Dr.Swaminathan Sivaram
Graduate Research Assistant 1967-71

It was a grey september morning of 1967 that I made my entry into the Department of Chemistry,Purdue University.I had hardly recovered from the cultural shock of being in the new world.Added to this was the anticipation of meeting Professor Brown.I had done a little home work on him and also heard quite a bit about him.I had been told that professors as busy and well known as HCB had little time for their students and that there was much to gain by registering for Ph.D with a lesser known professor.But a decision had been made - thanks to the interest shown in me by Professor C.N.R. Rao,then of the Indian Institute of Technology,Kanpur - and I found myself outside Professor Brown's cabin on that september morning.

He invited me in.He was sitting on his couch,dressed only in his sleeves,legs stretched on an ottoman - a position that would become familiar to me during the next four years.I hardly remember his first words to me now.He was soon exploring my background(or the lack of it) and interests.For my thesis work he offered a choice of his three major areas of interests:organoboranes,selective reductions and solvolytic studies on carbenium ions(or carbonium ions as we used to call them in those days)

That I chose carbenium ions that day,appears now in retrospect,more fortuitous than wise.My knowledge of organic chemistry in those days was not sufficient enough to choose a topic of research at such a short notice.But then this approach was charecterestic of Dr.Brown:submerge you in the vast ocean of unchartered and unfamiliar knowledge and sooner or later you learn to swim and face the tides with confidence.

The behavior of carbenium ions in solution held our attention for the next four years.We focussed our attention on the phenomenon of retention in the solvolysis of secondary β-arylalkyl systems.Cram had previously reported that acetolysis of L(+)-threo-3-phenyl-2-butyl tosylate gave 0.6% of L(+)-threo-3-phenyl-2-butyl acetate.Where most of us would have chosen to ignore this,to Professor Brown it was a vexing problem.He used to often remark that this observation was a weak link in an otherwise perfect theory and therfore the starting point of an investigation.

The outcome was a thesis that dealt with the finer points of the structure of carbenium ions in solution.But this was a minor gain.For what was learnt in the process was a whole new attitude towards research.To Professor Brown,Ph.D research was not an end in itself but only a means to a greater goal, that of developing one's clarity of thought,analysis and expression,perfecting one's experimental skills to the extent

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that nothing,however unimportant,was overlooked,and persevering till the goal was reached.Contrary to what I had been told,little did he interfere in the day to day progress of research,He freely shared his ideas but in no way imposed them.To a beginner in research this looked like neglect, but it was not so.He gave us the freedom to experiment, freely commit errors and learn from them.His instructions on 'onion skins' everytime we saw him was another unforgettable part of our experience with HCB.The saying was that with students of foreign origin he had problems of communication and his habit of writing down whatever that was said was a means to avoid confusion.This may have been partly true,but I saw in this act a greater purpose.By putting every thought on paper,I think he was illustrating the methodology of problem analysis and solution.To this day I have found this approach a distinct asset in any area of research and which I freely use with my own coworkers.

Was HCB a man easy to get along with? The answer has to be a qualified yes.He was most businesslike,talked little except chemistry within the four walls of the laboratory. His reputation did create a halo around him.However,those of us who had a chance to observe him in more informal sorroundings came away convinced that he was not at all that reticent.

Almost a year prior to my completing my degree HCB had had discussed my career with me.I wanted a post-doctoral training in another area of chemistry.HCB was quick to sense my needs and suggested that I write to Professor J.P.Kennedy, at the Institute of Polymer Science,Akron.Dr.Brown was once again playing his old game:he was ready to plunge me into the new and unfamiliar field of Polymer Science.

Carbenium ions provided the only familiar link and for the next two years it held my attention but with an altered emphasis.We were discovering how to make it work and produce polymers of commercial use.It was a most satisfying endeavor which my years with Professor Brown had fully prepared me for. Even today I marvel at that natural instinct of Dr.Brown that made him suggest that I undertake post-doctoral work in the area of synthetic polymers.He decided for me a course of career whose implications even I had not fully realized at that time.But as it turned out years later,it was the best decision of my life.

Today as a research scientist in the R&D Center of a large petrochemical complex in India,my work encompasses diverse areas of synthetic polymers.But carbenium ion continue to hold a small but significant portion of my attention.In a symbolic way,this continuing association with carbenium ions epitomizes all that I have come to learn and cherish from my association with HCB.

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