Watercolors by...MUJUMDARS

Selected and compiled by Sachin Jangam 2011
This collection of selected watercolors is an unexpected but pleasant outcome of what has been effectively a "stress relief" exercise for me. At the outset I must clarify that I am no artist; I do not have any inherent art DNA nor have I had any formal or informal training in any art! A sudden jump in my workload some four years ago -largely of my own doing- caused me to feel over stressed beyond levels I am used to for over three decades. Some form of activity which allowed me a stress-free time not affected by workload concerns was essential for sanity! I am obliged to my dear wife, Purnima (already globally known in the drying circles!), suggested I try doodling with crayons. Indeed, I did just that and found in it considerable pleasure and relaxation and the opportunity to be creative. Indeed, every doodle is by definition an original contribution to the "arts" regardless of how good it is. This allows one to keep the right part of the brain active and eventually interact with the left side as well. I found this combination to be unique and effective. Aside from helping with stress management this adventure allows me to experiment and innovate even with crayons, black ink, watercolors and now acrylics too.

This compilation is artistically compiled by Dr Sachin Jangam- an accomplished chemical engineer with unusual artistic eye. I am grateful to him for the original idea of compiling such a book and also including messages and quotes to augment the weakness in the art presented. This compilation also includes some work by Purnima and also our son, Amit.

Finally, I am indebted to Prof. Z-Y Li of Tianjin University of Science & Technology, Tianjin, for making this book widely available. I might add here that I have been closely associated with TUST since 1984 when I was at McGill University in Montreal, Canada.

Arun S. Mujumdar
Singapore and Montreal
2011
Every researcher in academia has to undertake stressful workload every day and each one has his/her own approach to tackle it mostly using the left side of the brain. But very few researchers around the world have some unique qualities or abilities to cope with stress using the other right side of the brain, which differentiates them from the others; may be this is the reason we call them distinguished persons. Professor Arun Sadashiv Mujumdar is one such distinguished academic personality who handles research, teaching as well as service locally and globally.

Everyone who has anything to do with drying knows of his contribution to the field of Drying Technology; indeed he founded the interdisciplinary field of drying R&D which did not exist until he established IDS and later Drying Technology journal. He is widely known as the "Drying Guru". He has spread this field of research in all parts of the world. The Drying Technology Journal co-founded by Prof. Mujumdar is touching higher and higher standards and setting new records every year. The IDS series founded by Prof Mujumdar is the most sustained series of conferences in Chemical Engineering as well as related fields and still it is going strong with several sister conferences that spawned out of the IDS series; they too were co-founded by Prof. Mujumdar. Professor Arun has unique qualities such as his humble simplicity, politeness and respect for everyone his juniors as well as seniors, which makes him special and distinct from other accomplished and well known professors/researchers. It is very rare to find such qualities in a person who has achieved so much in his life and who is so famous world-wide in academia as well as industry. It is needless to say that he is a great mentor, and this is reflected from the major achievements of his students and associates who themselves are excelling in their R&D and professional jobs all over the world.

However, It was only about four years ago that Prof. Mujumdar started to use painting landscapes as a way of relaxation- or his simplistic (and innovative!) way of meditation or keeping mind away from work- as he undertook extra academic responsibilities in an already packed schedule, which increased his work load several fold. He started his artwork with wax crayons used by children and then slowly graduated to color pencils, black ink, and then watercolors and most recently acrylic paint. In fact, he brought in his inherent nature of innovation and creativity guided but not dictated by earlier work, he started to mix the media i.e. black ink with crayons or water colors and even experimented with Chinese ink drawing. If one may rate the success of his hobby to reduce stress with is research and other measures of professional output, one can readily notice a rise in the latter just as he started to "meditate" with the paint brush. Many of his academic friends have in fact also have decided to follow this initiative. Indeed this can unravel untapped talent in many.

Another interesting point to note: time pressure has forced him to develop his own style which allows him to do “passable” paintings in anywhere from 15 to 20 or a maximum of 30 minutes. Much of the rate-controlling step is in his own decades-long - specialization viz. drying! Even that he tries to speed up using a hair dryer when he is really pressed for time and must finish his coffee and lunch quickly while doing a quick watercolor and get back to work or reviewing the scores of papers he gets invited to review. In fact, some of his watercolors do have traces of coffee that merge nicely in conventional watercolors! We hope he has not consumed much heavy metal from his paint brush dipped in his coffee!
Prof. Mujumdar is a firm believer in “whole brain thinking”. He says that engineering and scientific research tend to be solely left-brain activities. The imaginative, creative soft skills that are controlled by the right brain are largely undeveloped and not used by most. By stimulating the right side with artistic activities one can develop better creative ability and hence better engineering and scientific abilities as well. He notes that many of the well known scientists of the world also had well developed artistic abilities and inclination- in music, writing, painting etc. In fact he proposes a “New Avatar for PhD programs” that include study of some artform as a requirement to stimulate creativity! This clearly is an idea coming from the right side of the brain!

I am no art critic or expert but I see tremendous variety and originality in his art. I appreciate his paintings even more as he limits his time to each work to no more than 20 minutes for each work, which of course is due to time limitation. In future we hope he will find the time and energy to lift the time constraint. His better half is now better in true sense of the word. Although she started watercolors since “even Arun can do watercolors”, and now she certainly is better in her artistic performance as well!

This book represents a small sample of his collection of watercolors done over past three years; his “hobby” reflects the need to introduce art in science and engineering to be truly creative. Each art piece is by definition original and a result of creativity. It is a great pleasure to bring his art work in a book format and I expect many more researchers will adopt and adapt similar hobbies and use the arts manage their work stress!!!

Sachin V. Jangam

Singapore

August 2011
The creative person is overpowered, captive of and driven by a demon... They become our legendary heroes.

..... Carl Jung
Painting is just another way of keeping a diary.

..... Pablo Picasso
The aim of the art is to represent not the outward appearance of things, but their inward significance

..... Aristotle
A great life is born in the soul, grown in the mind, and lived from the heart.

..... Suzanne Zoglio
Turn your face to the sun and the shadows fall behind you.

….. Maori proverb
If you're not failing every now and again, it's a sign you're not doing anything very innovative.

.....Woody Allen
Innovation distinguishes between a leader and a follower.

..... Steve Jobs
It's easy to come up with new ideas; the hard part is letting go of what worked for you two years ago, but will soon be out of date

..... Roger von Oech
I expect every book authored or edited by Prof. Arun S. Mujumdar with excitement, as if one found a treasure. People in the DRYING world may have the same feelings as me. This time his art book really gives us a pleasant surprise and new unexpected impact.

Prof. Mujumdar visited our university in 1984, which is his first visit to China. When he paid his 2nd visit to Tianjin in 1987, I was a freshman. I still remember that I met him on campus, accompanied by an upper class female student. That time we seldom had the chance to meet a Lao Wai in campus. So we admired the girl very much, because she was good in English. In 1995, I got a chance to serve as Prof. Mujumdar’s interpreter during a drying Mini-Symposium held in Tieling, Northern China, thanks to my master advisor Prof. Yongkang Pan. Frankly, I had learned English for only a few years, but never talked with Lao Wei till then. You can guess this duty was one of very high pressure rather than glory. I was very anxious! The scene is still alive in my memory. When Prof. Mujumdar began to deliver a speech to the audience, he showed me his lecture material just prepared during the Mayor’s introductory speech, so I could translate it a little more easily without losing my face. Later on, with his encouragement and kind understanding, I had the courage to translate his lectures at that symposium. From then on, I had another job, which is to translate some of Prof. Mujumdar’s thematic papers. Interestingly, when I attended IDS 2002 in Beijing, I surprisingly found that several Chinese colleagues knew my name although I had left China for doctoral studies at Nagoya University, Japan some four years earlier. At last I understood that they knew my name from my translations of Prof. Mujumdar’s papers, which had been published in the massive book entitled Modern Drying Technologies edited by Profs. Yongkang Pan and Xizhong Wang in 1998.

It is without question that Prof. Mujumdar has contributed much to the Chinese Drying Circle, as summarized by Dr. Zhenxiang Gong in his paper entitled “Two Decades of Dedicated Contributions of Professor Mujumdar to the Development of Drying R & D in China”. As an additional example, after his course in Tieling, some Professors assimilated his innovational ideas and successfully got funds, supported by government science and technology committees, to do excellent drying research work. Last year, Prof. Pan handed over his collected literature on drying to me. I pleasantly found that there are lots of books and materials from Prof. Mujumdar; I do not think that some can be retrieved even in China National Library. With a flash of thought, I decided to build a thematic bookshelf to exhibit those books and share them with our Chinese colleagues.

Although I could not be his enrolled student, I have gotten lots of suggestions from him via e-mail. He loves to help young researchers. I find that he is a vigorous and dedicated educator. He responds to all my questions very quickly, sometimes just within a couple of minutes. Also, his website is very informative, and I often click it to learn about new things. I believe that he has a high personal “impact factor” in the world of drying and related fields. His amiable manner is very impressive to our young generation of faculty and students.

From Prof. Mujumdar’s artwork, I know why he is so active and creative! Art is different from Engineering, but a true master can do very well in both of, a real cross-disciplinary action and ability. Einstein played the violin very well. Mujumdar is adept at watercolors!

Dr. Zhanyong Li
Dean, College of Mechanical Engineering
Tianjin University of Science and Technology (TUST), China
Imagination is the beginning of creation. You imagine what you desire, you will what you imagine and at last you create what you will.

..... George Bernard
Enthusiasm is excitement with inspiration, motivation, and a pinch of creativity.

..... Bo Bennett
Innovation is not the product of logical thought, although the result is tied to logical structure.

..... Albert Einstein
It is difficult to say what is impossible, for the dream of yesterday is the hope of today and the reality of tomorrow.

..... Robert Goddard
Creativity is allowing yourself to make mistakes. Art is knowing which ones to keep.

..... Scott Adams
Creativity is a type of process where the teacher and pupil are located in the same individual

..... Arthur Koestler
Creative thinking is not a talent, it is a skill that can be learnt. It empowers people by adding strength to their natural abilities which improves teamwork, productivity and where appropriate profits.

.....Edward de Bono
It's easy to come up with new ideas; the hard part is letting go of what worked for you two years ago, but will soon be out of date.

..... Roger von Oech
Be nice to people on your way up because you’ll need them on your way down.

..... *Wilson Mizner*
In the eyes of scientists and engineers who are active in drying R&D in China, Prof Arun S Mujumdar is a creative scientist, superb teacher, dynamic collaborator and a wonderful friend. Over the past 30 years, Professor Mujumdar has made important contributions to the development of drying technology in China. Before 1980s, few people in China studied drying technology. Now, drying R&D has become very active area of R&D in China. The study of drying technology has attracted many young researchers; the number of published research papers has increased rapidly and continuously.

Over his career, Professor Mujumdar has mentored over 50 doctoral students and advised over thirty post-doctoral fellows including many Chinese students. Our students often worked closely together and have become lifelong collaborators /friends. His love for learning and his insistence on excellence and in critical examination of whatever we did were both daunting and inspiring. Following his examples, our students always work very hard and this led us to do well in our doctoral research and publication in archival literature. The love of learning, the highest standards of excellence in science, and the impeccable ethics that professor Mujumdar taught us by his example, were something that his students and associates will cherish all our lives.

Immensely hardworking, a man of principles, Professor Mujumdar is at the same time a man who heartily enjoys everyday life. He is an enthusiast of cooking, painting, travel, of maintaining contact with family and friends worldwide. He and his wife, Purnima, often invite his students and research group members- often referred to as his family- to his home and host us with delicious Indian dishes. They also share us with their beautiful painting and drawings. The paintings are favored by our students and I have collected some of his Chinese style paintings.

Wu Zhonghua
China
Creativity is thinking up new things. Innovation is doing new things.

..... Theodore Levitt
Discovery consists of seeing what everybody has seen and thinking what nobody has thought.

..... Albert von Szent-Gyorgy
When you innovate, you’ve got to be prepared for everyone telling you you're nuts.

..... Larry Ellison
If you're not prepared to be wrong, you'll never come up with anything original.

..... Sir Ken Robinson
A true leader known by the number of his original followers he is following and not the number still following him

..... Arun S Mujumdar
A leader should be like a shepherd guiding his flock of sheep from the rear and not like a race horse jockey leaving a pack of horses in the 'also-ran' category.

...... Arun S Mujumdar
Research your idea. See if there's a demand. A lot of people have great ideas, but they don't know if there's a need for it. You also have to research your competition.

..... Magic Johnson
You must have long range goals to keep you from being frustrated by short range failures.

..... Charles Noble
Great scientific discoveries have been made by men seeking to verify quite erroneous theories about the nature of things

..... Aldous Huxley
Research is to see what everybody else has seen, and to think what nobody else has thought.

..... Albert Szent-Gyorgyi
It is not enough to be busy, so are the ants. The question is, 'What are we busy about'?

...... Henry David Thoreau
Prof. Mujumdar has always mentioned that he is lucky to have a string of excellent graduate students and research associates and he would not be able to reach the stage where he is now without the contributions of all these fine individuals. On the other hand, I must say that I am also blessed to have such a mentor like him. It is indeed the logical way of thinking he has instilled in me during the past 15 years that allows me to achieve something, including a relatively smooth transition from being trained as a chemical engineer, with no whatsoever knowledge about food, to becoming a food engineering researcher as I am today. It is the way of thinking, not the mere body of information, that he has always emphasized as being important.

I take this opportunity to wish Prof. Mujumdar a smooth transition from “drying” to “drawing.” I hope the transition would be “smooth” enough that he would not dehydrate himself from the former “dry” field too rapidly. As he always says painting is basically a stress relief exercise for him, akin to meditation.

Sakamon Devahastin
Bangkok Thailand
Research your idea. See if there’s a demand. A lot of people have great ideas, but they don’t know if there’s a need for it. You also have to research your competition.

..... Magic Johnson
You must have long range goals to keep you from being frustrated by short range failures.

.....Charles Noble
To enjoy the things we ought, and to hate the things we ought, has the greatest bearing on excellence of character.

..... Aristotle
It is better to deserve honours and not have them than to have them and not deserve them.

..... Mark Twain
The aim of education should be to convert the mind into living fountain, and not a reservoir.

..... John L. Mason
Life is like riding a bicycle. You don't fall off unless you plan to stop peddling.

..... Claude Pepper
There are only two ways to live your life. One is as though nothing is a miracle. The other is as though everything is a miracle.

..... Albert Einstein
The creative person is overpowered, captive of and driven by a demon... They become our legendary heroes

..... Carl Jung
The aim of the art is to represent not the outward appearance of things, but their inward significance.

..... Aristotle
To see we must forget the name of the thing we are looking art.

..... Claude Monet
Creativity is thinking up new things. Innovation is doing new things.

..... Steve Jobs
We are not interested in the unusual, but in the usual seen unusually.

..... Beaumont Newhall
Every artist deeps his brush in his own soul and paints his own nature into his pictures.

..... Nelson Mandela
The attempt to combine wisdom and power has only rarely been successful and then only for a short while.

..... Albert Einstein
Wisdom is like wealth; it is distributed in a very disparate fashion among the population.

..... Arun S Mujumdar
Knowledge is like entropy; it keeps increasing. It is a pity the same cannot be said about wisdom.

..... Arun S Mujumdar
If we learn to domesticate creativity- that is enhance it rather than deny it in our culture- we can increase the number of creative persons as it was in the Renaissance, Elizabethan England, when civilization made great leaps forward

..... Raymond Chandler

It has been a great privilege for us (me and Rujuta) to know closely Professor Arun Mujumdar and Mrs. Poornima. Even in the first visit (nearly 10 years ago), it gave us an impression that the friendship has been for several decades. The credit goes to the Mujumdar couple arising out of their deep dedication to spirituality. Their continuous warmth has been an asset for us, almost unparallel.

Arun has most distinguished career as a Teacher, Researcher and Practitioner. The number of publications and citations are remarkably impressive. The Chemical Engineering Community (academics and industry both) of the world will remember him for his seminal contributions in the area of drying. First of all, he brought this very important (though neglected) area for active research: fundamental as well as applied. Secondly, he motivated a large number of faculty throughout the world to undertake research in this fascinating field. Thirdly, he started a new journal and a new series of world conferences in the area of drying. Fourthly, he has extensively written several monographs and books which have become lighthouses for researchers and practitioners.

I am personally moved by his deep attachment with his alma-matter: Institute of Chemical Technology (formerly University Department of Chemical Technology, UDCT), Mumbai, India. He has been devoting typically a fortnight every year for fostering research, motivating young students, etc. The strong research activity of Professor Thorat at ICT has origins in the strong bonds of Professor Mujumdar with ICT. They together have conducted several successful workshops in the area of drying: an event which is the most sought after by industry in India. In appreciation of his outstanding contributions, the Institute of Chemical Technology honored him with “Platinum Award” during the Platinum Jubilee year of the institute. I am confident that Arun will earn many more awards and honors. The Chemical Engineering Community of the world shall remain always grateful to him.

I was pleasantly surprised to see the colour paintings drawn by Professor Mujumdar. He is indeed a very rare person having aptitudes and ultimate successes in so many diverse areas. I wish both Arun and Poornima the best of health and happiness. I am sure, they will continue to remain active for inspiring several souls like me.

J.B. Joshi
DAE- Homi Bhabha Distinguished Chair Professor and J.C. Bose Fellow
Human life itself may almost be pure chaos, but the work of the artist is to take these handfuls of confusion and disparate things that seem to be irreconcilable and put them together in a form to give them some kind of shape and meaning

..... Katherine Anne Porter
One half of life is luck; the other half is discipline - and that’s the important half, without discipline you wouldn’t know what to do with luck.

..... Carl Zuckmeyer
A great life is born in the soul, grown in the mind, and lived from the heart.

..... Suzanne Zoglio
The measure of a life, after all, is not its duration, but its donation

..... Corrie ten Boom
Prof Arun S Mujumdar’s Global R&D contributions

Selected books and journals in drying and transport phenomena edited/authored by Professor Arun S Mujumdar, National University of Singapore, McGill University, Canada (1978 - 2004)

Visit http://serve.me.nus.edu.sg/arun
Prof Arun S Mujumdar’s Global R&D contributions

Over professional career at McGill University and at NUS (August 2000- till date)

- 420+ journal papers; 350+ conference papers; 120+ book chapters
- 2 Authored books (multiple editions/reprints, translated into Chinese, French, Hungarian, Farsi, Bhasa Indonesia, Korean etc)
- 60+ edited works published internationally
- Editor, Handbook of Industrial Drying (3rd edition; 50% authored)
- Editor-in-Chief, Drying Technology (Taylor & Francis, 1988-) I. F. 1.393; 12 issues per annum, 2100+ refereed paper published to date under Prof. Mujumdar’s editorship
- Series Editor : Advances in Drying (5 vol. ); Advances in Transport Processes (11 volumes); Modern Drying Technology (VCH-Wiley, Germany) 5-vol. set ( 2007-2012)
- Member Editorial Board of 7 international journals
- Member of Organizing/Scientific committees of 60+ international conferences
- Advised 55+ PhD students at McGill, NUS and several universities in China, India, Hong Kong, Thailand ,Malaysia, Iran etc. 25+ Master’s theses and 125+ undergraduate research students; supervised 35+ postdoctoral research fellows, research engineers
- Honorary professor at 6 universities in China and Thailand; Distinguished Professor at Institute of Chemical Technology, Mumbai, India
- Fellow of ASME, CIC, IIChe, etc
- Lectured in 40+ countries
- Plenary and Keynote lectures at international conferences in 3 continents : 70+
- Interdisciplinary research since 1965; consultant to industry 1975-2000.

Teaching

- Transport Phenomena; Convective Heat Transfer; Mass Transport,; Engineering Thermodynamics; Fluid Mechanics; Drying
- Professional Development Courses and workshops for industry : 20+
- Workshops in Industrial Drying : 20+

Administration

- Evaluation Panels for major research grants; Promotion/tenure committees; University General Education comm.
- Advisor to several Research Centres in overseas universities
- Involved in establishment of Engineering Science Program at NUS, initiator of Energy Systems option within ESP, including Faculty Search and Recruitment, curriculum development; international liason etc
- Director, Minerals, Metals & Materials Technology Centre/Faculty of Engineering/NUS. Principal author of proposal to EDB/Singapore leading to establishment of a $20 million/3 year Centre.
Professor Arun S. Mujumdar earned his B. Chem. Eng. degree with distinction from University of Mumbai and then proceeded to obtain M. Eng and PhD degrees from McGill University, Canada where he was Professor of Chemical Engineering until 2000. He joined the Mechanical Engineering Department of National University of Singapore in 2000 where he is Professor and Director of the Minerals, Metals & Materials Technology Centre. He is the Founding Chairman of the acclaimed International Drying Symposium (IDS) series as well as Editor-in-Chief of Drying Technology journal since 1988. He is author/co-author of over 400 archival publications, over 100 book chapters and editor/co-editor of several dozen books on drying, heat and mass transfer. Winner of many prestigious international awards, the Technical University of Lodz conferred upon him the award of Doctor Honoris Causa In June 2008. In 2007 a new annual international award entitled Arun S. Mujumdar Medal for Excellence in Drying Research, Service and Mentorship was instituted to recognize exceptional contributors to the science, technology and engineering of thermal drying on a global scale.