

ART AND BIORHEOLOGY INCLUDING SOME AUTOBIOGRAPHICAL REMARKS

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1. Introduction

Professor Y.C. (Bert) Fung's comments in his Report on the Third International Congress of Biorheology and in the Foreword of the Catalogue (1), issued by the Congress for my exhibition and contained in this double issue of Biorheology, prompted me to contribute the following remarks.

It was with hesitation that I agreed to accept Bert Fung's invitation to have, as an activity of our Congress, the exhibition of my pictures (paintings, watercolor-inks, collages, drawings and prints) at the Mandeville Art Gallery of the University of California, San Diego at La Jolla. I tried to discourage my friend Bert, as I knew that it would cause him considerable efforts to have such an exhibition organized and that there would be appreciable costs in arranging this exhibition. However, he succeeded in persuading me, particularly after he secured the needed funds from the Chancellor of the University for this purpose.

For many years, in the beginning of my artistic career thirty-nine years ago, I did not divulge publicly my involvement in my two separate professions, viz., those as a scientist and, under the name (Mr.) L. Alcopley, as an artist. Among some thirty one-man shows, which I had in leading art museums and galleries in different parts of the globe, the exhibition at La Jolla was the first one held as part of a scientific congress. My activities as an artist have been known to many scientists during the past three decades. They have seen works of mine in exhibitions of my pictures and in art publications, as well as in my home and studio in New York, Paris and London where I resided.

2. Drawings as Images of Scientific Publications

The readers of Biorheology are acquainted with a drawing of mine on the cover of the journal since the first publication of the journal in 1962. To my knowledge, Biorheology was the first scientific journal, which for its identification has the same drawing on the front cover of each of its issues. Now, there are many other journals which display for their identification one particular drawing on each of their covers. It is certainly the merit of Mr. Robert Maxwell, Founder and Publisher of Pergamon Press, who, when I approached him in 1960 with my drawing for the image of Biorheology, accepted it without hesitation, as he appreciated the value of a freely designed drawing on the cover of a scientific journal. In a note, published in 1973 (2), I made the following comments on this drawing. 'As one of the Founders of Biorheology, An International Journal, I was quite concerned to have an appropriate cover designed for the journal...In making the design for the front cover, I had to do it within a certain limitation. This was the requirement made by the publisher to keep the space open for the printing of the Contents. The task then was to draw attention to the journal in a way that it arouses curiosity to those not yet familiar with it and to have it recognized immediately by others who are looking for it. Over the years there have been numerous favorable comments from all parts of the globe about the cover of our journal'. If the circular shape 'symbolizes anything, then it could be a symbol for any kind of cell or deformable particle. The three horizontal bars, with their varying widths, however, could be interpreted to "symbolize" flow in general' and not only blood flow, since Biorheology was always a journal dedicated to all fields of biorheology.

Later, I made drawings covering the entire front cover for two other scientific journals of Pergamon Press, viz., "Thrombosis Research" and "Acupuncture and Electrotherapeutic Research". Of interest is also the inclusion of six drawings of mine, which I made of Icelandic landscapes, in a scientific book, namely, "Hemorheology. Proceedings of the First International Conference University of Iceland, Reykjavik, 1966", which I edited for Pergamon Press. The landscapes were drawn from nature in 1950 and were included in this book, because the conference took place in Iceland (3).

There are other instances when biorheologists became acquainted with drawings of mine. They became known, because they were printed in announcements, programs and abstract volumes of Congresses of Biorheology. Thus, Alex Silberberg, President of the Second International Congress of Biorheology, held December 29, 1974 - January 7, 1975 at the Weizmann Institute of Science, Rehovot, Israel, asked me to make such drawings for this purpose. It was also Bert Fung who asked me to make a drawing as a theme of biorheology, which he had printed on the back cover of the Proceedings of our Congress at La Jolla and on the back cover of the catalogue of the exhibition which he organized at the Mandeville Art Gallery.

3. Assembling Artists, Travelling Pictures - And Other Concerns

In his Preface to the catalogue of my exhibition Y.C. Fung (1) stated that I was "a founder of 'The Club' in New York, and an initiator of the exhibition 'L'Encre de Chine dans la Calligraphie, et l'Art Japonaise Contemporain". I believe that it may be of interest, if I add a few details and also enlarge somewhat on these activities.

a. Informal Gatherings of Artists: "The Club" in New York and "Le Club" in Paris

'The Club', founded in 1949, was an informal association of New York artists and played an important role in the emergence of 'Abstract Expressionism', which became a significant art movement in the United States where it began after the Second World War. When, in 1952, I left New York for my stay of five years in Paris, I was given a party at The Club. As one of the twelve founders of The Club, I was asked at that party to start a branch of The Club in Paris. This I did with my good friend Michel Seuphor, the Paris artist and art writer. We named these gatherings 'Le Club' and met every Wednesday evening, first at and near the Place Clichy in cafés and brasseries, one of which was La Brasserie des Batignolles, where, as we found out, the Impressionists had met in the end of last century. We later moved to the Brasserie Francois Coppée at 1, Boulevard du Montparnasse. At these meeting places, numerous painters and sculptors met for nearly five years beginning in December 1952. They were Paris artists of French, American, British and many other nationalities and artists visiting Paris from different parts of the globe. The weekly meetings were entirely informal and there were from approximately a dozen to about one hundred artists at a time. They were highly established painters and sculptors and, at that time, entirely unknowns among many others of some or considerable national and international reputation, who came to 'Le Club' frequently. These informal meetings certainly contributed in great measure of what was and remains vital in contemporary art.

During my stay in Paris, I was engaged in scientific research. For nearly three years I worked in the Laboratoire de Physiologie which I headed at the Centre International de L'Enfance, a United Nations affiliated institute of the French Government. Thereafter, I was associated as member of the Institut National d'Hygiène with the Centre National de Transfusion Sanguine. There I was the head of the Laboratoire de Microcirculation for the remaining years of my stay of five years in Paris, after which time I moved to London.

b. Initiating a Travelling Exhibition from Japan in Europe - A Garden in Paris - A BBC Film.

During my residence in Paris I initiated the above mentioned exhibition of old Chinese and Japanese calligraphy and of modern Japanese calligraphy and arranged that this exhibition (4 - 7), sponsored by the Government of Japan and assembled by several prominent Japanese art historians and museum curators, was shown in many leading museums in different European countries. This exhibition, which circulated for about two years in Europe, was first shown in 1956 in Amsterdam at the Stedelijk Museum.

It was in 1948, after the First International Congress on Rheology held at Scheveningen, when I first met my good friend Willem Sandberg, Director of the Stedelijk Museum. It is well established that Willem Sandberg, with the innovations he introduced, revolutionized the entire museum field. I am glad that he gave me two exhibitions in 1955 and 1962 at his museum. The first one, held in 1955, was a five-men exhibition named 'Vijf Amerikanen in Europa', while the second was a one-man show in 1962 in eight rooms of the Stedelijk Museum. In 1956 I was a participant with Matisse, Picasso, Chagall and Miro in an exhibition on textile design, organized by this museum in Am-

sterdam. Later, Dr. Sandberg initiated my exhibition in 1969 at the Israel Museum, Jerusalem, where, as Advisor, he played the leading role in building this unique museum.

In connection with the preparation of the above cited travelling exhibition of calligraphy I had dealings with the cultural attaché and other high officials of the Japanese Embassy in Paris. I am glad that due to these contacts with the representatives of the Government of Japan, including the Ambassador, I could be helpful to the American sculptor Isamu Noguchi. He asked me to aid him with his proposal for the creation of a garden with his sculptures for the headquarters of UNESCO in Paris. As a result, the Government and People of Japan donated the Noguchi garden to the United Nations Educational, Scientific and Cultural Organization in Paris.

The British Broadcasting Corporation (BBC) made a film entitled "Man of Two Visions, L. Alcopley - A.L. Copley" in 1965. I was filmed in my two activities in my laboratory and in my studio. There I was shown painting a picture on a rather large canvas and also making small drawings. The film was originally shown in the Horizon Science Program of the BBC at prime time in London on Sunday evening, January 30, 1966 (8). The film (9), in which I was interviewed by the science writer Gordon Rattray Taylor, Director of the Horizon Program, was later shown on television in many other countries. Thus, my activities as a scientist and artist became known to millions of people.

4. Certain Fellow Artists

It is a most gratifying experience that, during the past thirty-three years, my works have also been appreciated by numerous painters, sculptors and graphic artists in different countries. I have been very fortunate that, in particular, a rather large number of prominent artists have found my pictures meaningful and, because I feel indebted, I mention the names of some of them. They are, among the painters, Henri Matisse, Jackson Pollock, Willem de Kooning and Franz Kline who in 1952 published an article on my works (10), which was the only article they ever wrote together, Mark Tobey who was one of the main buyers of my works, Barney Newman, Mark Rothko, Ad Reinhardt, Jules Bissier, Saburo Hasegawa, Hans Hofmann, Nina Tryggvadottir who in 1949 became my wife, Jean Dubuffet, Sonia Delaunay who discovered me as an artist at the 1953 Salon des Réalités Nouvelles at the Musée d'Art Moderne de la Ville de Paris and arranged my first one-man show in Paris in 1956 at the prestigious Galerie Bing, the painter and printmaker William Stanley Hayter. Among the sculptors are Constantin Brancusi, Jean Arp who was the main buyer of my works, David Smith, Frederick Kiesler architect and sculptor who inspired by my works, began writing poetry and wrote a poem on me and my work, Ibram Lassaw, Nicolas Schöffer and Mathias Goeritz, sculptor and architect. Among the graphic artists are the art writer-poet Michel Seuphor who wrote a book (11) of my drawings and the book's text was published in French as well as in translations into English, German, Dutch, Hebrew, Italian and Japanese, the poet Henri Michaux, the calligraphic artists Shiryu Morita and Hoseki Shin'ichi Hisamatsu, the Zen master (12).

As a boy, aged 11 and 12, I received prizes in school for painting water-colors. However, it was at the rather late age of 29 when I started my career as a painter in Kansas City, where I did scientific research. In 1940, I began my career in biorheology in studies on the flow properties of blood (13,14) at the Hixon Laboratory of Medical Research of the University of Kansas School of Medicine.

The painter Wassily Kandinsky, one of the originators of abstract art, began also late his career as an artist. At the age of 31, in 1897, he went to art school in Germany (15).

In 1926 I met Wassily Kandinsky after a lecture he gave in Dresden, Germany. I shall always remember his gentle willingness in answering the many questions on abstract art I had at that time. His personality struck me as that of a benevolent grand seigneur. He was the first of the "giants" of this century (among the artists, scientists, philosophers, poets, composers, performing artists of many kinds, writers, architects, inventors, scholars, historians, physicians, surgeons, educators, statesmen), I was privileged to meet and to engage in conversation. Kandinsky, at his age of sixty, impressed me, a 16 years old youngster, not merely in taking my questions seriously, but by his kind, non-condescending, informal manner, his openness and the nobility of spirit which I sensed.

Although I had many outstanding research scientists as teachers at six universities in Germany from 1930 to 1935 and, thereafter, at the University of Basel, Switzerland, where I studied physical chemistry for nearly two years, I was mainly self-taught as a painter. As an adolescent I had some instructions in art in Dresden, where I grew up. In Hayter's Atelier 17, I learned the craft of etching and engraving. I practiced these art forms of print-making only when I worked infrequently in this workshop for about two years, beginning in 1946, when it was located in New York City.

It was rather early in my career as an artist that my work was recognized by my fellow artists, including leading painters and sculptors of our time, some of them I mentioned above. Many artists, to whom I am grateful, initiated my participation in group exhibitions and even arranged and continue to organize one-man shows of my work in art galleries and museums. The original vision formed in my pictures, certain techniques which I developed, the sense for composition or design, the skill in handling the brush, my use of textures, the sureness in the use of color, the adventure and inventiveness of approach have made me a painter's painter. It is becoming more and more known that my works in painting and drawing influenced many of our contemporary artists who often are much better known than I am.

5. The Permanence of Challenge From Facing a Wall.

In 1958, when I resided in London, I received a commission from the State Baden-Württemberg, Federal Republic of Germany, to paint a mural, 15 meters in length and about 3 meters high, in a science building under construction, at the University of Freiburg im Breisgau. The challenge which I experienced in painting this mural changed my career as an artist. In this painting, which was the largest I painted up to that time, I was confronted with a very special problem. The wall selected for this mural was on the sixth floor of the science building which was to house several institutes. This wall was placed opposite a window front overlooking a magnificent panorama. On its left side were hills extending to the Black Forest, near the center spread the city with the glorious gothic tower of the Cathedral, and, from the center to the right side, the wide spatial area of the plane of the Upper Rhine river (Oberrheinische Tiefebene) opened up, reaching to the Vosges mountains in Alsace, France.

I saw my task in not making a decoration on this wall, but in "dematerializing" it, so that the mural could compete with the spaciousness of the grandiose landscape. By this I mean that in viewing the mural one would experience a similar feeling for space as in looking at the immense landscape opposite the mural. I painted this mural (16) after participating in the Third International Congress on Rheology at Bad Oeynhausen.

My painting the mural was the kind of challenge similar to that the scientist experiences when facing the unknown. It is this challenge which every artist and scientist is confronted with, although the activities involved are entirely different. It is here, where the unity of art and science also manifests itself.

As an American artist, I was the first foreigner to be commissioned by the State of Baden-Württemberg to do a work of art. I was instrumental that the English sculptor Henry Moore, as the second foreigner, received a commission from the same German state. After completion of the mural, I met Henry Moore in London and initiated the commission which he then received for his sculpture 'Reclining Figure', which was placed in the main building of the University of Freiburg im Breisgau.

6. Artists as Practical Rheologists.-Pictorial Vision and Experiencing Biorheological Problems.

It goes without saying that in the making of pictures rheological processes are involved, such as in the manufacture, application and drying of paints and inks. This is also the case in the use of clay in making pottery, as was studied and practiced in the sixteenth century by the practical rheologist and potter Bernard Palissy in France (17). Since rheology is the physical science of flow and deformation of matter, actually all painters, sculptors and graphic artists are practical rheologists in many of the techniques and materials they are using in their works.

Scott Blair dealt with rheology and painting in an article published in 1969 (18). He refers to an article on rheology and painting, published in 1941, by Rawlins (19), then Scientific Advisor and Assistant Keeper to the National Gallery, London.

The following remarks on art and science refer mainly to my work as an artist during the past twenty years, beginning with the mural I painted in Freiburg i.Br.

Some readers of Biorheology will ask the question, which Bert Fung posed to the viewers of my work at the exhibition of our Congress (1). In his catalogue foreword he wrote: "By exhibiting his art while he participates in a scientific meeting, we offer an opportunity for everyone to figure out the relationship between art and science".

At the opening ceremony of an exhibition of mine at the Israel Museum in Jerusalem in November 1969, our fellow biorheologist, my dear friend the late Aharon Katzir-Katchalsky gave a speech, in which he emphasized that in my pictures there is a vision of the world in which the experiences many of us have in our preoccupation with biorheology are formed, i.e., with problems of flow and deformation of living matter and of substances derived from living matter which play roles in life processes. A few years later Aharon conceived the theme of "art and science" for the inauguration of the Tel Aviv Museum in Israel, which opened in April 1971 (9). Upon Aharon's suggestion to the Director of the Museum, I was invited to act as Advisor of both the exhibition and the film program in my capacities as artist and scientist. The exhibition was a great success and was prolonged from the initially planned run of about two months to about two years.

7. Some Thoughts on Art and Science.

In a recent article (20) I stated under my artist's name how today's world view of science is related to my art works:

"The conception of space in my pictures has been erroneously identified with the conception of space in the pictures by artists of ancient China and Japan. At a first glimpse, the Eastern conception of space and my conception of it seem to be very close, but they are altogether different. The decisive distinction is that the feeling for space in my pictures is that of Western man, experiencing and practicing Western thought. For us, reared in Western civilization, space, as we feel it, contains all entities or objects. For the Asian artist, experiencing and practicing Far Eastern thought, space is the void which cannot be seen, but permeates everything as an active agent."

"In my pictures, the basic vision is related to modern science and the world view derived from it. As I am actively engaged in fundamental research pertaining to the study of processes of life, I am constantly aware of a world, where everything is in motion. The visualization of the world view of modern science in my formed images is possibly the most original aspect in my artistic endeavours. I do not set out to represent the ultrastructure of a minimal part of a cell, of an organism or of an inanimate particle, as seen in the electron microscope or by any other optical means. Such attempts to give a representation or a naturalistic picture of parts of nature, only accessible to us by the use of microscopes and other fine instruments, is of no interest to me" (20).

In another article, entitled "On Art Fashions and the Artist's Preoccupation with Science" (21) and in the discussion which it provoked (22), I stated that "works of art should never be placed in the position of competing with works and objects of science and technology" (21). I stressed that, today, the artist's preoccupation with science should not degenerate into engaging him to become a producing supplier to the contemporary vogue of art fashions. It appeared to me necessary to place emphasis upon the artist's relationship to art and science in an attempt to clarify what, I think, the artist's position must be.

I do not deny that forms which I have seen with the aid of instruments, employed in the sciences, which I practice, may, in some abstracted way, become elements in my pictures. However, I have no intention of abstracting from these visual recordings or any others, which are known to everyone, because of their wide popularization by the various media of mass communication.

What then is the basic vision in my work as related to science? It is the flow or motion of elementary spatial processes which I experience in my scientific activities. Since they are in great part associated with my involvement in biorheological problems, it is this particular experience which possibly is the source and most original aspect of my artistic endeavours.

In the following statements I attempted to clarify the relationship between art and science, as I see it (23):



A recent photograph of the author of this article in front of part of one of his paintings. New York, October 13, 1978. Photo: Roland Keller, Basel, Switzerland.

"Art and science are very different manifestations of human thought. While science is in great part based on analytical and logical thinking, art depends primarily on imaginative and synthetical thinking. I realize that this differentiation is artificial and oversimplified, since both artists and scientists need to depend upon both kinds of thinking to accomplish what they set out to do. Imaginative thinking leads to conceptions which are decisive in science and the unity of art and science manifests itself in this kind of thinking. As I have lived simultaneously the two different careers of a scientist and of an artist, my felt experiences, formed in my pictures, are strongly based on both artistic and scientific thinking."

"As I see it, the beholder's inner experiences are appealed to by form, created in a work of art. It directly touches the personality in a human being and reasserts his own freedom. The beholder is freed to think metaphorically about his world on the basis of his sensuously felt life experiences and thus is jolted into a creative experience of his own. In my pictures I give form to my felt experiences, which include those from my scientific activities and preoccupations, as structures and movement in space. In this endeavour of giving form in my pictures to the unity of art and science, I am seeking for man's enjoyment of the meaning of space."

My work has been mistaken for calligraphy by many people in the West and Far East. In the works of Klee, Kandinsky, Torrès-Garcia, Miro, Tomlin, Tobey and others, a definite meaning in their letters and hieroglyphs is still suggested. In my pictures, I confront the beholder - and I should like to quote the philosopher Heinrich Blücher (24) "with a kind of 'letter-less' writing which uses the writing activity, that is, the sheer movement of the hand, to invent a continuous line of signs. No meaning is attached to the signs themselves except for the meaningfulness of the movement - of writing as such. And since this movement is embedded in the motion of the elements themselves, it is as though the universe reveals itself here in a kind of cosmic stenography."

8. Conclusion: To Show the Oneness of Our World

Contemporary science has brought about a revolution in man's conception of the universe and a growing awareness of the role which science is bound to play more and more in man's freedom and destiny and in his thoughts in relation to the universe (25). The motivation for my pictorial visions in my paintings and drawings is an attempt to show the oneness of our world. Emphatically, I say 'yes' to both art and science. This 'yes' is not limited to science and art, but ultimately joins with life, the source, from which these very different products and activities of the human mind originate and which they are meant to serve.

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