

Networking and Research Collaboration: Some Personal Experiences

M.R. Jisnuson Svasti^{a,b*}

^a Department of Biochemistry and Center for Excellence in Protein Structure and Function, Faculty of Science, Mahidol University, Rama VI Road, Bangkok 10400, Thailand.

^b Laboratory of Biochemistry, Chulabhorn Research Institute, Bangkok 10201, Thailand.

* Corresponding author, E-mail: scjsv@mahidol.ac.th

ABSTRACT: Networking and collaboration are very important in promoting excellence in research. The concepts of networking and research collaboration are discussed, based on personal experiences. These include the importance of making scientists talk to each other, the role of complementarity in expertise, matching technical capability to research question, and creating a critical mass of researchers. Advice is given to young Ph.D.s on the various aspects to consider in selecting a research project to begin their research. The value of involvement with local societies and international academic organizations are discussed, as is the making of contacts for research collaboration through attendance at international conferences.

KEYWORDS: Networking, Collaboration, Protein Research, International Organizations, Academic Societies in Thailand.

INTRODUCTION

Networking is important for all spheres of life, and science is no exception. Personally, I have been involved in many academic networks, both for the purposes of advancing research and for the purpose of promoting international cooperation. In this article, I would like to share some of my thoughts and experiences on networking and research collaboration. First, to discuss terminology, the dictionary definitions¹ of a *Network* include “an interconnected or interrelated chain, group, or system” or “a usually informally interconnected group or association of persons”. *Collaboration* may variously be described as “to work jointly with others or together, especially in an intellectual endeavor”. In addition, collaboration or cooperation may sometimes involve only two or a small number of parties, which are not sufficiently extensive to form a network, and may be more properly known as *Links* or *Linkages*. It is in these broad senses that we will discuss the value of networking and research collaboration.

Academic networks may be of many types. Some are collaborations between different universities at national or international level. An example at national level is the Deans of the Graduate Schools of the Public Universities of Thailand (DGPU), which I was involved with as Dean of the Faculty of the Graduate Studies at Mahidol University. An example at international level includes the Global Universities Network for Innovation (GUNI), of which Mahidol University is a member of the Asia-Pacific Network. Then there are networks involving academic societies, such as the Federation of

Asian and Oceanian Biochemists and Molecular Biologists² (FAOBMB), of which I was once Treasurer (1980-1983) and President (1990-1992). There are also networks of individual scientists, such as the The Academy of Science for the Developing World (TWAS, formerly known as the Third World Academy of Science), in which I once served as a member of the Membership Committee for Biochemistry for Biophysics.

Such networks are obviously rather formal, generally having written constitutions or memoranda of understanding for their existence and operation. Each network was founded for specific academic purposes, and undertakes various types of activities, depending on its purpose. While some organizations may promote research activities, such organizing conferences and providing travel or research fellowships, they are not inherently engaged in research collaboration. Research networks or linkages, in my experience tend not to be so formal, perhaps because the process of research is more creative rather than formal, although sometimes they are guided by memoranda of understanding between the parties involved. Sometimes even, research networking may occur without the people involved being fully aware of the process, which I would call *Tacit Networking*, as opposed to conventional *Explicit Networking*. Since this article is being published in a research journal, we will focus on networking in research.

TACIT NETWORKING

Perhaps, one reason for my involvement with

international activities throughout my academic career has been because although born in Thailand, I grew up in England, and studied there from 6 years old until finishing my Ph.D. at the age of 24. So I was educated in the British system, preparatory school at Cheam School, public school at Rugby School, and university at the University of Cambridge, undergraduate level at the Department of Biochemistry and doctoral level at the Medical Research Council (MRC) Laboratory of Molecular Biology (LMB)³. Thus, English has always been my first language and Thai my second language, and perhaps, this has made me a natural choice for interacting with overseas guests and international organizations.

The doctoral studies were a wonderful experience, because the LMB was one of the top laboratories in the world for biochemistry and molecular biology. Although the laboratory was not very big with less than 300 research scientists (including students and postdoctoral researchers), staff from the laboratory have shared in 8 Nobel prizes over the last 50 years, including my own advisor Cesar Milstein. This remarkable record cannot be accidental, and for researchers and those involved in establishing research facilities in Thailand, it is interesting to examine the factors contributing to the success of the LMB. Good people is an obvious necessity, and this was the case right from the beginning, because the MRC founded the LMB in 1962 to support two outstanding research groups. The first group was that of Max Perutz and John Kendrew (who shared the Nobel Laureate, Chemistry, 1962) in the Cavendish Laboratory at the Department of Physics, and the second was the group of Frederick Sanger at the Department of Biochemistry (who is the only person ever to receive two Nobel Prizes in Chemistry, in 1958 and 1980). Good mentorship is a second factor, already discussed in a previous editorial⁴, where examples were given of Perutz's students John Kendrew and Francis Crick (Nobel Laureate in Physiology or Medicine 1962), and Sanger's student Rodney Porter (Nobel Prize in Physiology or Medicine, 1972) and mentee Cesar Milstein (Nobel Laureate in Physiology or Medicine, 1984).

Perutz⁵, Chairman of the Governing Board of the LMB for many years, has described other aspects, which he considered to be important in LMB's success. This included having a simple administrative system, where the Governing Board (with the three other members being Kendrew, Sanger, and Crick) never tried to direct research, but attempted to attract the best young researchers, and support them to do the research they wished. Research groups were small, of 5-12 researchers, each with a principal investigator, encouraging individual creativity. Special effort was

made to provide good laboratory facilities, with shared equipment, good workshop facilities, and a good laboratory manager. Indeed, the development of novel technologies has been a hallmark of LMB success, since this enables researchers to lead the field: important examples include techniques for X-ray crystallography, nucleic acid sequencing, and monoclonal antibodies.

But perhaps as important as anything else was that scientists were encouraged to talk to one another. Thus, Perutz established a canteen on the top floor providing good food at modest prices, which everybody used three times a day, morning coffee, lunch and afternoon tea. Researchers from different groups mixed with each other; young Ph.D. students, postdoctoral researchers, group leaders and Nobel laureates shared tables and discussed their research. This exchange of ideas and expertise between people of different scientific fields and backgrounds occurred naturally three times a day, every working day of the year. In addition, sharing of equipment meant that researchers had to use equipment in other laboratories, and this also naturally leads to discussion, often between people in different research areas. The continual exchange of ideas between all researchers in the whole institution was a very powerful force in promoting creativity. Yet, each person was involved without making any conscious effort, or perhaps even without even being aware that they were parts of this network. So in my opinion, the whole process is a form of networking, *Tacit Networking*, and the success of the LMB in the last 50 years testifies to the importance of such networking.

RESEARCH COLLABORATION UPON RETURN TO THAILAND

As noted earlier, teaching and research are opposite sides of the same coin of knowledge⁶, and staff teaching at universities, especially those teaching at graduate level should also be doing research^{4,6}. So young Ph.D. graduates must be encouraged to start research and be productive as soon as possible⁶, otherwise they will be lost from the academic system. However, it is sometimes difficult to decide what research project to choose, especially for those who return after completing their doctoral degrees overseas. At first sight, it might be simplest to continue the project done for Ph.D. study. However, young researchers should consider also whether they will be able to compete if the field is fast-moving, whether the required equipment and technology are available, as well as the local relevance of the project and the ability to obtain research funding. Young Ph.D. graduates should also explore other options, such as joining a research team within the department or institution, or collaborating with other researchers within the institution or elsewhere. This

requires taking time to see what other researchers in Thailand are studying, for example by attending the Annual Science and Technology of Thailand Conferences, and talking to other researchers, including more established researchers and senior researchers.

As an example, I would like to describe my own dilemma in choosing a research project, when I first returned to Thailand in 1972. At that time, my Ph.D. research area of immunoglobulin structure was a rapidly advancing field, with two Nobel Prizes being awarded in 1972 and 1984. The facilities available at the Department of Biochemistry, Faculty of Science, Mahidol University⁷ were adequate, but more modest rather than extensive. So I decided to find another field of research in the field of protein chemistry, which was my general area of interest. Looking around Thailand at that time, there were two main centers for protein research. The first was Anantharaj Building at the Faculty of Medicine Siriraj Hospital, Mahidol University, where researchers, such as Prawase Wasi, were doing excellent work on genetic diseases. The other location was my own department, which was being developed as a postgraduate and preclinical center with strong emphasis in research. This effort was supported by the Rockefeller Foundation, which had sent overseas staff to Thailand, and at the time of my return, young Thai staff members were returning to replace these overseas staff.

At the Anantharaj Building, two major genetic diseases were being studied. First, the hemoglobinopathies which can cause anemia, may be due to two genetic conditions, *Thalassemia*⁸, due to deficiencies in the synthesis of the hemoglobin chains, and *Abnormal Hemoglobins*, caused by mutations in the structure of the hemoglobin chains. Studies on abnormal hemoglobins worldwide had provided important understanding of the relationship between protein structure and function, since it was possible to correlate the changes caused by mutations with the functional abnormality of the protein. In Thailand, a medical doctor, Sagna Pootrakul, had already characterized several hemoglobin variants, and had all the technical expertise and facilities to do this, so I felt that there was no need to become involved in this research. However, another medical doctor, Vicharn Panich, was studying another genetic disease, glucose-6-phosphate dehydrogenase deficiency (*G6PD deficiency*), due to deficiency in the red blood cell enzyme G6PD. So my first project in Thailand was to collaborate with Vicharn Panich on G6PD, to try to make use of my biochemical expertise to solve a clinical problem. We tried to purify the enzyme from hepatitis-positive blood, discarded by the blood bank, but in the end the problem was too difficult, and I could only purify small amounts

of enzyme, insufficient for mutation analysis by peptide mapping.

However, at the Department of Biochemistry⁷, at the time that Professor James Olson was Chairman, research was being performed as research groups in Nutrition and Amebiasis. Later, when Serene Vimokesant became Chair in 1973, another research group was formed in Reproductive Biology. This was an important problem at the time, because population growth in Thailand was still high, so there was a need to develop contraceptive methods. Steroidal contraceptives were very effective for women, but no such pill existed for the men. The rationale of the Reproductive Biology group was that to develop drugs for controlling fertility in the male, we still need to know the basic biochemistry of the male reproductive process, in other words how a somatic cell develops into the male germ cell, the sperm. This was a real protein chemistry problem, since differentiation requires changes in the expression of proteins, from somatic proteins to germ cell-specific proteins. Initial members of the group were Montri Chulavatnatol (coordinator), Sakol Panyim, and myself. More staff joined as they returned from overseas training, namely Vichai Boonsaeng, Nongnuj Tanphaichitr and Dhirayos Wittitsuwannakul. Later, Nongnuj Tanphaichitr and I separated from the group and joined with Prasert Sobhon from the Department of Anatomy, because we needed electron microscopy techniques to supplement our biochemical capabilities, so we could study not only at the molecular level, but also at the cellular level. In all this collaboration, we were driven by common needs and goals, such as the need to strengthen academic capability, the need to get funding, and the difficulty of doing research of international quality.

The group proved to be very successful, and produced many publications in good international journals over the course of 10-15 years. Several reasons were important in this. First, the research area was of importance for the nation and could attract overseas funding (e.g. from the WHO, Rockefeller Foundation and Ford Foundation). Secondly, the research problem was in a niche area, which was not too competitive, and yet our research of international quality provided results of global interest. Thirdly, working in a developing country allowed us to have more ready access to biological samples, such as sperm, than developed countries. Fourthly, working together allowed us to develop a critical mass for research, so we could discuss problems and exchange ideas. Finally, although none of the group had worked in reproductive biology before, they had various techniques learned during their Ph.D. study which could be used to study the problem. This complementary expertise allowed us to study different aspects of the problem, such as metabolic

enzymes and nuclear basic proteins. In addition, the cross-disciplinary collaboration between the Biochemistry and Anatomy Departments allowed us to see a more complete picture of the events occurring during the process.

Although Reproductive Biology was the main emphasis of my research during the early years, I could not resist working on the area of my thesis research, namely the immunoglobulins, as a side project. However, I again chose another niche aspect, study of water-buffalo immunoglobulins, to avoid international competition. First, this was done as part of an Advanced Biochemistry Laboratory Course for a small group of students, which was later published in this journal, and later as a deeper study, which was later published in the respected journal *Biochemical Journal*. Thus, young researchers should consider carefully which research areas to start working in, so they can obtain research funding and produce work of quality published in international journals within 3-5 years after their graduation.

CURRENT RESEARCH NETWORKS

Presently, I have a very extensive research network, focused on two laboratories, the first being the Center for Excellence in Protein Structure and Function (CPSF)⁹ and Department of Biochemistry⁷, Faculty of Science, Mahidol University, and the second being the Laboratory of Biochemistry, Chulabhorn Research Institute¹⁰. Research at Mahidol University focuses on structure-function relationships in proteins. Although, I had been working on protein research throughout my career, the establishment of CPSF was recent, and was stimulated by the efforts of the Faculty of Science to encourage multidisciplinary research by requesting competitive proposals to establish centers of excellence, which would receive 30 million baht in equipment. A group of young researchers, Jirundon Yuvaniyama, Pimchai Chaiyen from Biochemistry, Palangpon Kongsaree from Chemistry, and Pramvadee Wongsangchantra from Biotechnology, with myself as Head, successfully proposed to establish CPSF in 2001. This funding enabled us to purchase sophisticated equipment for protein research, including an X-ray diffractometer for studying three-dimensional structure of proteins and a stopped-flow spectrophotometer for studying reaction intermediates in the pre-steady state stage of the reaction. This enabled the group to study the action of enzymes at molecular level, in other words to see how substrates bind to enzymes, and to understand the detailed catalytic action of the groups in the enzyme. Such understanding allows the development of applications, such as drug design where improved drugs may be

designed by fitting to the active site of the enzyme, or protein engineering, where the structure of the protein is engineered to as to change the functional properties in the desired manner.

Complementarity in expertise has been another element in the success of CPSF: thus, the team consists of a protein chemist (myself), two protein crystallographers (Jirundon and Palangpon), a mechanistic enzymologist (Pimchai), and a biotechnologist (Pramvadee). My major interests are in the glycosidase enzymes, which hydrolyze glycosides and glycans, which are not only interesting models for studying protein-structure function relationships, but they also have potential applications in synthesis. This actually developed in 1993, when I was asked by Yongyuth Yuthavong to establish Thai-UK collaborative project in biotechnology with Chris Bucke at the University of Westminster, funded initially by the National Research Council of Thailand and the Royal Society in the U.K., and later funded by the European Union. The crystallographers have major interests in malarial enzymes as drug targets, and enzymes involved in synthesis of penicillin derivatives for drug production. Pimchai Chaiyen is interested in flavoprotein oxygenases, including those which can cleave aromatic rings and which are of interest for removing toxic organic wastes from the environment. Pramvadee Wongsangchantra is working on the isolation of enzyme(s), which may be used to replace chemical methods for degumming silk. Over the past 6 years, CPSF has published numerous papers in international journals, including those of impact factor greater than 10.0. Members have won several awards such as the Outstanding Scientist Award¹¹, Outstanding Researcher Award, 3 Young Scientist Awards¹¹, L'Oreal-UNESCO Women in Science Award, Outstanding Lecturer Award, and Mahidol University Research Award.

Apart from directly involved in CPSF, I act as mentor or have research collaboration with 5 other staff from Mahidol University, and 12 staff from 9 universities, including Kasetsart University, Suranaree University of Technology, Mahasarakham University, Srinakharinwirot University, Khon Kaen University, Prince of Songkhla University, Naresuan University, Chulalongkorn University and Mae Fah Luang University. Some were former students, some were invited to join the research team when I received the Thailand Research Fund Senior Scholar Award¹², and some asked me to act as their mentor since they were requesting grants to do research in protein science and enzymology. Some have research areas close to mine, such as in beta-glucosidase enzymes or other glycosidase enzymes. Others do not, and this is because I have subconsciously followed the LMB model of giving young Ph.D.s the freedom to choose the project they want to

do, because I believe this makes them committed to the research. To be sure, I will advise them on the pro's and con's of each research topic, and also on the extent of advice or help that I can provide. In retrospect, this network is rather large and geographically extended, perhaps more so than it should be, but I hope that I have been to provide young researchers with the help, advice, and encouragement to help them be productive in research.

The Laboratory of Biochemistry at the Chulabhorn Research Institute is now focused in studying diseases due to abnormalities of proteins, since these directly affect the health of the Thai people. Research covers two major types of diseases, genetic diseases and cancer, and is performed in collaboration with many physicians.

Genetic diseases are caused by abnormalities in the levels of expression or in the structure of proteins made, so that the protein cannot fulfil its designated function in the body. We first started with the abnormal hemoglobins, since Sagna Pootrakul had passed away, so we continued his work characterizing mutations, in collaboration with Suthat Fucharoen. Later, when characterization of mutations could be performed at the DNA level, more researchers moved into this area, so we switched our interest to other genetic diseases, collectively called inborn errors of metabolism (IEM). These diseases are due to defects in metabolic enzymes, and although the frequency of each disease is rather low, there are many diseases, and many enzymes which may be deficient, so IEM is a significant problem. Quite often, such defects can lead to mental retardation or abnormalities in development. In some cases, the potentially devastating effects of certain diseases, such as phenylketonuria, may be avoided by proper nutritional programs. This work also involves collaboration with many physicians, including Pornswan Wasant at Siriraj Hospital and Duangrurdee Wattanasirichaigoon at Ramathibodi Hospital, as well as doctors from Chiangmai Hospital, Chulalongkorn Hospital, and the Queen Sirikit National Institute of Child Health. Such research collaboration can essentially be viewed as providing our technical expertise to solve the physicians' clinical problems.

Cancer, the other area of interest, is also due to mutations which affect protein function, so that cells can divide indefinitely, forming tumor masses. Cells may also undergo further changes that allow them to penetrate the extracellular matrix, enter the vascular system, and migrate to other tissues, leading to metastasis. Naturally, there is much interest in developing biomarkers to improve diagnosis of cancer, as well as in developing cytotoxic agents or anti-metastatic agents for cancer chemotherapy. Our group was the first group in Thailand to use the novel technique

of proteomics, where the total proteins produced in a cell, tissue or organism, under a particular condition are studied. This has proved to be useful for comparing proteins made under normal and diseased states, such as cancer. Our work started by searching for biomarkers in various cancers in collaboration with Phaibul Punyarit of Phramongkutklo Hospital, who provided cancer tissues. Later, we studied cancer cell lines from Thai patients, which could be used to screen for cytotoxic and anti-metastatic agents from medicinal plants or marine organisms, collaborating with chemists from CRI, Kasetsart University and Chulalongkorn University, who provided pure compounds and extracts. Proteomics was also used to compare the proteomic patterns of hepatocellular carcinoma and cholangiocarcinoma cell lines to search for biomarkers, and to study the effect of cytotoxic agents to better understand their mechanisms. Such collaboration again makes use of the technology that we have to study materials and compounds isolated by the chemists.

NETWORKING THROUGH SOCIETIES, FEDERATIONS, AND UNIONS

Over the years, I have worked with several academic organizations, both based on at national and international level. While these do not engage in research or support research directly, they often support activities that promote research or networking, most notably arranging conferences. In terms of academic societies in Thailand, I became a member of the Science Society of Thailand¹³, as soon as I returned to Bangkok. As is well known, this is the umbrella organization for science in Thailand, which holds annual Science and Technology of Thailand (STT) Conferences, publishes this international research journal *ScienceAsia* and the magazine *Wittayasart*, supports teachers training and student activities in science, as well as other activities, as outlined in this Special Issue¹³. Personally, I have participated in the STT Conferences from the start, and now encourage researchers in my team to send poster abstracts every year, as well as encouraging young overseas graduates to attend to see what kind of research is going on in Thailand. This is because it is the biggest science meeting in Thailand, attended by 1,200 to 2,500 people, and covering all fields of science, so it provides a great opportunity for researchers to present their current advances, see what other researchers throughout the country are doing, and make contacts that can lead to future collaboration.

Later, at a similar time, in about 1985, I became Chairman of the Biochemical Section of the Science Society of Thailand, and Editor of the *Journal of the*

Science Society of Thailand (JSST). The Biochemical Section has always been very active, and helps to draw together the biochemists at the different universities in Thailand. It has strong international links with FAOB and the International Union of Biochemistry and Molecular Biology (IUBMB), and has arranged three major international conferences. In terms of *JSST*, I served as the second Editor in 1985-1987, following Yongyuth Yuthavong, and became Editor of the renamed *ScienceAsia* since 2001. The reason for this is because I believe in the importance of research, and feel that *SST* should support research in Thailand by publishing an international quality research journal. *ScienceAsia* has provided opportunity for research of international quality which has special relevance to Thailand, but in recent years, it has also attracted more papers from abroad, especially from the Asian region.

Mention must also be made the Protein Society of Thailand¹⁴, in which I played a major role in founding in 2006. This arose because protein research in Thailand has developed rapidly in the last 10 years, with more sophisticated equipment becoming available in Thailand, permitting use of specialist technologies such as protein crystallography, pre-steady state enzyme kinetics, and proteomics. This growth in protein research created a need for a forum for researchers to share their experiences, and seek out others who have common interests or complementary expertise, with whom they could collaborate. Initially, CPSF organized Symposia in Protein Research each year to provide this forum, which were attended by 300-400 participants. Then, the Protein Society of Thailand was established to encourage networking among protein scientists, and now co-sponsors workshops and seminars with other agencies, as well as maintaining a website.

As noted earlier, much of my life has been involved in playing administrative roles in various international academic organizations, such as FAOBMB, IUBMB, TWAS, Asia-Pacific International Molecular Biology Network (A-IMBN), Asian Oceania Human Proteome Organization (AOHUPO), Asian Network of Biological Science (ANBS), and European Action for Global Life Science (EAGLES). Such extensive involvement naturally reflects my firm belief in international cooperation and in the role of academic organizations in promoting collaboration. However, although the aims of each organization are always laudable, it is a fact that different organizations have different degrees of success. This depends on many factors, such as the ability to find leaders with commitment and vision, the structure or composition of the organization, the ability of different members/ member societies to work together towards a common goal, the ability to find financial resources, and the types of activities arranged. However, I can truthfully say that my twelve years in the

Executive Committee of FAOBMB have brought some of the most rewarding experiences of my life. Thus, as President, I was able to place FAOBMB on a proper legal footing by incorporating it in Victoria, Australia as a tax-exempt scientific institution, to find additional funding through the establishment of endowment funds and through a Special Membership scheme for companies, to promote interaction between member societies through issuing a monthly letter, not to mention presiding over international congresses and symposia.

NETWORKING THROUGH CONFERENCES

Most scientists attend many conferences and symposia, both at national and international level, and I am no exception. However, one of the most rewarding series of conferences that I have attended was the International Conference in Protein Structure Function Relationships, until recently held every two years in Karachi, Pakistan. The meeting was organized by Zafar Zaidi, a protein chemist at the HEJ Research Institute of Chemistry, Karachi, later to become Vice-Chancellor of the University of Karachi in 1997-2001. Zaidi was a remarkable man, who played a major role in establishing Protein Science in Pakistan. When he obtained his Ph.D. at the University of Leeds in U.K., he was worried about returning to Pakistan, because "They don't do the kind of research that I do". But his wife, Shahida, was very persuasive, saying "Then you must go back, because if you don't go back, then who will do that research?" I know that many young Thai Ph.D.s, who graduated in advanced fields abroad, often worry about whether they should return to Thailand – to them, I would leave them with Shahida Zaidi's words "... if you don't go back, who will do that research?" We must be strong, and dare to do, so that we can help Thailand develop its research capability, so that it can compete with other countries.

I attended the International Conference in Protein Structure Function Relationships four times running in 1993-1999. It was a nice small meeting of 150 people, held in one room, so everybody listened to everybody else, and one learnt about areas outside one's own expertise. Most importantly, it was attended by some of the best protein scientists from many countries in the world, drawn both by the magnetism of Zaidi, and the concept of trying to do science of international quality in a developing country. Each time, I would bring a younger Thai scientist, not only so that they can learn from the meeting, but also so that they can see that the Pakistani scientists faced even more difficulties than Thai researchers. Personally, I also made many useful contacts. Most notably, we obtained help from Brigitte Wittman-Liebold at the Max Delbrück Center for Molecular Medicine in Berlin, Germany, in

establishing protein sequencing facilities and proteomics, both in training a researcher from our laboratory, collaborating in research, and performing analyses. I also invited protein crystallographers, Robert Huber (Nobel Laureate, 1988, Germany) and Tom Blundell (U.K) to speak at conferences in Bangkok. So conferences can stimulate research collaboration and networking.

When Zaidi died, the International Conference in Karachi lapsed for 2-3 years, until a Memorial Symposium was held for him in 2003, arranged by his colleague, Atiya Abbhasi. Several of Zaidi's old friends attended, including me. Like all Memorial Symposia, we recollected about the deceased, at the Opening Ceremony and at a Poetry Recital session. The organizers also arranged a trip for the foreigners to visit Zaidi's grave. Each of us strew rose petals on the grave, and quietly gathered round in a circle around his grave. It was a very moving experience: Christians, Hindus, Muslims, Buddhists, and perhaps even Atheists, praying in their own way, recalling fond memories of their friend, giving thanks for the opportunity to have known him and offering their best wishes to him. This made me realize that science and the search for knowledge unites people of different countries, different races, different religions, different languages, and different political ideology. Perhaps that is the true meaning of networking and collaboration.

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