  
watched with admiration and hope  
Down the deserted Chang'an Street I wandered  
Far from the maddening crowd I pondered  
Amidst the spectacular lights and thunder  
I could think of none other  
than you and I strolling together  
on Queen's Road Central that summer  
The rain was pouring then but we didn't care  
Leaving me to wonder now as then, here as there  
How are you my dear

Man Kit wandering outside Tiananmen Square  
10pm 1 October 1999

*Dominic Man-Kit Lam*

Original poem in Chinese: 1 October 1999, Beijing  
English Version: 18 November 2012, Hong Kong

### 煙花雨

在這煙花雨的夜裡  
我離開天安門的燦爛  
走不到一百公尺  
已是獨自  
站在靜寂的長安大街上  
悠悠地享受著淋雨的感覺  
煙花是多麼轟烈輝煌  
卻比不上  
與妳在皇后大道中  
一起淋雨的溫馨  
瞬息間  
天安門與它的群眾已很遙遠  
我祇感到  
妳就在我身旁

一九九九年國慶晚上十時  
文傑徘徊於天安門外

## Conclusion

Taken together, Professor Dominic Man-Kit Lam feels that in to-day's world, it is only through the mutual respect and harmony between heaven, earth and man that world peace and prosperity can be attained. He hopes that through art, complemented by science and charity, mutual understanding between different peoples will be enhanced.



From Left: Laurence Tam, Vanessa Li and Dominic Lam

*Prof. Laurence Chi-Sing Tam, MBE*  
Founding Chief Curator of the Hong Kong Museum of Art



From Left: Louis Lam and Dominic Lam

*Dr. Vanessa Lok-Wa Li*  
Art Educator

*Mr. Louis Man-Fat Lam*  
President of InnoWorld Inc.

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# THE MYSTERY OF THE MULTIVERSE

Appendix

THE LATEST DEVELOPMENTS IN COSMOLOGY POINT TOWARD THE POSSIBILITY THAT OUR UNIVERSE IS MERELY ONE OF BILLIONS.

BY BRIAN GREENE

SCIENCE

**“What really interests me is whether God had any choice in creating the world.” That’s how Albert Einstein, in his characteristically poetic way, asked whether our universe is the only possible universe.**

The reference to God is easily misread, as Einstein’s question wasn’t theological. Instead, Einstein wanted to know whether the laws of physics necessarily yield a unique universe—ours—filled with galaxies, stars, and planets. Or instead, like each year’s assortment of new cars on the dealer’s lot, could the laws allow for universes with a wide range of different features? And if so, is the majestic reality we’ve come to know—through powerful telescopes and mammoth particle colliders—the product of some random process, a cosmic roll of the dice that selected our features from a menu of possibilities? Or is there a deeper explanation for why things are the way they are?

In Einstein’s day, the possibility that our universe could have turned out differently was a mind-bender that physicists might have banded about long after the day’s more serious research was done. But recently, the question has shifted from the outskirts of physics to the mainstream. And rather than merely imagining that our universe might have had different properties, proponents of three independent developments now suggest that there are other universes, separate from ours, most made from different kinds of particles and governed by

different forces, populating an astonishingly vast cosmos.

The multiverse, as this vast cosmos is called, is one of the most polarizing concepts to have emerged from physics in decades, inspiring heated arguments between those who propose that it is the next phase in our understanding of reality, and those who claim that it is utter nonsense, a travesty born of theoreticians letting their imaginations run wild.

So which is it? And why should we care? Grasping the answer requires that we first come to grips with the big bang.

## IN SEARCH OF THE BANG

In 1915, Einstein published the most important of all his works, the general theory of relativity, which was the culmination of a 10-year search to understand the force of gravity. The theory was a marvel of mathematical beauty, providing equations that could explain everything from the motion of planets to the trajectory of starlight with stupendous accuracy.

Within a few short years, additional mathematical analyses concluded that space itself is expanding, dragging each galaxy away from every other. Though Einstein at first strongly resisted this startling implication of his own theory,

observations of deep space made by the great American astronomer Edwin Hubble in 1929 confirmed it. And before long, scientists reasoned that if space is now expanding, then at ever earlier times the universe must have been ever smaller. At some moment in the distant past, everything we now see—the ingredients responsible for every planet, every star, every galaxy, even space itself—must have been compressed to an infinitesimal speck that then swelled outward, evolving into the universe as we know it.

The big-bang theory was born. During the decades that followed, the theory would receive overwhelming observational support. Yet scientists were aware that the big-bang theory suffered from a significant shortcoming. Of all things, it leaves out the bang. Einstein’s equations do a wonderful job of describing how the universe evolved from a split



What if there were billions of big bangs, each yielding its own separate, expanding universe? Our universe would then be a single expanding bubble inhabiting a grand cosmic bubble bath of universes.

second after the bang, but the equations break down (similar to the error message returned by a calculator when you try to divide 1 by 0) when applied to the extreme environment of the universe’s earliest moment. The big bang thus provides no insight into what might have powered the bang itself.

## FUEL FOR THE FIRE

In the 1980s, physicist Alan Guth offered an enhanced version of the big-bang theory, called inflationary cosmology, which promised to fill this critical gap. The centerpiece of the proposal is a hypothetical cosmic fuel that, if concentrated in a tiny region, would drive a brief but stupen-

dous outward rush of space—a bang, and a big one at that. In fact, mathematical calculations showed that the burst would have been so intense that tiny jitters from the quantum realm would have been stretched enormously and smeared clear across space. Like overextended spandex showing the pattern of its weave, this would yield a precise pattern of minuscule temperature variations, slightly hotter spots and slightly colder spots dotting the night sky. In the early 1990s, NASA’s Cosmic Microwave Background Explorer satellite first detected these temperature variations, garnering Nobel Prizes for team leaders John Mather and George Smoot.

Remarkably, mathematical analysis also revealed—and here’s where the multiverse enters—that as space expands the cosmic fuel replenishes itself, and so efficiently that it is virtually impossible to use it all up. Which means that the big bang would likely not be a unique event. Instead, the fuel would not only power the bang giving rise to our expanding realm, but it would power countless other bangs, too, each yielding its own separate, expanding universe. Our universe would then be a single expanding bubble inhabiting a grand cosmic bubble bath of universes—a multiverse.

It’s a striking prospect. If correct, it would provide the capstone on a long series of cosmic reappraisals. We once thought our planet was the center of it all, only to realize that we’re one of many planets orbiting the sun, only then to learn that the sun, parked in a suburb of the Milky Way, is one of hundreds of billions of stars in our galaxy, only then to find that the Milky Way is one of hundreds of billions of galaxies inhabiting the universe. Now, inflationary cosmology was suggesting that our universe, filled with those billions of galaxies, stars, and planets, might merely be one of many occupying a vast multiverse.

Yet, when the multiverse was proposed back in the 1980s by pioneers Andrei Linde and Alexander Vilenkin, the community of physicists shrugged. The other universes, even if they existed, would stand outside what we can observe—we only have access to *this* universe. Apparently, then, they wouldn’t affect us and we wouldn’t affect them. So what role could other universes possibly play in science, a discipline devoted to explaining what we do see?

And that’s where things stood for about a decade, until an astounding astronomical observation suggested an answer.

## THE MYSTERY OF DARK ENERGY

Although the discovery that space is expanding was revolutionary, there was one aspect of the expansion that most everyone took for granted. Just as the pull of earth’s gravity slows the ascent of a ball tossed upward, the gravitational pull of each galaxy on every other must be slowing the expansion of space.

In the 1990s, two teams of astronomers set out to measure the rate of this cosmic slowdown. Through years of painstaking observations of distant galaxies, the teams collected data on how the expansion rate of space has changed over time. And when they completed the analysis, they all nearly fell out of their chairs. Both teams found that, far from slowing down, the expansion of space went into overdrive about 7 billion years ago and has been speeding up ever since. That’s like gently tossing a ball upward, having it slow down initially, but then rocket upward ever more quickly.

The result sent scientists across the globe scurrying to explain the cosmic speedup. What force could be driving every galaxy to rush away from every other faster and faster? The most promising answer comes to us from an old idea of Einstein’s. We’re all used to gravity being a force that does only one thing: pull objects toward each other. But in Einstein’s general theory of relativity, gravity can also do something else: it can push things apart. How? Well, the gravity exerted by familiar objects like the moon, the earth, and the sun is surely attractive. But Einstein’s equations show that if space contains something else—not clumps of matter but an invisible energy, sort of like an invisible mist that’s uniformly spread through space—then the gravity exerted by the energy mist would be repulsive.

Which is just what we need to explain the observations. The repulsive gravity of an invisible energy mist filling space—we now call it dark energy—would push every galaxy away from every other, driving the expansion to speed up, not slow down.

But there’s a hitch. When the astronomers deduced how much dark energy would have to permeate every nook and cranny of space to account for the observed cosmic speedup, they found a number that no one has been able to ex-



# The Art of Dominic Man-Kit Lam

After viewing Professor Dominic Man-Kit Lam's art at his exhibition: "Enchanted Time and Space" in Shanghai, I was really moved. I think Dr. Lam is extraordinarily intelligent. He has conveyed to us a new visual perception. As an expert in ophthalmic research, his visual perception has much deeper meanings. The exhibition has provided me with new insights in three areas.

The first is how to manage the interrelation between the macro and the micro worlds. In contemporary art, this is a deeply engrained and yet unsolved theme. Dr. Lam's intelligence and insight begin with bringing to us the micro world through his nanoart (Chromoskedasic painting). Nevertheless, in his micro world, we also feel the boundlessness of his macro universe. The universe is a mysterious entity. Both the East and the West have their own philosophies about the origin of the universe. Lam has wisely merged the modern western theory of the universe with the ancient Chinese philosophy of Nine Court Diagrams. Hence, in Lam's art, I feel the natural amalgamation of his micro and macro worlds. In his eyes, both of these worlds are fascinating, and his artistic approach is most enchanting.

The second revelation is the relationship between sense and sensitivity. Art creators cannot be totally rational, yet they can also not be lack of sense. Dr. Lam has very good sensitivity, and he knows how to touch people's feelings. After appreciating these works, I feel he has opened a new horizon through his own artistic expedition for many of our recent explorations on sense and sensitivity.

The third insight lies in the relationship between medicines and aesthetics. Recently, many artists have employed novel technologies in their artistic pursuit. Dr. Lam has actually been a pioneer in this area for over 30 years. Some scientists, including ophthalmologists and surgeons have attempted such explorations in their medical practices. I think art should not be a monopoly of artists since much of science is also art. In fact, when ophthalmologists do eye operations and surgeons perform cosmetic surgeries, they are combining aesthetics with medicine.

Taken together, Dr. Lam's voyage of artistic discovery is indeed a most inspiring journey.

*Professor Chen Xie-Jun*  
Director of the Shanghai Museum  
18 February 2011  
Shanghai

# The Son of Science, the Heart of Compassion, the Beauty of Art: The Legend of Dominic Man-Kit Lam and His Work

## A Climb to the Top of the Pyramid

George Saron, a renowned scientist, said that truth of science, benevolence of religion and beauty of art are the three facets of a pyramid. When one stands at the base of the pyramid facing one facet, one could just see the features of this facet naturally. Most people, spending their whole life pursuing, could barely manage one facet of expertise, be it science, art or the salvation of spirit through religious, charitable or other commitments. It is difficult for them to contemplate the connecting intricacies of these three facets. It is only when one reaches the top of the pyramid that the proximity of these three seemingly diverse facet of knowledge and commitment is appreciated.

Professor Lam is one of the rare individuals who braves the challenges and aims at reaching the top of the pyramid. Born in Swatow, a coastal town at the eastern edge of Guangdong Province, PRC, he settled in Hong Kong when he was 4 months only and started his painting training at 6. At 16, he went to Canada for his undergraduate and graduate studies. At 22, he received the prestigious Canada Centennial Award and became a postdoctoral fellow at Harvard Medical School where his mentors, Professors Torsten Wiesel and David Hubel, were Nobel Laureates. Under their guidance, Lam gained invaluable insight and experience in visual and neurological research. Subsequently, he joined the faculty at Harvard Medical School before moving to Texas Medical Center in Houston as Professor of Ophthalmology, and later Director of Baylor Center for Biotechnology. From 1988 to 1992, he was the founding director of Hong Kong Institute of Biotechnology.

Deeply enchanted by the secrets of science and the beauty of our universe, Professor Lam has left impressive footprints in the scientific world, for which he has received many awards. He has published over 100 papers and patents, many in the most prestigious journals such as *Nature*. He also established the first biotechnology company in Texas in 1985, listing the company on NASDAQ several years later. For these accomplishments, he was affectionately called “Father of Texas Biotechnology”. In conjunction with the founder of Compact Computer, he was awarded the U.S. HighTech Entrepreneur of the Year in 1989. He was also Asia Society’s “Man of the Year” in 1991. In 2001, his pioneering research on “Edible Vaccine” was selected by *Time Magazine* as one of the ten most innovative inventions that will change the world in the 21st century, and by MIT as one of five patents that will transform

business and technology. For his scientific accomplishments, Professor Lam has received many academic honors and awards including Honorary Professorships at the Chinese Academy of Science, University of Hong Kong, Sichuan University, etc..

### **Unlimited Universe, Unfathomable Beauty**

Professor Lam feels strongly about the ‘connectivity’ in science and art. Same as Einstein, he discovered the striking poetic beauty in science. Since 1982, he has participated in bringing Project Orbis, the flying eye hospital for the prevention and treatment of world blindness among the poor, to China many times. These visits allowed him to meet many of the most distinguished contemporary Chinese artists, among them are Zhang Daqian (張大千), Zhao Shao’ang (趙少昂), Yang Shanshen (楊善深), Guan Shanyue (關山月), Li Keran (李可染), Huang Zhou (黃胄), Dong Shouping (董壽平) and Zhou Shixin (周士心). Lam’s artistic development benefited greatly from his interactions with these masters, learning not only their techniques and concepts, but more importantly that one must be a great human being before being a great artist.

In addition, he had the great fortune of collaborating with these and other masters, producing many memorable works, not only of art, but also out of friendship. Among these, the most famous was his collaborative painting with Zhang Daqian from Taiwan, Zhao Shao’ang from Hong Kong and Guan Shanyue from Mainland China in 1982-83, symbolizing the unity of Chinese people around the world.

‘With a steady accumulation of experience, the breakthrough can be astounding’, a popular Chinese idiom proclaims. Professor Lam proves it. In 1980, when he was developing photographs for his eye research, Lam accidentally discovered that under certain conditions, color can be produced with black and white photographic paper and solutions alone. After much experimentation, he found that this was due to the creation of different nano-size particles and light scattering, somewhat like why the sky is blue. In this manner, a new artistic medium named ‘Chromoskedasic Painting’ was born (*Scientific American*, November 1991).

This unique painting technique, together with his incredible creativity, has won him world-wide recognition in artistic achievements. Among his honors was an invitation by U.S. President George Bush (Senior) to be a member of the U.S. President's Committee on Arts and Humanity in 1989. In 1999, Professor Lam was recognized as one of the ninety-nine most influential Chinese artists of the 20th century. In 2001, upon the invitation of the Diaoyutai State Guesthouse in Beijing, he completed two huge paintings, *This Land is our Land* (2.5 x 9.5m) and *Galaxy on Earth* (8 x 8.8m) for permanent display.

In addition to his unique chromoskedasic paintings, Professor Lam has mastered many traditional and contemporary techniques and styles, including calligraphy (please refer to the preceding article by Mr. Laurence Tam), Chinese and western media, as well as sculpture, which he learned from master Ju Ming. For a more comprehensive survey of his works, readers are encouraged to visit his web-site: [www.dominiclam.net](http://www.dominiclam.net).

### **Turning the Fire of Creativity into the Rain of Compassion**

A very intriguing fact about Professor Lam is his ability to combine his artistic, scientific and academic achievements with commercial operations. His intuition and sensitivities towards commercial possibilities have made him a very successful investor, as well as a member of the board of directors of a number of publicly listed companies in Hong Kong and overseas. His perception, decisiveness and precise judgment, applied in the same way as he launched his artistic strokes, unswervingly landed him on the right spots of commercial successes, from building his first company in Texas in 1985 to the most recent investments and ventures (see, e.g. [www.DrDominic.com](http://www.DrDominic.com)). He fully understands that in business, as in life, “Timing, Location and Human Harmony” (天時地利人和) are the three keys to success.

Professor Lam also realizes that to help the less fortunate in a sustainable manner, one must first build a solid infrastructure to provide continual financial and human resources. Accordingly, he has structured his businesses so that part of the proceeds, together with all sales from his art, go to charity. In this regard, Professor Lam can also be considered a pioneer in Social Entrepreneurship. Professor Lam's first and foremost charitable interest has been<sub>96</sub> the prevention and treatment of visual disorders, especially among the

poor, started by helping Dr. David Paton with Project Orbis in 1980. In 1999, he returned to Hong Kong to establish the World Eye Organization (WEO), a charitable foundation registered in Hong Kong and U.S. for the prevention and treatment of visual disorders among the poor ([www.WorldEye.Org](http://www.WorldEye.Org)). Since then, a number of such eye centres have been set up in China, including Xian, Xinjiang, Chengdu, Heilongjiang, Hainan etc. In addition, the “Torsten Wiesel Research Institute” was also established in Chengdu to engage in basic and clinical research, especially on eye diseases most prevalent in Asia. To commemorate the 10th Anniversary of WEO in 2009, Professor Lam expects to have at least 10 eye centres in China by then, treating thousands of poor and visually-impaired people and training hundreds of eye specialists, with the same mission as WHO, i.e. to treat all preventable blindness by 2020. Lam realizes that this is a lofty goal. Fortunately, he has no expectation or illusion of the outcome, except to help the sight-impaired one at a time, and to hope that others will share in this sight-saving experience.

As I ponder on Professor Lam’s multitude of interests and accomplishments in art, science, business and philanthropy, I was reminded of the motto of Master Xing Yun ( 星雲大師 ): “I wish to be a tree that provides shades to people; I wish to be a pond that quenches the thirst of the travelers, I wish to be a lamp that illuminates the dark roads for the passers by.” This motto also seems to apply well to Professor Lam.

*Professor Hua Jian*  
Director of Cultural Industry Research Center  
Shanghai Academy of Social Sciences  
Guest Research Fellow, International Cooperation Center  
National Development and Reform Commission  
China  
18 October 2008, Shanghai



PASSION, 1984

## Chromoskedasic Painting

*It is a novel method for producing color images on black-and-white photographic paper without using pigments or dyes*

by Dominic Man-Kit Lam and Bryant W. Rossiter

**P**assion – a Chromoskedasic painting (see Lam's Vision, 2005 or the Scientific American article) – dazzles the eye with oranges, yellows, greens and blues. The hues are surprising because they were created by applying colourless chemicals to black-and-white photographic papers. Almost all paintings and colour photographs consist of pigments that reflect certain parts of the visible spectrum of light and absorb

others. But the original Chromoskedasic painting contains no such pigments, only white paper and particles of silver.

These tiny particles produce colours not by reflecting or absorbing radiation but by scattering light. Particles of different sizes scatter different wavelengths of light, yielding various colours. The term "Chromoskedasic" is derived from Greek roots meaning colour by light scattering.

The basic methods of Chromoskedasic painting were discovered serendipitously one autumn evening in 1980. I (Lam) was developing black-and-white photographs of a retina, as part of a research project at Baylor College of Medicine. I noticed that some photographs were covered with patches of brown and yellow. Other photographers have undoubtedly observed this same effect. The colours usually appear because the photographic solutions were mixed improperly, because the solutions had deteriorated or because the photographic paper was defective. I wondered how colours could emerge from the use of black-and-white photographic paper and solutions, materials that do not contain dyes or pigments. Having seriously pursued painting for 20 years, I hoped to control the production of these colours and thus exploit the unusual characteristics of the new medium (see "Painting in Colour without Pigments," The Amateur Scientist).

Without understanding in depth the mechanisms that generated the different colours, I systematically searched for the light and temporal conditions needed to produce different

colours predictably on photographic paper. I also experimented with the concentrations of such solutions as activators, developers, stabilizers and fixers. By 1983, I had established a procedure for creating the primary colours – red, blue and yellow – and I could combine the three colours to create various shades. During the past eight years, I have refined the techniques by trying different kinds of papers and

DOMINIC MAN-KIT LAM and BRYANT W. ROSSITER have investigated the technique of chromoskedasic painting for the past three years. Lam is director of the Center for Biotechnology and professor of biotechnology, cell biology and ophthalmologist at Baylor College of Medicine. His foremost interests are visual art, visual science and the development of a global network for biotechnology. Lam is a member of the President's Committee on the Arts and the Humanities. Rossiter is former director of the chemistry division and director of science and technology development at the East Kodak Research Laboratories. He is also editor of the treatise Physical Methods of Chemistry.



SUNSET, 1985



ODE TO LINES AND CURVATURES, 1984



FELINE: FOR YEE YEE, 1990



SNOW MOUNTAIN, 1989



YELLOW MOUNTAIN, 1989

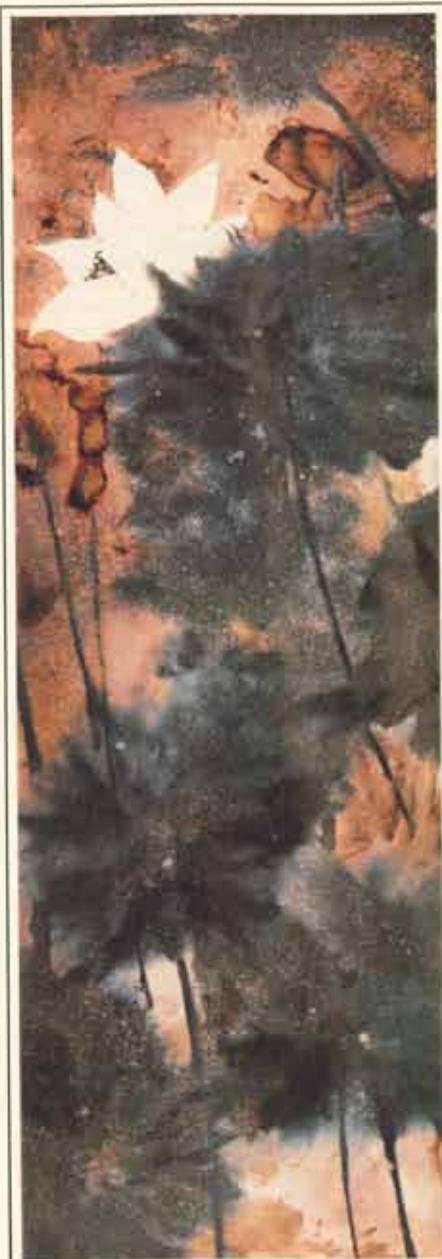
solutions, and I have attained better control of colours, tones and composition.

Although my empirical approach led to a technique for producing colour from black-and-white photographic materials, I had not given much thought to the physical and chemical mechanisms underlying such a process. In the summer of 1989 my co-author (Rossiter) came to visit me in Houston and took an interest in my paintings. He noticed the brilliant red and yellow hues, the occasional metallic sheen, the three-dimensional character of some objects and the unusual light stability. (Some paintings had been exposed to direct ambient sunlight for more than seven years and had not faded.) From these observations and others, he deduced that the colours in my paintings were a consequence of light scattering from tiny silver par-

ticles in the photographic paper. He coined the term "Chromoskedastic".

The colours of most paintings rely on a process known as subtractive colour. Blue pigments, for instance, reflect blue light while absorbing most other wavelengths. The colours in conventional photographs are also the result of a subtractive process. But instead of pigments, photographs require colour sensitive emulsions and developing agents that produce or release dyes (see "The First Colour Photographs" by Grant B. Romer and Jeannette Delamoire; SCIENTIFIC AMERICAN, December 1989).

Most black-and-white photographic papers contain silver salts. Under the influence of light and chemicals, the salts decompose to form silver particles. Ordinarily, these particles merely absorb light, yielding tones of black. Those salts that are not exposed to light do not yield silver particles and



LOTUS POUND, 1989

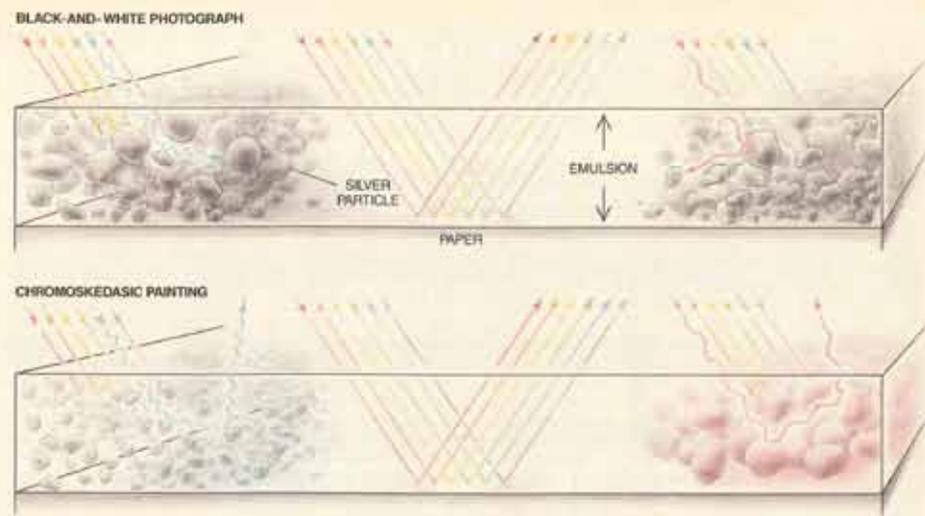
are washed away allowing the white paper to show through. Chromoskedasic paintings are made using methods very similar to those employed in black-and-white photography. But Chromoskedasic techniques require that the particle growth be carefully controlled through exposure to light and chemicals.

In Chromoskedasic painting, the silver particles produce colours through a process known as Mie Scattering. In 1908 Gustav Mie first described this scattering process in mathematical terms. He studied how light scatters through a medium consisting of spheres of similar size and electrical characteristics. He found that the wavelength of light scattered by such a medium depends on the size of the spheres.

Mie's theory helped to explain why the sky is blue or why the sun appears red at dawn or sunset. The sky is blue, in part, because dust, water vapour and other particulate matter in the atmosphere are of such a size as to scatter light selectively from the blue region of the spectrum. Similarly, atmospheric particles of different sizes produce some of the brilliant colours of the rising or setting sun. (To be sure, many kinds of scattering, absorption and refraction processes contribute to the colour of the sky.)

**P**article formation in a complex, modern photographic emulsion is very different from the ideal conditions that Mie assumed. Chromoskedasic paintings consist of silver particles that vary greatly in shape and size. Nevertheless, the Mie equations predict the correlation between particle size and the colours created in Chromoskedasic paintings.

Using electron microscopy, Donald L. Black of the Photoscience Research Division at Eastman Kodak in Rochester, N.Y., confirmed that regions of a particular colour in a Chromoskedasic painting contains silver particles that are relatively uniform in size. In agreement with theory, silver particles that produced yellow light were from 10 to 30 nanometers in diameter, whereas particles that scattered red light were 35 to 65 nanometers wide. Scientists still do not understand in detail how the size and



**CHROMOSKEDASIC PAINTINGS** differ from black-and-white photographs in that the silver particles in the paintings are similar in diameter within a given region. A photograph

(shown in cross section at top) is black in areas where particles absorb light. In a Chromoskedasic painting (bottom), particles of a certain size scatter a particular colour of light.

shape of the particles influence the scattering of light and hence the colours of Chromoskedasic paintings.

Many of the artistic possibilities of Chromoskedasic painting have yet to be explored. Artistic expression is intimately related to materials and media. Watercolours are usually softer than oil paints, black-and-white photographs often bring out textures better than colour photographs, and marble sculpture

is often more ponderous than steel. Chromoskedasic technique brings out rich metallic colours that mingle, mix and wash over one another. The methods preserve the artist's expression for decades because the colours endure as silver particles firmly embedded in paper.

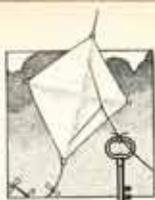
Those techniques give artists many different ways to produce colour images. They can manipulate a variety of dark-room conditions, such as light intensity, chemical concentrations and reaction time. They can precisely control the conditions to create representational paintings. Or they can allow nature to play with light and chemistry to generate abstract images. Chromoskedasic methods can also be easily integrated with conventional photographic techniques or with media such as acrylic, oil, watercolour and enamel paints. We hope Chromoskedasic techniques will continue to inspire both artists and scientists.



VISION, 1986 (enamel on chromoskedasic painting)

#### FURTHER READING

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 INTRODUCTION TO PHOTOGRAPHIC THEORY: THE SILVER HALIDE PROCESS. B.H. Carroll and T. H. James. Wiley, 1980.  
 PHOTOGRAPHIC MATERIALS AND PROCESSES. Leslie Stroebel and Richard Zakia. Focal Press, 1987.  
 IMAGERY AND ILLUSION: THE PAINTINGS OF DOMINIC MAN-KIT LAM. Twiwood Press, 1990.



## Painting in Color without Pigments

Curiosity and the thrill of discovery motivate the amateur scientist to try to understand and perhaps control nature. But unlike the professional, the amateur must conduct research with few supplies and modest equipment. The technique I invented for painting without pigments began as an amateur project more than 10 years ago.

Those readers who have developed their own photographs have probably noticed that black-and-white prints are sometimes discolored with browns and yellows. I became interested in figuring out what produced those colors, in particular because I knew that the chemicals used in the darkroom would not serve as pigments.

For the past four decades, THE AMATEUR SCIENTIST has found a place in SCIENTIFIC AMERICAN. The department has taught readers how to build a laser, an X-ray machine and even an electron microscope. SCIENTIFIC AMERICAN plans to continue this tradition by publishing amateur projects that are related to feature articles in the magazine. This month we present the work of Dominic Man-Kit Lam, co-author of "Chromoskedasic Painting," on page 80. Alexandra J. Baran is a chemist who has assisted Lam with many ventures during their five-year acquaintance. THE AMATEUR SCIENTIST will alternate with MATHEMATICAL RECREATIONS, which will next appear in the December issue.

After several years of part-time experimentation, I invented a technique for painting a rainbow of colors on black-and-white photographic papers by applying colorless chemicals. The method utilizes commonly available photographic supplies, and I am delighted to share my methods with the readers of SCIENTIFIC AMERICAN.

My colleague Bryant W. Rossiter of the Eastman Kodak Research Laboratories coined the term "chromoskedasic" to describe my technique. The term "chromoskedasic" means color by light scattering, and my technique exploits this phenomenon. Black-and-white photographic papers contain silver salts that form tiny particles when exposed to light and chemicals. Silver particles that are roughly the same size will scatter certain wavelengths of light and absorb others, producing a specific color. In chromoskedasic painting, the size of the particle is the variable through which color is controlled [see "Chromoskedasic Painting," by Dominic Man-Kit Lam and Bryant W. Rossiter; page 80].

Chromoskedasic techniques require no special skills, although a degree of artistic talent will obviously enhance the results. An eye for art also helps in deciding which images are worth keeping and which are best left in the darkroom.

I highly recommend that readers assemble all necessary materials and dilute all needed solutions before remov-

ing the photographic paper from its protective box. For the paintings described below, I used Kodak papers and photographic solutions. Other brands of materials should work just as well.

Readers should heed the warnings on the various chemicals. (You can obtain additional hazard information, free of charge, from a photographic chemical supplier by requesting "Material Safety Data Sheets" for specific products.) When mixing photographic chemicals, wear safety glasses and old clothes that cover you completely. Some of the chemicals are strong acids that can be very harmful if ingested or splashed on the skin or eye. Never pour water into a concentrated acid. Dilution should always be performed by carefully adding the acid to the water. All the chemicals mentioned in this article should be diluted to the desired concentration with water.

Over the years, I have made hundreds of paintings and have taught the technique to my daughter and to friends. In the following paragraphs, I describe three projects in order of increasing sophistication. I suggest that readers first adhere to my instructions and, before moving on to the next project, experiment a bit to get a feel for the process.

I used only the most basic chromoskedasic methods to create *Among the Coral Reefs*, the abstract painting at the top of the opposite page. I removed a piece of Kodak Polycontrast 3RCF black-and-white photographic paper (60 by 40 centimeters) from its protective covering. After exposing the paper to dim red light for five minutes, I poured



AUTUMN IN NEW ENGLAND

about half a cup of a 10 percent solution of Kodak Ektamatic S30 Stabilizer onto the paper. I swirled the stabilizer on the paper in an attractive pattern. The regions exposed to the stabilizer would eventually emerge as light yellow.

On other areas of the paper, I immediately poured a small amount of 10 percent solution of Kodak S2 Activator, followed by a 50 percent solution of Dektol. These chemicals produced reds, oranges, yellows, greens, blues and grays. I exposed the paper to light from a fluorescent lamp for five minutes. Finally, I bathed the paper in a 50 percent solution of Kodak Rapid Fixer, then rinsed the paper with water and allowed it to dry.

With a little more effort, readers should be able to create images like *To Run*, shown at the right below. Using an artist's brush and black ink, I painted a running horse on rice paper. I then took a photograph of the horse using Kodak black-and-white film and developed the negative. I used a photographic enlarger to transfer the negative image onto a piece of Kodabrome paper (20 by 25 centimeters).

Immediately after, under red light, I poured a 10 percent solution of stabilizer onto the paper and swirled it around. I did the same with a 10 percent solution of S2 Activator on the same part of the paper; the stabilizer and activator combined to make oranges. To produce a deep red-orange color, I applied a 50 percent solution of Dektol. Using a rag, I spread a 50 percent solution of fixer over the entire paper and then submerged the paper in the fixer for 20 minutes. Finally, I washed the paper in a water bath for 30 minutes and let it dry.

To create *Autumn in New England*, the impressionist painting shown on the opposite page, I used both chromoskedasic techniques and ordinary enamel paints. Under red light, I cut a 100-by-300-centimeter piece of black-and-white, polycontrast photographic paper from a large roll. Using a brush dipped in full-strength S30 Stabilizer, I drew the peak of a snow-covered mountain. I then turned on the fluorescent room lights, exposing the paper for five minutes.

To add ivory-colored details on the mountain, I brushed on, under red light, a 20 percent solution of stabilizer. I painted other areas with the diluted stabilizer to make the outline of a lake. To produce brown tones, I worked these areas over with a 50 percent solution of S2 Activator. After dipping a fountain pen in the activator, I outlined trees in the foreground of the picture. I shaded the trunks brown by applying stabilizer and then activator.



AMONG THE CORAL REEFS



TO RUN

I exposed the material to fluorescent light for a total of about 30 minutes and then applied a 50 percent solution of fixer with a spray bottle over the entire piece of photographic paper. After 20 minutes, I washed the entire paper with a garden hose and allowed it to air-dry. I then used enamel paints to add white mist on the mountains, blue water in the lake and yellow and red leaves on the trees.

I am sure readers will find many interesting effects by experimenting with

such chromoskedasic techniques. I cannot even begin to imagine the various works of art that might be created using this medium. Will the new medium provide a palette for the creative mind of a new da Vinci or Picasso?

FURTHER READING  
NEBLETTE'S HANDBOOK OF PHOTOGRAPHY  
AND REPROGRAPHY: MATERIALS, PRO-  
CESSES AND SYSTEMS. C. B. Neblette. Van  
Nostrand Reinhold, 1977.

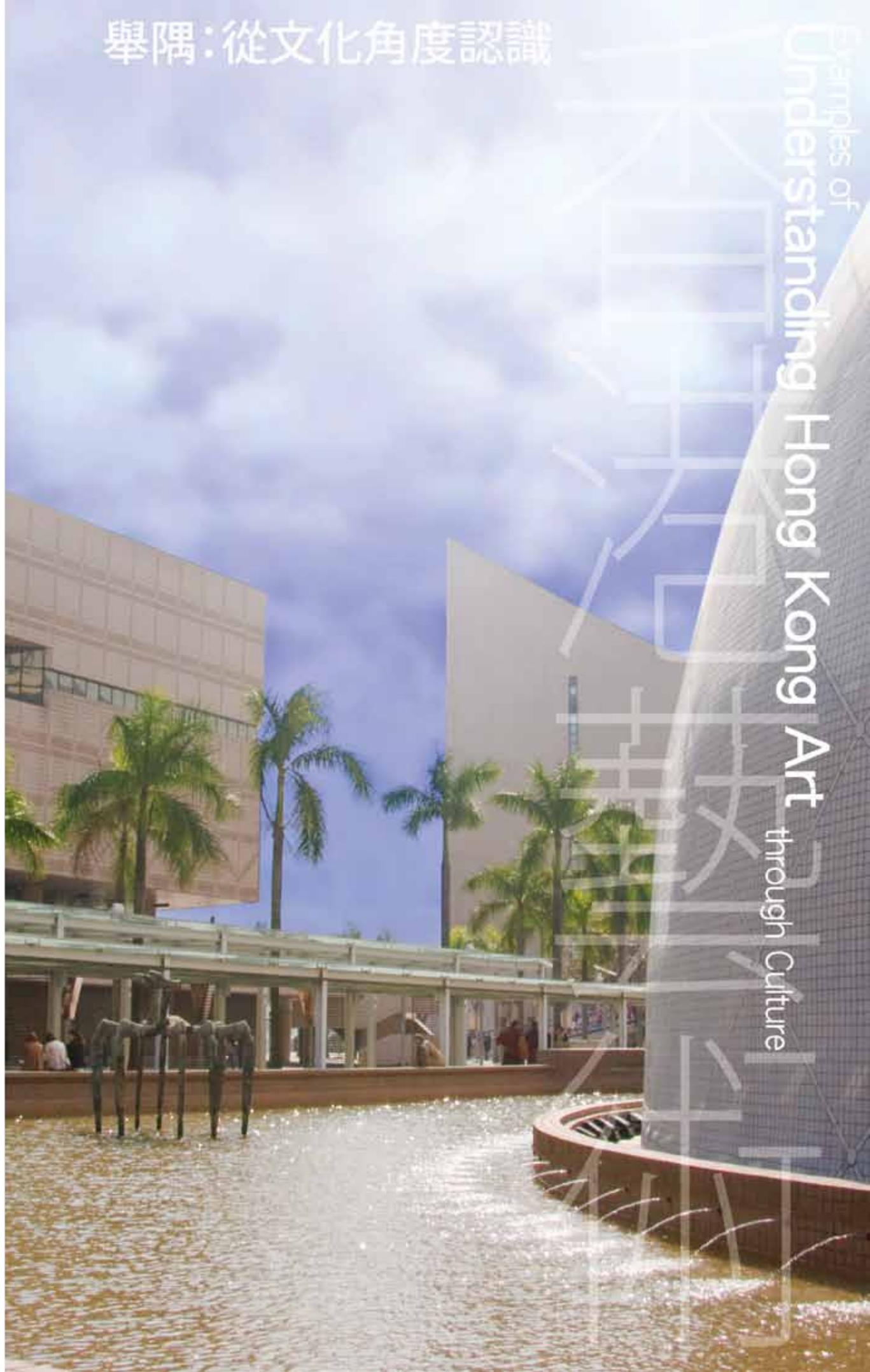
與師對談

從文化角度認識香港藝術  
千禧十三年三月九日於  
香港藝術館



舉隅：從文化角度認識

Examples of  
Understanding Hong Kong Art  
through Culture



Dialogue with the Eight most important Artists in Hong Kong as selected by Professor Laurence Chi-Sing Tam,  
Founding Chief Curator of the Hong Kong Museum of Art.

From top centre clockwise: Luis Fushan Chan (陳福善), Yang Shanshen (楊善深), He Bingcong (何秉聰),  
Lu Shoukun (呂壽琨), Han Zhixun (韓志勳), Wucius Wong (王無邪), Zhang Yi (張義), Dominic Man-Kit Lam (林文傑)





#### 八位香港藝術家簡介：

1. **陳福善** (1905-1995) — 香港早期在本地成長的最重要畫家之一。他一生對藝術新形式的追求，至老仍不懈怠。晚年以天真和燦爛奪目的色彩寫幻象山水，開創出前所未見充滿童真趣味的繪畫。他很少談論現代繪畫藝術理論，而是以身體力行，把現代藝術核心精神，表現在他的藝術工作上。
2. **楊善深** (1913-2004) — 香港嶺南畫派代表畫家之一。其畫藝融會嶺南三傑所長：有高劍父的蒼茫筆墨意趣，有高奇峰超凡寫生技巧，有陳樹人的獨特脫俗構圖。其畫作每能為嶺南繪畫更添新意。
3. **何秉德** (1918-1999) — 香港前輩陶藝全才大師，尤以寫實陶塑技術稱著。他認為陶藝之道，首重個人品德修養。他對香港陶藝的貢獻，包括他個人的陶藝創作、瓷胎及燒窯技術的改良、陶瓷歷史的研究、陶藝教學及著述和石灣陶藝推廣等。
4. **呂壽琨** (1919-1975) — 香港新水墨畫運動的領導者。他既尊重中國傳統，亦容納西方現代新思想。他認為中國的新藝術精神，必須建立在我國固有豐厚的國粹基礎上，不應過於倚賴向西方取經或外求而獲至。他無疑是我國繪畫進入個人獨立自由創作時代的先導者。因有呂氏推行

#### Brief Notes on the 8 Artists:

1. **Luis Fushan Chan** (1905-1995) — One of the most significant self-taught local artists of the earlier generation. His efforts in pursuing new artistic expression did not cease even at his very advanced age. In his later years, he created dreamy landscapes in a vibrant colour scheme. This opened up a new realm of fun and interest in his art, almost like that of an imaginative child. He seldom discussed modern art theories, but through his performance in art, he expressed thoroughly the central spirit of modern art.
2. **Yang Shanshen** (1913-2004) — One of the leading representatives of the Lingnan School of painting in Hong Kong. His works possess the painting characteristics of all the Three Masters of the Lingnan School of Painting, namely: the rustic brushwork of Gao Jianfu, the outstanding life drawing skill of Gao Qifeng, and the extraordinary pictorial composition features of Chen Shuren. His works have further enriched the contents of the Lingnan School painting.
3. **He Bingcong** (1918-1999) — A versatile pottery master, well-known for his outstandingly realistic modelling skill. To him, the Tao of pottery is to cultivate one's noble character and temperament. His contribution to Hong Kong ceramic art includes his personal pottery art creations, studies in potting, glazing and firing techniques and their improvement, Chinese ceramic art history, ceramic education, publication and promotion of Shiwán ceramic art.
4. **Lu Shoukun** (1919-1975) — Leader of the Hong Kong New Chinese Ink Painting Movement. While he expounded Chinese painting traditions with reference to western modern philosophy, he taught that the new spirit of Chinese modern art should evolve from the profound art tradition of China, and one should not rely too much on borrowing or drawing from foreign sources. He was a pioneer in opening up a new era for all

的「新水墨畫運動」，香港便成為中國藝術史上最早起學生在學校正規課程內學習發揮個人獨立創意的水墨畫，和最先有中國畫家群起從事個人獨立水墨藝術創作的地方。

5. **韓志勳 (1922-)**—以現代藝術哲學從事繪畫創作的香港畫家。他的繪畫既有西方藝術形式，又能展現中國哲學思想與東方氣韻。他的繪畫修為，不但能把光與空氣感在不同環境下的變化，隨心所欲表達在畫面上，同時透過繪畫表達他個人的生活經驗和現代藝術的哲學思維。
6. **王無邪 (1936-)**—在東西問道的過程中建立他個人的藝術世界。他以東方詩人浪漫的氣質投入繪畫創作，後又投入西方功能主義的設計學範疇中。他的繪畫顯露他東西並蓄，他的繪畫不但標誌著個人在藝術創作上的特質和建樹，還起著承先啟後的教育作用。
7. **張義 (1936-)**—香港前輩現代繪畫家。他的藝術創作，多取材自中國古代文物、甲骨文、祭器上的文字及圖形等，並賦以周易哲理的內涵和高意，給人一種樸實沉澱的感覺。其作品亦有與現代生活相關的，常展現著一股神秘和感人的力量。他同時是一位出色的版畫家，尤以凸版版畫最為突出。

Chinese artists to express themselves freely. The New Chinese Ink Painting Movement led by him has made Hong Kong the first place in Chinese art history, where school children were given lessons on individual creative ink painting in their regular art classes in the school time-table, and where a host (not just a few) of Chinese artists performed new Chinese ink paintings in their own creative ways.

5. **Han Zhixun (1922 - )**— A foremost Hong Kong artist whose works are imbued with philosophical contents. His works often remind us of western art techniques, but they convey Chinese philosophical messages and Eastern thoughts. The artist mastered the highly sophisticated skill in rendering light and atmospheric effect through the application of relevant art tools in his own way. His paintings are the vehicles with which he reveals his life experience and the philosophy of our age.
6. **Wucius Wong (1936 - )**— An outstanding artist who establishes his personal art world at the East-West crossroads. He combines literati romanticism in Chinese ink painting with practicality in western art and design. His paintings reveal that he has grasped the essentials of the art of the East and the West, and evolved from them an art form which is highly personal. His artistic achievements not only bear witness to his success as a prominent creative artist, but also put forward an educational message that we should make use of the opportunity rather than getting lost at the East-West crossroads.
7. **Zhang Yi (1936 - )**— A senior Hong Kong modern sculptor. His creative art is often adopted from ancient Chinese cultural relics, ancient inscriptions on oracle bones and tortoise shells, or patterns on ancient ceremonial vessels. He also likes to elaborate the philosophical ideas hidden in the ancient classic I-jing of the Zhou dynasty to impress the viewers with their moral implication and

8. **林文傑 (1947-)**—高科學於藝術的創意奇才。他創制出以光為創作媒介的全新畫種—折光畫。此一新畫種所表現色的變幻和動力的感覺，是用傳統繪畫媒介不能做到的，它可作為我國水墨畫在新科技時代中的延伸和變體。他又運用他在眼科和腦科學的知識開創了一種全新的中國書法體裁。他的創意，除見於他的藝術作品外，還貫穿在他舉世知名的科學發明和醫學成就上。

dynamic quality. One often finds his works related to modern life, impressive on the one hand and mysterious on the other. He is not only a successful sculptor, but also noted for his print-making, especially in cast paper relief prints.

8. **Dominic Man-kit Lam (1947 - )**—An outstanding creative genius in art and science. He invented the Chromokedasic process, a new method of painting by making use of light as a medium for artistic creation. It can create a visual impact with dynamic movement and dazzling colour— an effect unattainable by the traditional painting media; it can be taken as an extension or a variant of new Chinese ink painting in the age of technology. His knowledge of ophthalmology and neuroscience led to the creation of a new style of Chinese calligraphy. His creative achievements in arts, medical and genetic science have won international acclaim.

8 林文傑  
Dominic Man-kit Lam



24 林文傑《更亮的世界》, 1981  
折光畫・攝影後・定影液・高:40公分・寬:60公分・藝術家藏  
Dominic Man-kit Lam A Brighter World, A Brighter Tomorrow, 1981

這幅《奔向光明》(圖8a)給我的第一個印象，是它與我所見其他畫家的作品都不同，它看似是一幅水墨畫，其實它並不是用墨、水彩、油彩顏色或染料繪製而成，它是用一個全新的方法和物料繪製成的。這畫的製作方法是在二十世紀八十年代初才出現，是一全新的畫種，名為「折光畫」，是以納米科技為基礎的「炭材」製作而成，發明此一全新畫種的藝術家兼科學家就是這幅《奔向光明》的作者林文傑。

林文傑發明「折光畫法」的過程是很富教育意義的。1980年他在從事眼科研究工作時，偶然發現黑白相紙在顯影的過程中，意外地出現一些不明的色素把相紙中的影像弄污，相信當年很多從事影印和顯影工作的人都會有同樣的經驗。一般人不會加以研究把那出現不明色素的相紙丟掉，林文傑作為一位物理學的科學家，喜歡對不明白的事物產生興趣，他明白那不明色素不是來自顏色或染料。經過多次的實驗，調較不同的顯影液、穩定劑、促影液和固定劑，他進一步了解到如能對光與時間作適當控制，再用不同濃度的沖曬藥液，是可以在沖曬黑白相片的相紙上產生各種不同的顏色。於是他開始創作了如《奔向光明》這類的折光畫。及後他認識柯達公司的科學家羅士特博士，他才了解「折光畫」的科學原理。在1991年，他備於《美國人科學》雜誌上正式聯名發表有關「折光畫法」的發現<sup>1</sup>，讓世人得知。

在此之前，人們並不知道可用光和毛筆在黑白相紙上作彩色繪畫。折光畫法可以獨立運用於繪畫創作，亦可以和其他繪畫法及各類機械或電子儀器

My first impression of the painting *A Brighter World, A Brighter Tomorrow* (Fig. 8a) was that this painting differed from the works of all other painters I had ever seen. Although it looks like *sui-mo-hua* (Chinese painting with ink and water on highly absorbent paper), it was actually executed without the use of ink, watercolour, oil, or any kind of dyes or pigments. Instead, it was created with a completely different kind of modern materials. The method with which this painting was created first appeared in the early 1980s. This new method is known as the Chromokedasic (meaning colour by light scattering) process, which is based on the mechanism of Nanotechnology<sup>1</sup>. Its inventor is the artist of *A Brighter World, A Brighter Tomorrow*, Dominic Lam, who is also a scientist.

Dominic Lam's story of inventing this new painting genre is very educational. In 1980, when he was in a photographic dark room making some black-and-white photo prints for his ophthalmology research, he noticed some unknown and unexpected colours appearing on the photographic paper. In those days, many photographers had experienced the same when they were doing dark room photo processing. They would discard the damaged photographic paper and forget about the whole thing, without finding out the cause of the problem. Being a scientist, Dominic Lam had the habit of finding out more about things that he did not understand. The appearance of the mysterious colours on the paper provoked his inquisitive mind to investigate the cause of this phenomenon. Since he had studied physics for his MSc, he knew that the colours could not be caused by dyes or pigments. After many experiments using different photo processing chemicals such as developer, stabilizer, activator, and fixer, he realised that different colours could be produced on the black-and-white photographic paper by applying these chemical solutions in varying concentrations with the proper control of time and light. With much trial and error, Lam soon learned to control the production of these colours and began producing works such as *A Brighter World, A Brighter Tomorrow*; it was not, however, until he met Kodak scientist Dr. Bryant Rossiter that Lam understood the mechanisms underlying the Chromokedasic process. They wrote an article together for *Scientific American* in 1991<sup>1</sup>. Thus, the discovery of the Chromokedasic process was made known to the world.

結合起來運用。《奔向光明》就是一個結合多種技法的好例子。作此畫時，畫家先用水墨在宣紙上畫一匹正在飛奔的馬，然後用傳統相機和感光膠卷（即菲林）把宣紙上的馬拍攝下來，用放大機把膠卷中的馬放大，再沖曬在一張黑白相紙上，在還沒有用定影液把馬的影像固定前，畫家運用折光畫法在相紙上加畫光、雲氣、瀑布、流水、山石及崖岸等景物來完成構圖，為強調奔騰的馬這主題。所有馬以外的景物，在充滿著瀑布濺起的水氣的空間，朦朧一片，在充滿雲霧的背景上方和近中央處，微露金黃色的光，把瀑布的流水和潮濕的空氣照亮起來，而馬正是朝著這個方向奔馳過去。

馬主要用於騎乘、拉車和負重，他在古代戰爭中佔有很重要的地位。中國藝術史上有關畫馬的記載很多，現存早期畫馬的著名作品，有唐朝韓幹繪的《照夜白》和宋代李公麟繪的《五馬圖》等<sup>2</sup>，均表現馬外形的強悍與精力的內歛。近代畫馬的名家有徐悲鴻，他是代表二十世紀初引進西方寫實主義藝術，並從事改革中國繪畫的代表畫家。中國畫家畫馬的方法多是中、西畫法並用，先以西方素描法取其形，後以中國水墨畫筆法破其形而取其勢。雖然近代畫家畫的馬與古代名家的馬迥異，但一般畫家寫馬都會集中描繪出他們心中馬的外形、動態和特徵。寫《奔向光明》的馬所用的筆法比上文提及的古人，甚至近代畫家們所畫的馬都簡單得多。這裡，畫家並不強調馬的類型、相貌、體形、比例和特徵，畫家只是借牠來表現自由奔放的意念，為要表達奔的意念，畫家以極簡和極快的筆觸勾勒出他心中一匹在空中飛騰躍過

Previously, people did not realise that black-and-white photographic paper could be used for brush painting and even for painting in colour with the use of light. The Chromokedasic process can be used by itself or in combination with other painting techniques, as well as other mechanical or electronic equipment. The painting *A Brighter World, A Brighter Tomorrow* is a good example in this respect. Here, the painter first painted a galloping horse with Chinese ink on xuan paper. He took a photograph of the horse painted on xuan paper with a mechanical camera using a roll film. He then enlarged the image of the horse in the developed film onto a fresh sheet of black-and-white photographic paper. Before the image on the photographic paper was fixed by the fixer solution, he applied the Chromokedasic process to introduce additional pictorial elements, such as light, clouds, mists, waterfalls, running streams, rocks and cliffs to complete the composition. In this particular case, in order to bring out the major pictorial motif (the horse), the background elements are not shown so clearly (slightly out-of-focus) as if they are veiled by the mist of the waterfalls. Within the misty atmosphere in the painting, parts of the upper middle portion of the waterfalls are lit up by the reflected light in golden yellow colour. The horse is portrayed to be galloping towards the lit up area.

Horses are commonly used for riding, drawing carts and carrying heavy loads. In ancient times, horsemen or cavalry played an important role in warfare. There are many anecdotes on horse painting in Chinese art history. Among the famous ancient horse paintings were the *White Shining Night* by Han Kan of the Tang dynasty, the *Five Steeds* by Li Gonglin of the Song dynasty, etc.<sup>2</sup> These paintings are noted for the painters' ability in capturing the character and the innate strength of the animals. The representative horse painter of 20th century China was Xu Beihong, who was responsible for a Chinese art reform through his efforts in incorporating Western art ingredients into Chinese painting. Today many Chinese painters of horses tend to combine Western and Chinese painting techniques. They apply the Western life drawing principle to capture the physical form of the horse, while using the Chinese ink brush technique to enhance the liveliness of the painting. Hence, their horse paintings are distinctly different from those by the earlier masters. When painting a horse, it is customary for the painter

的駿馬雄姿。它奔騰的速度是那麼快，眼前視象稍瞬即逝。現在我們欣賞到的，就是畫家運用如中國書法中寫草書的筆法，寫出馬在剎那間的神態。他雖然並沒強調表現馬的類型、軀體、體形、動態與比例，但他必須把所有這些元素綜合而統要地，並以極含蓄的運筆手法表現出來。舉例來說，為要表現馬在高速奔跑，牠的四蹄交替活動，其快如飛，我們是無法同時清楚地看到四蹄的活動情況，故畫中巧妙地只讓我們看到兩隻馬蹄的影子。這樣已能交代一匹充滿活力的馬在高速奔跑的情形。

《奔向光明》中的馬雖然有一個強壯的外形，但牠的身軀卻是淡空和透明的，故在視覺上有體態輕盈的感覺。這正好配合馬所處的環境和牠生動的形態。由於背景中的石岸與水流均以不明朗的色調和線條出現，融化的四周的雲氣裡，於是畫中的馬便好像不在陸地上奔馳，而像是天馬行空的樣子。牠的動作既像是在奔跑，又像是在跳躍，也像是在跳舞。這是一個表現趨向自由奔放，使人見而興奮的形象。難怪香港著名作家林永理認為：

「《奔向光明》的天馬行空，體驗的是香港人一生與自由談戀愛，視自由為不可或缺的生存條件的獨特心態。……這樣的作品是香港自由的藝術見證，值得香港人自豪。」<sup>4</sup> 這幅畫同時反映出畫家當時是充滿信心、希望和美麗的願景。他畫此畫時，是他發現折光畫法後不久。在此之前，作者曾曾接受多位中國傳統水墨大師指導，所作水墨畫竹韻有可觀之處，但他以未能衝出傳統藩籬而感到遺憾。正當他為找不

to concentrate on depicting the form, movement and characteristics of the animal, if we look at the horse in *A Brighter World, A Brighter Tomorrow*, we shall notice that the artist painted it in comparatively fewer strokes than other past and present horse paintings. Here, the painter is not trying to capture the details of the horse, not even the proper proportion of the different parts of a horse. Here, the horse is used by the painter as a symbol to express an idea in his mind, namely freedom.

To create an impression of galloping, the artist painted the horse in a few brush strokes very swiftly but precisely so that they merged to give the powerful steed a fast moving appearance. We can imagine that the speed of the steed is so fast that it is quite a test on the part of the painter to capture its galloping posture. It is admirable to see how the artist applied his brushwork like a calligrapher executing abbreviated script in Chinese calligraphy in the course of his painting the horse. Although not intending to capture the type of horse, its appearance and the proportion of its body parts, the painter still needed to take all these into consideration and had them all summed up in his few brush strokes. For example, when galloping, the four hoofs of the horse are moving so fast that it is almost impossible for human eyes to identify their shapes and positions. So, the painter only depicted two of the four hoofs in the image, leaving out the other two, implying the fast movement of the hoofs in galloping.

The horse in Lam's painting has a strong and sturdy body but, because it is transparent and high above the ground, visually it is light and elevating. As the surrounding scene with its rocky banks and running water are all softened by the misty atmosphere, the horse stands out prominently in the composition. It appears that the horse is not running on solid ground but galloping in the air, portraying a famous Chinese idiom: "heavenly horse galloping through the sky". The posture of the horse shows that it is half running, half jumping, or, perhaps, dancing. It is an image symbolising freedom and vigour. No wonder Patsy Lam, a famous writer in Hong Kong, commented:

"A Brighter World, A Brighter Tomorrow, portraying a heavenly horse galloping through the sky" embodies Hong Kong people's sense of entitlement to freedom, which is born in their

到開畫發展的出路而感困擾之際，他偶然發現折光畫的可行性，於是觸起他發展新畫種的意念。由於馬是中國畫常用的題材，也是人類的朋友，而賽馬又與香港人民生活息息相關，於是這位在香港成長的畫家便以折光畫法繪畫一幅賽馬圖。這編畫的成功帶給他的喜悅是可以想像的。

折光畫法可以產生多種其他繪畫方法不能達至的視覺形態和色彩。更重要的是，林氏的發明並非只是一種技術上的運作，更重要的是他指出未來視覺藝術思維發展新方向——藝術創意與科技結合。經過數十年的研究與經驗的積累，畫家現可隨意運用折光畫法配合他已有的繪畫技巧及其他媒介技巧，例如水墨、水彩、磁漆、電腦科技等，把腦海中構思的圖像即興地在黑白相紙上表達出來，而結合其他媒介技術所產生的作品，稱之為「折光攝影畫」。用以區分單以黑白相紙和黑白相片沖曬液創作而成的「折光畫」。此可見於林文傑在2011年所作一連串運用折光畫來描述宇宙變化歷程的畫作中，《宇宙瞬息2011之六》(圖8b)是其宇宙探索繪畫系列中顯示宇宙瞬息景象的折光攝影畫作之一。其中最引人入勝之處是形與色的變幻。就以藍色為例，它在畫中由深夜空空的墨藍演變到中午晴天的淺藍，有微妙光影的變動。這是一股傳統繪畫顏料所不能達至的。畫中的星球及圍繞著該星球附近如火球般的流星雨，帶出紅、橙、黃、綠、青等顏色，它們又與氣體混而為一，產生一股無形的吸引力，把觀者吸入畫中，與畫家同進宇宙探索的旅程。

mind as the natural condition for survival— Freedom is what makes Hong Kong, and this is a painting that Hong Kong can be proud of.”<sup>4</sup>

This painting also reflects the confidence, gratification and vision in the mind of the artist at the time. The artist did this painting not long after he had discovered Chromokedasic process. Before that, Lam had studied Chinese painting with several masters in Chinese traditional painting styles, and he was thus proficient in mastering the Chinese brush, especially in painting bamboos and orchids. However, Lam was not satisfied with what he had learnt and was struggling to free himself from the confinement of traditional Chinese painting. The discovery of the Chromokedasic process signified such a breakthrough, leading him to develop a completely new type of painting. Since the horse, a friend to mankind, is a common Chinese painting subject, and horse racing is closely associated with the daily life activities of the Hong Kong people, it was not surprising that the artist who grew up in Hong Kong chose the galloping horse to be the subject of this Chromokedasic painting. The great joy and gratification that the successful completion of this painting had brought him can be envisaged.

The Chromokedasic process allows the production of many visual forms and colours that are not possible with other painting media. More importantly, Lam's invention is not just a technical operation, but a conceptual breakthrough leading to the integration of artistic creativity and scientific technology as the direction of future art development. After decades of experience in artistic and scientific research, the artist is now able, at will, to apply the Chromokedasic process in combination with other media and technologies such as oil paint, enamel and computer technologies, as well as his formerly acquired painting, to present what comes to his mind spontaneously onto black-and-white photographic paper. The artwork produced as such is called Chromokedasic photopainting, distinguishing it from Chromokedasic paintings, which are produced solely from the use of black-and-white photographic paper and solutions. This can be observed from one of his recent works applying the Chromokedasic process on his imaginary journey through the universe under the title *Moments in the Universe 2011: 6* (Figure 8b). The



8a. 林文傑 《宇宙瞬息2011之六》·2011  
折光攝影畫·高：12公分·闊：23公分·藝術家藏  
Dominic Man-kit Lam: Moments in the Universe 2011: No. 6, 2011  
Chromoskedasic photopainting, height: 12 cm, width: 23 cm, collection of artist

畫家在《奔向光明》這畫中用的材料是折射的光和黑白相紙，這與中國水墨畫的墨與紙截然不同，然而卻能像水墨在宣紙中有滲化的效果。如畫中馬的背景配合融化在雲氣裡的石岸與水流，都具有如現代寫意水墨畫般的抒情性，給人自由奔放的感覺。同時，二者均須要畫家隨機應變，以應付繪畫材料突如其來和意料之外的變化。因此，折光畫的效果與水墨畫頗有異曲同工之妙。

雖然折光畫與水墨畫有相似之處，但仍有很大的分別。因為折光畫是用銀的原子和光來繪畫，所得出的效果較傳統的水墨或顏料所繪製的畫作更精密和多變。如另一幅折光攝影畫《生命系列之六》(圖8c)中所顯示，折光畫可產生變化萬千的色彩、調子、深度、對比和旋轉的視覺效果。其

most significant aspect of his recent work is the fantastic play of forms and colours in the picture plane. Take the blue colour as an example. It varies from the deep dark blue of the mid-night sky to the sky blue of a sunny mid-day, diffused by refracted light from the firmament. This can never be achieved with the use of traditional colour pigments. The star with its surrounding meteors shooting through the sky like fireballs, veiled with its own emitting gas, is depicted in a combination of red, orange, yellow, green and indigo as never seen before. These colours are combined to create a visual attraction that leads the viewers to join the painter to experience the voyage of discovery in a universe he has created.

*A Brighter World, A Brighter Tomorrow* was painted by making use of the play of light on a sheet of black-and-white photographic paper, which is completely different from the media used in Chinese ink painting, and yet the colours created through the Chromoskedasic process have the same spreading and diffusing effects as in the case of Chinese ink painting. Hence, in this painting of the horse, its misty background of running water and rocks conveys a visual effect that is highly sensuous, and

直覺性和部份顏色深淺滲透變動與水墨畫有相似的地方，但如這畫中所表現色的變幻和那爆炸的光能與動感，則從未見於已有的水墨畫中。因此，此一新畫種可以被視為我國水墨畫，在新科技時代出現新畫種的延伸、擴展和變體。

在《奔向光明》的右下方有畫家的簽名「文傑」二字，下面有畫家自刻的白紋方印「林」字。如果你有機會看他用毛筆寫他的名字時，會發現這位具創意的藝術家和科學家，其書法藝術在我國現代水墨藝術的領域中有使人驚異之處。

中國書法源遠流長，數千年來有篆、隸、楷、行、草的變體，歷代名家輩出。唯至今日，科技發達，印刷術進步，加上電腦的應用日趨普及，書法的實

a feeling that there is much freedom within the painting. In both Chinese ink painting and Chromoskedasic process, the painter has to exercise good control of speed and timing to make the best use of expected and unexpected situations. These are some of the marvelous common features found in both painting types.

Although the above similarities have been noted, they are still markedly different. Because the Chromoskedasic process is to paint with a good use of light and silver particles, the resulting colours and forms are much more refined and complex. The effects of the Chromoskedasic process are spectacular, resulting in colours, tones, depth, contrast, rhythm and myriad different visual effects, as evidenced by Figure 8c. Although this Chromoskedasic photopainting resembles Chinese ink painting in such aspects as colour diffusion and spontaneity, yet the visual impact with dynamic movement and dazzling colour effects are unattainable by any traditional painting media. This new genre of painting born from the marriage of art and science can be regarded as an extension or variant of Chinese ink painting in this modern age of technology.



8c. 林文傑 《生命系列之六》·2011  
折光攝影畫·高：12公分·闊：23公分·藝術家藏  
Dominic Man-kit Lam: Life 2011 No. 6, 2011  
Chromoskedasic photopainting, height: 12 cm, width: 23 cm, collection of artist

用功能已漸減少，但書法的藝術價值卻是恆久的，故在2009年被聯合國教科文組織列為非物質文化遺產之一。一般人研習書法藝術，多從各種書體章法開始，然後希望從章法中有所領悟，或在筆法中求變，或試學者前人書法經驗，進而變體求新。換句話說，就是先把自己用章法纏綁，然後才試圖從章法中破繭而出，開創自己的章法。結果其所謂變、所謂新，一般只能稍違前人格式與風範而已，但仍不能擺脫前人書法的模式。要超越數千年無數書法家的格式與風範，創立一個全新的中國書法藝術的模式，是一件極困難的事，然而這卻在林文傑的書法中出現了。

林文傑是一位眼科和神經科專家，他深知視覺、手和腦運作的關係，於是他把桌上要寫的文字作

In the lower right corner of the painting *A Brighter World, A Brighter Tomorrow*, the painter signed his name with two Chinese characters "Man-kit" with a seal bearing the character "Lam" carved by the artist himself. If you have the opportunity to see how he writes his name with the Chinese brush, you will be surprised by another creative aspect of this artist, i.e. his Chinese calligraphy.

Chinese calligraphy has a long history of several thousand years during which different forms of script evolved with myriad different calligraphic styles created by master calligraphers through the dynasties. With the progress of science, the invention of printing and the use of the computer, the practical function of Chinese calligraphy has diminished. However, as an art form, Chinese calligraphy has its timeless value. Hence, since 2009, it has been included among the list of intangible cultural heritages by UNESCO (United Nations Educational, Scientific and Cultural Organization). Most people learn the art of Chinese calligraphy by practising the various forms of calligraphic scripts, and follow the calligraphic styles of earlier masters. After grasping the gist of the rules and characteristics of different scripts and styles, they

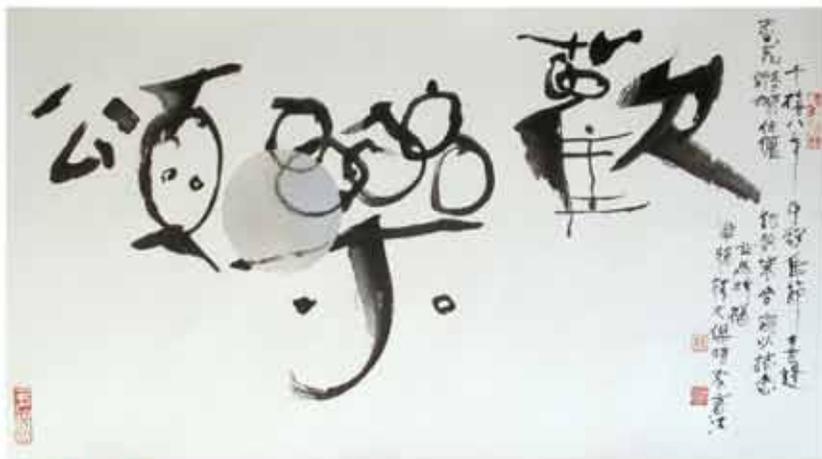
一百八十度旋轉，把所有筆劃和字行的方向全部倒轉過來。由於眼睛追隨筆觸活動方向的視線角度改變了，手和腦的運作便必須建立一套新的秩序與模式，才能夠寫倒轉過來的字。最近他甚至閉眼地面轉寫書法。林文傑就是以這樣的方法來徹底擺脫和打破他自小學習書寫文字用筆的習慣和常規，創立他自己喜愛的書體（圖8d）。

他背離了傳統書法家強調筆寫字時要用中鋒的要訣。他運筆時善用側鋒寫相對重線，這樣讓重的一筆內容易顯現墨潤的陰陽變化。他作幼筆與點時則會用中鋒。他把每個字作為一個圓形看待，依體字形和結構來決定下筆時的筆順和位置。他又把一個字作為一幅圖畫看待，故字形的大小與位置的擺排常因視覺效果的需要而變動。他把一般書法中的轉折角形的和方形的筆劃改變為弧線和圓形線，以點來代替側、策、掠、緣等筆，又以點代替短的豎筆或短的橫劃。他擅用粗幼筆的強烈對比來增強字形的力量和動感。有時他會把點或字的部份化作一個小圓形。這樣，經過林文傑創意心靈的雕琢，一種全新的中國書法藝術模式便誕生和出現了（圖8a），這種獨具匠心的書法，就讓我們稱它為林文傑的「心靈書體」罷！

林文傑無疑是藝術界的創意奇才。他除了在中外舉行了約三十次個展及參加眾多藝展外，還發展其對藝術和科學結合的創意。早在上世紀八十年代為世界藝術界開拓一項新的畫種——折光畫，又為中國書法藝術界開創一種全新的書法體款——心靈書體，這實在難能可貴。他的創意不單只見

then try to free themselves from the rules and writing habits with a view to developing their personal styles. By that time, the rules and writing habit have been so firmly imprinted in their brains that it is practically impossible to get rid of them. The most they can do, instead, is to make modifications and perhaps some variations, not to mention freeing themselves from established writing habits or founding a new school of calligraphy different from those established by all the masters in the past. What we consider impossible, however, turns out to be possible in the calligraphy of Dominic Lam.

Lam is a professor of Ophthalmology and Neuroscience. He understands how the human hand works with one's sight following the direction of the brain. So, when he writes, he turns the paper round by 180 degrees. In this way, the brush strokes of the character and the direction of the running of the characters are all inverted. As the angle of view of the eyes in the execution of the brushwork is changed, the way in which the brain and the hand co-ordinate with one another to perform the brushwork execution will have to be re-adjusted in order to write the characters in an up-side-down fashion. Recently, Lam, with the paper turned up-side-down, closed his eyes when he wrote Chinese characters. In this way, Dominic Lam succeeded in shattering his former writing habit, and he is able to write the characters in a completely new fashion that suits his personal style most. (Figure 8d)



8a 林文傑《歡樂頌》，2008  
書法，水墨紙本，高：48公分，寬：90公分，滿天閣藏  
Dominic Man-kit Lam *Rhapsody of Happiness*, 2008  
Chinese calligraphy, ink on paper, height: 48 cm, width: 90 cm, collection of Hamian Pavilion



8b 林文傑書寫《歡樂頌》中的「歡」字的情形  
Showing how the character "歡" in *Rhapsody of Happiness* is being executed by Dominic Man-kit Lam

to-date, namely the Chromoskedasic process (9,10,14), his unique calligraphic style (24,30) and his Nine Court Diagrams to promote harmony (22) are the direct results of his formal training in physics, visual physiology and Chinese philosophy.

The importance of Lam's invention of the Chromoskedasic process cannot be overstated and is perhaps what has made Dominic Man-Kit Lam one of the most outstanding Chinese artists in history (1,9,10,13,14,15,19,22). Simply stated, through a serendipitous discovery, Lam in 1980 succeeded in creating colors on black and white photographic paper using only colorless photographic solutions (9,10). In this manner, Lam the artist had also invented a totally novel painting medium, which is very rare in the history of art. This new form of artistic presentation can facilitate an artist's entry into a new world of abstract artistic manifestation. The result is an amazing spectrum of visual effects with contrasts of motion and stillness, fullness and emptiness, colors, shades and hues that were previously unattainable (9,10). Thus, Lam's painting of the universe and stars are more realistic and appealing because the mechanism of colors produced by these heavenly objects are the same as that produced by his Chromoskedasic process, that is, by light scattering rather than selective color absorption, the mechanism by which dyes or pigments produce color.

To recognize the significance of Lam's breakthrough in Chinese calligraphy, one must realize that throughout the 5000 years of Chinese history, there have only been a handful or so of unique calligraphic styles. This is in part because of the difficulty to create novel calligraphy that still retains its meaning. But it is to a larger extent also due to the fact that almost all Chinese children are obliged to learn and practice one or more of these calligraphic styles from the age of 2 to 4, resulting in an effect known in biology as imprinting (1,24,29,30). Since Lam had trained under the Nobelists Professors Torsten Wiesel and David Hubel at Harvard Medical School in the early seventies, he knew this phenomenon well. One day about twenty years ago, Lam suddenly realized that one way to break this imprinting might be to write up-side-down or blind-folded, so that the normal eye-brain connections are broken or compromised. After years of practice, Lam succeeded in creating his own calligraphic style which Professor Laurence Tam has named "Calligraphy of the Mind" (1,24,30).

Finally, Lam's creation of the "Nine Court" paintings was based on his firm belief that World peace cannot be attained without different peoples on earth understanding and accepting one another's culture and philosophy. Since "Nine Court Diagram" is the most ancient and fundamental basis of Chinese philosophy, culminating in Harmony among Heaven, Earth and Man, Lam has used these visual imageries to help attain peace among nations and harmony among people.

During the past several years, Lam's works have been met with great acclamations by critics from abroad and the general public alike. His four meter long painting entitled "Millennium Odyssey II: From the Great Wall to River Thames - Embrace the World" was exhibited at the Barbican Centre during the London Olympics, and received a Gold Medal (31), the first time medals for art have been awarded by the Olympics Organization. Lam's one-man show at the Shanghai Art Museum (32) in October 2012 was a major success. It was a retrospective of over 100 paintings entitled "A Vision of Harmony: The Art of Dominic Man-Kit Lam", a combination of Lam's artistic, scientific and philanthropic journey over the past 40 years.

In part because of Lam's invention of "Edible Vaccine", the World Health Organization (WHO) held its "1st WHO Meeting on Development and Clinical Trials of Influenza Vaccines that Induce

Broadly Protective and Long-lasting Responses" at the Hong Kong Baptist University from 24-26 January, 2013 (33). In celebration of this international conference attended by 250 of the world's leading experts in influenza and vaccines, Lam was asked to give an art exhibition in addition to giving a speech on "Edible Vaccines against influenza". The exhibition entitled "Through the Viral World : From Quarks to Multiverse" was held at the conference site from 23 January to 19 February 2013. Lam's exhibition was such a great success that WHO has invited him to move the show to the WHO Headquarters in Geneva and subsequently perhaps to other WHO Centers around the world, in part as a mechanism to enhance the global health awareness in Disease Prevention and to promote public and government support.

Taken together, Professor Dominic Lam's artistic importance is perhaps best summarized by Professor Chen-Ning Yang, the first Chinese Nobel Prize Winner in Physics in 1957 and a learned art lover, calligrapher and poet, who wrote in his own calligraphy: "Man-Kit's paintings are imbued with inspiration and techniques. No scientists in history have ever demonstrated such artistic talents." (34).

Cyril Boisson  
Art Curator  
12 March 2013

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# My Mentors

Dominic Man-Kit Lam  
2013

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Dedicated to my mentors, family members and friends in  
appreciation of their continual support and advice.



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## A. Preface



To be a scientist, in my view, is more of a vocation rather than an ordinary job — the relation is more like that of an artist to his or her work. Science and art have a lot in common, curiosity and creativity being the most important elements. In fact, I have often said that if not a scientist, I would probably have become, like my late brother, an artist. At the heart of the creative process for both the artist and the scientist, lies intuition and creative playfulness, which from my experience plays a role, different from that of the intellect or knowledge.

In their work towards discovering something new, artists and scientists similarly engage in a process of careful observation, using the mind's ability to sense the nature of things, confidently and courageously relying on their own experiences and knowledge, then balancing their intuition with logic. Artists and scientists share a vision of something that does not yet exist and with creativity and heightened awareness, they are helped by intuition to bring that painting or revelation to fruition. As children, we are all in a sense scientists and artists with the strong desire to discover and create. Unfortunately, our educational systems tend to stifle and even discourage creativity, often expressed in play and games that children invent. Parents and teachers could no doubt assume a much greater role in nurturing a child's imagination, by giving them confidence in their own a sense of innovation, and encouraging them to develop their sense of curiosity and intuition - all qualities required not just for artists and scientists, but for all of us to succeed in our chosen paths.

In the following articles, Dominic Lam has shared his experiences of how his mentors stimulated his creative potentials in sciences, art, philanthropy and even business. As an extraordinarily talented scientist and artist, Dominic's real-life stories could serve to inspire teachers, parents and students alike.

*Professor Torsten N. Wiesel*  
Nobel Laureate in Medicine  
21 March 2009

## **B. Introduction: Growing up in Hong Kong · Studying in Canada**

I was born in Chaoyang (潮陽), China on 6 December, 1947 and came with my parents to Hong Kong when I was four months old. We lived in Sheung Wan's Triangle Pier (三角碼頭) District where many Swatow natives lived. When I was four, my mother's friends told her, "Mrs. Lam, your son should go to school." Not being educated or knowledgeable of Hong Kong's education, she sent me to primary 1 at Chiu Sheung School (潮商學校) nearby. This was a small school then. We had good teachers who cultivated my artistic interests and curiosities early in life. For instance, I used to draw on paintings hanging in our home and took apart toy cars and goldfish to find out why they move. Nevertheless, I started to learn drawing and painting which has become my interest throughout my life.

### **Prisoner at Salesian**

After primary school, my mother, being a devout Catholic, wanted me to attend a Catholic school. Because of the recommendation from Father Hu Ziyi (胡子儀神父), I was admitted to Salesian School (慈幼中學) in Chai Wan. Probably because I was too naughty, my parents also made me a boarder. Salesian priests and brothers are well-known for their superb educational and humanitarian skills. Our school rules were very strict. For instance, boarders could only go home over summer, Christmas and Chinese New Year holidays, and visitations were restricted to 2 hours every Sunday. However, our teachers were generally very good and caring. I learned a lot that formed the foundation for my subsequent educational advancement.

For instance, Mr. Tang Yue Lam (鄧羽林), my Chinese literature teacher, had the ability and enthusiasm to make his students feel that studying, even memorizing, classical Chinese poems was fun. Largely because of him, I have maintained my passion for Chinese literature and culture throughout my life. As previously, more than 50 years after Tang Sir taught me Chinese, we still keep in touch. Just last week, he came to my office and we took a photo together specifically for this book (Fig. 1). It is also gratifying that to-day, at 80 years of age, he is as healthy, energetic and enthusiastic as ever. He is even a successful businessman in the pharmaceutical industry, a profession he started after his retirement from teaching some 30 years ago!



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In addition to school work, we participated in many intra- and inter-school sports and musical activities. I was in the school table-tennis and soccer teams, as well as the school choir which travelled extensively to perform at other schools in Hong Kong and Macau. I was also “forced” or “coerced” into learning to play the piano, guitar, harmonica, etc. They turned out to be hobbies that I still enjoy to-day. We also went hiking and biking (Fig. 2) every week all over Hong Kong. I had nothing but good memories of my Salesian days. I am therefore most grateful to my parents for their wisdom and foresight to make me a “prisoner” at Salesian School during my formative years.

## Wah Yan adventure

After Form 5, I transferred to Wah Yan College Hong Kong ( 香港華仁書院 ). I remember vividly that in June 1963, after the school certificate results had come out, I went straight to the office of the Vice Principal of Wah Yan, Reverend Father Alfred Deignan, S.J. (Fig. 3), in Wanchai and told him my desire, and explained that Salesian School did not have Form 6. Father Deignan was very kind but told me that because of Wah Yan's own internal demands, it was very rare for his school to accept students from other schools to his Form 6 class. However, after chatting with him for about 10 minutes, Father Deignan made an exception. To-date, I still do not know why I was accepted. Yesterday, 46 years after he had admitted me, I asked Father Deignan why he did so. He just laughed and said, "Dear Dominic, either you were lucky or very impressive." Well, it could also have been that I was a bit of both. Anyway, I became Wah Yan's only Form 6 student from another school that year. I enjoyed being at Wah Yan very much, especially since our teachers were not only excellent and knowledgeable, but also gave us a lot of freedom for self expression.

For example, Mr. Laurence Tam ( 譚志成 ), who did not teach me, taught Wah Yan students amazingly creative ways of artistic expression and appreciation that are still invaluable ideas and tools for art teachers to-day. No wonder Mr. Tam later went on to become the Chief Curator of the Hong Kong Museum of Art. Last year, the Education Bureau invited Tam Sir to Hong Kong to give lectures to the principals and teachers of primary and middle schools on the art of teaching art (Fig. 4). He came to my art studio one day to watch me do calligraphy and painting. A month later, he returned to Toronto and I received an article that he had just written about my art, which I reprinted in this book (Section F. 4). I am most appreciative not only of his deep interest in my artistic development 45 years after I had left Wah Yan, but also of his passion to help the artistic development of all students in Hong Kong. In addition, many of my class and school mates were very bright and energetic; some of them become my life-long friends. Besides studies, I also represented Wah Yan at table-tennis.



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## **The Winding Road to Thunder Bay**

In April 1964, I received a letter from Loyola College in Montreal, accepting me to be a first year student with full scholarship. My family was too poor then to pay even my airfare. Fortunately, one of my best family friends, Mrs. Lau Ip Sok Wan ( 劉葉淑婉女士 ), whose children I tutored, gave me a one-way ticket to Montreal, plus Canadian \$200. I arrived Loyola in early September. A week later, I discovered that although Quebec had a 4-year bachelor degree programme, universities in Ontario had a 3-year one. Additionally, I met the registrar of Loyola, Mr. Donald Ayre, who was about to take on a new job as registrar at a small college named Lakehead University in Thunder Bay, Ontario. He was willing to accept me at Lakehead, meaning that I would save a year in college. Being a very impatient person even then, I courageously, some might say recklessly, gave up my Loyola scholarship, hopped on a train and arrived in Thunder Bay about 24 hours later.

I chose Mathematics as my major, in part because unlike science courses there are no labs to attend, and unlike liberal arts, there are no essays to write. I did not have time for those activities because I had to work full-time not only to support myself, but also to help out my family in Hong Kong. One of these jobs was as a mail sorter at the post office because it was a 4 p.m. to midnight position that did not clash with my classes. On weekends, I worked as a chef's assistant in restaurants – because I was too young to serve drinks – so even now Lam can cook! Sometimes we also made money playing music at college mixers. For summer holidays, I worked two full-time jobs.

However, even though Mathematics was easy for me, I still had to take certain mandatory courses such as English, Philosophy, Social Studies, etc. These courses were not easy to me and I had to focus on them in order to receive good grades. Anyway, in May 1967, I became the first student to receive a B.Sc. (Hons) with first-class honors at Lakehead.

## **Romantic Vancouver**

After my graduation, I toured Europe for 2 months on a back-pack, travelling from Birmingham, England to Napoli, Italy. This was my first vacation, ever. I felt in love with Europe's cultures and beauty and would return many, many times. In September, I enrolled as a M.Sc. student in Theoretical Physics at the University of British Columbia (UBC) in Vancouver. I was interested in gravitation and studied under Professor Fred Kaempfer on a project entitled "Gravitational Effect of Gravitation".

I did most of my thesis work sitting on the lawns of UBC's exquisite Rose Garden (a fringe benefit of a Theoretical Physicist). I lived in Arcadia Hall, where I was hall-mates with several students who later became distinguished academicians in Hong Kong, including Professor Ng Ching-fai ( 吳清輝 ), President of Hong Kong Baptist University and Professor Cheng Kin-fai ( 鄭建輝 ), former President

of Hong Kong University School of Professional and Continuing Education. I still call them my big brothers.

Vancouver is a beautiful and romantic city, in part because it rains lightly but constantly in the winter. It might also be that I felt in love there for the first time. Or, as the great Song Dynasty poet Xin Qiji ( 辛棄疾 ) so elegantly observed: “When one is young, one pretends to be sad in order to compose new poems” ( 少年不識愁滋味，為賦新詞強說愁 ). I incorporated such synthetic sadness and real romantic feelings to compose a Yuan Song: Sky Purity Sand ( 元曲：天淨沙 ).

***This song I write after many drinks in Vancouver  
Intoxicated, I dream of my China in October  
Now I am studying across the ocean  
The lights are cold and the raindrops have fallen  
In whose homes do they land, do you remember***

Dominic Lam, October 1967

All along, I had planned to continue my Ph.D. studies in physics, until I accidentally read Professor James Watson’s book entitled “The Double Helix” that was just published. Professors Watson and Francis Crick discovered the structure of DNA, of which genes are made. This is perhaps the most important discovery in the history of biology and medicine, for which they received the Nobel Prize in 1962. I was so fascinated by the possible contributions of physics to biomedical sciences that I decided instantaneously to pursue a career in this field. After much consideration, I applied, and was delighted to be accepted, to the excellent Ph.D. programme in Medical Biophysics at the University of Toronto.

Upon completing my M.Sc. in May 1968, I immediately went back to Lakehead as I was invited to teach a summer course in physics. It felt great to be a lecturer one year after I was an undergraduate student!

## **On to Toronto**

In the autumn of 1968, as Canada was turning cold, I took a train from Thunder Bay to Toronto, where I was warmly greeted by Professor Harold Johns, a former physicist who founded and chaired the Department of Medical Biophysics, and Professor Lou Siminovitch, a distinguished molecular biologist. Professor Johns, a former physicist, started this department to apply physics to biomedical research. This was exactly what I wished to do. While I was taking the required courses at the medical school, I began to identify my Ph.D. advisor and research project. I was delighted that Professor W. Robert Bruce, a distinguished physician/scientist,

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accepted me as his student. Professor Bruce is a brilliant scientist, active even to-day in his research on the impact of certain vitamins and nutrients to our health. He was also an extremely kind and considerate mentor. My Ph.D. project was on the cellular and molecular mechanisms of mammalian spermatogenesis, a key to the progeneration and improvement of life.

1969 was indeed a very memorable year. The world witnessed Neil Armstrong as he stepped on the moon and announced “A small step for man, a giant step for mankind”, fulfilling the American dream set forward by President John F. Kennedy 10 years ago. I remember vividly watching this scene live on television in my small bedroom and was deeply moved by man’s courage and ingenuity. For me, it was also miraculous as I completed most of my Ph.D. project in 1969. There was just a small problem – the university had a 3-year Ph.D. residency requirement, meaning that a student could not receive a Ph.D. without staying for at least 3 years. Fortunately, Professors Johns, Bruce and others petitioned for me and the requirement was waived.

### **Yet Another Crossroad**

So I was once again in the position to decide on what I should do with my life. The normal course was to continue one’s Ph.D. studies in another lab with a postdoctoral fellowship. In this regard, I was fortunate to be awarded a prestigious Centennial Award from the Canadian Government, giving me excellent financial support for 4 years to do research anywhere in the world. I consulted with Professor Bruce, Johns and Siminovitch extensively on where to go. We eventually narrowed down to three choices: Professor Sydney Brenner at Cambridge, Professor Seymour Benzer at Cal Tech or Professors Wiesel and Hubel at Harvard. I decided to first contact Professors Wiesel and Hubel, who were the world’s foremost visual scientists, in large part because of my passion for visual art. I also naively thought that by understanding how our visual system functions, I would understand the basis of aesthetic beauty in art. Anyway, I decided that if I could not be a full-time visual artist, I wanted to be a full-time visual scientist.

## C. Professor Torsten Wiesel: Visual Science and Art

### Magical Encounter

In April 1970, I visited the Department of Neurobiology at Harvard Medical School (HMS) in Boston and met the chairman, Professor Stephen Kuffler, a great scientist who had made fundamental discoveries in many areas of neuroscience, and a most capable and charming leader who single-handedly built his department into the best in the world, and who was also the mentor of Professors Torsten Wiesel and David Hubel. I also met several other faculty members in the department. However, because of some misunderstanding in arrangement, I was informed that both Wiesel and Hubel were out of town. I was naturally very disappointed.

As I was preparing to leave, I unexpectedly ran into Torsten Wiesel who was walking up the back-stairs to his office at about 6:00 p.m. He was not supposed to be in the office until the next day, but decided to come in to check his mail and messages. We had a great chat and Torsten then took me to dinner at the famous Durgin Park Restaurant, where I ordered a steak which was larger than the plate. I explained what I had been doing. Because I had been busy completing my Ph.D. thesis, I did not really have time to read and understand his works. Torsten told me that did not matter because I would learn soon enough. In any case, if I came to his lab, I would be expected to have my own research project quite independent of his. He believed that in science, as in art, what mattered most was creativity and the courage and single-mindedness to pursue what one believes in and loves to do.

Just as in the case of Father Deignan admitting me to Wah Yan seven years earlier, Torsten said he would like to accept me to his lab, with Professor Hubel's consent. It was only when I arrived in his lab that I realised I was to be their only post-doctoral fellow for the next two years! This was unusual because most famous labs and professors had many students at one time, usually doing their mentors' project. That was not the case in the Wiesel/Hubel lab. They insisted that their students develop and pursue their own research projects, and publish their work independent of their mentors. That was a very noble approach that Torsten and David had inherited from their mentor Stephen Kuffler.

My magical meeting with Torsten was a critical event in my life because if I had missed him then, I might not have ended up at

Harvard. In which case, I would also certainly have had a career unlike this one.

### **Beautiful Woods Hole**

I arrived at Harvard in June 1970. Because I had no previous experience in neurobiology, Torsten recommended that I started by learning some basic knowledge and techniques from his post-doctoral fellow Dr. Akimichi Kaneko. In his several years at Harvard, Aki had spent each summer at the world famous Marine Biological Laboratories (MBL) in Woods Hole, Massachusetts, doing his pioneering research on recording electrophysiologically the activities of single, identified cells in the retina. I spent that summer in Woods Hole, which was most refreshing for several reasons. First, while Aki was a demanding teacher, he was highly innovative and technically superb, and was also very kind and patient to teach me the exciting field of retina research. Second, Woods Hole was teeming with brilliant scientists from around the world who came in the summer to use the excellent marine biological facilities at MBL and interact with each other. Finally, Woods Hole was, and still remains, one of the most scenic places in America. In particular, its seascapes greatly influenced my artistic compositions for decades.

### **The Best Department in the World**

In September 1970, Aki returned to Tokyo and I inherited his office at Harvard. Torsten and I were delighted to see Aki healthy and well again in Shanghai in 2002, over 30 years after we first met (Fig. 5).

Using the skills I had mastered from my Ph.D. days, I chose as my first project to study the neurochemical and physiological properties of single, isolated and identified cells in the retina, resulting in a number of publications.

Those were exciting times in the department, which included Stephen Kuffler and his students Wiesel and Hubel, David Potter and Ed Furspan, Ed Kravitz, John Nichols, Zach Hall and their students Carla Shatz,

Charles Gilbert, King Wai Yau, Simon LeVay etc. It seemed that every month, one of them was making an important discovery. In retrospect, the Kuffler era might be recognised as the golden age of neurobiology. Our department was certainly the pinnacle.



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## Happy Days

Those were happy days as well. For instance, at Torsten's 80th birthday celebration in New York five years ago, David Hubel reminded me about the good times we had played table-tennis in the hallway of the department – great fun for us, although our colleagues who were trying to do intracellular recordings were not always pleased with the vibrations we caused.

We also played soccer on the lawn of the HMS courtyard, and Torsten was the star performer. I was amazed by his superb skills and single-mindedness, even in playing soccer! We used backpacks as goal-posts but were often chased away by the HMS security guards who told us that the courtyard was not supposed to be a soccer field. One of the players was a young graduate student from MIT named So Kwok-Fai (蘇國輝) who is now a famous professor at the University of Hong Kong.

In addition, Torsten and I often bicycled along Huntington Avenue to Chinatown for lunch or dinner. In the winter, we also went cross country skiing at Harvard's Natural Reserve in Concord, Mass. Being a Swede, he grew up skiing and was my instructor in this sport as well.

Finally, I learned a great deal about artistic appreciation, taste and judgement from Torsten. Having been trained in Chinese art, I had little understanding of Western art at that time. Being an avid and selective art collector, one of Torsten's most effective ways of teaching was to show me a painting, print or sculpture, and explained to me why he collected it. He also took me to different museums and galleries in the Boston area. Our favorite location was the world-renowned Boston Museum of Fine Art, which was only a ten minute walk from our office at HMS.

## Learning by Observing

In spite of the aforesaid activities, I did reserve some time to learn about vision research from Torsten and David. Besides giving me their opinions about my research project, what impacted me most was to observe first-hand the clear vision and focus of their research objectives, as well as how they carefully planned and meticulously executed each experiment. They were so dedicated to their studies that they often did not leave their lab until dawn.

I also benefitted from heated exchanges of scientific ideas with my brilliant colleagues and learned many new techniques for my research. Members of our department were friendly but very critical. We used to say that if we could survive giving a seminar at our department, we could lecture anywhere in the world, because no other institutions would be as tough.

## **A Harvard Faculty Position · A Dream Trip**

In July 1972, I was promoted to the junior faculty position of Instructor in Neurobiology, where Torsten was the new chairman. Later that year, Torsten received a call from his friend Professor S. Hagiwara at UCLA inviting him to do six weeks of research in the Great Barrier Reef, Australia, on board a scientific vessel named the “Alpha Helix” which was supported by the U.S. National Science Foundation (NSF). I was most excited and grateful that Torsten asked me to be part of this mission. He also asked Aki Kaneko, who was then at Keio University in Tokyo, to join us.

We set off in January 1973 on this expedition of a life-time. We boarded the Alpha Helix from Cairns and set off to the Great Barrier Reef, at a time when it was totally unspoiled and there were almost no tourists. We lived on the boat for six weeks and had to catch our experimental animals as well as our food, in our case, the blue-spotted sting ray and other elasmobranch, as well as octopus and other cephalopods. We had great seafood like mud crabs. I was bitten by one while trying to catch it. We swam, snorkeled or dived every day, sometimes amidst sharks, to observe and enjoy the undersea beauty of the reefs and their inhabitants. The mission was successful scientifically and we published the results as two papers in 1974 and 1976.

On this trip I was able to visit places I could only have dreamed of before, since my 10 week travel route included: Boston to L.A., Tahiti, Fiji, Sydney, Canberra, Cairns, Brisbane, Sydney, New Guinea, Hong Kong, L.A. and back to Boston. Once again, Torsten made my dream come true. Of all these stops, Tahiti and New Guinea were most memorable. Tahiti’s natural beauty, unspoiled habitat and friendly people were legendary. I drove around the island for several days in a rented volkswagon. After Great Barrier Reef, I flew to Port Moresby, the capital of New Guinea and headed for the Eastern Highlands, where the head-hunting tribes lived. Even in such a remote location, I still found a Chinese restaurant owned by Mrs. Kwan from China!

## **Visualizing Ocular Dominance Columns: Amalgamation of Science and Art**

One of my most enjoyable research experiences occurred early in 1974 when Torsten, David Hubel and I demonstrated by autoradiography the presence of ocular dominance columns in the monkey striate cortex (Wiesel, T., Hubel, D. and Lam, D. Brain Research 79, 273-279, 1974, Fig. 6), an important and independent verification of what they had observed independently by electrophysiology methods.

“The best science is often also beautiful art”, a number of famous scientists have observed. The best example I know is the structure of DNA, which turned out to be double helical structure (Figs. 7-8). If an artist had made a sculpture of this structure, it would be a simple but beautiful and elegant work of art. In addition, knowing the functions and operational modes of DNA, which is to replicate

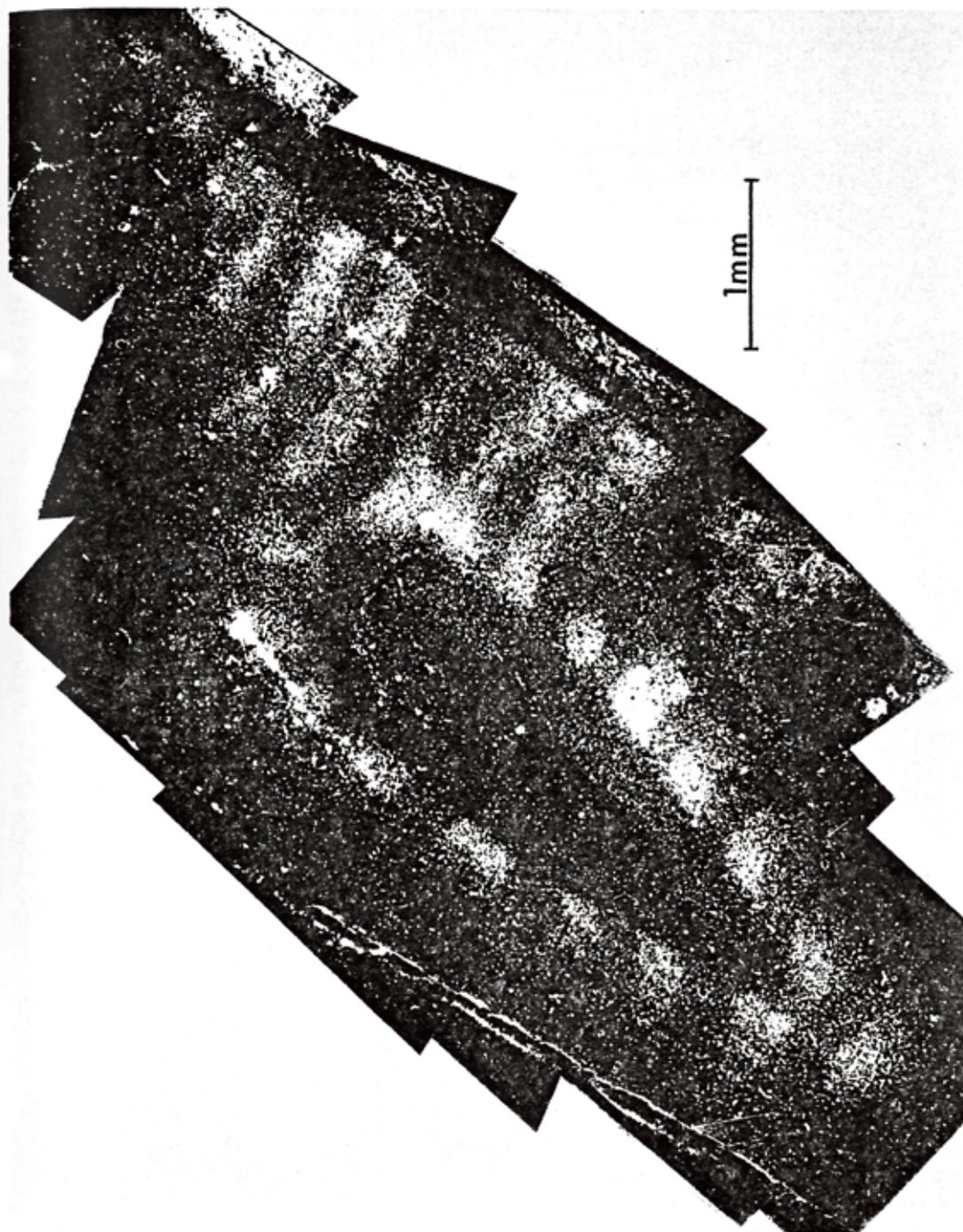


Fig. 3. Montage of a set of dark-field microphotographs from a section through calcarine cortex. The section passes almost tangentially through a dome-shaped region of cortex, cutting through layer IV to form an oval ring of alternating light and dark patches. The oval encloses a part of layer V which has been grazed by the plane of section. Above, 5-6 of the layer IV C patches are cut tangentially and form a set of parallel stripes. Two-thirds of the way from pia to layer IV C, one can see a suggestion of the thin layer IV A 'upper tier'. Below, the thin pial surface is visible; together with the pial surface of adjacent cortex it forms parallel lines like train tracks.



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and code (indirectly through RNA) for proteins, the double helix also is a most natural and fail-proof structure.

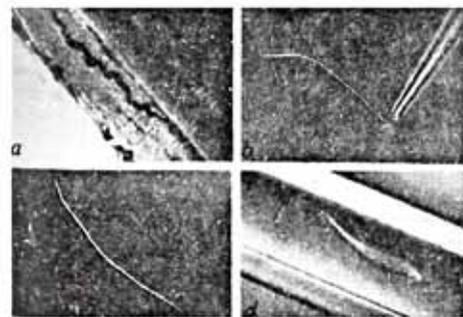
A main reason I was ecstatic about the results of the Wiesel/Hubel/Lam study is that the images, which we could see directly under the microscope, are so beautiful and also so natural and logical. Furthermore, such visualization showed directly and unambiguously that the brain is so well organized that understanding the structure and activities of a very small area can lead to generalizations of fundamental importance. After all, this principal is the essence of science. Our findings were so convincing that we only had to do it in a single monkey, and the findings were confirmed by subsequent research by us and others.

In 2004, as I was working on a painting to celebrate Torsten Wiesel's 80th birthday, I wanted the work to be a semi-abstract representation of his most important contributions to science, namely elucidating the functional architecture and development of mammalian brain. I incorporated several actual photos of the above, as well as subsequent, studies to create what I hoped was an amalgamation of art and science – a most fitting tribute to Torsten. This painting is reproduced on the preface of this book.

## My Own Research

Meanwhile, I also had my own research programme in Torsten's laboratory. My main work was to study the biochemical, morphological and physiological properties of single, identified cells in the retina. Again, not only were the scientific results (Fig. 9; Lam, D., *Nature* 254, 345-347, 1975) interesting, the cells that I had isolated were also ecstatically beautiful (Fig. 10; Sarthy V. and Lam, D., *Brain Research* 176, 208-212, 1979).

These experiences, together with teachings from my other mentors, led me to realize now that, in both art and science, what we pursue are the same elements: Truth · Compassion · Beauty (真善美).



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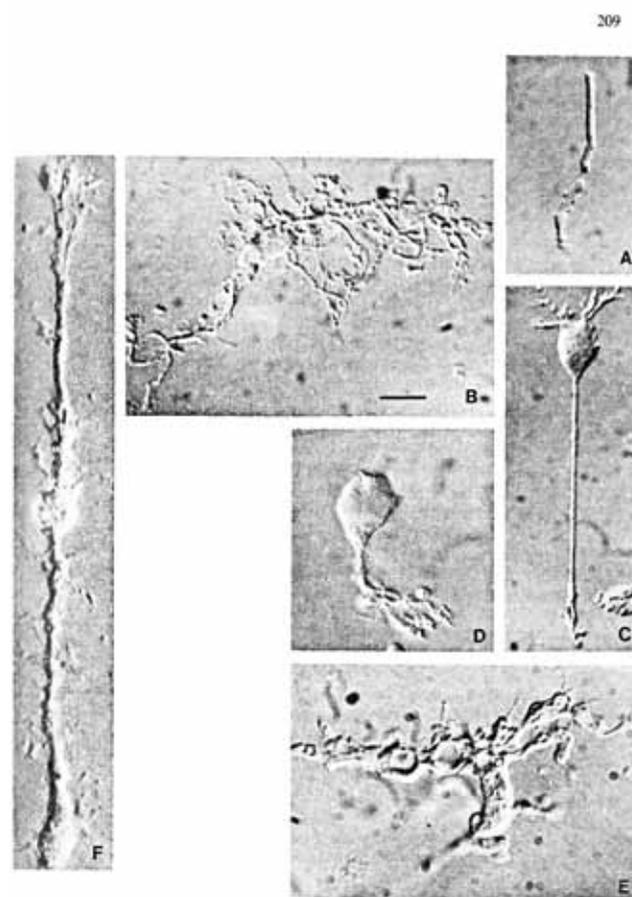


Fig. 1. Isolated cells from the rat retina: (A) rod photoreceptor; (B) horizontal cell; (C) bipolar cell; (D) amacrine cell; (E) ganglion cell; and (F) Müller cell. All cells are at the same magnification. Bar = 10  $\mu$ m.

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## Other Opportunities

Professor Tom Wilson, Chairman of the Physiology Department at Harvard Medical School, invited me to be assistant professor in his department. Although throughout 1973 and 1974 I was invited to join the faculty of a number of universities, after seeking advice from Torsten, I decided to take the Harvard position because it meant I only had to move to the other side of the HMS courtyard and could still work closely with Torsten and others in his department.

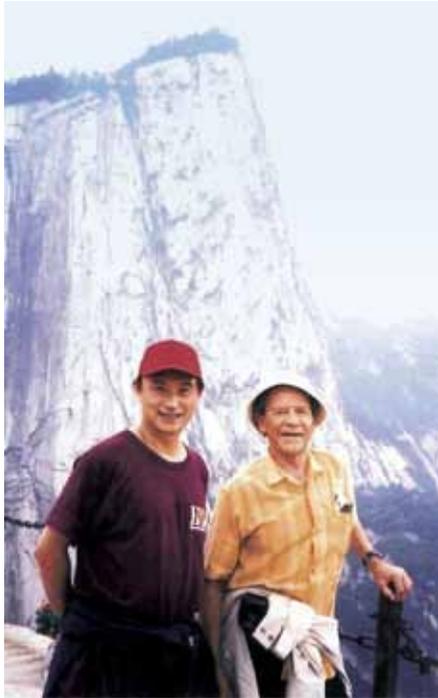
## The Nobel Prize

Until I moved to Houston in 1977, I had spent seven productive years at Harvard and during this period Torsten was not only my mentor but also a role model to me. He told me that being either a scientist or artist should be like a vocation, not a job. He also mentioned that if he had not been a scientist, he would have been an artist. However, as an artist he would not so effectively shaped the world of neuroscience in the past forty years and influenced more than a generation of aspiring neuroscientists. I was therefore most delighted when Torsten and David were awarded the Nobel Prize in Medicine or Physiology in 1981. I flew to L.A. to participate in the celebration of their award at the Neuroscience Meeting.

For the next 20 years, we saw each other less often as we each pursued our own career path – he moved to Rockefeller University in New York and subsequently became the President. We did meet from time to time, usually at meetings or when he visited Houston, in particular, from 1988 to 1992, Torsten attended every one of the annual Retina Research Symposia that I organised at the Alice McPherson Laboratory for Retina Research in The Woodlands.

## Rendezvous in China

In 2002, Torsten was invited to China to attend a meeting at the Chinese Academy of Science in Shanghai and the Chinese Ophthalmology Congress in Xian. Torsten had, of course, been invited to China many times before, but this was the first time he decided to come after I encouraged him to do so. For two weeks in September, we travelled together from Shanghai to Xian, Hua Shan (華山) (Fig. 11), Dunhuang (敦煌), the Silk Road (絲綢之路) (Fig. 12) and Beijing (Fig. 13). We saw many sites of natural beauty, cultural heritage as well as invaluable art. In Beijing, we stayed at the Presidential Suite at the Diaoyutai State Guesthouse (Fig. 14), which is usually reserved for Heads of State. Torsten also met with Mr. Xu Guan Hua (徐冠華部長), China's Minister of Science and Technology. Soon after, he was invited to be the Chairman of the Advisory Board of National Institute of Biological Science (NIBS), a position that he continues to hold to-day. Torsten even interviewed the famous Olivia Xu of Phoenix TV about science, art



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and China (Figs. 15-16). She told me they met again in N.Y. the following year and visited the Torsten Wiesel Bridge at Rockefeller University. Torsten must have liked his first China visit because ever since then, he has been in China at least once or twice a year. For me, it really is a godsend because like the good old Harvard days, I get to spend a lot of time with him when he comes to China. I look upon it as my personal continued education programme.

## A Young Man at 80

On 3 June 2004, many of his best friends and colleagues gathered at Rockefeller University in New York to celebrate Torsten's 80th birthday. I flew in from Hong Kong and presented him with the painting shown on the cover. He displayed it at his 80th birthday party and later moved it to his Human Frontier Program Office in Strasborg, France.

## Always My Artistic Advisor

In addition to science, over the past 40 years, Torsten never ceased to provide new ideas and perspective for my art as well. For instance, on 15 February 2005, I visited him at his office at Rockefeller University. I brought him a CD of my recent paintings, which we viewed on his Apple computer. Suddenly, he magnified a small portion of my chromoskedasic painting "Autumn Rhapsody" hundreds of times to reveal a fascinating pattern of multi-coloured squares. We both found these squares visually appealing and scientifically interesting (Figs. 17-20). I was inspired by such a novel perspective of my work. Torsten suggested that I explore this direction further, which I continue to do. During that visit, we also went to the Museum of Modern Art and the world renowned Pace/MacGill Gallery, in which selected pieces of Torsten's own collection were exhibited in 2000.

## Torsten and WEO

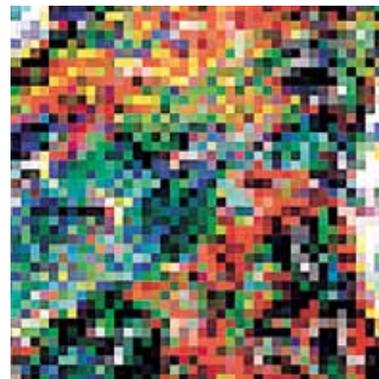
I moved back to Hong Kong from Houston in 1999, in part to establish a charitable foundation, World Eye Organization (WEO), for helping the poor and sight-impaired, especially in China, where there are millions of cataract patients awaiting operations and hundreds of millions of poor people needing glasses for myopia or presbyopia. Torsten kindly agreed to be on WEO's Board of Directors from its inception. On 3 July 2007, Torsten and his lovely artist wife Mususa (Mu) came to the WEO Chengdu Eye Centre for the first time (Figs. 21-22). We also visited the incredibly beautiful Jiuzhaigou (九寨沟) and Huanglong (黄龙) together (Fig. 23-25). On 7 July 2007, WEO and I established the Torsten Wiesel Research Institute (TWRI; Figs. 26-28) at WEO's Chengdu Centre,



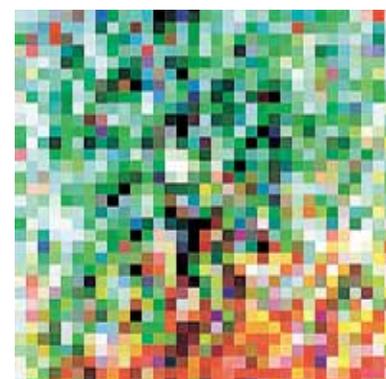
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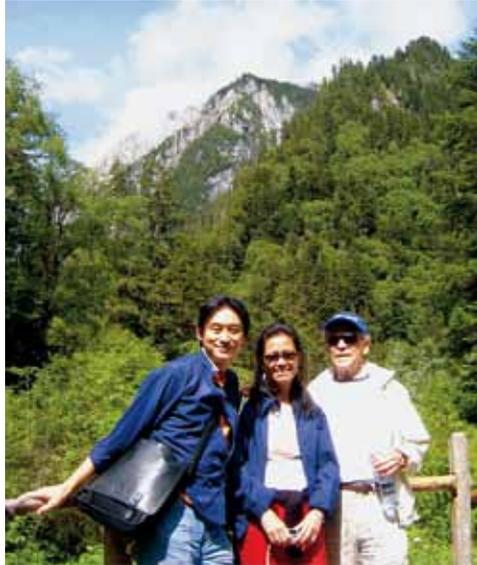
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as a small tribute to Torsten's immense contributions to the world, not only in science, but also in education, human rights and philanthropy. I am hopeful that much good work, especially on eye diseases that are not as prevalent in the west, such as myopia, angle-closure glaucoma, trachoma, etc., as well as young, talented and dedicated vision researchers, will emerge from this institute in the coming years (Fig. 29). In this regard, Professor Shi Ying-kang, the charismatic president of the world-famous West China Medical Centre, which has the world largest single hospital, in Chengdu has been exceptionally cooperative in our WEO projects. Professor Shi is not only an outstanding medical doctor and administrator but also a fine painter, as our collaboration clearly shows (Fig. 30).





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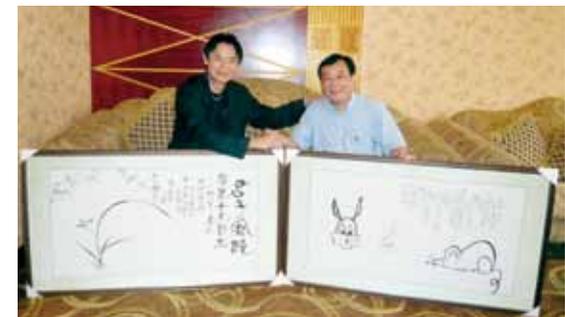
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Towards these ends, we also established the WEO Torsten Wiesel Career Development Award Program in January 2008, as well as WEO Torsten Wiesel Primate Research Centre in Chengdu in October 2008 (Figs. 31-32). In November 2008, Torsten and I met in New York in part to discuss the creation of a myopia research centre in China, a long-term interest of Torsten and our dear friend Elio Raviola at Harvard. I still remember fondly that Elio and I, both hot soccer fans, went to a cinema together in Boston to watch a World Cup Soccer match.



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### On to The Next Twenty Years

I look forward to my next meeting and travel with Mu and Torsten on 18 May 2009. We hope to be able to visit Tibet, and return to Chengdu for a symposium celebrating Torsten's 85th birthday on 26 May. We will then travel to Hong Kong where the three of us will give a Dialogue on Art, Science and Creativity to the principals, teachers, parents and students of Hong Kong on 30 May. In recent years, I have been fortunate to see Torsten about once a year, the last time was when he and Mu visited the Hong Kong Baptist University in May 2011 to give a lecture celebrating the establishment of the Institute of Creativity there, and to give a dialogue with Nobelist, Professor Chen-Ning Yang, moderated by President Albert Chan and I.

Taken together, I am most grateful to Torsten for 40 years of invaluable inspiration and encouragement on my creative potentials. He set the best example a student can look up to. He gave me tremendous space for free and independent thinking. He demonstrated explicitly his passion to do what he believes in. Torsten has enriched my life experiences tremendously, and taught me not only science and art, but also how to be a better person.

## **D. Professor David Paton: Philanthropy of Vision**

### **A Visionary and Charismatic Man**

In the spring of 1977, as I was happily teaching and doing research at Harvard, I received a letter from Dr. David Paton, Chairman of the Department of Ophthalmology at Baylor College of Medicine in Houston, Texas, inviting me to be Associate Professor of Ophthalmology in his department. The compensation package was great: my salary was more than doubled, the college would also pay for the down payment of my house in Houston, etc. Once again, I consulted with Torsten who felt that it was a good opportunity to expand my research programmes, since Texas Medical Center was, and still is, the largest medical centre in the world, with many outstanding medical programmes as well as scientists and clinicians. I was also given a great deal of lab space for my research at the newly built Cullen Eye Institute. Most importantly, I found David Paton to be a most charismatic, visionary and talented leader. His father was also a distinguished ophthalmologist who had founded the world's first eye bank. Having recently been recruited to Baylor from Johns Hopkins University, David was committed to building a world-class vision research programme in his department. In fact, as I found out later, David never did anything less than world-class. Within a year of his arrival at Baylor, David had recruited excellent young visual scientists such as Drs. Robert E. Anderson (Gene), Joe Hollyfield, Scott Basinger, Frank Kretzer, David Bridges and others, making it one of the most dynamic vision research groups in the world.

### **A Visionary and Charismatic Lady**

Another legendary ophthalmologist cum philanthropist I met, Dr. Alice McPherson, also influenced my decision to move to Houston. She had graduated from the University of Wisconsin and studied under Dr. Charles Schepens at Harvard before coming to the Texas Medical Center. In addition to being a brilliant retinal surgeon, Dr. McPherson had the vision to establish the Retina Research Foundation in 1974 which, for the past 35 years, has given generous annual grants to retinal researchers, especially those working in Houston. These grants, which must have totalled tens of millions of dollars, have allowed many scientists, especially the emerging

ones, to get their labs and research programmes established or operated upon much more expediently than waiting for government funding. She was the inspiration for my charitable donations to eye research, including the establishments of the WEO Torsten Wiesel Research Institute in China in 2007, and the Torsten Wiesel Career Development Award in 2008 to support young vision researchers in China.

### **New House and New Baby**

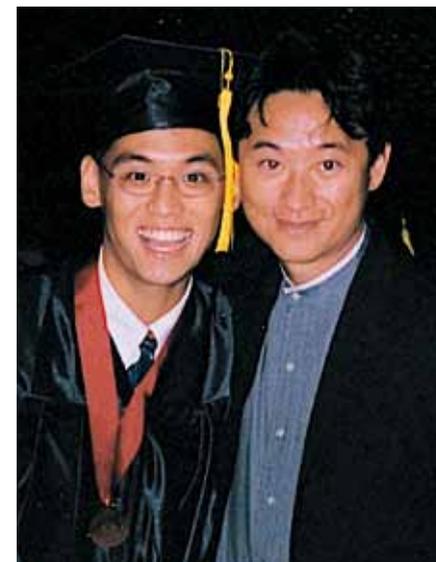
With visionaries like Drs. Paton and McPherson, I felt honored to join them in Houston. We drove from Boston to Houston in September 1977, even though my wife was then 6 months pregnant. We moved into our brand-new designer house (Fig. 33) with a 2-storey greenhouse in which I grew thousands of orchids, just in time for my son to be born on 5 December 1977 (Figs. 34-40). One fringe benefit of moving to Houston was that my orchids were certainly much happier because they did not have to endure the long and testing Boston winters.



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## Art and Talent in Children Begin at Home

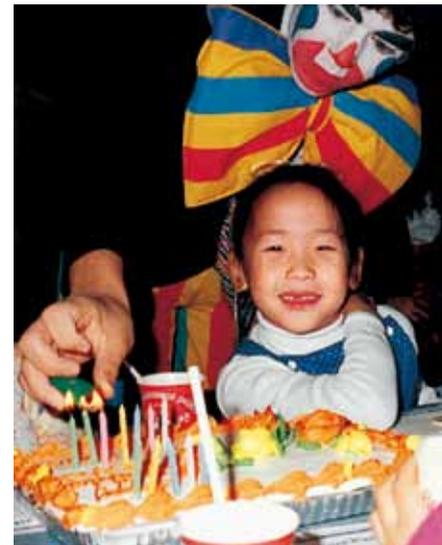
An objective of this book is to stimulate children's interest in art and creativity. Towards this end, I wish to share my personal experience regarding my children's artistic development with the parents and teachers in Hong Kong. From the late seventies to the early nineties, when my children were growing up and I was building my career, I still tried to spend as much time with them as possible. All children love to do "fun" things. Perhaps Yee Yee and Fong were unknowingly influenced by my obvious passion for art. Anyway, they thought painting was fun. So when I was painting, they often painted beside me.

Figures 41 and 42 are examples of their works when they were about 6. It is interesting that even at such an early age, their works reflected their personalities: Yee Yee (Fig. 43) being more lively and imaginative, and Fong (Fig. 44) being more serious and meticulous.

Maybe even then I could have predicted that 20 years later, my daughter would become a lawyer and my son would be



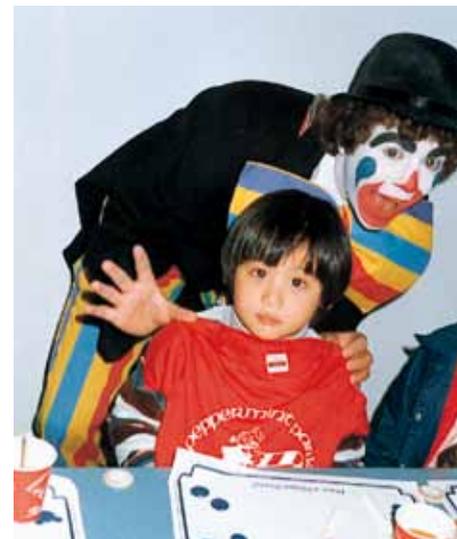
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a medical doctor and scientist. Anyhow, what is important to know is that just because they were interested in art does not mean they will grow up to be artistic. Rather, art sharpens children's sense of focus and observational skills, allowing them to have better judgement on people and objects alike. My children remain very interested in art throughout their lives. My daughter still creates works of art and my son is an excellent and sensitive photographer. This is my real-life experience of how parents and teachers can influence their children or students' artistic interests.

### **A New Career · Many Expeditions**

Just as Torsten had predicted, my scientific and academic career really took off in Houston and I became a full professor in 1980. I collaborated with all of my scientific colleagues in the department, and many of them remain life-long friends. We also had many memorable expeditions. For instance, in 1978, on our way to the Third International Congress of Eye Research in Osaka, Japan, I took my aforesaid colleagues to Hong Kong and showed them my most favorite city in the world.

In 1979, my colleagues plus Dr. Dianna Redburn at the University of Texas Health Sciences Center from across the street went to Athens, Greece to attend an International Neurochemistry Congress (Fig. 45). We stayed in a hill-top villa on the famous island Mikanos, got lost one night after a few too many drinks in the city and almost didn't find our villa. We also travelled to many other heritage sites such as the Acropolis, Delphi (where Apollo was born), the Olympic Arch, where the Olympics was born. We swam in the romantic Aegean Sea. We had a grand time in general, besides learning something about neurochemistry. To make sure people know that we actually attended the meeting, we used to stand up after a talk and asked a generic question. A favorite one that we could always ask without even listening to the talk was, "Have you tried magnesium?" It worked every time. All in all, from the seventies to the nineties, I travelled so much that Gene Anderson used to call me Pan Am Lam. Fortunately I have had a longer life

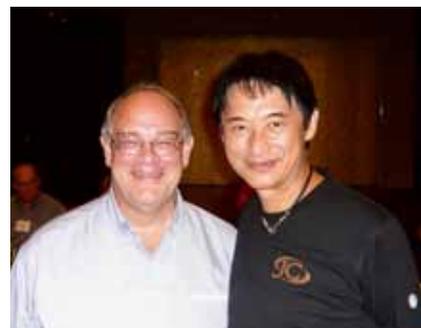
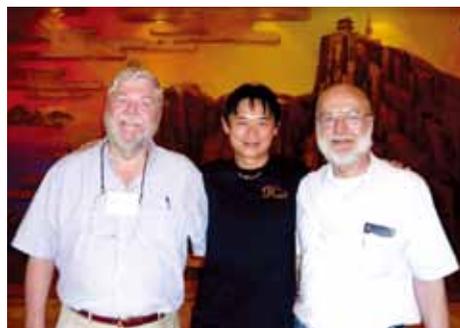


than Pan Am. There were so many of these exciting expeditions throughout those years that I will need to write another monograph called “My Travels” in the future.

### A New Dawn in Partnership

Anyway, it is most gratifying that some 30 years later, Gene and Elizabeth Anderson, Joe Hollyfield and May Rayborn, William K. Stell, Steve Fleisler, etc. and I met again at the 14th International Congress of Retinal Degeneration (Figs. 46-52) in Emeishan (峨嵋山), one of China’s sacred mountains, just 2 hours drive from WEO’s eye centre in Chengdu. At the grand opening last October, I spoke about our good old times, and also commented that “old friends and colleagues don’t just fade away in the sunset, they sometimes start a new dawn”. In fact, Gene’s granddaughter Ashley will be working at WEO’s eye centre in Chengdu this summer, while Dr. Man Yu (余曼), one of our star students from Torsten Wiesel Research Institute, might soon work in Gene’s lab in Arkansas.

Last March, I also saw many old friends when they attended the World Ophthalmology Congress in Hong Kong. I was especially pleased to see Professor Robert Marc with whom I collaborated on some exciting research in the seventies and eighties. I met with Robert’s mentor and my dear friend Bill Stell, who was in Hong Kong to give lectures. Finally, last November, I was delighted to see my dear old friend and colleague Professor Samuel Wu at my son’s wedding in Houston. I helped to recruit Sam to Baylor, where he has remained and done extremely well since 1982. They are all world famous scientists now, but we remain as good friends as ever.



## Project Orbis

As importantly, during the late seventies David Paton had an unique vision: to outfit an airplane so that it could fly anywhere in the world as an eye clinic, surgical suite and teaching theatre. This was an incredibly novel, courageous and ambitious endeavour that he named “Project Orbis”. He succeeded to convince United Airline to donate an old DC8 airplane and raised enough money for its remodeling and initial operations. A friend once told me that David Paton was only second to Michael DeBakey, the famous heart surgeon at Texas Medical Center, in his ability to raise money for medical philanthropy. In fact, David had raised over US\$30 million to build the Cullen Eye Institute, which had its grand opening in November 1977, with a memorable performance by the legendary Sammy Davis, Jr. David is indeed one of the greatest fund-raisers I know. The other is, of course, Torsten Wiesel, who raised hundreds of millions of dollars for Rockefeller University when he was President there in the eighties and nineties.

Anyway, David Paton got the plane ready to go in 1982 and, in part influenced by me, we were off to Guangzhou, China in October 1982, during Orbis’ first year of operation (Fig. 53). Of course, it had taken us 3 years before then to get the Chinese authorities to approve our entry, but that’s another story. In 1985, Dr. & Mrs. Paton and I travelled to Beijing and Shanghai again with Orbis. Since its inception, Orbis has been in China and many other nations numerous times. It is still an important clinical and educational vehicle for the prevention and treatment of eye diseases among the poor in the world. This year, Orbis fled to Guangzhou again to celebrate it's 30th anniversary of serving in China (Fig. 54)



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## David Paton and WEO

Around 1986, David left Baylor to pursue new challenges but we have kept in touch constantly for the past few decades. In 1999, I returned to Hong Kong after 35 years in America. Inspired by David Paton's philanthropic vision, I established the World Eye Organization (WEO; Figs. 55-57), whose main mission is to build eye centres to treat large number of poor and sight-impaired people, initially in China and subsequently elsewhere ([www.WorldEye.org](http://www.WorldEye.org)). Once again, I was blessed that both Torsten Wiesel and David Paton agreed to be the Founding Directors on WEO's Board. In addition, my dear friends such as Jackie Chan, Simon Yam, Winnie Fok, Vincent Cheng, etc. also became integral parts of WEO (Figs. 58-59). With mentors and friends like these, how can WEO not be successful?



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## **E. Mr. George Mitchell: Business and Philanthropy**

### **A Texas Legend · A Global Model**

Even among the many legends of Texas each with their legendary stories, Mr. George P. Mitchell stands out as a unique visionary leader with the best legendary life-story I know. I first met George in 1983 when I was a professor of ophthalmology at Baylor College of Medicine. My colleague Jared Emery and I had just discovered a novel non-surgical method to prevent secondary cataract using monoclonal antibodies. Normally such a technology or product would be licensed by Baylor to a large pharmaceutical company. However, those were the days when Houston, the energy capital of the world, was in a serious financial downturn, mainly because of low oil prices which triggered off other problems like rapidly falling real estate values, unemployment, etc. That financial crisis, while less severe than the current one, was still devastating to Texas and Houston. The state and city leaders suddenly realised that their economy could not rely on oil and gas alone. In other words, Texas in general, and Houston in particular, must diversify their industries. Because of the outstanding research programmes, out of which many innovative technologies and products regularly emerge, at Houston's Texas Medical Center, the city decided to start with building a biotechnology industry. Being one of the foremost business leaders in Texas, Mr. Mitchell was among the first to respond, by setting up a venture capital company to support this important effort, and by establishing The Woodlands Research Forest to house and foster start-up high-tech companies.

### **A New Texas Industry: Biotechnology**

After much deliberation, Baylor decided to form a company, Houston Biotechnology Incorporated (HBI), to commercialise our invention and other products. I was appointed HBI's chairman. Mr. Jim Elkins, Jr., another business leader whose father started the multinational law firm Vinson and Elkins, invested the first US\$750,000 in the company.

Mr. Mitchell learned about us and sent his venture capital team headed by Marty Sutter to discuss with us about investing in HBI. With Mr. Mitchell's support and Marty's ability in raising venture capital funds, US\$3 million was quickly injected into HBI, and our

company was recognised as the first biotech company in Texas. In addition, Mr. Mitchell wanted to meet me to convince us to relocate HBI's headquarters to The Woodlands Research Forest at The Woodlands, a 25,000 acre commercial and residential development, 27 miles north of Houston, that Mr. Mitchell had started in 1974.

### **A New Living Style: The Woodlands**

My first meeting with Mr. Mitchell was breakfast at 8 a.m. at The Woodlands Resort and Conference Center, a beautiful complex of meeting and dining facilities, hotel rooms etc. among tall pine trees and a lake. Like many self-made billionaires, George Mitchell is a man with great enthusiasm, energy and conviction. Though he spoke softly, yet he had amazingly persuasive power. He was also very direct in his objective; within 10 minutes of our first meeting, he asked me to help him build a high-tech industry in The Woodlands: "Moving your company and research labs to The Woodlands Research Forest would be a good first start," he said. After breakfast, George drove me around The Woodlands and showed me his creation: a community of natural beauty, environmental friendliness and great family living, complete with excellent public and private (run by his beautiful niece Marina Ballentyne) schools, shopping malls, office buildings, etc. where families can reside and work. George and his wife Cynthia also lived in The Woodlands, and their company, Mitchell Energy, was headquartered there. The Woodlands Research Forest was then in its infant stage, but was already anchored by the Houston Advance Research Center (HARC), a consortium consisting of 10 collaborative universities that George managed to lure there.

Naturally, I was very impressed with what Mr. Mitchell built in The Woodlands. In addition, for a person with two young children and a passion for fishing, tennis and horticulture, especially orchid growing, The Woodlands seemed like paradise – which it really was. However, I told George that while I would love moving to The Woodlands, I could not possibly have my company and home 35 miles away from my research labs at the Texas Medical Center. A number of meetings later, Mr. Mitchell offered that, if I agreed to move to The Woodlands, he would be pleased to donate land and built a Center for Biotechnology at The Woodlands Research Forest in which to house my labs and scientists I would recruit to the centre. He would also erect a new building for my company next door. Furthermore, he would sell me a piece of land of my choice at very low cost on which to build my own house. What a deal, especially coming from George Mitchell who was well-known to be a tough negotiator (it's probably difficult to build a multibillion dollar empire without being a tough negotiator). I mention this incident to reflect not only Mr. Mitchell's vision and dedication to achieve what he believed in but also his determination to go all out to attract people he believed could help him accomplish his goal. There was only

one slight problem: as an ophthalmology professor at Baylor, a position I did not want to relinquish, I insisted that the college must formally approve and support this plan. It took more than a year for Baylor to go through the due process, but eventually the approval came in 1984, and I was appointed the Founding Director.

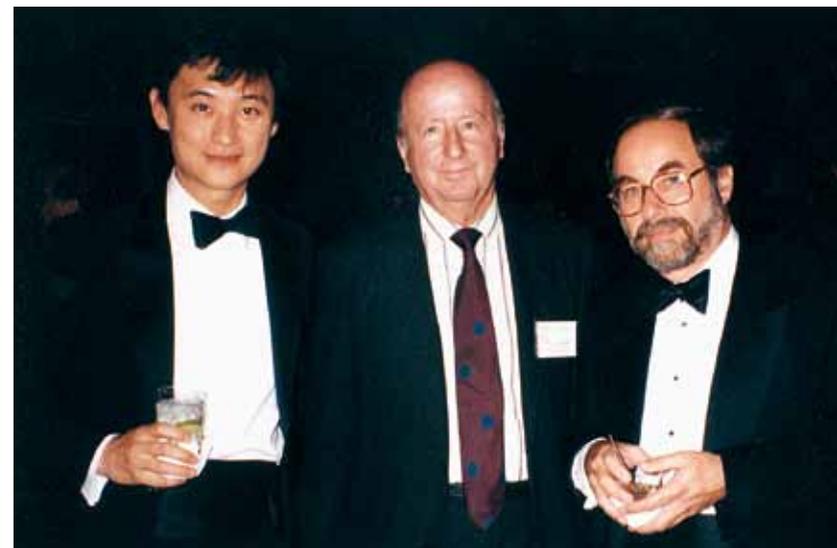
### **A New Centre · A New Company · A New House**

For half of 1984 and 1985, I participated in the design and construction of the buildings for Baylor Center for Biotechnology (CBT) and our company, as well as recruiting the best scientists and staff to the CBT and HBI. This exercise turned out to be invaluable when I started planning and building the Hong Kong Institute of Biotechnology in 1998. Recruitments of staff to BCT and HBI were very successful, in part because, like me, many of them were attracted to have their families located to The Woodlands. I also chose a piece of land next to a small lake and designed my 6,000 sq. ft. contemporary house amidst 50 ft. pine trees and 50 ft. from the lake, completed with a 1,000 sq. ft., detached and temperature controlled greenhouse as well as a separate duplex consisting of a large art studio and a guest house upstairs (Fig. 60).

By the summer of 1985, thanks largely to George Mitchell (Fig. 61), we had moved, almost simultaneously, into CBT, HBI and my home. By 1987, our move had inspired a number of other start-up biotech and infotech companies in Texas to locate close to us in The Woodlands Research Forest, creating high-tech industries in the area that continue to flourish to-day. These new industries also complement well with the hugely successful Texas Medical Center and the Johnson Space Center.

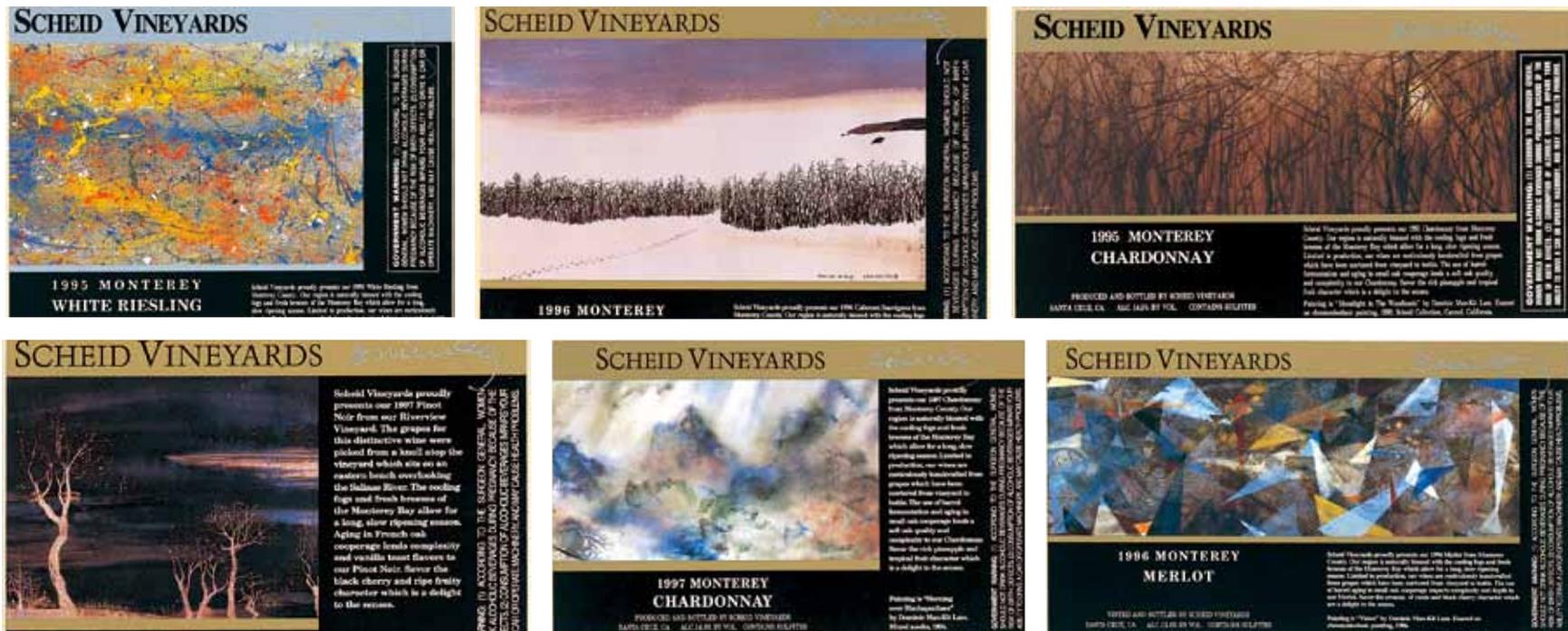


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Building start-up companies or institutions are, however, never easy. In this regard, I was fortunate to recruit Mr. Al Scheid, a Harvard MBA, to move from California to be HBI's President. Al is a financial wizard who had just helped another start-up, Cal Biotech, get established. Immediately upon arrival, Al began to build up a corporate infrastructure, including management and research teams etc. He also began to develop a master plan on the financial needs for the company. In 1987, Al succeeded to raise US\$30,000,000



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for HBI and subsequently took it public. Around 1989, HBI merged with another biotech company, making me financially independent enough to “retire”, meaning that I no longer had to work for a living. After Al left HBI, he started Scheid Vineyards in California and Subsequently took it public. He also collected my paintings and occasionally used them on his wine labels (Fig. 62).



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### Alice McPherson and Retina Research

On 12 March 1986, I dedicated the Alice McPherson Laboratory of Retina Research at CBT in appreciation of her leadership and vast contributions to retina research, ophthalmology and the Houston community. Simultaneously, I also established the annual Retina Research Symposium in her honour. My friend, Kathy Whitmire, Mayor of Houston, even proclaimed this day as Alice R. McPherson Day. Professor Torsten Wiesel's most insightful summary of the first symposium, attended by three Nobel Laureates: Sir Alan Hodgkin from Cambridge, Professor Gobind Khorana from MIT and others, said it all (Figs. 63-65). In total, we had 5 symposia, resulting in 5 memorable volumes of the leading-edge retina research by the most distinguished scientists of that era, all published by MIT. In particular, the second symposium and proceedings, in 1989, was dedicated to Torsten to celebrate his 65th birthday.



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## **Cynthia and George Mitchell: Up Close and Personal**

Whatever small achievements I have made in biotechnology, resulting in awards such as High Tech Entrepreneur of the Year, Asia Society Man of Year, the U.S. Presidential Medal of Merit, etc., I owe them to Mr. Mitchell for his advice, support and guidance. Although I might just be a pawn in his grand chess game of business and philanthropy, I was a happy pawn who also gained invaluable experience during this endeavour. Just as with my previous mentors Wiesel and Paton, I learned a great deal just by hanging around George and his wife Cynthia Mitchell, a most charming and compassionate lady. I got to know them quite well and we were very fond of each other. In addition to regular luncheons and dinners with them, for many years, my family was the only non-Mitchell family members invited to their annual thanksgiving reunion that lasted 2 days at the 5,000 acre ranch near The Woodlands. In fact, Cynthia told me that their ranch was originally called The Woodlands until the name was used for George's new development. Mr. Mitchell also told me that he had imposed a rule for his children (all 10 of them) that they must all be together at Thanksgiving every year, showing his great affinity to, and the importance he placed in his family. His children were, however, never spoiled and had to work for their living, because Mr. Mitchell did not believe in leaving them a great sum of money. His wish was for most of his vast fortune to go to charity and social entrepreneurship.

## **Mitchells and the Arts**

Both George and Cynthia Mitchell liked and collected my paintings – although George were more fond of the realistic ones and Cynthia the abstract ones. This was fortunate for me and my charities because they ended up buying twice the number of my works. Over the years, they had spent hundreds of thousands of dollars acquiring my paintings. I donated most of the proceeds to charities like the Retina Research Foundation, Association for the Homeless, plus several educational foundations and performing organizations, etc. Some of these paintings are still in their home, while others are hanging at various locations in The Woodlands.

Cynthia and George were also very supportive of the Performing Arts, so much so that they built their own magnificent performing arts centre, named The Cynthia Woods Mitchell Pavilion at The Woodlands. I was invited to be on its Board of Directors and the Pavilion opened with a star-studded gala weekend in April 1990. Since then, it has earned much praise from both artists and audiences, and is to-date recognised as one of the premium pavilions in the world. As a director, I was privileged to meet international stars such as Frank Sinatra, Barbra Streisand, Elton John, Whitney Houston, Celine Dion, Rod Stewart, and many, many others.

## **Don't Forget Your Roots**

George Mitchell never forgot his roots either. I remember George (or one of his friends) told me that his father was a Greek immigrant who had landed in Galveston with a last name of Popudoupolis. He worked as a construction worker but his boss told him to change his name or be fired because his boss could not pronounce "Popudoupolis". The next day, George's father asked his boss, "What is your last name, sir?" His boss answered, "Mitchell". George's father then said, "Sir, from now on my name is also Mitchell." True or false, it is a touching story of some of the difficulties that immigrants face when they first came to America, and how they must adjust to all kinds of adversities. George grew up in the coastal town of Galveston about 50 miles south of Houston. With lots of money, time and dedication, George and Cynthia managed to revitalise the town into a major tourist attraction, including the revival of the mid-winter Mardi Gras celebration, which now attracts over 500,000 visitors annually. My family and I had the pleasure of attending these festivities regularly.

## **Georges the Fishermen**

On occasion, knowing that I loved to fish, George also took me fishing. One particular memorable moment occurred on a hot and sunny summer day in 1990, when my family and I visited George's home right on the bay in Galveston. After lunch, with the temperature reaching 95°F (~35°C) or more, George and I went out to the pier in front of his house. He put a dead shrimp on the hook and I cast the line into the water. Five minutes later, I felt a strong jerk on my line and started to reel it back as fast as I could. Suddenly I heard George yelling excitedly, "It's a big redfish". When the 8 pound fish was landed, we were very happy and George said, "Dominic, you are the luckiest man I know. It is quite difficult to catch a big redfish in these waters. And certainly no one has ever caught a redfish with a dead shrimp in the 95°F degree heat at noon." We even took a photo of the redfish and I sent it to the White House where our mutual friend George H.W. Bush, himself an avid fisherman from Texas, was president. At that time, I was a member of President Bush's Committee on the Arts and Humanities (Fig. 66), where David Paton's lovely wife Dianne was the Executive Director. I thought that perhaps this George, with the Gulf war, the weak economy and other global and domestic concerns occupying his mind, would prefer to be in Galveston fishing with us instead. Looking back to-day, this episode reminded me of a famous poem by the talented poet but tragic emperor Li Yu (李煜):

## The Fisherman

*A thousand layers of snow purposely whipped up by the waves*

*As while plum and peach blossoms silently march in Spring*

*A bottle o' wine*

*A fishing pole*

*I envy you Mr. Fisherman*

*Who in this world is as happy and free as thee.*

Translated by Dominic Lam



## **W.**

Just last night (24 March 2009), I saw Oliver Stone's thoughtful movie *W.* at its Hong Kong premier (Figs. 67-68). My dear friends Richard Hung and others even had a long chat with Oliver at Four Season Hotel's Blue Bar afterwards. At 3 a.m. when we parted, I became even more respectful of President George H.W. Bush, a brilliant and compassionate world leader who not only had to deal with the difficult global and domestic issues during his own administration, but was probably concerned of his son's as well.

## **George and Cynthia Mitchell: An Appreciation**

Taken together, through his own example and a few words of wisdom which I still remember deeply, George Mitchell has been a great mentor to me, both as a philanthropist and as a businessman. As philanthropists, George and Cynthia are the most generous and compassionate people I know. These noble qualities emerged from their passion and strong desire to improve other people's lives. Their charitable contributions totalling hundreds of millions of dollars in many areas have indeed made vast differences to the quality of life for Texans, especially those fortunate enough to live between Galveston and The Woodlands. They contribute a lot but live modestly and unpretentiously. In business, George Mitchell's vision, knowledge and courage, my Golden Triangle Rule that spells success, remain my guiding light in investment to this date. I remember vividly George telling me that I should sell some of my shares, and even my companies, when they were doing well and when the price was right. I have heeded his advice and gained financial independence at a young enough age to do what I like to do, rather than what I have to do.

## F. My Mentors in Art

I have had many mentors in art throughout my life. Although most of them never actually taught me how to paint, I learned through observing how they plan and execute their works. I also observed up close and personal their passions towards art and compassion towards man and nature. They also all have a child-like curiosity that never age. My experiences with all my mentors would require its own monograph. I include here several articles such as an article the written by the great Master Guan Shanyue (關山月), and an article by Professor Laurence Tam.

### 1. Brush Ink Friendship 翰墨緣

My acquaintance with Professor Dominic Man-Kit Lam (林文傑), both as his mentor and as his friend, began more than twenty years ago. The experiences that we share is a unique and legendary story.

Professor Lam was born in Chaoyang, Guangdong, raised in Hong Kong, and pursued his higher education in Canada and the United States. Professor Lam continued his post-doctorate studies and was on the faculty at the Harvard Medical School before becoming Professor of Ophthalmology and Director of the Center for Biotechnology at Baylor College of Medicine in Houston, Texas. In 1980, he was invited to be visiting professor by Dr. Sun Yat-sen Medical University, resulting in regular visits to Guangzhou. During one of these visits, he expressed his wish to meet me. The president of the university conveyed this message to me. I was delighted when Professor Lam first visited my home. We very much enjoyed each other's company and immediately became good friends. He showed a deep passion for Chinese culture, even though he was an eye specialist. He was particularly interested in painting and growing orchids. From then on, Man-Kit visited me every time he came to Guangzhou. He painted in my studio often and we did many collaborative paintings. Among Professor Lam's numerous visits, I was most impressed by his bringing Project Orbis, the international flying eye hospital, to Guangzhou for the first time in October 1982.

On 29 December 1982, I hosted a banquet at South Garden Restaurant of Guangzhou to celebrate the birthday of my wife, Li Shaoping (李小平). It was an occasion reserved for family members only. Since Professor Lam was at my home, he was therefore the only friend invited to the gathering. Before dinner, he secluded himself in my son-in-law's painting studio. He painted a few strokes of spring orchid on a four-foot rice paper. At the banquet, Man-Kit mentioned that he was going to Taiwan via Hong Kong

the following day. He wished to visit Master Zhao Shao'ang ( 趙少昂 ) in Hong Kong and Master Zhang Daqian ( 張大千 ) in Taipei. Man-Kit also expressed his desire to collaborate in a painting with Shao'ang, Daqian and myself, as a symbol of the unity of the Chinese people around the world. This was especially meaningful at the time because the Chinese and British Governments were then hotly negotiating about the return of Hong Kong's sovereignty to China in 1997. I loved Man-Kit's idea and mentioned that in the early 40s, when I was just a poor and unknown artist, while Zhang Daqian was already a famous painter, he came to my exhibition in Chengdu and purchased my most expensive landscape painting. I also told Man-Kit that "I was most grateful for his support. From then on, I visited him often. Not only did he possess profound knowledge and skills in poetry, calligraphy and painting, achieving the highest stature as a Chinese painter, Master Zhang was also very generous and always ready to help others. He regularly sustained the livelihood of about 10 students through the sale of his paintings. He loved his friends, was very sociable and popular, thus his home was always thronged with guests. After we won the war in 1945, I returned to Guangzhou, and did not see or communicate with him ever since. I missed Daqian so much. When you see Master Zhang in Taiwan, please give him my regards." On a New Year greeting card, with my painting of red and white plum blossom, which I had just received from Beijing, I inscribed, "Ten Thousand Blessings to Master Daqian, and Forever Youth to his Art". I gave the card to Man-Kit and said, "By the time you arrive Taiwan, it will be New Year. Please give this card to Master Zhang and express my blessings to him."

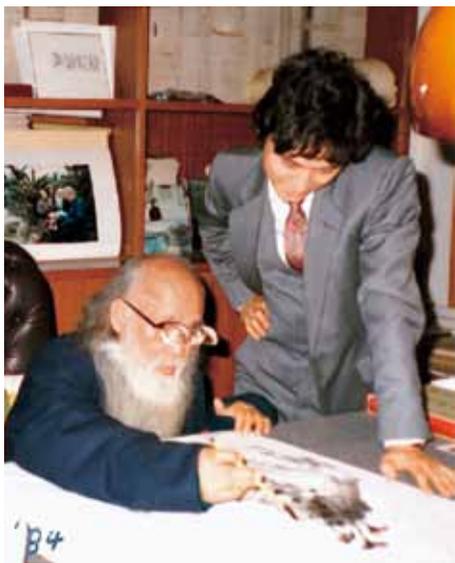
On 1 January 1983, Man-Kit brought with him his incomplete spring orchid painting. He first visited Zhao Shao'ang's home and told him about the idea of the collaborative painting (Fig. 69). Zhao, another mentor and dear friend of Man-Kit, was also very fond of the idea. He immediately painted bamboo with a bamboo shoot to symbolize vitality, and stamped the painting with a seal engraved for him by Qi Baishi ( 齊白石 ).

After 2 days, Man-Kit visited his first mentor from Los Angeles, Master Zhou Shi-xin ( 周士心 ), and Lam's orchid friend General He Yingqin ( 何應欽將軍 ) in Taipei. Man-Kit told them about his plan and they supported the idea completely. General He even made an appointment for Man-Kit to visit Zhang Daqian at 4 p.m. the following day. When Man-Kit arrived at Master Zhang's home, he was so pleased to see my New Year card and said, "Master Guan is a long-time-no-see good old friend of mine!" When Man-Kit told him the idea of the collaboration and showed him the incomplete painting, he stroked his beard, smiled and said, "You are such an enthusiastic and thoughtful young man, connecting us old friends together through this painting and after such a long period of separation." Zhang happily added ganoderme and rock on the painting and said, "The rock represents longevity, and the ganoderme must have red leaves to provide good health and long life." (Fig. 70) He thus added two red leaves. Immediately this ink painting was transformed into a colored one.

After leaving Taiwan, Man-Kit returned to the States and he came back to Guangzhou on 11 March 1983. He was keen to invite me to complete the painting. However, I was in Hong Kong then to open an exhibition of 4 Lingnan masters (Zhao Shao'ang ( 趙少昂 ), Guan Shanyue ( 關山月 ), Yang Shanshen ( 楊善深 ) and Li Xiongcai ( 黎雄才 ). Fortunately, Mr. Wang Kuang ( 王匡 ), Director of



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Xinhua News Agency in Hong Kong and his wife visited Man-Kit at his hotel. Professor Lam told Wang Kuang about this collaborative idea. Wang was very pleased to help and said generously, “No problem. Just give me the painting and I’ll take it to Hong Kong tomorrow and ask Master Guan to complete it.” Not surprisingly, once Wang Kuang arrived in Hong Kong, he invited me to his home. When I saw the ganoderme and rock on the painting, I felt like seeing my old friend and was deeply moved. Immediately, I painted a plum blossom branch on the upper right corner of the painting (Fig. 71). The painting was then finally completed (Fig. 72) and was returned to Man-Kit by Mr. Wang.

Unfortunately, Zhang Daqian never saw the completed collaborative work, and the ganoderme and rock became this great master’s final strokes. On 2 April when Man-Kit was flying from Hong Kong to Houston with this nicely mounted painting (by Yong Bao Jai, 榮寶齋, Beijing), the master passed away that morning in Taipei. The news of Zhang Daqian’s death was a terrible shock to me and I was naturally deeply saddened. Looking back at our past friendship, I composed a poem in remembrance of my dear old friend: “In Dunhuang we made our acquaintance. With this new painting we are reconnected. The Heavens are envious of the beautiful ganoderme and rock. Across the strait I weep the loss of Daqian.” I also appreciate that, without Professor Lam Man-Kit’s enthusiasm, sincerity and good fortune, Master Zhang and I could never have this last chance of communication, or this historic collaboration. Now I am consoled that even though Daqian and Shao’ang have both passed away, their art will live forever.

My experience with Man-Kit is not limited to China. We also traveled together extensively to the other side of the Pacific Ocean – United States and Canada.

In the autumn of 1984, at the arrangement of Man-Kit, my wife and I, together with Master Yang Shanshen were invited by four U.S. universities to give lectures and academic exchanges. His student William Lau (劉孟寬) also accompanied us. It was my first visit to the U.S. As soon as we got off the plane in Los Angeles, Man-Kit was right there waiting for us. He and our mutual friend, Mr. Jack Li (李時佑) took us to the San Diego Zoo, where we were very lucky to see a new-born white tiger. Master Yang’s was especially excited since tiger was his favorite painting subject. We then moved on to Las Vegas where we celebrated my birthday. Aboard a small airplane, we toured Grand Canyon and were in awe with its majestic presence. The next stop was Houston, Texas where Man-Kit was an ophthalmology professor. Man-Kit’s home was a huge 2-storeyed greenhouse where he grew thousands of orchids. I therefore named his home “Tranquil Orchid Home”(幽蘭居). It was also Master Yang’s birthday then and Man-Kit’s son Fong (林風) who was 6 years of age played “Happy Birthday” on the piano as his sister Yee (林漪漪) and all of us sang along. We also lectured and demonstrated our painting at the famous Texas Medical Center, the world’s largest medical center. A week later, we flew east and visited Washington D.C., Niagara Falls, New York, Boston, etc. We lectured at Harvard and New York University, visited many great museums and saw a number of national monuments and sites of natural beauty. We later headed to California, toured its many artistic and scenic sites before heading home from San Francisco. This one month trip was one of my life’s most memorable experiences and I am most grateful to Professor Lam for his most thoughtful and meticulous organization. In particular, our lectures

and dialogues greatly enhance the mutual understanding of Sino-American cultures and led to friendships and exchanges that have continued to this day. Our museum visits opened my eyes to the great works of the west. The beautiful natural beauty of North America is also very different from that in China and influenced my subsequent landscape paintings. We were particularly thrilled to paint at the National Yosemite Park and visit the former home of Zhang Daqian at Pebble Beach.

In 1990, my wife and I together with their daughter Guan Yi (關怡) visited North America again. Man-Kit had already moved to his new home at The Woodlands, a most scenic suburb of Houston. His huge and elegant house, which he designed, was situated in a jungle of sky high pines and next to a lake. There were also a large green house for his orchids and a detached art studio. Man-Kit and I fished by the lake and cooked our prey at his home.

In 1997, after the return of Hong Kong to China, Man-Kit moved his charitable and business operations back to Hong Kong. We then had more chances to see each other. We met in Hong Kong in 1998 at the “Guan Shanyue Exhibition” which celebrated the 1st anniversary of Hong Kong’s return. This summer, Man-Kit also participated in my “Exhibition of Guan Shanyue’s Recent Work” held in Beijing and Guangzhou. In 1999, I did a painting of red plums entitled: “Our Nation Celebrates its 50th Anniversary; Mankind Cheers a New Millennium” for the cover of his 2000 calendar. Last week Man-Kit and I were at the art exhibition of my mentor Gao Jianfu’s (高劍父) held at the University of Hong Kong. I am also delighted that on 25 December, I will open Man-Kit’s one-man exhibition entitled “A New Millennium, A New World” at the Guan Shanyue Museum in Shenzhen.

This year is the golden jubilee of the founding of the People’s Republic of China, as well as the beginning of a new millennium. We are really blessed to witness this unique double happiness. This article reflects my personal experience of Professor Lam Man-Kit’s deep passions to art and to his friends, which I am pleased to record.

*Guan Shanyue*

22 December 1999

At the Book House across the Mountain

Guangzhou

Translated by Dr. Vanessa Li and Dr. Dominic Lam

## 2. Homage to Ju Ming

A major turning point in my artistic development occurred in October 2000, when my dear friend and great art critic Chang Tsong-zung (張頌仁) introduced me to Master Ju Ming who was in Hong Kong to open an art exhibition and give lectures (Fig. 73). I gave him my new art book entitled “A New Millennium A New World” (傳情新紀元) and asked for his advice. Upon studying my works, he felt that my themes were too broad and disorganised, and my techniques too varied, for most people to grasp the essence of my works. He suggested that, first, each



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exhibition and art catalogue should consist of only one theme, so that both the audience and critics could better appreciate and resonate with my works. Second, just as his own mentor, Master Yang Ying Feng (楊英風), had taught him, I should concentrate on a major theme based on what I am most familiar in real life. Master Ju told me that was why and how he developed his signature “Tai Chi” series, which is now world famous. When Master Ju was young, his health was poor and his mentor suggested that he practised Tai Chi, which he began to do every day, and which in turn inspired him to portray the forms, movements, and most importantly spirit, of Tai Chi in sculpture. In order to develop his own unique style, he often used styrofoam as the starting material for his bronze sculptures to highlight the varied points, lines and planes in these works, while maintaining the same style in his works on wood.

I was most delighted when Master and Mrs. Ju Ming invited me to learn sculpture and develop novel artistic ideas at their homes in Taipei and Qingyuan (清遠 in Central Taiwan). Over the next two years, I visited them many times, always stayed with them, and used the same tools and materials that Master Ju himself used. On several occasions, Master Ju also drove me to the Ju Ming Museum

(朱銘美術館 [www.juming.org.tw](http://www.juming.org.tw)) in Taipei County, about an hour drive from the city. This is a grand and ambitious project, covering hundreds of acres, which is now a landmark for art lovers from Taiwan as well as for tourists, attracting hundreds of thousands of visitors each year. Amazingly, this museum was constructed and operated almost entirely using the income generated by Master Ju Ming's works, with little government or public support. This massive project once again demonstrates what the determination and courage of a single individual could accomplish. The museum is home to the largest, as well as some of the best, works by Master Ju Ming, illustrating elegantly not only the beauty and impact of his works, but also the harmonious co-existence of art and nature, as well as how art can enhance the beauty of a landscape and vice versa.





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### Truth · Kindness · Beauty

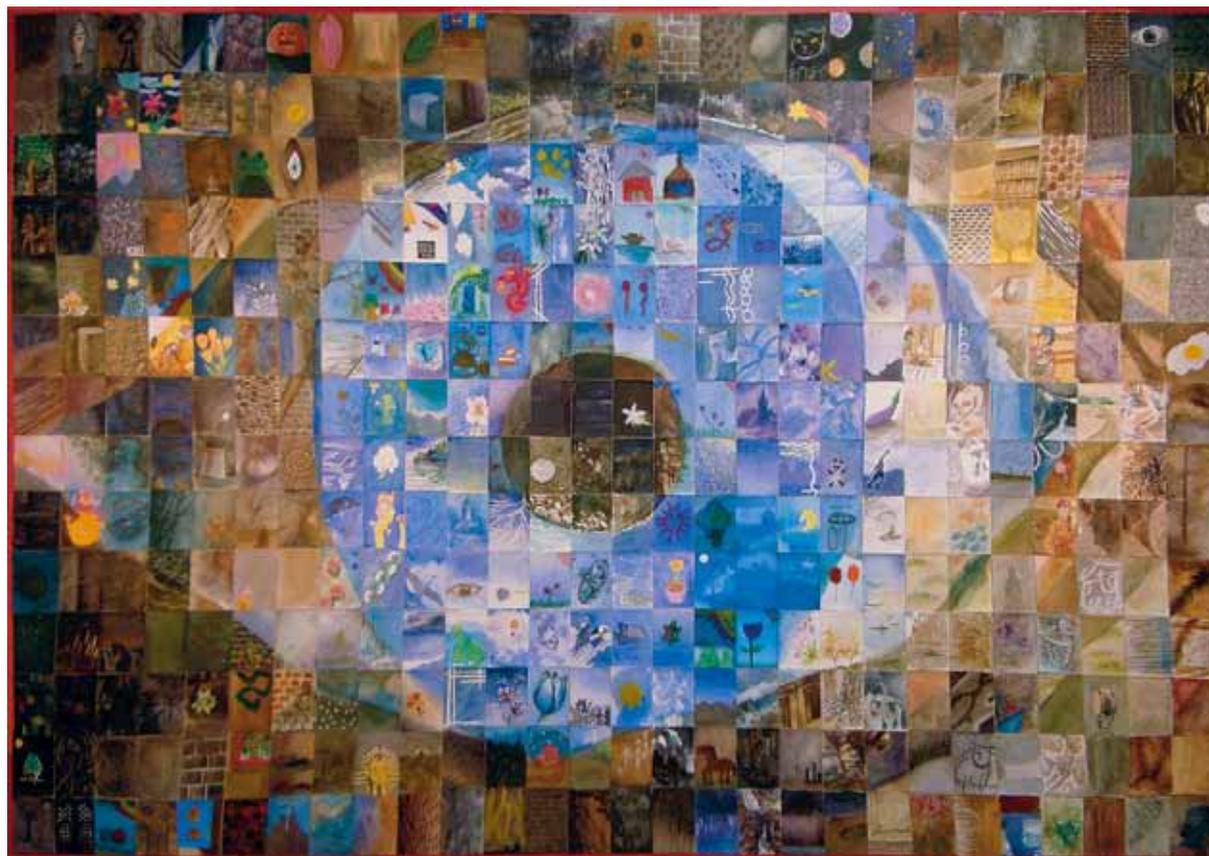
In August 2001, Master and Mrs. Ju Ming were in Qingyuan where they have a summer home with a huge art studio. I stayed there for 2 memorable weeks, watched him work and even drove up to the mountain top at 4 a.m. to watch the beautiful sunrise. In his studio, Master Ju Ming told me that in his opinion, good artistic creations should be based on truth (真, or familiarity), kindness (善, or compassion) and beauty (美). He also suggested that since I had spent 30 years in vision research, this must be a subject that was most familiar and passionate for me. He therefore suggested that I focused on painting a series based on the eye and visual processing. Right there and then, Master Ju spread out a 4-foot. piece of paper on his huge table and asked me to paint the retina. He not only watched me paint but also occasionally put some scribbles or English letters on my paintings to illustrate his point (Fig. 74). This was certainly as hands-on education as I ever had. Over the next several days, I created a total of five paintings, much to Master Ju Ming's delight.

On 7 September 2001, I returned to Master Ju Ming's home in Taipei to further my artistic study. On 11 September, I produced a sculpture of which I am most fond of this day (Fig. 75). I flew back to Hong Kong that evening. When I got home, I customarily tuned in to CNN to see what was happening in the world. Shockingly, I witnessed, live and in colour, the atrocities of 911 as they were unfolding. I therefore named this sculpture which I created on that day, Peace: Homage to the Heros of 911 (Fig. 76).

## Art of Vision

For the next few years, I focused my paintings on vision and the eye. An example of this endeavour was when I decided to produce a symbolic painting for WEO in 2002, I met with my good friend Mr. Kinsan Chung, who together with 106 of his art students and myself, did a collage work of the eye entitled “A Hundred Visions” (Fig. 77). Another example is a painting I did in 2004 celebrating and honoring my Harvard mentor, Nobel Laureate and great art lover, Professor Torsten Wiesel’s 80th birthday (on preface). This collage, entitled “*The Bliss of Vision: Homage to Professor Torsten Wiesel on his 80th Birthday*” is my semi-abstract interpretation of his major scientific achievements, and contains clippings from our research publication.

In the winter of 2004, I began to think about painting the eye and the visual system using the Chromoskedasic process, a novel method of producing colour images using black and white photographic paper and solutions alone (see “Scientific American”, November 1991). I felt strongly that since I had invented the Chromoskedasic process, it could be my main artistic tool or hardware, and the visual system would be my artistic path or software. The first work that I liked appeared in early 2005 and is entitled “Eye on Universe I”, clearly depicting the frontal view of an eye. Many hundreds of various attempts later, I ended up with numerous similar images, some of them resembled stars more than eyes. These works naturally led to my “Starburst” and “Many Moons, Many



Universes” series. They were also best at showing the uniqueness of Chromoskedasic painting, which produces colour by light scattering, just as the stars and universe do (Please refer to “*Dialogue: Amalgamation of Painting and Photography by Dominic Lam and Simon Yam*”, published by Education Bureau of The Government of the Hong Kong Special Administrative Region.

### **Nine Court Diagram**

Having painted all these circles representing eyes and/or stars, I began contemplating a deeper meaning for the works. In the summer of 2005, when Chang Tsong-zung first saw these paintings, he suggested that I explore their relationships to Chinese philosophy, especially “Nine Courts” and “I Ching” that originated several thousand years ago. I read through hundreds of books and articles and felt that Johnson’s recommendation was insightful and wise. Furthermore, I discovered that the circle as a geometrical form has always had magical meanings and characteristics, as elegantly described in an article entitled: “Opening Doors of Perception” by Jonathan Thomson (The next article). Hence, a number of “Nine Courts” paintings represented by a variety of circles, colours and other dimensions were born.

Taken together, I have gained a great deal of artistic insight and technical skills in both sculpture and painting from Master Ju Ming. In particular, I consider my series of paintings, my “Vision” as well as “Nine Courts” the direct fruits of Master Ju Ming’s thoughtful teachings. To him, I am forever indebted.

*Dominic Man-Kit Lam*

### 3. Opening Doors of Perception

In the work of the Hong Kong painter Dominic Man-Kit Lam the worlds of modern art, scientific discovery, and technology are inextricably linked. His art reveals to us new ways of seeing the world personally and cosmically.

In his recent series of “Nine Courts” paintings, Dominic Lam has achieved a breakthrough, not just by merging art and science, but by seeking and finding deeper cultural and philosophical meaning in his work.

The disc has been an important motif in Chinese culture for thousands of years. Jade discs known as “bi” were buried in tombs as important ceremonial and ornamental items from Neolithic times onwards. Their meanings and cultural significance are complex and have been confused by misreadings in later texts including the “Zhou Li” but all are concerned with relations of power. These include the power of an individual or class made visible through ornament, the power to communicate with spirits and the power to control them in death and the power of cycles, seasons, and the cosmos. The disc is also an important symbol in Taoism. An important aspect of the Tao is its state of perpetual motion. “All things, as they come into being and develop, progress through a series of changes moving persistently to a return to the state of non-being, the primal unity, and source of all things”. The basically circular movement of Tao confirms the idea of heaven as round, symbolized by the circle.

Lam is particularly interested in a motif comprising a series of disc set out in a three-by-three grid. This is a powerful symbol and carries a range of cultural and philosophical meanings. For Lam, the Nine Court Diagram is a crystallization of Chinese philosophy and culture. “In one single representation the Nine Court Diagram provides a platform that relates to astronomy, geography, seasons, colors, the cardinal and secondary points of the compass (plus the center), astrology, numerology, even human relationships, health, etc.”

There are many examples of this motif in Chinese culture. The simple square divided in a three-by-three grid pattern is the supposed architecture of the Mingtang (Palace or Hall of Lights) which dates from the Zhou period (771 – 221 BC) and represents the center from where the emperor rules like a shining light. It is a design brought down from heaven and a reduced plan of the entire universe. Its first floor is square and its second floor is round. The “lou shu” is a magic square on a three-by-three grid where the numbers from one to nine are arranged in such a way that the three numbers on any vertical, horizontal, or diagonal line will add up to fifteen. It is a symbol of metaphysical and spiritual harmony. The three-by-three grid is also the palace at the heart of each side of the board in “xianqi”, or Chinese chess. The “ba gua” is the traditional formal arrangement of the eight trigrams of the “I Ching”.

Lam’s Nine Court Diagram is a set of nine square Chromoskedasic paintings arranged in a three-by-three grid. The origins of the

Nine Courts (or “jiu gong” and also known as the Nine Palaces) predate the “I Ching”, the “ba gua”, and the “luo shu” but share many of the same attributes. The colors, surface patterning, texture, tonal range, and definition of each of Lam’s segments relate to these attributes. The eight cardinal and secondary points of the compass are arranged around the outside. At the center is Earth, the place where every living thing resides.

The three-by-three grid is also the basis of the three in a row children’s game known as noughts and crosses or tic-tac-toe. In this game, if the usual three-by-three board is used, a draw can always be obtained. Perhaps this is another metaphor for the dynamic balance that is at the heart of Taoism. Lam expects to continue to explore his interests in the I Ching and Nine Courts and to combine that with his artistic process. He hopes it will be the culmination of his work. “There are very many branches of development that are waiting to be explored. All I have done is to open the door.”

*Jonathan Thomson*

Excerpted from “Asian Art News”, January/February 2006

#### **4. A Rare Spark of Artistic Talent: Professor Dominic Man-Kit Lam**

Modern discussions on artistic theories and accomplishments often maintain the Western emphasis on individuality and creativity. However, this view had already been expressed in China as far back as the fifth century by a well-known art critic, Xie He ( 謝赫 ). In his book entitled “The Review of Ancient Paintings”, Xie outlined six logical rules of painting. The first and foremost rule is the prerequisite “creative spirit” of the artist. The other five rules were complement to the first rule. Around AD 440, Wang Wei ( 王微 ) observed that “what moves the mind is the heart”. Many other art critics, such as Zhang Yan Yuan ( 張彥遠 ~847) and Shi Tao ( 石濤 1625-1705), upheld the importance of the ‘heart and soul’ as the utmost and overriding factor of success for painters and calligraphers.

Art and science are two markedly different disciplines of knowledge. However, artists and scientists both belong to people with creativity and spirit. Although the emphasis of science on analysis and art on expression are different, they share a common goal: creativity. Professor Lam is a world-renowned scientist, yet he is undoubtedly also an artist of great creativity. He is an embodiment of these two disciplines and more. His achievements as an ophthalmology research professor resulted in a large number of publications in prestigious journals such as Nature, and many international patents. This experience, together with his philanthropic work over the past 25 years to rescue the blind from the dark, have probably shed light on his unyielding search for the spiritual enrichment and satisfaction that give him inner strength and intellectual power. His pioneering discoveries about how the eye and the brain work, as well as his discovery of the “Chromoskedasic Process” (see Scientific American, November 1991), have facilitated in his artistic manifestation, resulting in the amazing spectra and contrasts of motion and stillness, fullness and empty space, as well as colors, shades and hues that have never before been achieved. His poetic expressions, which have long been cultivated through his intense interests in Chinese poems, have filtered through and harmoniously merged with his paintings and calligraphy.

The ingrained tradition of Chinese calligraphy is that the strokes and flow of the brushes should follow certain established rules. Chinese characters have long been recognized and used for the mission of artistic expression side by side with the practical means of communication and exchanges of ideas. The unlimited flow and flexibility of the strokes portrayed in Lam’s calligraphy and painting provide considerable insight on the kind of person he is and the capability he possesses to contribute to Chinese art. The unique style of Professor Lam’s calligraphy impressed me tremendously because he has broken loose from the traditional ways of controlling and manipulating the calligraphic strokes and set himself free in the terrain of Chinese art.

In August 2008, I was delighted to come across Professor Lam’s 2006 book entitled “Dominic Lam’s Choice: I. Poetry from Early to Mid Tang Dynasty”. His 50 calligraphic works and English translations struck me as incredibly unconventional. He motioned through the light and heavy strokes - meandering, speeding and gliding - swinging himself through a kind of pictorial and heavenly trip with strong mobility. It is more than just poetic expression. One cannot take his or her eyes off the dancing and flowing of the strokes



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which are so flexible and yet so connected. “What kind of artistic skills are we looking at?” I remembered asking myself.

Having had my curiosity aroused, I asked to visit his art studio and watched him paint. My experience there shed more light on his artistic expression. Professor Lam, utilizing his dexterity to coordinate his eyes, mind and hands, managed to reinvent traditional Chinese calligraphy: The conventional way of stroke sequence from left to right and from top to bottom was not followed. He sometimes painted up-side down, with his left hand, and on occasion, he even closed his eyes to let his strokes follow his mind without any visual

input. For Lam, this exercise was not done aimlessly or for novel effects. Rather, it was to allow him to create his own calligraphic style from his mind, with little or no input from his eyes or previous experience. In this manner, the baggage from past masters is discarded in favour of total calligraphic creativity and freedom.

I paid particular attention to Lam’s facial expression while he immersed himself in calligraphic writing (Fig. 78-79). I deliberately observed how he placed his first stroke for each character. He favours long, slim brushes which he stroked on the rice paper from a slanted angle. He also used ink of different concentrations placed at different parts of the brush. His first stroke struck decisively and powerfully on the paper, setting the tone for the entire character. He then focused sensitively on the touching point of his brush and the paper, trying to achieve the design desired from his mind and not just from his eyes. In addition to carefully creating each Chinese character, he also paid particular attention to the design of the whole calligraphic painting, emphasizing on the spatial distribution of all the words, big or small, dark or light on the paper. Like a sculptor, each character he “carves” represents a graphic expression that Lam finds pleasing and each completed work is like a sculpture. Taken together, Lam’s mind determines all and all depends on Lam’s spontaneous intuition at the moment of his creation.

I am very pleased that, with my encouragement, Professor Lam has now decided to publish the second volume of this series: “Dominic Lam’s Choice: II. Poetry from Mid to Late Tang Dynasty”. This book represents his continued exploration of the unlimited creativity inherent in Chinese poetry, calligraphy and painting (詩書畫). I trust that this series will not only bring joy to its readers but also inspire our youth to be more proactive in their pursuit of Chinese art and culture.

*Laurence Chi-Sing Tam, MBE*  
Founding Chief Curator, Hong Kong Museum of Art  
Autumn, 2008

## G. Professor Yang Chen Ning: An appreciation

A memorable experience of my Harvard days was when Professor Yang Chen Ning visited his good friend Stephen Kuffler and our department in 1971. Of course, Professor Yang has been a scientific legend, especially among the Chinese, ever since he received the Nobel Prize in Physics in 1957. Since I had just been a theoretical physics student, I looked up to him like a god. I still remember my hands shaking even as I was shaking his hand. Professor Yang visited our department because he had always been interested in biology. Little did I know that on that fateful day, I had developed a mentorship and friendship with him that would last until to-day.

The first memorable encounter occurred in 1983 after the famous collaborative painting of Zhang, Zhao, Guan and I was completed (Fig. 72). I went straight to Professor Yang's residence at the Chinese University of Hong Kong (CUHK) and showed it to him, his mother and other members of his family. Professor Yang was very pleased to see it, because as a seasoned art connoisseur and collector, as well as a patriot with a global perspective, he understood right there and then the artistic and historic significance of the painting.

Early in 1988, Professor Yang Chen Ning visited me and saw my operations in The Woodlands. Upon return to Hong Kong where he was a Honorary Professor at the Chinese University of Hong Kong (CUHK), he discussed with Professor Charles Kao (awarded Nobel Prize in Physics, 2009), CUHK's Vice Chancellor, about the development of a high-tech, especially biotech, industry in Hong Kong along the model of The Woodlands Research Forest, and further suggested that Hong Kong Institute of Biotechnology (HKIB) be established. They invited me to Hong Kong and, while standing on a hill at CUHK, we selected a site on Tolo Harbour across CUHK as the possible site for HKIB. I accepted their invitation to be HKIB's Founding Director. After some difficulty, we received HK\$170,000,000 from the Jockey Club of Hong Kong. So, 4 years after I had started The Woodlands project, I was trying to repeat the model, this time in Hong Kong. I remember well Professor Yang's comment then, "If I were a graduate student to-day, I would choose biology".

I ended up spending half of my time for 4 years building HKIB, travelling between Houston and Hong Kong every month. HKIB recently celebrated its 20th anniversary, well managed by my old friend Professor Walter Ho as the current director. It is also gratifying

that, to-day, 20 years after the founding of HKIB, the Hong Kong Science Park, a 2 mile stretch of buildings filled with high-tech companies stand next to HKIB, reminding people that this is the result of the vision of Professors Yang and Kao who had started it all.

On 1 October 1999, Professor Yang and I celebrated the 50th anniversary of the People's Republic of China together by watching the parade at Tiananmen Square (Fig. 80). The next day, many of his friends, including Vice Premier Li Lang Qing (李嵐清副總理) and I celebrated the opening of the Institute for Advanced Studies (Fig. 81) at Tsinghua University (清華大學), which he established when he decided to move back to China permanently. Professor Yang had spent many years at the Institute for Advanced Studies in Princeton University, where a number of fundamental scientific discoveries had been made. Even Albert Einstein used to work there.

I am sure that he wished that the most innovative research would be done at his new institute. However, when we visited the labs at his institute, we discovered that most of the projects there were not research originated by the investigator. Rather, they were continuation of studies that these scientists had done while in their mentors' labs overseas. Perhaps that is why, at his inaugural lecture that day Professor Yang thoughtfully commented, "I hope that when we visit these labs again, our scientists can tell us that their studies and discoveries originated at Tsinghua." I was deeply moved by his speech, as well as by his long-standing and outspoken patriotism to China, even at times when it was not popular or advantageous to do so.

In December 1999, Professor Yang came to my office, saw my paintings, and inscribed on my guest album, "Man-Kit's paintings have both inspiration and techniques. No scientist in history has ever had such skills. Yang Chen Ning, December 1999" (Fig. 82).

In December 2001, I was invited by Ambassador Feng Shushen (馮樹森大使), Director General of Diaoyutai State Guesthouse (DSG)



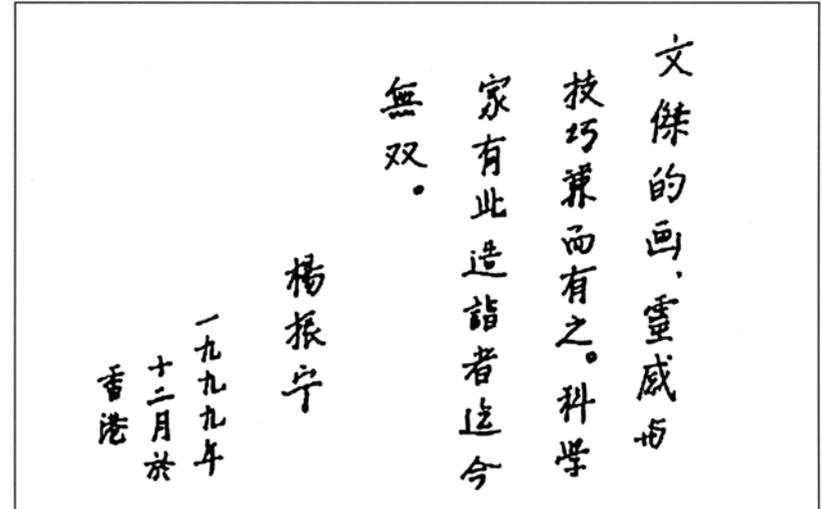
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in Beijing to paint two large works, entitled “This Land is our Land” (錦繡河山; 2.5 m x 9.5 m; Fig. 83) and “A Galaxy on Earth” (九天銀河; 8.0 m x 8.8 m; Fig. 84) for permanent display at the DSG. At Christmas time, my children Yee Yee and Fong visited me there (Fig. 85) and watched me paint those works (Fig. 86).

In 2004, I visited Professor Yang’s home at Tsinghua and had a collaboration with him: I wrote the calligraphy on one of his recent and most touching poems (Fig. 87). On 30 August 2004, Professor Yang and Ms. Deng Lin (Fig. 88), the eldest daughter of Mr. Deng Xiao-ping, visited Diaoyutai State Guesthouse in Beijing to see “This Land is our Land” and “A Galaxy on Earth”. Professor Yang told me then that “This Land is our Land” was my best painting that he had seen. In 2007, Professor and Mrs. Yang visited me at the Convention Centre in Hong Kong, where we reminisced on our past forty years of friendship.



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Certainly I am grateful for, and indebted to Professor Yang's compliment. His encouragements have meant the world to me. More significantly, I adore Professor Yang not just because of his outstanding scientific achievements, but also for his passion to art and his unconditioned love for his nation.

*Dominic Man-Kit Lam*



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## H. My Two Favorite Inventions:

### 1. Edible Vaccines

# HEALTHY SNACKS

Vaccines you eat will make immunization less painful and more accessible worldwide.

**1.** Researchers isolate the gene for a protein on the surface of a virus. The viral gene is inserted into DNA from *Agrobacterium*, a bacterium that infects plants, and the hybrid DNA is put back into the bacterium.

**2.** Mixed with injured tissue from corn plants, *Agrobacterium* injects the plant cells with its DNA, which is incorporated into the cells' chromosomes. Scientists use these cells to create seedlings that will produce the viral protein in the corn kernels of the adult plants.

**3.** The genetically engineered grain contains the viral protein, which provokes an immune response when eaten - acting as an edible vaccine.

Vaccines expressed in plants	TITLE
US6136320	NUMBER
ProdiGene	APPLICANT
October 2000	ISSUED

of plant-grown vaccines a decade ago when he was Professor at Baylor College of Medicine and Honorary Professor of Chinese Academy of Science. Lam originally conceived the idea to help China combat hepatitis B, which affect hundred of millions of people in Asia. However, this approach may be applicable to produce vaccines against hundreds of animal and human diseases in a safe, efficacious, convenient and cost effective way.

David Wheat, an analyst at the Boston-based Bowditch Group, says ProdiGene is in a good position. "ProdiGene is reputed to have made sure to have good, tight access to all of the intellectual property they need. They will be able to practice this technology without roadblocks from other companies," he says.

While a number of academic groups are developing edible vaccines for humans, ProdiGene is the only company pushing ahead with human clinical trials. "We believe that the opportunities are tremendous," says Howard. "We also know there are other people looking at it, and what we'd like to do is work with all those other people. We would like to see above all the technology go forward."

#### OTHER EDIBLE VACCINE PATENTS

US5958422 (September 1999) Axis Genetics	Using plant viruses to produce proteins and plants to deliver them
US5654184, US5679880, US5686079 (Fall 1997) Washington University	Plants genetically engineered to produce viral or bacterial proteins and using such plants as vaccines
US5670349 (September 1997) Virginia Tech Intellectual Properties	Tobacco plants genetically engineered to produce foreign proteins

Gordon Moore Q&A Programmable Pills Next-Generation Fiber Optics

# TECHNOLOGY

REVIEW

# 5

## PATENTS

THAT WILL TRANSFORM BUSINESS & TECHNOLOGY

MIT'S MAGAZINE OF INNOVATION

Taking the kids to the doctor can be a battle, especially when they need a shot. But soon children and adults alike could benefit by receiving vaccines from corn puffs or a jar of baby food.

Edible vaccines grown in corn, bananas or tomatoes could not only make vaccination more convenient in wealthier countries but help global immunization efforts (see "Making Needles Needless," TR September / October 1998). Barriers to immunization in poor countries include the cost of vaccines and needles, lack of health-care workers and difficulty in refrigerating the doses. Hepatitis B vaccine, which costs 50 cents for each dose, remains out of reach for many of the world's poor; over 900,000 people die each year from hepatitis B. Producing the vaccine in plants could reduce the cost to less than a penny per dose. And

simple food processing like drying and grinding could create non-perishable preparations.

ProdiGene, based in College Station, TX, is working to bring edible vaccines to the marketplace. ProdiGene creates its vaccines by genetically engineering corn to produce bacterial or viral proteins that elicit immune responses when eaten. Last year, the company received a patent covering any viral vaccine produced in any plant. ProdiGene has also filed patents on edible bacterial vaccines, says chief scientific officer John Howard. The company plans to test an *E. coli* vaccine in humans this year and hopes to do the same for a hepatitis B vaccine early next year.

Lead inventor on the patent is PROFESSOR DOMINIC MAN-KIT LAM, a biotechnologist who originated the idea

## 2. Chromoskedasic Painting

It is a novel method for producing colour images on black-and-white photographic paper without using pigments or dyes

Passion – a chromoskedasic painting (see Lam's Vision, 2005 or the Scientific American article) – dazzles the eye with oranges, yellows, greens and blues. The hues are surprising because they were created by applying colourless chemicals to black-and-white photographic papers. Almost all paintings and colour photographs consist of pigments that reflect certain parts of the visible spectrum of light and absorb others. But the original chromoskedasic painting contains no such pigments, only white paper and particles of silver.

These tiny particles produce colours not by reflecting or absorbing radiation but by scattering light. Particles of different sizes scatter different wavelengths of light, yielding various colours. The term "chromoskedasic" is derived from Greek roots meaning colour by light scattering.

The basic methods of chromoskedasic painting were discovered serendipitously one autumn evening in 1980. I (Lam) was developing black-and-white photographs of a retina, as part of a research project at Baylor College of Medicine. I noticed that some photographs were covered with patches of brown and yellow. Other photographers have undoubtedly observed this same effect. The colours usually appear because the photographic solutions were mixed improperly, because the solutions had deteriorated or because the photographic paper was defective. I wondered how colours could emerge from the use of black-and-white photographic paper and solutions, materials that do not contain dyes or pigments. Having seriously pursued painting for 20 years, I hoped to control the production of these colours and thus exploit the unusual characteristics of the new medium (see "Painting in Colour without Pigments," THE AMATEUR SCIENTIST).

Without understanding in depth the mechanisms that generated the different colours, I systematically searched for the light and temporal conditions needed to produce different colours predictably on photographic paper. I also experimented with the concentrations of such solutions as activators, developers, stabilizers and fixers. By 1983 I had established a procedure for creating the primary colours - red, blue and yellow - and I could combine the three colours to create various shades. During the past eight years, I have refined the techniques by trying different kinds of papers and solutions, and I have attained better control of colours, tones and composition.

Although my empirical approach led to a technique for producing colour from black-and-white photographic materials, I had not given much thought to the physical and chemical mechanisms underlying such

a process. In the summer of 1989 my co-author (Rossiter) came to visit me in Houston and took an interest in my paintings. He noticed the brilliant red and yellow hues, the occasional metallic sheen, the three-dimensional character of some objects and the unusual light stability. (Some paintings had been exposed to direct ambient sunlight for more than seven years and had not faded.) From these observations and others, he deduced that the colours in my paintings were a consequence of light scattering from tiny silver particles in the photographic paper. He coined the term "chromoskedasic".

The colours of most paintings rely on a process known as subtractive colour. Blue pigments, for instance, reflect blue light while absorbing most other wavelengths. The colours in conventional photographs are also the result of a subtractive process. But instead of pigments, photographs require colour sensitive emulsions and developing agents that produce or release dyes (see "The First Colour Photographs" by Grant B. Romer and Jeannette Delamoire; SCIENTIFIC AMERICAN, December 1989).

Most black-and-white photographic papers contain silver salts. Under the influence of light and chemicals, the salts decompose to form silver particles. Ordinarily, these particles merely absorb light, yielding tones of black. Those salts that are not exposed to light do not yield silver particles and are washed away allowing the white paper to show through. Chromoskedasic paintings are made using methods very similar to those employed in black-and-white photography. But chromoskedasic techniques require that the particle growth be carefully controlled through exposure to light and chemicals.

In chromoskedasic painting, the silver particles produce colours through a process known as Mie scattering. In 1908 Gustav Mie first described this scattering process in mathematical terms. He studied how light scatters through a medium consisting of spheres of similar size and electrical characteristics. He found that the wavelength of light scattered by such a medium depends on the size of the spheres.

Mie's theory helped to explain why the sky is blue or why the sun appears red at dawn or sunset. The sky is blue, in part, because dust, water vapour and other particulate matter in the atmosphere are of such a size as to scatter light selectively from the blue region of the spectrum. Similarly, atmospheric particles of different sizes produce some of the brilliant colours of the rising or setting sun. (To be sure, many kinds of scattering, absorption and refraction processes contribute to the colour of the sky.)

Particle formation in a complex, modern photographic emulsion is very different from the ideal conditions that Mie assumed. Chromoskedasic paintings consist of silver particles that vary greatly in

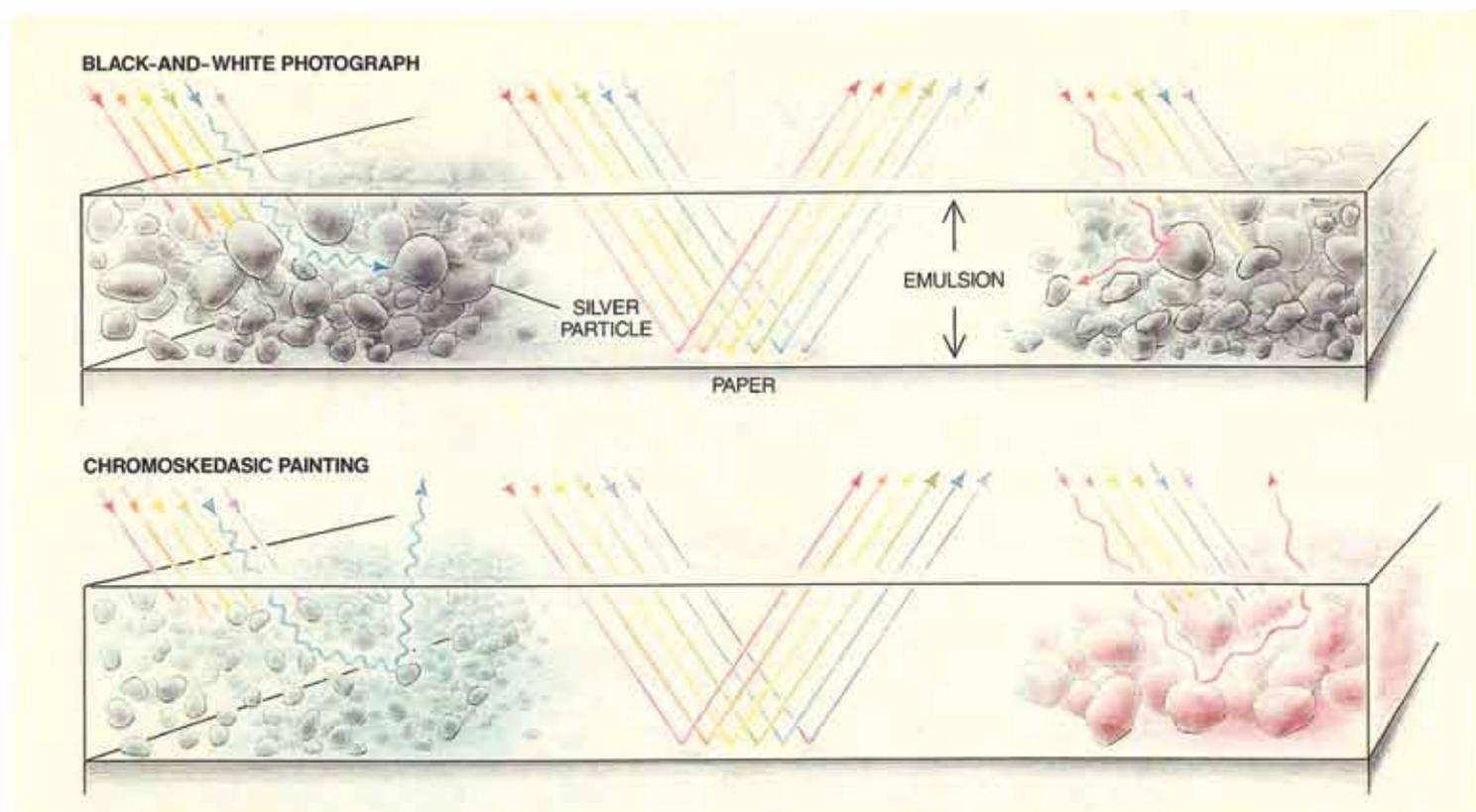
shape and size. Nevertheless, the Mie equations predict the correlation between particle size and the colours created in chromoskedasic paintings.

Using electron microscopy, Donald L. Black of the Photoscience Research Division at Eastman Kodak in Rochester, N.Y., confirmed that regions of a particular colour in a chromoskedasic painting contain silver particles that are relatively uniform in size. In agreement with theory, silver particles that produced yellow light were from 10 to 30 nanometers in diameter, whereas particles that scattered red light were 35 to 65 nanometers wide. Scientists still do not understand in detail how the size and shape of the particles influence the scattering of light and hence the colours of chromoskedasic paintings.

Many of the artistic possibilities of chromoskedasic painting have yet to be explored. Artistic expression is intimately related to materials and media. Watercolours are usually softer than oil paints, black-and-

white photographs often bring out textures better than colour photographs, and marble sculpture is often more ponderous than steel. Chromoskedasic techniques bring out rich metallic colours that mingle, mix and wash over one another. The methods preserve the artist's expression for decades because the colours endure as silver particles firmly embedded in paper.

Those techniques give artists many different ways to produce colour images. They can manipulate a variety of darkroom conditions, such as light intensity, chemical concentrations and reaction time. They can precisely control the conditions to create representational paintings. Or they can allow nature to play with light and chemistry to generate abstract images. Chromoskedasic methods can also be easily integrated with conventional photographic techniques or with media such as acrylic, oil, watercolour and enamel paints. We hope chromoskedasic techniques will continue to inspire both artists and scientists.



CHROMOSKEDASIC PAINTINGS differ from black-and-white photographs in that the silver particles in the paintings are similar in diameter within a given region. A photograph (shown in cross section at top) is black in areas where particles absorb light. In a chromoskedasic painting (bottom), particles of a certain size scatter a particular color of light.

# World Eye Organization

**World Eye Organization** (WEO) is a registered charitable organization in both U.S.A. and Hong Kong. WEO is dedicated to the prevention and treatment of eye diseases, especially among the poor, through education, training, research and the establishment of ophthalmic centers, initially in China and subsequently in other parts of the world.

Since its inception on 18 December 1999, WEO has focused on the following projects:

1. Eye-care for the Poor: WEO has established collaborative relationships with the Chinese Association of Ophthalmology and other leading ophthalmic organizations in China. A number of WEO Eye Centers have been built in China, including Xian (2003), Xinjing (2005), Chengdu (2006), Heilongjiang (2007), Hainan (2008), Yangdong (2009) and Puning (2010), to restore vision to the poor and sight-impaired;
2. With WEO Eye Centers in various cities as hubs, WEO organizes regular “WEO Tour of Vision” to provide eye-care and education in rural regions, using WEO’s ophthalmic vans and medical staff;
3. WEO has established WEO Training Centers to train ophthalmic professionals to care for the poor and sight-impaired and to educate the public about eye-care through lectures and publications (such as “How much do you know about your eye?” information pamphlets);
4. WEO has established the Torsten Wiesel International Research Institute at West China Hospital in Chengdu on 7 July 2007;
5. *Ophthalmology in the West*: WEO started this new medical journal at WEO Xian Eye Center in 2005 to report recent advances in eye research;
6. In collaboration with Sichuan University (SU-WCH), West China Hospital, WEO established the Jackie Chan Children Eye Center in Chengdu in 2010;
7. In 2012, SU-WCH honored WEO Founder Dr. Dominic Man-Kit Lam by establishing the SU-WCH Dominic Man-Kit Lam Children’s Eye Charitable Foundation with an initial funding of RMB 2 million dollars;
8. On 12 October 2012, WEO visited Shao Shen (韶山), the birth place of Chairman Mao Zedong (毛澤東主席), to perform eye check-ups and cataract surgeries; and
9. “WEO Bliss of Vision” Program since 1999: WEO has established a series of art and culture events (such as exhibitions, auctions, and lectures) which aimed at enhancing the government and the public’s awareness of the importance of good eye-sight and eye-care.

## Dominic Man-Kit Lam

Dominic Man-Kit Lam was born in Swatow and grew up in Hong Kong. He obtained his bachelor, master, and doctorate degrees by age 22, studied under two Nobel Laureates (Prof. T. Wiesel and Prof. D. Hubel) at Harvard Medical School before joining the Harvard Faculty and subsequently became Professor of Ophthalmology and Director of Center for Biotechnology in Houston. In 1982, Lam and Professor David Paton, Founder of Project Orbis, the charitable ophthalmic airplane, visited China for the first time. In 1985, Lam started the first biotech company in Texas and subsequently took it public in U.S. and was named “The Father of Texas Biotechnology”. In 1988, Lam became the founding director of the Hong Kong Institute of Biotechnology. In 1989, Lam received the U.S. High Tech Entrepreneur of the Year Award, and the U.S. Presidential Medal of Merit. He was also appointed a member of the U.S. President’s Committee on the Arts and Humanities. In 1991, Lam was named Asia Society “Man of the Year”. In 1993, he founded LifeTech Group to develop and market healthcare products. In 1999, he founded World Eye Organization (WEO) to prevent and treat eye diseases for the poor. In 2001, Lam’s patent on “Edible Vaccine” was named by MIT as one of “five patents that will transform business and technology”, and by *Time Magazine* as one of ten most important inventions in the 21st century.

Artistically, Dr. Lam’s most important contributions include: (1) In 1980, Lam discovered the Chromoskedasic Painting, also known as NanoArt, in which color images are produced using only black and white photographic paper and solutions; (2) In 1982-83, Lam collaborated on a painting entitled *Plum, Orchid, Bamboo, Ganoderma and Rock*, with Masters Zhang Daqian, Zhao Shao’ang and Guan Shanyue, symbolizing the unity of all Chinese people around the world; (3) In 2001-02, Lam completed the huge paintings entitled *This Land is Our Land* (2.5m x 9.5m) and *A Galaxy on Earth* (8m x 8.8m) for permanent display at the Diaoyutai State Guesthouse in Beijing; (4) In 2004, Lam created a painting entitled *Olympic Spirit: Ode to Happiness* for the Beijing Olympic Committee; (5) Beginning in 2005, Lam has applied the Chromoskedasic process to explore the oldest Chinese philosophy and culture: Nine Court Diagram; (6) In 2009, Lam created *Voyage of Discovery: Universe*, a 1.2m x 15m Chromoskedasic photopainting for his solo exhibition at Louis Vuitton Maison in Hong Kong, commemorating the 40th anniversary of Man on the Moon for the first time. This painting was acquired by a foundation for USD1,000,000 in 2010; and (7) Lam was invited by the Olympic Fine Arts Organizing Committee to exhibit his 1.2m X 4m painting entitled *Millennium Olympic Odyssey II: From the Great Wall to River Thames – Embrace the World* at the Barbican Centre during the 2012 London Olympics, when Lam received a Gold Medal for his works.

# Acknowledgements and Afterthoughts

“My Mentors” was first published in 2009 with an edition of 8,000. In order to make this book available globally and for free, especially to children and youths, as well as their parents and teachers, in 2010, Innopage Inc. and its CEO Keith Li were kind to have both the English and Chinese versions posted on the electronic platforms of iPhone, Android and other devices. To-date, this book has been downloaded in over 100 countries, reaching an audience far beyond the printed version.

“A Vision of Harmony” skillfully and sensitively traces my artistic, scientific, business and philanthropic voyages, for which I am indebted to its authors Professor Laurence Tam, Dr. Vanessa Li and my brother Louis Lam. An updated version of “My Mentors”, which documents their pivotal roles in guiding me through my formative years and beyond, is also included to provide a more comprehensive understanding of the evolution and future directions of my voyages and vision.

*Dominic Man-Kit Lam*  
6 December 2012  
Hong Kong



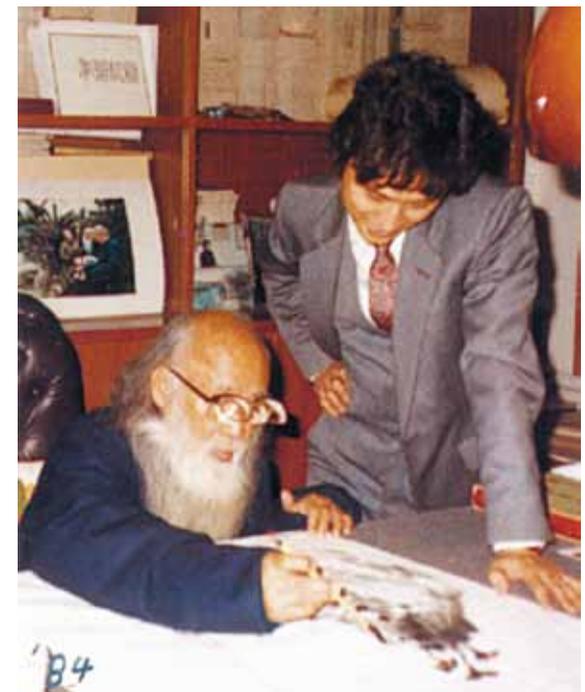
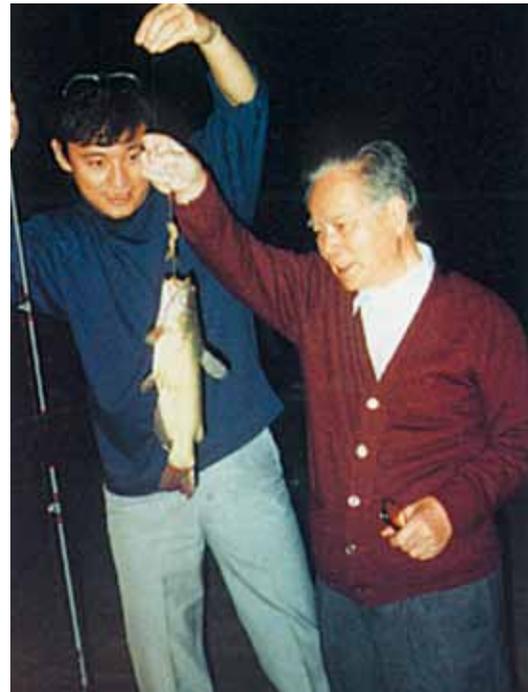
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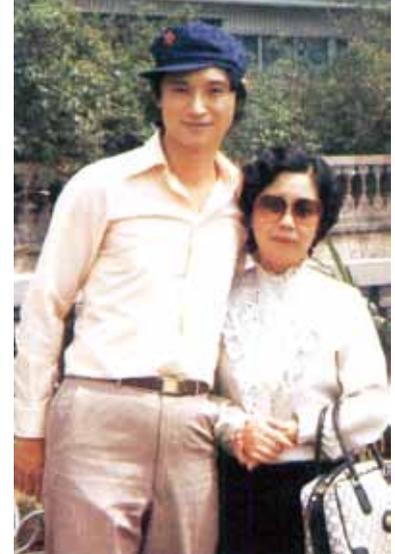
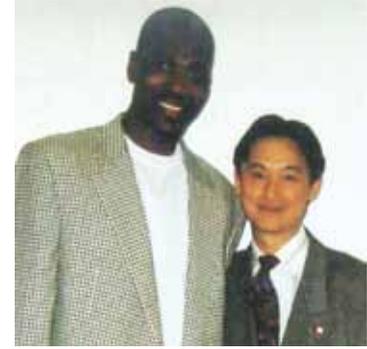


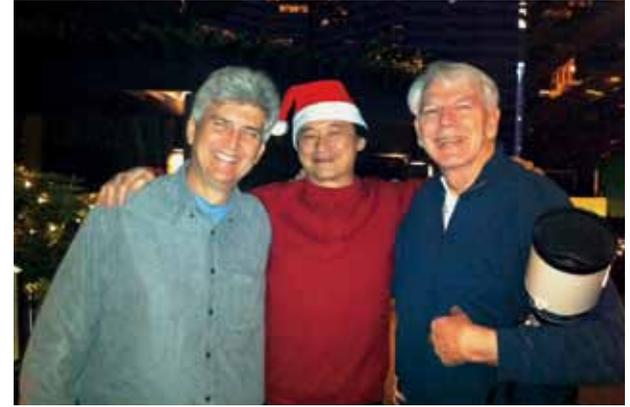






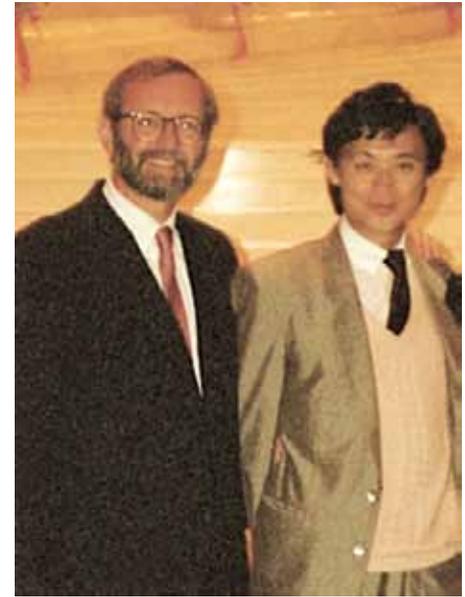
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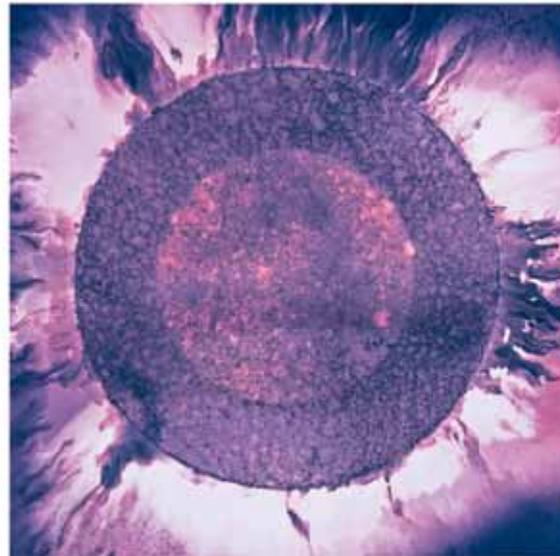
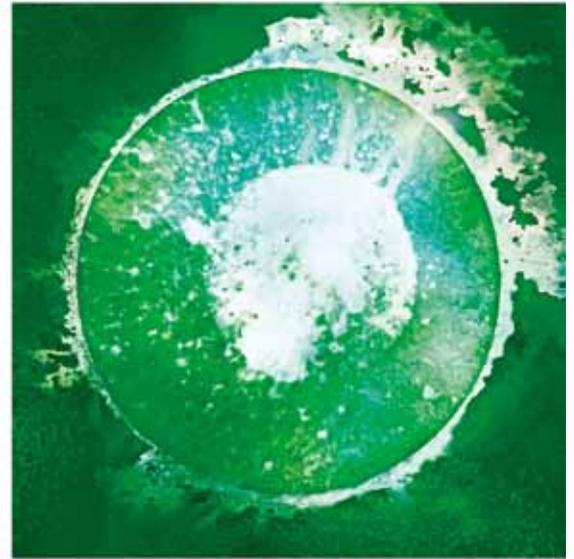
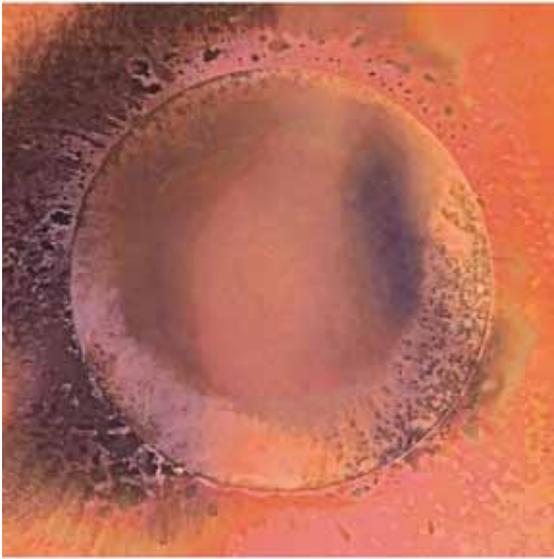
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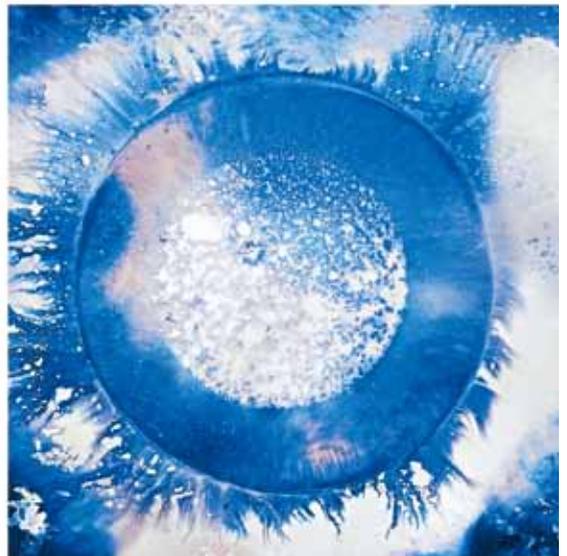
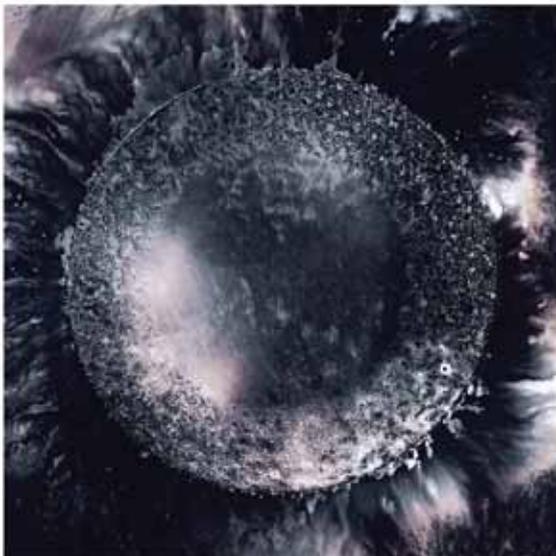
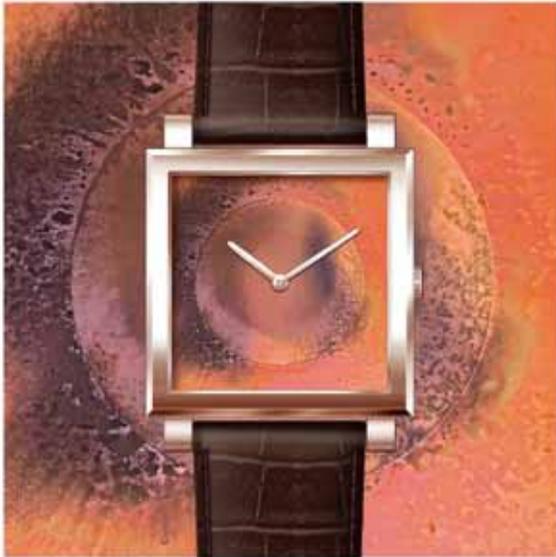
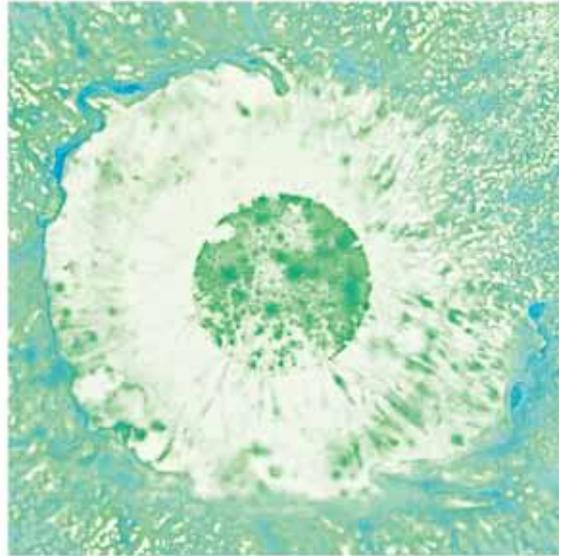


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