

People First

People are the heart of an effective organization. For CNF, it is the staff and its user community helping and expanding the frontiers of research. The period of 2002 to 2003 was singular in changes at CNF. Building of Duffield Hall, moving from the old laboratory to a new building that stands above and around it, continuity in research work, finding workable compromises between vested individual and broader community interests for the new building, organizing and competing for the ten year national network, and acquisition of major new instrumentations with limited budgets, all happened simultaneously and left many of us with little time for sleep. Such periods, in hindsight, are either enervating – a time that we try to forget, or nourishing – an experience that we derive strength and learning from. Such periods also leave behind many memorable moments. I write this short commentary in gratitude to the CNF people and its community recalling some of the delightful irrationality of that period.

Getting a number of advanced instruments directly into the new space was a major task for us and we had accumulated and planned for some of this. Money, however, is always short and funding sources for capital equipment limited. We succeeded through a well-crafted proposal for an electron beam lithography system in an NSF competition that rarely awards million plus dollars. The collateral consequence of this was the need for more funds and minimizing of all costs while assuring working high quality tools that would be new source of strength for the laboratory. Luck was with us in the form of the optics and dot com bust that followed the “effervescence” of late 90’s. Lynn Rathbun was regularly participating in equipment auctions on the phone. Many of the CNF staff, particularly Phil Infante, Rob Ilic and Daron Westly kept traveling at short notice to check equipment we were interested in; Rob and Daron and Garry Bordonaro and John Treichler spent considerable time at Bell Laboratories and with Leica Instruments in evaluating electron-beam lithography machines using tests developed with the guidance of experts, including Edward Wolf, our first director. Meredith became a night owl. During the unfolding of all these events, CNF as a working place was still going on with its central function of research, guided in good spirit by Mike Skvarla, and finessed by Kathy Springer, who had just arrived, and Carol Cleveland. All this, while many were also involved in designing facilities, participating in the complex Duffield systemic tasks, and reassuring the future in a national competition.

One particular incident stands out as an example of our environment and trust. Daron found a scanning electron microscope, something we urgently needed as a replacement to our older tools, at a small company in north-east. The asking price was \$250K. I responded with a suggestion for \$100K offer. Daron raised his eye-brow but didn’t precipitate a long discussion that this could have easily led to and that the staff group would probably have liked to have. The company declined and Daron left the possibility of acquisition open by asking them to get back in touch in case they change their mind. A month and a half later, a suggestion for \$105K arrived by phone, and in a few seconds, we had a machine that we needed badly in the new space and at a price that we could afford. Later on, Mike Guillorn and Rob Ilic orchestrated low-cost acquisition of two even better instruments from Zeiss leveraging the strengths of CNF that all the changes

brought. Lynn and others in the meanwhile were acquiring many tools to go directly in the new space - the advanced furnace banks, dry etching tools, steppers, etc., in the auctions. Our faculty community, Prof. Dieter Ast, e.g., helped in getting important donations. Lynn was managing the juggling of funds, some instruments we acquired in auctions became source of additional funds and barter. Denise Budinger had to make many runs through the purchasing and money-holding departments so that checks could be cut for the time-sensitive transactions. Lynn had the foresight to order impromptu pizzas and Chinese food when the whites of the eyes were too noticeable. This non-traditional management helped us acquire the JEOL electron-beam lithography machine that started operating without a hitch in the new space and has engendered numerous new discoveries, and achieve a laboratory whose equivalent doesn't exist anywhere. The interactions with Don Tennant at Bell Laboratories during that period were very critical to our evaluation, and may perhaps be another reason why we managed to get him to come to CNF and be part of the constant rejuvenation that any good organization needs. Melanie-Claire Mallison made sure that none of these complexities interfered with a high quality summer Research Experience for Undergraduates program in our new surroundings and our 25th anniversary celebration. Not too many have remarked that the 25th was a year late, but many have remarked that it was quite a stimulating and thoughtful event.

Continuous evaluation of who we are in our global and university context, and finding the best affordable means to be true to our principles that make the best research and graduate development happen, is possible because Cornell has individuals with a broad outlook, patience, and who are willing to commit the time needed to support and help with decisions whose impact unfolds over a long time scale. Dan Ralph and Bob Buhrman were always there to play with ideas and with the rigor required in proposal writing. Kent Fuchs always stepped in with support required from engineering administration, John Silcox and Bob Richardson guided with support for the research vision required, and Charles Kruzansky managed and helped with support from New York state.

Above all, though, it was the staff of CNF, many of whom I wish I can individually mention within the context of the zaniness of the times - people who worked nights and days, in planning, moving, acquiring and installing equipment, without flagging in our research tasks, that make CNF what it is. I thank you all for the fond memories.

-Sandip Tiwari