

# TRAVELS NOW AND THEN

© Christopher Earls Brennen

---

## EL PICACHO 1992

The highest mountain in Baja California, Mexico, is a legendary peak known to the locals and all who attempt to scale her awesome walls as "El Picacho del Diablo" or "The Mountain of the Devil". While the official name according to the Mexican government is "Cerro de la Encantada (The Mountain of the Enchanted)" and the mountain was known to some for many years as "La Providencia (The Providence)" the name, El Picacho del Diablo, seems so appropriate to all who have walked in its shadow that it is doubtful that it will ever be known by any other name.

This magnificent mountain is a part and yet not a part of a massive block of granite that rises from the parched desert of Baja California about 100 miles south of the US border and 30 miles inland from the dusty village of San Felipe on the shores of the Sea of Cortez. The range itself is called the Sierra San Pedro Martir most of which consists of a wooded tableland between 8000 and 9000ft above sea level. On the west, the land rises to this elevation through a series of rolling benches mostly covered in scrub and mesquite bush. The eastern edge is much more dramatic with great yellow granite cliffs soaring into the sky. In terms of vegetation, the tableland on top is quite a contrast to the desert below. Lush meadows and stands of fir and cedar are interspersed with delicate aspen groves. Great heaps of boulders, granite knobs and "chickenheads" protrude in many places as if to remind the explorer of the essential ruggedness of the land. To protect this beautiful place, the Mexican government in 1947 established the first National Park in Baja, the "Parque Nacional Sierra San Pedro Martir". The only road into this park is a tortuous ribbon of gravel and rock that leaves the paved road, Highway 1, about 80 miles south of Ensenada and climbs over the benches to the west of the tableland, eventually, 50 miles later, arriving at the gate to the park. Along the way it passes two small villages, San Telmo and Sinaloa, and, higher up, the Meling Ranch, about which more later.

The high points of the tableland are on the extreme eastern rim and the highest of these is the 9450ft peak known as Cerro Botella Azul or "Blue Bottle" though even this does not rise more than about 1000ft above the meadow. El Picacho del Diablo is part of a sharp ridge that protrudes to the east of the main massif. This ridge stretches east from Blue Bottle and then turns north, forming between it and the main block a dramatic chasm known as Canyon del Diablo. This canyon begins just below Blue Bottle, travels north about 15 miles and then plunges eastward through a gap in the mountains to emerge in the desert and form a great dry lake, Laguna Diablo, that is part of the San Felipe desert.

---

In his book "Camping and Climbing in Baja" John Robinson describes El Picacho del Diablo as "... truly one of the finest mountains in North America. Composed of huge slabs of fractured granite, precipitous, almost inaccessible, towering almost two miles into the clouds, the peak is a challenge to climb, a wonder to look at." It was first climbed by the legendary Californian explorer and map-maker, Donald McLain, who, after viewing the mountain during a surveying trip in 1905, returned in 1911 determined to conquer it. His account of the ascent from the west makes it sound deceptively easy. Others who followed found it much more difficult than at first appears. This is particularly the case when approaching from the tableland to the west, the route taken by most of the early explorers. Viewed from that vantage point it seems deceptively close. Some tried to traverse the ridge that extends from Blue Bottle to El Picacho only to encounter crevasses and knobs ("chicken heads") requiring technical climbing gear and considerable time and effort. Others recognized the need to climb down from the tableland into Canyon del Diablo only to find it difficult to find a way up the mountain from below, in part because of the impossibility of seeing the peak until one is almost at the top and in part because of the existence of many blind canyons. After McLain's conquest, more than twenty years would pass before the second ascent by a group of six Sierra Club mountaineers in June of 1932. They set out from the tableland for what they thought would be a day hike along the ridge. Two days later they returned having reached the summit, but also having acquired a very healthy respect for the mountain. In the years that followed the mountain was climbed both from the east and from the west, but it was not until the fifties that Bud Bernhard discovered and described the one route up from Canyon del Diablo that requires no real technical climbing. This is known as Slot Wash and is the route that we were eventually to follow.

These days successful ascents are made just about every year and many hundreds of climbers have experienced the majesty of El Picacho del Diablo. As with any challenging endeavour, there are also mishaps. In 1967 two Claremont College students, Eleanor Dart and Ogden Kellogg, were lost for almost a month before Bud Bernhard found Dart wandering in Canyon del Diablo. The two students were lucky to escape alive. That same year another climber was not so lucky. He had a heart attack and died while toiling up the precipitous Slot Wash. His friends buried him in a side canyon and continued on to the top to record the events in the summit register.

---

Sometime during the summer of 1991 I was browsing in my favorite outdoor shop, Sports Chalet in La Canada, when I came across John Robinson's little book. Upon a whim I bought it, thinking it might be fun to return to Baja and camp on the beach. I had never heard of El Picacho del Diablo before, but as I read Robinson's account of its history and the challenge it presented to mountaineers I became increasingly fascinated. Here was a truly awesome challenge and yet one that might just be within my power to conquer. I lent the book to my hiking companion Doug Hart and it had a similar effect on him. In fact, he went out and purchased his own copy of the book. In the ensuing months we often jokingly referred to the possibility of an expedition to climb the mountain, but it was not until the end of 1991 that we seriously began to consider the possibility. Early on we decided to take the "easiest" route, involving very little technical climbing. This consisted of an approach through the eastern desert to a trailhead near the mouth of Canyon del Diablo. A long hike up the canyon would then take us to a base camp near the head of the canyon. The next day would involve a strenuous, all-day climb from this base camp up through Slot Wash to the peak and back down. The last stage would be a return hike down through the canyon. In February and March of 1992 we began to prepare for such a trip during the Easter break. It was my feeling, erroneous as it turned out, that we might be better off if we added a couple of others to our party. Several people at Caltech expressed interest, but, in the end, only a first year graduate student by the

name of Steve Walton joined the expedition.

So it was that in early March of 1992 we made final preparations for our expedition to "El Picacho del Diablo". In addition to our normal hiking gear we acquired 50 ft. of climbing rope and a number of carabiniers ("beaners") for the few places where such gear was apparently helpful or recommended for safety reasons. We had read of the waterfall at the entrance to Canyon del Diablo which, even though it was only about 4*ft* high, was difficult to pass because of the depth of the pool and the smooth vertical walls on both sides. Pondering this obstacle, I had the idea of carrying a crude 6*ft* ladder made from 2 by 4s from the trailhead to the falls and so constructed such a ladder. With all this gear loaded into my 1981 Chevy Citation, the three of us set off at 6.15*am* on the morning of Friday, March 20, 1992, for our first attempt at the Mountain of the Devil. Little did we know of the trials and tribulations that lay between us and the moment we would conquer the mountain.

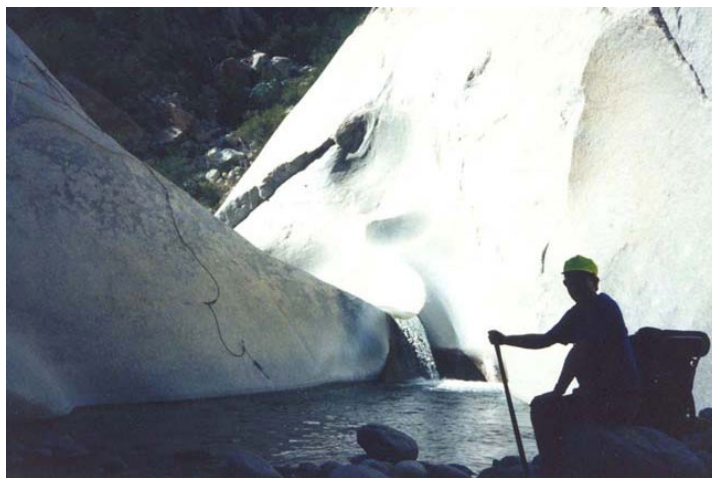
To begin with things went quite well. We drove southeast past Palm Springs and the Salton Sea to Calexico on the US side of the border. There we stopped to acquire the obligatory Mexican automobile insurance. It was, perhaps, an augur of things to come when, upon backing out of my parking space next to the insurance agency, I came into contact with the side of another car. Though the damage was not great, the incident was unpleasant. When the woman who was driving the other car failed to get a satisfactory response from me, she decided to call the police. We waited for them to come and take a report. Unfortunately, the woman had made more trouble for herself because the policeman ended up giving her a ticket for not having any insurance. At the very least, the incident caused us more than an hours delay. Finally, we drove over the border into Mexicali and headed for San Felipe, turning west onto Highway 3 after about 90 miles. About 20 miles from that intersection, we encountered a clearly marked signpost for a dirt road toward "Col de San Pedro Martir". Four miles of that dirt road brought us to the edge of the large dry lake, Laguna Diablo. About 15 miles long but only a couple of miles across, this dry lake has clearly been formed by the run-off from storms high in the Sierra San Pedro Martir. After some difficulties, we managed to get the car onto the dry lake itself and headed off southwards looking for the dirt road that led from the other side of the dry lake to the trailhead. Unfortunately, we missed this turn-off, and found ourselves at the very south end of the dry lake with no dirt road in sight. We then turned around and headed north again, eventually finding what looked like the right dirt road heading west toward the mountains. This we followed for about four miles, eventually reaching a point where the road petered out. We were all fairly sure we were now on the right track though we had no way of being certain. It was, incidentally, a very beautiful spot for, in a strip of the desert close to the mountains, there is sufficient moisture to create the most magnificent cactus garden I have ever seen. Growing out of the sand and rock was a vast array of cacti of all shapes and sizes from giant Cardon cacti to whispery Ocotillo and the most delicate small cacti. And we happened to have encountered them when many were flowering.

All of this induced a sense of well-being as we prepared to set off on our hike. Our instructions indicated that we should proceed northwards parallel with the mountains in order to locate the mouth of Canyon del Diablo. And so we set off in a jaunty mood, taking turns to carry one end or the other of the ladder. However, the mood began to shift as, instead of the mouth of a canyon, we began to encounter increasingly difficult terrain. So it was that we came to a halt in the gathering twilight after about three miles of hiking and, reluctantly, reached the conclusion that we had come up the wrong road and would have to retrace our steps. At this point a minor rebellion occurred for Steve and Doug refused to carry my "silly" ladder back across the desert to the car. The ladder was unceremoniously propped up against a giant Segora cactus and left standing there in the middle of the wilderness. If anyone ever happens by that spot, they will be greatly puzzled by this man-made artifact in the middle of the desert. Other than this light moment, the trudge back to the car through the gathering darkness was depressing, and, by the time we got back, it was very dark indeed. We ate dinner and settled down for the night, sleeping in the sand by the side of the car.

The next morning we set off again on our search for the right trailhead. Back on the dry lake, we drove northward again until we encountered clear markers for "Rancho Santa Clara" that we had missed the previous day. These led to a dirt road that was clearly the right one, and we followed it past a primitive ranch and corral and through about 5 miles of scrub to a trailhead containing several old wooden shacks and various leftovers from previous hiking expeditions. Two other Americans were camped there and provided the final proof that we were now on the right track. However, they also spoke of how difficult the hike up the canyon was and of the even greater difficulty of climbing the mountain. They also observed, as had we, that the top of the mountain was covered in snow. The book indicated that the final stage of the climb was difficult even in the absence of snow. I began to doubt that there was any chance that we could make it to the top.

Nevertheless, with the enthusiasm of morning, we set off across the desert to find the elusive entrance to Canyon del Diablo, a task that was now easily accomplished. The stream leaving the canyon was quite full and provided assurance of a reliable water supply. As we left the desert and entered the canyon, it became clear that we were in for another scenic treat, for the stream had carved a magnificent gorge through these mountains, creating great granite cliffs and a canyon bottom with huge boulders and beautiful pools filled with crystal clear water. We stopped frequently to admire this rugged grandeur. But we also made slow progress because of the frequent need to climb around waterfalls or over giant boulders. Early on we were faced with the waterfall at the entrance for which the ladder was designed. Fortunately, someone had fixed a pin in the rock high on the left-hand wall and from this pin hung a steel rope. Douglas climbed up and fixed our own rope to the pin and we used this to swing ourselves and our packs up and over the waterfall. However, as we proceeded up the canyon, Steve began to labor. It became depressingly clear that he was not physically capable of hiking any great distance under such tough conditions. Shortly after midday, we reached a pleasant little campsite on a elevated sandy bench where we sat down to have lunch and evaluate our situation. Steve did not think he could go any further that day and yet we had only come a few miles up the canyon. There were, at least, another tough ten miles ahead of us before we would even reach the base camp. We encouraged Steve to sleep and, as he did so, Douglas and I conferred. We could not leave Steve overnight and it was clear that it would be pointless to drag him any further up the canyon. We had no option but to abandon our attempt on the mountain of the devil while consoling ourselves with the thought that, at least, we had conducted a useful scouting expedition. In that vein we fed Steve some Gatorade and left him to sleep while we explored about another two miles of Canyon del Diablo. We returned to camp with enough daylight left to climb about 1000*ft* up the canyon wall using a steep wash. From that vantage point we could make out the summit of El Picacho del Diablo and, on the opposite rim of Canyon del Diablo, the Mexican National Observatory. It was clear to us that we had greatly underestimated the effort it would take to conquer this magnificent mountain.





*Left: Entering Canyon del Diablo. Right: Aft Waterfall*

That night I slept soundly after the physical efforts of the previous day. We awoke to a beautiful dawn and, after breakfast, started our return trip out of Canyon del Diablo. This was uneventful though we had some excitement at the entrance waterfall where we met another group of three young hikers. They were attempting to transport their large dog over that obstacle in one of their backpacks. The dog was amazingly docile during its very precarious transit. Back at the trailhead, we wasted no time in loading the car and retracing our steps down the dirt road, past Rancho Santa Clara, across the dry lake and onto the highway. We drove almost straight back to Pasadena, stopping only for lunch along the roadside south of Mexicali. We arrived about 7.00pm, having had a most interesting and enjoyable time even though we had not come anywhere close to our objective. Nevertheless, both Douglas and I were quietly determined that this devilish mountain was not going to defeat us; we were both sure that, someday, we would return to Canyon del Diablo and El Picacho del Diablo.

As we reflected on our first attempt during the weeks that followed, we realized that the period, during which one could expect reasonably comfortable weather conditions for the ascent of El Picacho del Diablo, was very narrow indeed. The winter and spring seemed to be excluded because of the snow at the summit. On the other hand, the summer temperatures in the desert are in the 100 to 110 degree range. This left only the fall, preferably late fall, when the desert temperature has fallen and before the snow arrives at the higher altitudes. As I looked forward to the future, I realized that Douglas would be leaving to take up his faculty position at MIT at the end of 1992, and that I would be spending most of the fall of the same year on sabbatical at Oxford University. Our window for the foreseeable future was reduced to a few weeks at the end of September 1992.

So it was that Douglas and I set off at 5.00am on the morning of Monday, September 21, to make our second attempt to climb the peak of the devil. The temperature in the desert was quite high, and we were concerned about a series of tropical storms that were traveling northeast over Baja and southern California. At least we did not have to worry about snow at the higher elevations. Our plan was the same as before except that, by making an early start and with knowledge of the route to the trailhead, we hoped to hike several miles into Canyon del Diablo before nightfall. This seemed eminently feasible as we crossed the border and drove over the desert toward San Felipe. Turning inland, we reached the dry lake, Laguna Diablo, before midday and managed to get the car onto the lake bed without too much difficulty. So it was that we set off across the dry lake bed in a direction we judged would lead to the right point on the far side.

Suddenly, and with little warning, adversity struck. Incredibly, I saw what I thought was water approaching us across the dry lake bed, and swerved to avoid this extraordinary phenomenon. Though only a few inches deep, the water caused the otherwise firm surface of the dry lake to become an instant quagmire in which the car would have become inextricably mired. At one point we did drive across a small rivulet and only just managed to get through it. Apparently, a storm, which we could see perched over the mountains, had released enough rainfall to create a flash flood that poured out of Canyon del Diablo to wet the dry lake for, perhaps, the only time this year. We were very fortunate that our second attempt did not end with the Citation stuck for ever in the middle of Laguna Diablo.

Having recovered from our astonishment, we began to try to find a way around the water. However, this had spread on such a wide front that it rapidly became apparent that there was no possible access to the trailhead some seven or eight miles away. We briefly considered hiking to the trailhead but we were not even sure that it was safe to try and walk across the mud. We retreated to the dry side of the lake, and stopped to consider the alternatives. As we sat there, a magnificent white stallion came into view and pranced across the flats with several other horses in its wake. An omen, but for what? Perhaps to remind us of the majesty of nature and of the unpredictability of the mountain on which we had set our sights.

We could simply abandon, this our second attempt upon the mountain of the devil. But, if we did, when would we ever have the chance to make a third attempt. Or we could wait for the lake to dry. But neither of us had any idea how long this would take and, in any case, our confidence in the integrity and reliability of the lake bed had been severely eroded. Another possibility would be to try and approach the mountain from the west rather than the east. But this would require a long and arduous detour of about two hundred miles as well as a difficult sixty miles of dirt road leading up to the tableland. In the end, we decided that we would not be defeated by this mountain and that the greatest chance of success lay in the approach from the west. So it was that we drove back to the road that crosses the peninsula from San Felipe to the Pacific Coast, and began the detour by driving 100 miles northwest to Ensenada. There we turned south and drove 85 miles through Santo Tomas and San Vicente to the point 10 miles south of Colón where we were to leave the asphalt highway. It was with some trepidation that we turned left off Highway 1 onto the rough dirt road that leads, eventually, to Sierra San Pedro Martir National Park, some 60 miles to the east and some 8000 ft higher. Initially, we made slow and steady progress, often climbing quite steeply from bench to bench

as we ascended the mountain range. We drove through the village of San Telmo, and, after 30 miles, passed the Meling Ranch. This 10,000 acre cattle ranch dominates the western foothills of the Sierra San Pedro Martir. Founded by the pioneering Meling family in the early 1900s, the ranch house was rebuilt after it was destroyed in the 1911 revolution. The Meling ranch has, for many years, been a favorite, out-of-the-way resort for those who enjoy remote spots. It dominates this entire area including the National Park.

After passing the Meling Ranch, the road again climbed steeply toward the tableland, and the flora began to change from desert scrub to firs and aspens interspersed by meadows. It was on this remote stretch of gravel, as the sun was setting, that the old Citation finally began to show serious signs of distress. The slipping of the transmission began slowly, and was initially avoided by running in low gear. I had detected signs of transmission failure early in the trip but had chosen to press on. As I tried to nurse the old car up the hill, the slipping increased dramatically and clouds of smoke began to appear. We made it through the gates of the National Park but, about a mile further, the transmission quit completely for the first time. It was now very dark and we were utterly alone many miles from anywhere with no means of transportation other than our legs. It was a somewhat worrying situation. We waited for a little while to see if the transmission would work better after it cooled. When it was topped up with transmission oil, we tried again and managed to go another mile or so before we again came to a halt in a cloud of smoke. There was nothing more that could be done, and so we made camp by the side of the road. Perhaps, the morning would suggest some way out of our predicament. Curiously, two large trucks passed by in the night but it was too dark to make out anything other than their silhouettes. It seemed to me that the coyotes howled quite ominously that night.

The bright and crisp morning improved our spirits and revealed a number of options. We could try to drive the Citation down the mountain. But the downgrade included some upgrades that I doubted we could surmount. And there seemed no hope that the car could make it back to the USA. On the other hand, perhaps it would be best to dump it here where we would not be observed and then wait for a ride down the mountain in a truck such as had passed us in the night. But that meant dumping a lot of general gear that I kept in the car; and the thought of the long slow ride back to the US in a beat-up Mexican bus was not very appealing. However, a third alternative began to form in our minds based on the Observatory that was apparently located some four or five miles further up the mountain, indeed at the end of the dirt road. We suspected, correctly as it turned out, that the trucks were part of the normal traffic to and from the Observatory. We also thought it likely that the Observatory would have a means of communicating to the outside world, and that we might be able to use this means to seek help from home. We even considered the possibility of continuing with our assault on El Picacho del Diablo if we could arrange to be picked up some three or four days hence. After some discussion, we settled fairly quickly on this last plan. So, again, the transmission was filled with oil and we crossed our fingers hoping that the car still had a few miles left in it. Such turned out to be the case, and we managed to climb the last few inclines before emerging onto the large meadow called Vallecitos that comprises the tableland and the heart of the Sierra San Pedro Martir National Park. As we sped across the flat meadow, we spotted the observatory on a ridge to the east. We left the car at the bottom of the incline leading up this ridge, and walked the last couple of miles to the Observatory.

A group of cruciform Quonset-like huts set amongst the pines formed the hub of the support facilities for the Observatory. We approached cautiously, in part because of two loudly barking dogs, and in part because we were uncertain of the reception two wandering gringos would receive. There were a number of people hanging around but none took much notice of us, so we headed for the hut that seemed to contain the canteen. It was breakfast-time and the canteen was filled with people. After a pause, a young man stepped forward to greet us; we took him to be the foreman for he emanated a sense of authority confirmed by the walkie-talkie at his belt. We tried to explain our circumstance but it was clear that he spoke little English. I then turned to an older man who had a look of easy authority and whom I guessed was an astronomer. He had initially seemed unwilling to become involved but, when approached, was most cordial and, luckily, spoke excellent English. The two men, the foreman and the astronomer, conferred with us and with each other. First, it was decided that I should compose a message that would be radioed to their office in Ensenada; the operator there would then telephone the desired party at Caltech and relay the message to them. Doug and I had decided that the best idea would be to call the Mechanical Engineering Office at Caltech where either Jackie or Dana would be sure to be present to receive the message. And so it was that we sent off a brief communique telling of our car trouble and asking Yan to come and get us at the Observatory on Thursday, some three days later. Yan Kuhn de Chizelle was a French graduate student of mine with some knowledge of our plans and an automobile that we thought capable of making it up to the observatory. More specifically, we asked Yan to meet us at 2.00pm on Thursday at the white gate in Vallecitos meadow on the tableland below the Observatory. The white gate was chosen because it was an unmistakable point on the road through the meadow, and because we could hike there from the trailhead without having to climb to the Observatory. We could only hope that the message would not become too garbled as it was translated into Spanish and then back into English.

This accomplished, we had to make appropriate arrangements to dispose of the car which, in its present state and location, was worth negative dollars to me. I therefore decided on a grand gesture that I was fairly sure would impress our new friends. Thus I approached the foreman (who had arranged the message transmission) and told him that I wished to give him the car. I think that both he and the astronomer were somewhat startled by this gesture but also surprised and pleased by it. Our relationship with them which had begun to warm when they discovered that we were from Caltech, was enhanced considerably by the offer of the car. They drove us back down the hill to the car which I was able to drive up to the observatory since the transmission had had time to cool.



*El Picacho from observatory*



*Citation's last stop*

By this time we had discussed our planned assault on El Picacho del Diablo with our Mexican hosts. It so happened that the astronomer was also a mountain climber and, most remarkably, that he had, that very morning, returned after a successful four day climb of the peak with a visiting French astronomer. This common interest strengthened the bonds of our new friendship; they supplied us with a better local map showing the best route to and up the mountain. And, when it came time for us to head off on our hike the foreman, Alfredo, and the two astronomers decided to take us to the best starting point in their four-wheel-drive Jeep. Thus we drove down to Vallecitos meadow and turned south along a narrow, dirt track, travelling in a southeasterly direction for several miles until the track became so rough even the Jeep could go no further. Here we parted company with our Mexican friends and set off for El Picacho del Diablo. For the first time we had some confidence that we might finally be able to conquer this devil.

Initially, the trail was fairly well ducked and wound its way up a very beautiful valley with a mix of trees, firs, cedars and aspens whose leaves were beginning to turn yellow and red. Further up this valley the trail became less distinct and seemed to divide. We followed a line of ducks that led in a more southerly direction than I would have liked but we assumed that the ridge above us was the edge of Canyon del Diablo and therefore it did not matter very much how we climbed it. However, when we reached the top of the ridge, it was clear that we still had some way to go before we would reach the edge of the canyon. Mistakenly assuming that the mountain ahead of us was the 9450ft Blue Bottle, we left the poorly ducked trail to climb this peak for our climbing notes recommended that we do in order to get our bearings. When we reached this summit, I managed to persuade Douglas of our error and the need to return and find the earlier trail. This we did in a somewhat dispirited mood for it was proving much harder than we anticipated to get to the edge of Canyon del Diablo. While Doug prepared lunch, I climbed a nearby rockpile in order to try and determine our location. After lunch, the trail began to climb more steeply and we grew increasingly pessimistic for the hours of daylight were dwindling. Finally, and rather suddenly, we arrived at a rocky peak, the top of Cerro Botella Azul or Blue Bottle at 9450ft. The view we expected unfolded in awesome majesty before us. The bottom of Canyon del Diablo lay almost a mile below us and yet, rising again on the other side, was an immense buff-coloured wall that culminated in the twin peaks of the magnificent El Picacho del Diablo. It was quite overwhelming; on a cerebral and physical level it challenged me; on an emotional level I had great difficulty believing that it was possible for me to climb it.

But we could not dally long for time was of the essence. It was clear that we would have to make it to the bottom of the canyon before sunset. The next obvious objective was the saddle to the north and about 1000ft below Blue Bottle. Fortunately, a ducked trail seemed to lead down the steep slope toward this objective and we reached it with little difficulty. From there we knew that we had to contour around the south wall of the Canyon Diablo to our right before attempting to descend. The more direct route straight down is known as Gorin's Gully and contains several vertical sections requiring ropes and technical climbing gear. Such difficulties can be avoided by contouring far enough around to a large rubble strewn gully known as Blue Bottle Wash. Fortunately this route was well ducked and we found our way fairly readily to the wash and began to descend. There were several difficult places during the descent where large blocks of granite had created substantial obstacles and each of these required some route finding and some climbing. But, for the most part, the descent was very long and extremely hard on the legs as we stepped from boulder to boulder. We could not afford to stop for any extended periods for it was clear that we would only just make it to the canyon bottom before nightfall. Such haste is often unwise and so it proved in this case for both of us suffered falls. Fortunately I escaped relatively unscathed. Douglas, on the other hand, sprained his ankle quite badly and was thus handicapped for the rest of the trip. The Motrin which I happened to have with me proved invaluable in easing the pain of the ankle while, at the same time, providing muscle relaxant.

Though the descent seemed endless we did, indeed, reach the bottom just before nightfall. The need to do so was not dictated by the desire for a comfortable campsite but by the more basic and essential need to find water. Indeed, we had run out of water about two thirds of the way down the wash. Therefore, it was a great relief to come upon a small but sparkling waterfall tumbling out of a side canyon to form a clear and inviting pool of water directly ahead of us. Having sated our thirst and refilled our water bottles, we pressed on through fairly thick brush to find a suitable campsite for the night. Fortunately, we had only to go a few hundred yards before we came upon a small flat clearing by some rocks and another pool and, with relief, we shed our packs and quickly made camp. After dinner, we bedded down to try to get as much rest as we could before the major effort of the following day. It was a beautiful, still night. We had been lucky with the weather; though we had seen a number of thunderstorms in the distance none had come our way.

Perhaps we should have made an effort to arise before sun-up but the efforts of the previous day required as much recuperation as possible and so the sun arose with us. The weather seemed ideal and our excitement grew as we began preparations for the final assault on El Picacho



del Diablo. We correctly surmised that we were still some distance upstream of Camp Noche, the starting point for the ascent of the mountain. Nevertheless we decided to stow our packs at this pleasant little site and to return here after our climb. There seemed little point in carrying our heavy packs down to Camp Noche and then have to bring them back up. I had brought along two large plastic trash can liners and, to be safe, we covered our packs before we left. So we set out on the final leg of our ascent with just one light day-pack.

As we proceeded down Canyon del Diablo, we were able to identify several reference points. After a few hundred yards, we encountered a clearing surrounded by thin logs on a bench to the west of the stream. This small site was Camp Cedaroak at an elevation of 6600ft. About a half mile further downstream, we came upon Camp Noche (6300ft), a larger site on a bench to the east of the stream. An enticing swimming hole nearby helped to confirm our identification. We also found a small Mexican flag that had been placed in the middle of Camp Noche by the preceding expedition led by our astronomer friends.

We wasted little time in embarking on our ascent of the large, shallow gully immediately above Camp Noche, named Night Wash by a group from UCLA who had descended this way after night had fallen. It is a steep but easy climb up a rocky slope that eventually reaches a saddle at about 7400ft. This saddle leads to the much larger gully known as Slot Wash. The reason for this sideways entrance into Slot Wash is that the latter is too steep to be climbed in its lower reaches. From the Night Wash Saddle we contoured around and then dropped into Slot Wash. Here the going became significantly harder because one had to surmount many large boulders and a few steep falls. About 7800ft we were pleased to encounter running water and stopped by a small pool to refresh ourselves. It was clearly going to be a very tough climb, not so much because of the height but because the terrain was extremely rough. Moreover, while the route was well marked by ducks for some stretches, there were others in which ducks were few and far between. Worse still, there were ducked trails that went off in what were clearly wrong directions. Thus there were numerous stops for navigational purposes, and there were many times when we were quite unsure whether or not we were on the right path (though that word was quite alien to the terrain in which we found ourselves). However, as we proceeded to thread our way past the boulders of Slot Wash, we did not have too much difficulty in identifying the prominent rock mass that divides the Wash at an elevation of 8200ft. Here, our navigational notes told us to take the left branch but, almost immediately, we had to climb onto a shoulder on the left side of the canyon in order to circumvent several large waterfalls. This was the most dangerous part of the ascent and a slip could have been fatal (on the way down I persuaded Douglas to anchor me with a rope while I negotiated these sections). Having completed this stretch of the climb we came upon a junction where I made the only serious error in navigation. We had climbed a rough dirt and rock slope to a point where a steep wash branched off to the north; the ducks appeared to lead in this direction. According to our notes, we needed to find a wash like this, called "Wall Street" that would lead us directly up to the north summit of the mountain. At this point, I should explain that the summit of El Picacho del Diablo consists of a very steep and ragged ridge of granite. At each end of this short ridge are the north and south summits measuring 10154ft and 10152ft respectively. It is a difficult, technical climb to get from one summit to the other, for there are several gaps and knobs that present substantial obstacles along the granite ridge. We sought the branch to Wall Street for that would take us to the north summit whereas to continue straight would take us to a point midway along the summit ridge. The reason I chose not to take the steep wash that I now suspect was Wall Street, was because it appeared to be headed north and I thought Wall Street was in a northeast direction. Therefore, we contoured around to our right in an attempt to find Wall Street. We found ourselves in a steep narrow wash which, at the time, I thought was Wall Street but that was, in fact, the upper reach of Slot Wash.



*Climbing toward the summit*



*The summit of El Picacho*

We were now very excited about the fact that the summit of El Picacho del Diablo was but a few hundred feet away. At the same time, we were quite exhausted and so struggled up the last few hundred feet to the summit. The last fifty feet or so were over bare rock and culminated in a sharp ridge. Then, quite suddenly, a truly awe-inspiring vista exploded before our eyes and I felt as though I had been propelled into space. The drop on the far side, to the east, was several thousand feet straight down. We could see the notorious dry lake 10000ft below us and could even discern the various dirt roads leading to and from it. Beyond this lay the inland coast and the Sea of Cortez. And, turning around to look back in the direction we had come, we could make out the Pacific Coast through the desert haze. Most mountain summits evoke a sense of exhilaration and that emotion is heightened when the climb is difficult or when the view is spectacular. In this case, not only had we expended great effort and overcome substantial difficulties but also the view was truly mind-blowing. I was overcome, even frightened though I was in no danger. It was an experience that I doubt I will ever have again because I think the climb taxed me to the furthest limits of my physical and emotional resources. I had met the devil and had survived. And, still, this mountain was like a magnificent, wild animal that should forever remain unshackled. We never, in fact, reached the actual north summit for it was a few yards away and a few feet higher. We were separated from it by a knob and a gap that would have required rock climbing expertise and equipment to traverse. While we had reached the top of this mountain, in some strange way it seemed appropriate that we had to leave the absolute summit untouched. We had developed a special, mystical relation with this mountain that would be with us the rest of our days.

But time was short and we had to start to descend to have any hope of reaching our camp site before dark. We were also concerned about the very active thunderstorm that we could see off to the west in the vicinity of the entrance to the Park. Up to now the weather had treated us very kindly for the summit ridge is often hidden in cloud and had, in fact, been so hidden the previous day. El Picacho was not yet finished with us and had at least one more surprise for us resulting from this storm we could see in the distance. But the weather was just fine during the early part of our descent. We made good time because it was quite easy to navigate, retracing the route we had taken on the way up. We tried to hustle along because it was becoming evident that we would not make it to the bottom of the canyon before nightfall and we were apprehensive about finding our way in the dark. Then it also began to rain. We donned our waterproof jackets though not the pants since they would have been torn to shreds. Fortunately, we only felt the edge of the storm and the light rain soon abated. Of more concern was the impending darkness. We reached the saddle leading from Slot Wash to Night Wash while it was still light and so it only remained to descend through Night Wash. Douglas, fearing the darkness, set a very rapid rate of descent. Trying to keep up, I took one head-over-heels fall, fortunately without injury. Darkness fell but we reached Camp Noche in the bottom of the canyon without further incident. There we rested and took advantage of the pause to congratulate ourselves on our conquest of El Picacho. The elation persisted as we made our way by flashlight up Canyon del Diablo to our camp site about half a mile upstream. I was glad that I had noted in my mind the fact that there was a large, fallen tree lying across the gully just downstream of the campsite for we might otherwise have had difficulty finding it in the darkness. We were also thankful for the trashcan liners that had kept our packs and all our stuff dry during the rain.

It had been an extraordinary physical effort for me that day, and, by the time we returned to camp, I only wanted to climb into my sleeping bag. This I did while Douglas cooked and ate dinner. Both of us slept soundly after all our exertions and awoke at dawn to another bright and clear morning. We anticipated a long and tough climb up and out of the canyon while carrying our packs and such proved to be the case. One must be careful not to leave Blue Bottle Wash too soon to begin contouring toward the saddle on the rim below Blue Bottle. But mostly it was a hard slog punctuated by rest stops during which we could again admire the magnificent view behind us. Finally, we reached the Blue Bottle saddle about lunchtime and so paused for Top Ramen. Thus replenished, we began the gentle descent through a shallow valley traveling northwest in the direction of Vallecitos meadow. We soon discovered that we still had much further to go than we imagined but the going was fairly easy, and we knew that, as long as we headed northwest, we had to intersect the dirt road along which we had traveled to the trailhead when we began our hike. The trail was initially very well ducked and passed through some beautiful aspen groves. But it then seemed to evaporate and we crossed from one canyon to another on several occasions. Finally, we came upon the trail again in a flat, sandy-bottomed canyon and were able to follow it all the way to the dirt road. This was the very first point at which we thought we might possibly encounter Yan if he had indeed come to get us and had learnt of our route from our friends at the Observatory. That seemed a really long shot, so we were not at all surprised when we found no-one at the junction with the dirt road. After a brief rest, we set off to walk along the road to Vallecitos meadow. We were both quite exhausted and hoping that Yan would show up at every turn. But there was no sign of anyone and, after about three miles, we reached the junction with the main dirt road to the Observatory. There we sat down beside the road somewhat dejected. Not only was there no sign of Yan but I could not remember whether the white gate was to the east or west of us. I volunteered to hike along the road in order to try and find the white gate while Douglas stayed by the packs. But I had gone only a short distance when we spotted the cloud of dust associated with a vehicle coming up the road. Our spirits rose only to fall as the vehicle came into sight and proved to be a beat-up old pick-up instead of Yan's Subaru. It was loaded with a refrigerator and other supplies clearly headed for the Observatory. I tried to find out from the driver whether or not he had seen anyone waiting by the white gate further down the meadow but this was much too complex an issue to have any hope of communicating given the severe limits of our common language. I did not want the driver to begin to question our sanity and so switched to a much simpler request, namely that he give us a ride to the Observatory. And so we completed our epic hike to El Picacho whilst hanging on to a refrigerator bouncing along in the back of a pick-up truck. At the Observatory, there was no sign of Yan or any other rescuer. We were, however, greeted by our new friends who seemed pleased that we had returned safely though they were clearly somewhat amused by our bedraggled appearance. Both my shorts and Douglas's new hiking pants had been torn to shreds by the rocks of El Picacho. At least Douglas's pants had provided some protection; my knees, on the other hand, were almost devoid of skin.

We sought out our English speaking astronomer friend to find out whether he knew anything of Yan's whereabouts. He radioed our other friend Alfredo the foreman who was somewhere out on the road. The story that was relayed to us from Alfredo made little sense to us. Apparently two women had come to rescue us but had been stopped at a point on the dirt road up to the tableland by the fact that the storm of the previous day had washed out part of the road. Who these two women were was a mystery to us. Apparently, Alfredo had taken a four-wheel-drive truck down to the point where the road was washed out in order to inspect the damage. There he had found the two women and was driving back up to the Observatory, bringing them with him. They would arrive in about a half-hour. But, at this point, I must backtrack to tell of the events that were set in motion when our original message was radioed down the mountain.

---

Apparently, the telephone and radio operator in Ensenada had called Caltech and Dana Young, one of the secretaries in the Mechanical Engineering Office, had taken the message that told of our car trouble and of our request for Yan to come and rescue us on Thursday. Also received were some instructions on how to find the turn-off for the dirt road to the Observatory. Though we had tried to couch the message in as low a key as possible, it inevitably caused significant consternation. The first problem was that Yan, having a French passport, had serious doubts as to whether he could get back across the border into the US. On the other hand, Beth McKenney, another graduate student of mine, was used to the mountains and seemed eager to be part of "the rescue". She and Ann, Douglas's wife, decided that they would drive Douglas's Volvo down to the Observatory. They even started out on Wednesday evening and stayed the night in San Diego before crossing the border on Thursday morning. They had some difficulty identifying the turn-off onto the dirt road leading to Observatory but made good progress up that road until halted by the washed-out road just beyond the gate to the National Park. Indeed, their circumstances had become quite problematic since they no longer had sufficient gasoline to get back to the highway. They were very fortunate to meet up with the group from the Observatory who were inspecting the damage to the road. In any case, it was clear to all that Ann and Beth would now, also, need to seek refuge at the Observatory. So it was that, after the gate attendant had helped park the Volvo beside his cabin, they set off with Alfredo on his way back up the mountain. It was dark before they reached the Observatory and we were finally able to identify "the two women who had come to rescue us". We were delighted to see them and excitedly swapped the stories of our respective adventures. Our hosts quickly arranged a room in one of the cabins where the four of us could camp out for the night. Then we all repaired to the canteen for dinner and an impromptu party at which I was introduced to the local delicacy, roasted pine nuts.

The rest of the story is briefly told. The next morning the four of us walked the mile or so to the telescopes perched on the rim above the rest of the Observatory facilities. We did this for a last look at El Picacho and the magnificent view of the desert and sea to the east. Then our hosts loaded us and all our gear (including the stuff from my car) into a pick-up truck. We said our goodbyes to my car and to our marvellous hosts who could not have been more helpful to us, and set off for the ride down the mountain. The morning was again clear and bright and it was exhilarating to stand in the back of the pick-up and to enjoy this beautiful land as it swept past. We crossed the washed out road with little difficulty and then loaded all our stuff into and onto the Volvo. The Observatory staff had even given us some cans of gasoline and we were, therefore, well supplied for the drive down the mountain. It was necessary to negotiate some damaged sections of road just below the gate but, after that, we made steady progress down to the paved Highway 1 and north on that road to the US border in Tijuana. After crossing into the US, it was time for a celebration. We had discovered that it was Beth's birthday. So in her honor and in celebration of our rescue, we found a small Thai restaurant near San Diego. The food was marvellous and we had a most enjoyable meal though I am not quite sure whether our impressions were entirely objective given the circumstances. About three hours later, we were back in Sierra Madre. It was very hard to believe that only five days had passed since we set out on our adventure.

And so another chapter in my mountain travels drew to a close. We had succeeded in our ascent of the "mountain of the devil" despite the many difficulties that we encountered. Even subtracting those, it had taken a great physical effort that strained my endurance to its limits. And I will always be proud of that achievement. But I wonder whether or not it will be that aspect of the adventure that I will remember with most joy. Maybe not. Maybe it will be the example of generosity and kindness shown to two, and later four, strangers by that marvellous group of people at the Observatory. They would not even accept our proffered payment for the gasoline. Maybe, someday, I will be able, in my turn, to provide such help to a foreign adventurer in my mountains. I certainly hope so.

One ironic footnote needs telling. Alfredo, "the foreman", had written his name and address on a piece of paper for I had promised to send him the pink slip for the Citation when I reached home. At the time I did not look closely at the paper. A few days later I fished it out of my pouch in order to fulfil my pledge only to discover that his name was Alfredo Meling, and therefore a member of the family that owned the entire area. Perhaps I had chosen to give my car to the richest person at the Observatory. I hope not.

---

*Last updated 7/30/99.  
Christopher E. Brennen*



# TRAVELS NOW AND THEN

© Christopher Earls Brennan

## CABO SAN LUCAS 1992

Mon. Jun.15, 1992  
Fly from LAX to Cabo San Lucas on MX939



Checking in to Hotel Cabo Sab Lucas



Room in Hotel Cabo Sab Lucas

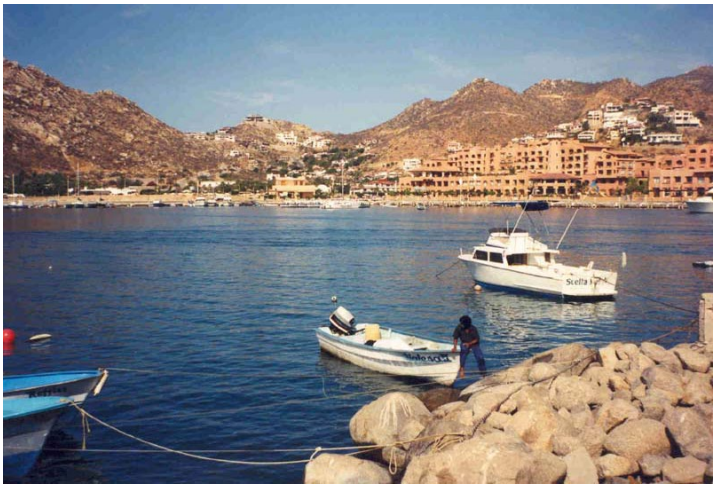


Hotel Cabo Sab Lucas





*Hotel Cabo Sab Lucas*



*Hotel Cabo Sab Lucas*



*Hotel Cabo Sab Lucas*





*Hotel Cabo Sab Lucas*



*Hotel Cabo Sab Lucas*



*Hotel Cabo Sab Lucas*







*Hotel Cabo Sab Lucas*



*Hotel Cabo Sab Lucas*



*Hotel Cabo Sab Lucas*



*Cabo San Lucas*

**Thurs. Jun.18, 1992**

Fly from Cabo San Lucas to LAX on MX938

[Back to table of contents](#)

---

*Last updated 7/30/99.*

*Christopher E. Brennen*



# TRAVELS NOW AND THEN

© Christopher Earls Brennan

## PHILADELPHIA 1992

### Trip to Philadelphia 1992

Wednesday, Aug. 12, 1992  
Flew UA174 from LAX to Boston

Friday, Aug. 14, 1992  
Flew US1285 from Boston to Philadelphia



*Philadelphia*



*Philadelphia*





*Philadelphia*



*Philadelphia*



*Philadelphia*





*Philadelphia*



*Philadelphia*



*Philadelphia*





*Philadelphia*



*Philadelphia*



*Philadelphia*





*Philadelphia*



*Philadelphia*



*Philadelphia*

Monday, Aug.17, 1992  
Flew UA99 from Philadelphia to LAX

[Back to table of contents](#)

---

*Last updated 7/30/99.  
Christopher E. Brennan*



# TRAVELS NOW AND THEN

© Christopher Earls Brennan

---

## KOREA AND CHINA 1992

**Sat. Aug 22**

Flew NW23 from Los Angeles to Seoul

**Sun. Aug 23**

Arrive Seoul



*Downtown Seoul*



*Changdeokgung Palace, Seoul*



*Changdeokgung Palace, Seoul*



*Gyeongbokgung Palace, Seoul*



*ONR Hydrodynamics Symposium in Seoul.*

**Mon. Aug 24**

ONR Hydrodynamics Symposium in Seoul.

Invited lecture at 19th Symposium on Naval Hydrodynamics, Seoul, Korea, Aug. 1992.

Kuhn de Chizelle, Y., Ceccio, S.L., Brennen, C.E. and Shen, Y. (1992). Cavitation scaling experiments with headforms: bubble acoustics. Proc. 19th Symp. on Naval Hydrodynamics, Seoul, Korea, 72-84.

**Tues. Aug 25**

ONR Hydrodynamics Symposium in Seoul.

**Wed. Aug 26**

ONR Hydrodynamics Symposium in Seoul.  
Tourist trip around Seoul and up near the DMZ.

**Thurs. Aug 27**

ONR Hydrodynamics Symposium in Seoul.

**Fri. Aug 28**

ONR Hydrodynamics Symposium in Seoul.  
Attempted to fly from Seoul to Sokch'o but flight was cancelled. Caught long distance bus from the Bus Terminal in Seoul to Sokcho. Stayed at the Hotel New Sorak in Soraksan National Park.

**Sat. Aug 29**

Hiked to the summit in Soraksan National Park, Taech'ongbong, and back. Stayed at same hotel.

In the summer of 1992, I was scheduled to attend two conferences in the far east, one in Seoul, Korea, and one the following week in Hangzhou, China. This meant that, along with one of my former students, Steven Ceccio, and other participants, we had an intervening weekend to indulge in whatever activity we wished. Steven and others had elected to spend that time in Hong Kong since that city was a necessary transit point on the way to Hangzhou. They also seemed to be attracted by the shopping opportunities Hong Kong provided, a feature that had no appeal whatsoever to me. Nevertheless, since I thought it might be interesting to see the Crown Colony, my initial flight plan was the same as that of my colleagues.

I think that it was during the long flight from Los Angeles to Seoul that I began reading a guide book for Korea, and started to take notice of the photographs of the rugged and beautiful mountains of Mount Soraksan National Park. Several times I returned to those pictures, and a possible alternative weekend plan began to form in my mind. One of the problems, however, was how to get there. Mount Soraksan is in the far northeast corner of South Korea, above the famous 38th parallel, and not far from the DMZ (de-militarized zone) that separates South Korea from North Korea. It therefore lies on the opposite side of the peninsula from Seoul and, although only about 150 miles(?) as the crow flies, the journey is a tortuous one because of the mountainous terrain and the deliberate lack of railways so close to North Korea.



To reach the Park, it would be necessary to travel to Sokch'o, a fishing center on the eastern coast. This could be reached either by a 40 minute flight or by a 5.5 hour express bus ride from Seoul. During the first couple of days of the conference in Seoul, my plan began to take concrete shape. If I could catch the flight from Seoul to Sokch'o on Friday afternoon, I could then spend Saturday hiking and catch a return flight to Seoul on Sunday morning in time to connect with a flight to Hong Kong. I finalized this rather tightly scheduled itinerary on Tuesday and looked forward with anticipation to my adventure in Korea. Only one prerequisite remained. With the help of one of the student aides at the conference, I located a map shop in Seoul where I purchased a hiking map of Mount Soraksan that had some English subtitles.

In the early afternoon of Friday, August 28, 1992, I took the free airport shuttle bus from Hotel Lotte in downtown Seoul to Kimp'o International Airport, leaving adequate time to navigate the domestic terminal and catch the late afternoon Korean Air flight to Sokch'o. As I waited for the beginning of check-in to be announced, a message flashed on the screen: the flight to Sokch'o had been cancelled due to weather conditions at that airport. Unlike other parts of the world, that seems to be the end of the story in Asia; you then queue for a refund and are on your own in so far as alternate travel plans are concerned. I sat there bewildered, trying to figure out what to do next. I could return to my original travel plan and give up my visit to Soraksan. Or I could try to find my way to Sokch'o by express bus. The cosmopolitan nature of air travel means that, in airports, one can be fairly confident of finding someone who speaks English should difficulties arise. Bus travel is, however, a completely different story, and so I was somewhat apprehensive about setting off in a bus for a fairly remote corner of Korea. But my sense of adventure got the better of me, and I soon found myself on a crowded city bus bound for the Seoul express bus terminal.

Thanks to a kind lady on the city bus to whom I communicated my destination by means of bus sounds, I alighted at the correct stop next to the large and scattered complex known as the Seoul Express Bus Terminal. Fortunately, each major destination had its own ticket booth and, after some searching, I finally located the Sokch'o booth, identifiable because I had memorized the Korean symbols for that city. The 5.00pm bus was fully booked, but I was able to purchase a ticket for the 5.30pm bus. The bus itself was clean and comfortable. Initially I failed to realize that I had purchased a ticket for a specific seat, and so had to be asked to move from my first stop near the front of the bus. However, my spirits were quickly revived when a beautiful young Korean woman in a red suit took the seat beside me. I guess she had no choice. I had the impression that she was a little taken aback by the strange foreigner in the seat beside the one allocated to her.

The bus set out on time for the five hour journey and initially travelled quickly on a brand new freeway. However, after an hour or so we turned onto a narrower, two-lane road called (somewhat inappropriately) the Yong Dong expressway. This wound its way through the mountains that occupy most of the western part of the Korean peninsula. We passed through very pleasant countryside, valleys filled with farms and separated by ridges of mountains. The land was green, the valleys fertile and the mountains covered in trees. Traffic was heavy on the Yong Dong Expressway and so our progress was slow in places but otherwise the bus travelled quite quickly. At one point the young woman beside me seemed to summon the courage to offer me a can of fruit juice she was carrying. I declined but worried that I might thus have offended her.

Daylight was dwindling as we passed the city of Wonju and the peaks of Ch'iaksan National Park off to the south. With the advent of sunset the young woman and I embarked on our first conversation. Though her English was very limited, we made some progress thanks, in part, to the phrase book chapter in my guide book. Apparently, she worked in Seoul and was returning to her family in Sokch'o for the weekend. Like me, she had been booked on Korean Air and had to make alternate plans when that flight had been cancelled. The bus then arrived at a way station called Hoenggye in the mountains just south of Odae-san National Park. Here restrooms and food-stands were set up to serve the needs of bus passengers. I tried to find something to eat that I both recognized and could consider reasonably safe. I did not do very well. The young woman in red realized this and bought some delicious fried corn that she shared with me when we reboarded the bus. As we resumed our journey through the night, the weather worsened and it began to rain heavily. Worse still for the prospects of my hike the next day, the mist reduced visibility to about 20 yards. In these miserable conditions, the bus followed a long and windy road that descended from the mountains to the eastern coastal plain. We passed close to Kangnung and then turned north, following the coast toward Sokch'o. The bus stopped again at a rest stop where the 38th parallel meets the eastern shore. In Korea this latitude has considerable historical significance. Following the Second World War, Russia, Britain and the United States struck a deal in which Russia was to occupy the peninsula north of the 38th parallel and the United States the land south of that line. The dispute over this boundary eventually flared into the Korean War in which one side and then the other pushed deep into the other's territory. When the final armistice was signed, it established the current border and the broad Demilitarized Zone (DMZ) not far from the 38th parallel. On the east coast the border and the DMZ are some miles north of the 38th and hence the location of the bus stop has real significance for the Korean people. A large monument marked the exact location of the 38th parallel.

My new guide helped me again, this time to get some very-welcome hot coffee and we then set off on the final leg of our journey as heavy rain continued to fall. The bus passed through the coastal village of Yangyang and, a few miles further, the woman in red pointed out the junction where the road to Mount Soraksan National Park joined the coastal highway. By then we had reached the outskirts of Sokch'o and very shortly thereafter stopped at the very rudimentary Sokch'o bus stop consisting of a small, and almost unlit, shelter. Without the help of my new found friend I would have been left standing in the dark and the rain without much idea what to do next. There were taxis that pulled up and embarked bus passengers but none seemed to have any interest in a stranger. However, my friend buttonholed one cabbie who was headed for Sorak and persuaded him to add me as a passenger. And so I hurriedly put my luggage in his trunk and squashed into the front seat. In the rain I had only a moment to thank the woman in red and to say goodbye. I tried to give her my umbrella for she had none and the rain was still pouring down; but I could not make myself understood and she would not take it. Time was too short even to understand what she said when she told me her name. As the taxi raced away in the rain I was saddened that I would never be able to write to her to thank her for her kindness to a stranger. I also reflected on how often, in the furthestmost corners of the earth, I had met kind and gentle people who had given me help when I needed it.

The cabbie had been directed to take me to Hotel New Sorak where I had a reservation and it was not long before I was checking in. The hotel, which was relatively modern and clearly designed for westerners, seemed almost deserted. Though the guidebook said they spoke

English, I had great difficulty making myself understood. Nevertheless I was soon settled in a pleasant room and began organizing my hiking gear for an early start in the morning. As well as my boots, clothes, rain gear and emergency kit, I had brought my small back pack with me in anticipation of a hike such as this. And in Seoul I had purchased some provisions such as bananas, crackers, canned fruit and orange juice. And so I went to sleep hoping that the weather in the morning would be substantially improved. I woke with the dawn, and was delighted to find that the rain had stopped and that the mist had cleared. From my window I could see that the hotel was in a broad canyon in the foothills of the mountains. Below me a fast and full river carried the substantial run-off of the last few days to the sea a few miles to the east. The rugged and steep, tree-covered mountains rose dramatically to the west though the higher elevations were still hidden in the clouds. My excitement grew as I anticipated some marvellous hiking and very soon I was walking up the road toward the entrance to the National Park about a half mile away. Here a substantial complex of souvenir stands and snack shops had been built to cater for the bus loads of tourists (mostly Korean schoolchildren) who visit the Park every day during the season. But as I walked through at 6.00am, the place was deserted. I intended to follow the trail toward the highest point in the Park which is sometimes known as Mount Sorak or Soraksan but whose proper name is Taech'ongbong Peak. I was not at all sure that I could reach that destination in the time available that day. The summit was about 11km. away at an altitude of 5607ft and my hiking map suggested that it would take 6 hours and 20 minutes to get there. I would have to travel significantly faster in order to make it there and back during daylight.

The trail is initially broad and easy as it follows the main river valley past a series of snack bars and souvenir stands located at regular intervals along that part visited by the average tourist. It is a delightful valley with abundant mixed forest, waterfalls and pools. The weather was clearing rapidly and allowed me a view of the rugged mountain pinnacles for which this area is so well known. The sun even broke through and made the walking even more delightful. Soon the trail steepened, the canyon closed in and the scenery became more and more spectacular. The Park Service had installed metal bridges and staircases to allow one to cross the river or negotiate particular places that would otherwise have needed climbing gear. These bridges and staircases occurred with increasing frequency as I progressed upstream. The trail itself also became noticeably rougher. In a dry climate like California's, the trails often get ground down to a fairly flat surface; on the other hand the rainfall in this part of the world washes away the finer material leaving a rough, rocky surface that is considerably harder to walk on. Soon I left the tourist area behind and entered the backcountry which only experienced hikers penetrated. I met several groups of hikers who were obviously returning having spent several nights in the wilderness. And here I began to encounter a curious phenomenon. The Koreans are very keen on hiking but the interest is primarily confined to the younger members of the educated class. Most of them have studied English extensively and are usually very keen to take any opportunity to practice conversation with a native English speaker. The further up the mountain I progressed, the more likely it was that anyone I met would fit into this category. Consequently, the further I penetrated the wilderness the more likely it was that anyone I met spoke English. Somehow that seemed very strange to me.



View from trail



View from trail



Metal Staircase

At just about the time I began to feel hungry, I reached a particularly beautiful set of waterfalls and pools and so I sat down to consume my mid-morning meal of bananas, crackers and canned fruit washed down with orange juice. Though odd, the meal was just what I needed for it contained lots of sugar. Soon after lunch, I encountered a young German couple who were descending and stopped to chat. They had clearly become somewhat dispirited by the downpour of the previous day during which they had tried to reach the peak. The rain and the mud had made for very hard going; they had given up the attempt and suggested that I would find it equally impossible. That was momentarily discouraging for I thought I had been making good progress up to that point.

A few yards later I came upon the first back country rest stop called Yangp'ok Shelter. Initially, I was not sure what to make of this shelter. It consisted of a small wooden shack with an awning and some benches arrayed in front of it. The front of the shack was constructed like a street vending stall and a limited range of goods were displayed for sale. There seemed to be hard-boiled eggs, candy bars and an assortment of canned drinks. Some of these were recognizable, for example the ubiquitous soft drink cans, Coca Cola, 7 Up, etc. Other products one could guess at by the pictures on the label, for example some of the orange juice cans. But other goods were labelled only with undecipherable Korean letters. All of these goods must be hauled in on the backs of the people who operate the rest stops and tend the vending booths. They seemed friendly though clearly unused to foreigners. The prices were a little high and, I would find out, rose as one ascended the mountain. But that seemed only fair. I purchased some orange juice and candy and also a can of Pocari that I had read somewhere was the Korean equivalent of Gatorade, though the name Pocari apparently means something like pig sweat. At any rate, it tasted very like Gatorade and I was glad to have identified it. Sitting down to enjoy my Yangp'ok snack, the other features of the rest stop

came to my attention. A short distance away was a rudimentary two story brick building with openings rather than doors and windows. A number of young Korean hikers were seated in the openings packing their gear and lacing up their boots. I recognized that establishment as one of the hostels I had read about where one could spend the night under a roof for a very modest fee. I wondered, idly, what the place smelt like. But I quickly reprimanded myself for such a culturally-biased thought; chances are it was quite clean though I never checked. Finally I also recognized that the *raison d'être* for this rest stop was the presence of a nearby shrine that I did not visit.

Just beyond Yangp'ok Shelter the trail entered a truly precipitous canyon where passage was only possible because of the metal gangways and staircases. In several places these hung precariously from the sides of cliffs several hundred feet above the river. Progress required a good deal of effort to suppress my fear of heights. At the same time the canyon was fantastic, particularly the spectacular Ch'ondang Falls which came into view as the canyon made a left hand turn. Eventually, I came to a point where the canyon levelled out and the metal walkway ended; here the trail left the river to climb a steep and fairly high slope to the ridge above. This climb was quite hard for the temperature had risen and it had become quite humid.



*Huiun-gak shelter*



*On Taech'ongbong Peak*

After many switchbacks, I finally reached the ridge and shortly thereafter the second rest stop known as Huiun-gak, equipped with vending shack and overnight shelter. Here, again, I purchased Pocari and sat down on one of the benches to enjoy a rest. A number of other young Korean hikers were similarly resting and struck up a conversation with me. They seemed genuinely impressed that an old (and presumably dissipated) Westerner could make it that far in one day and somewhat dubious about my prospects of making it to the top. The man tending the booth also joined in and, through translation by one of the young hikers, pointed out the best way to the summit. Patchy clouds were beginning to roll in as I started up the steep trail that followed a ridge to the summit. Though there were many places where I had to find toe and hand holds to ascend the ridge, the trail was well travelled and the climb was not too difficult so I made steady progress over the last 2000ft. The view at many points was quite spectacular, and made other-worldly by the patchy clouds below me. In several places I could look down over 2000ft to the valley through which I had come. Moreover, one could look north over the DMZ into North Korea though there were no visible signs of that demarcation line. Close to the summit, the clouds closed in completely so it was something of a surprise when the trail emerged onto a broad ridge leading to the peak about a hundred yards away. The cairn at the summit was decorated with several inscribed monuments, including one large one with the Korean characters corresponding to Taech'ongbong, the official name of the peak. Even up here there was a rest stop though it was discreetly placed about a hundred feet down the windswept slope from the summit. Again I bought a can of Pocari; at this elevation it cost about a dollar for a small can. There were some other low huts beside the vending booth but I could not discern whether they included an overnight shelter. I rested for a while and listened to the wind.

I could have tried to descend by a different route but eventually decided to take the safest course and retrace my steps. The descent was tiring and, because of the roughness of the trail, hard on the ankles and knees. By the time I approached the bottom, I was quite exhausted and stopped at several of the tourist shops for orange juice or Pocari. Unlike my passage in the early morning, this time the bottom was filled with crowds of schoolchildren. My fatigue made me impatient when they got in my way. They looked at this strange Westerner with puzzlement and I could not help but wonder what they thought. I stopped in one of the tourist shops for some supplies and then, exhausted but exhilarated by a marvellous day of hiking, returned to the hotel and a most welcome rest. After much difficulty, I was able to obtain a tuna fish sandwich from room service and prepared for an early start in the morning.

The morning brought rain and low clouds, and I felt very fortunate to have had such pleasant weather the previous day. I had arranged for a taxi to take me to Sokch'o airport for the early morning Korean Air flight to Seoul. There I would connect with my Korean Air flight to Hong Kong. However, when we arrived at Sokch'o airport, I discovered that my flight was cancelled yet again because of the weather conditions. Others arriving to catch the same flight departed resignedly as though this were a not unexpected occurrence. I protested that I would not be able to catch my flight to Hong Kong. The ticketing agent then engaged my taxi driver in animated discussion, the outcome of which was a plan to get me to Seoul in time to catch the flight to Hong Kong. The taxi driver would drive me to the airport in Kangnung (about 80km down the coast) in time to catch a flight from Kangnung to Seoul. And so we set off at breakneck speed along the narrow two-lane coastal highway. The driver seemed to revel in the challenge. Many times I closed my eyes and prayed. In the end we made it to Kangnung airport with time to spare and the flight to Seoul allowed me to catch the flight to Hong Kong with little difficulty. It was somewhat depressing to find myself enclosed again by aluminum and plastic. It had been another marvellous adventure in an out-of-the-way corner of a strange land and in a park of enchanted canyons and pinnacles. And I will always remember the woman in red.



*Originally published in abbreviated form in the Korea Times, August 30, 1996.*



*Trail to Soraksan*



*Trail to Soraksan*



*Huiun-gak trail stop.*



*Nearing the summit.*



*Summit of Soraksan, Taech'ongbong.*

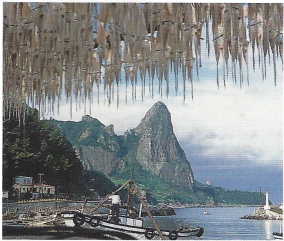


# Eastern Korea

Although eastern Korea boasts excellent ski resorts and engrossing historical sights, these are not its crowning glories. Rather, the special charm of the east coast lies in its wide variety of scenic landscapes: its waterfalls, caves, hot springs, sandy beaches, national parks, and its fishing villages with their natural harbors.

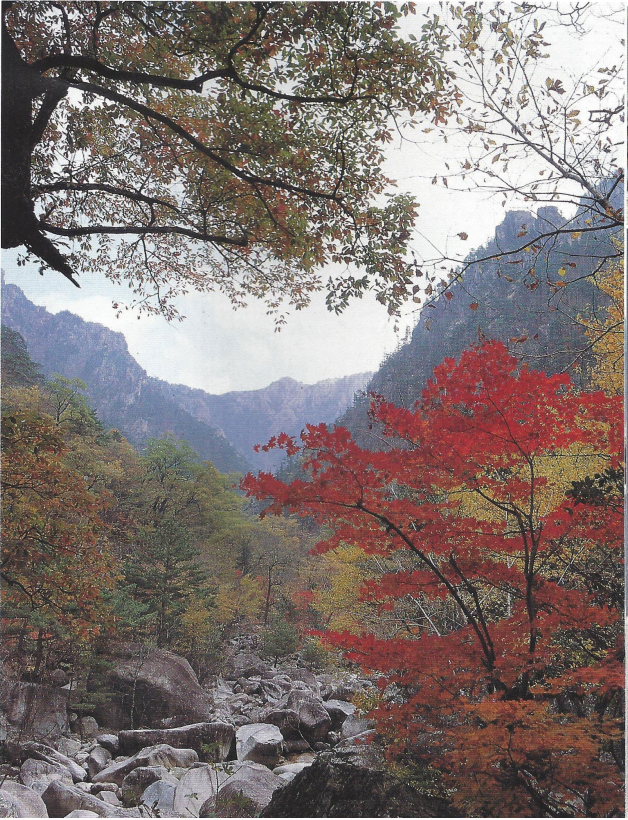
The major attraction is Mt. Sŏraksan, a magnificent national park celebrated for its granite peaks, lush green valleys, dense forests, mysterious temples, majestic waterfalls, and crystal-clear streams.

Ice carving festival at Yongpo'ng Dragon Valley Ski Resort



Squid hung out to dry in the sun, Ul'ungdo Island

Mt. Sŏraksan, one of Korea's most famous mountains, is crisscrossed by trails catering to casual sightseers, serious hikers and rock climbers.



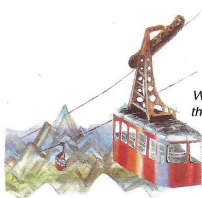


# East Coast

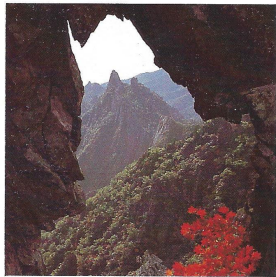
---

## with Mt. Sōraksan

---



With its vistas of jagged granite peaks, their steep sides riven by crevices, Sōraksan seems to have emerged from some fantastic Oriental scroll landscape painting. Especially in autumn, Sōraksan is a bonfire of blazing leaf colors while in spring a bridal bouquet of pastel wild flowers.



A striking view of rugged Mt. Sōraksan



Entrance of the Naksansa Temple

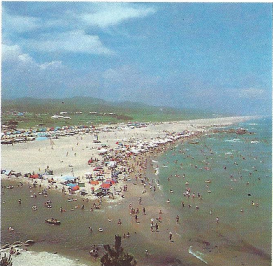
Four hours from Seoul over paved roads brings one to the East Coast, the northern stretches of which offer a unique variety of landscapes and pastimes.

Just before reaching the coast, a short detour takes the visitor to Dragon Valley ski resort.

Along the coastal road leading north from Kangnūng one passes numerous bathing beaches that are popular with vacationers in summer.



Dragon Valley Ski Resort



Hajodae Beach on the East Coast

Just a few miles south, and a few miles inland from the port of Sokch'o, one enters the Mt. Sōraksan National Park, the most strikingly dramatic of any of Korea's many scenic landscapes. From the modern tourist hotel the visitor glimpses vistas of jagged granite peaks, their steep sides riven by crevices, shrouded by mists, and sheathed in pine forests.

Hiking routes take the adventurous up slopes steep and gradual, to cascading waterfalls, streams, remote hermitages, and mysterious caves.

### HOTEL NEW SORAK

### 登山路 案内

1. 雪嶺洞-神興寺-繼祖庵-蔚山岩  
Sorakdong-Shinheungsa-Gyejoam-Ulsanam

2. 雪嶺洞-六潭瀑-飛龍瀑-土旺城瀑  
Sorakdong-Yukdam Falls-Biryong Falls-Towangseong Falls

3. 雪嶺洞-飛仙台-龜面岩-陽溪山莊  
Sorakdong-Bisundae-Gwinyunam-Yangpoksansjang

① 陽溪山莊-喜雲閣-小靑峰-中靑峰-大靑峰  
Yangpoksansjang-Hwangak-Saehungong-Jungcheongong-Dacheongong

② 陽溪山莊-天堂瀑-靜寂溪谷-大靑峰  
Yangpoksansjang-Cheondang Falls-Jeongjuk Valley-Dacheongong

③ 陽溪山莊-望景台-華彩峽 經由-大靑峰  
Yangpoksansjang-Manggyangdae-Hwacheongong-Dacheongong

4. 雪嶺洞-權金城山莊-七聖峰-華彩峽  
Sorakdong-Kwongeumseong-Chilseongong-Hwacheongong-Dacheongong

5. 雪嶺洞-飛仙台-金剛門-馬登嶺  
Sorakdong-Bisundae-Keumgangmun-Madeungryeong

① 馬登嶺-念龍龍線 經由-喜雲閣-小靑峰-大靑峰  
Madeungryeong-Gongnyong Peak-Hwangak-Saehungong-Dacheongong

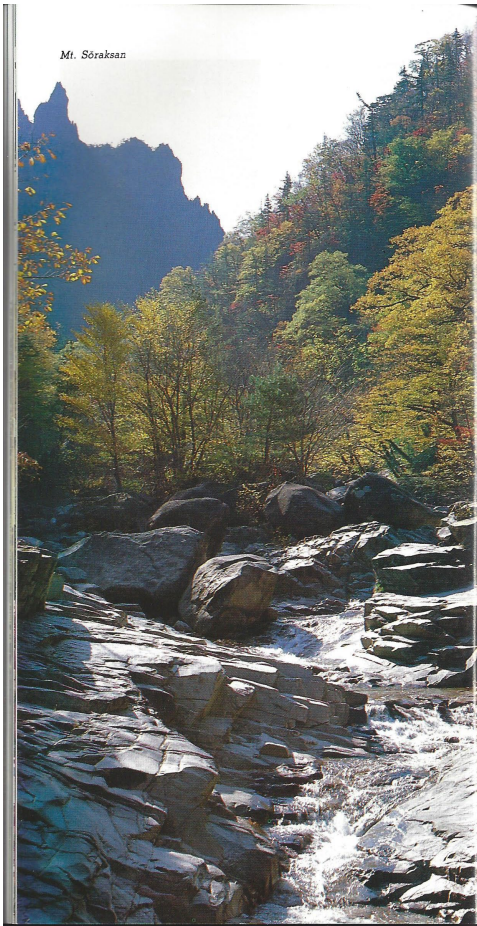
② 馬登嶺-五才庵-真頂庵-小靑峰-大靑峰  
Madeungryeong-Dusan-Bonggyeom-Saehungong-Dacheongong

③ 馬登嶺-五才庵-百潭寺-龍堡里  
Madeungryeong-Dusan-Bachdamsa-Yongdari

④ 馬登嶺-COMGOL-百潭寺-龍堡里  
Madeungryeong-Comgol-Bachdamsa-Yongdari

6. 雪嶺洞-丁庫里-低項嶺-GILGOL-百潭寺-龍堡里  
Sorakdong-Jeonggori-Jeohangryeong-Gilgol-Bachdamsa-Yongdari

Mt. Sōraksan



⑥ Eastern Korea

Seoul is connected to the scenic east coast by the Yongdong Expressway, which ends at Kangnūng. The bus or car trip takes about 4 hours. Several hotels are situated along the coast, and the area is an especially popular tourist destination in summer. Kyōngp'odae is a fine sandy beach with swimming and surf fishing, plus a number of restaurants which offer freshly caught fish for lunch or dinner. Of course, the fish can be prepared according to the diner's special wishes.

There are several towns and excellent beaches north of Kangnūng. Naksan beach and the town of Sokch'o, a fishing center, are especially noteworthy. Sokch'o can also be reached from Seoul by air in less than an hour and serves as the gateway to Mt. Sōraksan National Park, a lovely area with towering granite peaks, lush green valleys, dense forests, Buddhist temples and hermitages, waterfalls and clear streams. There are well developed tourist facilities within the park, as well as wilderness areas for overnight hikers. In the fall, Mt. Sōraksan offers what perhaps is Korea's most beautiful foliage along hiking trails. Mt. Odaesan



Skiing

National Park, just south of Mt. Sōraksan, is equally beautiful, and home of Wolchōngsa Temple and its pagoda.

At the southern end of the coastal highway is a third national park, Mt. Chuwangsan, less well known than its two northern partners. The park is favored by those who want to get away from the more popular—and thus crowded—areas. The nearby coastal town of Yōngdōk is noted for its tasty crabs and other seafood.

Historical sites and colorful scenes of great interest can be found in the small coastal towns and deep in the forested mountains of the region. The east coast has become easily accessible since the opening of the Yongdong highway a little more than a decade ago.



Squid Drying in Sokch'o





Sun. Aug 30

Tried to catch early morning flight from Sokch'o to Seoul but the flight was cancelled. Korean Airlines agent arranged a taxi ride to another airport, Kangnung, to catch a flight to Seoul. Just made it and flew Korean Airlines from Kangnung to Seoul. Flew Korean Airlines from Seoul to Hong Kong. Stayed in Hong Kong Sheraton

Mon. Aug 31

Flew Dragon Airlines 310 from Hong Kong to Hangchow, China



Hong Kong street.

Tues. Sep. 1

Second Int. Symp. on Propeller and Cavitation, Hangzhou, China, Sep. 1992.



Kuhn de Chizelle, Y., Ceccio, S.L., Brennen, C.E. and Shen, Y. (1992). Cavitation scaling experiments with headforms: bubble dynamics. Proc. 2nd Int. Symp. on Propeller and Cavitation, Hangzhou, China, 272-279.



*Hangchow Lake.*

**Wed. Sep. 2**



*Touring near Hangchow.*

**Thurs. Sep. 3**

**Fri. Sep. 4**

**Sat. Sep. 5**



*Shanghai.*



*On the way to Xian.*





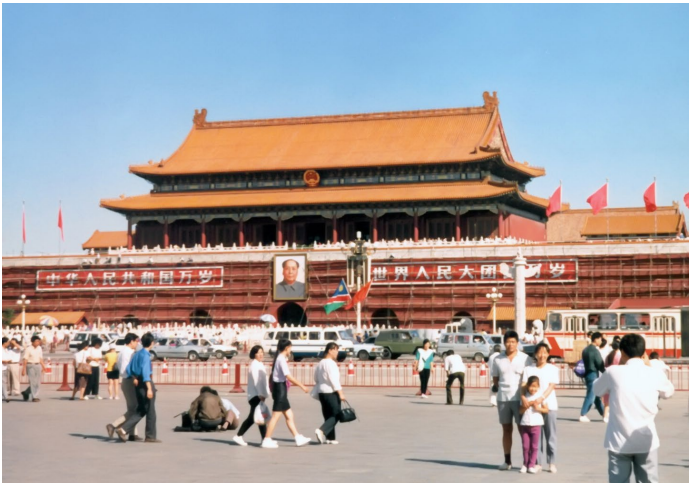
*Terracota Warriors, Xian.*



*Great Wall of China.*



*Great Wall of China.*



*Imperial Palace, Beijing.*



*Imperial Palace, Beijing.*



*Imperial Palace, Beijing.*



*Summer Palace, Beijing.*



*Summer Palace, Beijing.*

**Sun. Sep. 6**

**Mon. Sep. 7**

**Tues. Sep. 8**

**Wed. Sep. 9**

Flew NW23 from Peking to Narita, Tokyo  
and NW2 from Narita to Los Angeles.

**Mon. Aug 24**

[Back to table of contents](#)

---

*Last updated 7/30/99.  
Christopher E. Brennen*



# TRAVELS NOW AND THEN

© Christopher Earls Brennan

## OXFORD 1992

Tuesday, Oct.6. 1992  
Fly TWA 720, LAX to LGW via St. Louis



*North Oxford apartment*



*Oxford*





*Oxford in the rain*

**Thursday, Oct.15, 1992**  
Fly BA 4592, LHR to BFS



*Mum's house, Magherafelt; Mum and Aunt Irene*



*Renovating Cranagh Dhu*



*Renovating Cranagh Dhu*

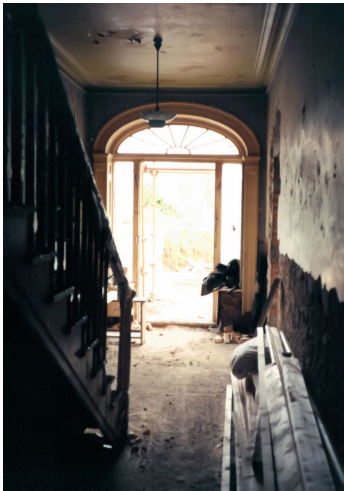




*Renovating Cranagh Dhu*



*Renovating Cranagh Dhu*



*Renovating Cranagh Dhu*





*Slieve Gallion and Lough Fea*



*Rainey Endowed School*



*?? House, County Down*





*?? House, County Down*



*Ferry, County Down*



*McReynolds Home near Coagh*





*McReynolds Home near Coagh*

**Monday, Oct.19, 1992**  
Fly BA 4673, BFS to LHR



*Burford, Cotswolds*



*Remains of Roman Villa, Cotswolds*





*Roman baths, Bath*



*Bath*



*Bath*





*Stonehenge*



*Stonehenge*



*Stonehenge*





*Avebury*



*Avebury*



*Avebury*

**Saturday, Nov.7, 1992**  
Fly TWA 721, LGW to LAX via St. Louis

**Nov.?, 1992**  
Fly United Airlines, LAX to LHR



*Brecon Beacons*

## SNOWDON

*``Leave to Robert Browning  
Beggars, fleas and vines  
Leave to squeamish Ruskin  
Popish Apennines  
Dirty stones of Venice  
And his gas-lamps seven;  
We've the stones of Snowdon  
And the lamps of heaven."*

*From ``Letter to Thomas Hughes" by Charles Kingsley.*

Dark age sailors, voyaging from Ireland toward their fellow Celts in Wales, were often guided by the snow-covered hills on the skyline that came to be called the Snowy Hills or, in Gaelic, ``Snaudune". Later the name came to be applied to the highest of these peaks, the beautiful, windswept mountain we know as Snowdon, the highest point in Wales. Those from warmer climes, on hearing that the summit of Snowdon is but *3560ft* above sea level, might be tempted to imagine it as little more than a hillock. They fail to take into account the fact that, at these high latitudes, the change in climate with elevation is much more dramatic than at lower latitudes. One can drive to the top of Mount Wilson in Southern California and, at *5500ft*, hardly notice the change in climate from the basin below. On the other hand, conditions on the summit of Snowdon can be radically different than those just a few thousand feet below. This means that Snowdon is a more challenging climb than one might otherwise expect.

Snowdon is the highest among a group of mountains in the northwest corner of Wales, one of the most scenic and historic regions of the British Isles. It lies in the ancient kingdom of Gwynedd, also the name of the modern county in Wales. On the coast below the peaks stand the remains of some of the most storied castles in Europe. And Anglesey, the island just offshore, is equally historic. Many of the ancient Britons, driven westward by the Roman invasion, found refuge on Anglesey, known to the Romans as Mona. There, these people on the edge of prehistory not only sought safety but also the potential of the arable land of Anglesey. However, in the immediate aftermath of the invasion, the well-populated island represented such a threat to the Romans that the new governor, Suetonius, felt it necessary to organize a campaign to subdue it. Thus it was that, in the year 61 AD, the Romans built a fleet of flat bottomed boats so that their infantry could cross the narrow Menai Straits separating Mona from the mainland. The Britons lined the shore to resist the invasion. They included women clad in black ``like the Furies with their hair hanging down and torches in their hands" and Druids screaming encouragement and curses. Though initially shaken the Roman forces overran the island. As always, the history was written by the conquerors who were clearly doing their best to justify their uninvited ravages of a native population. Like many invaders before and since, the Romans proceeded to kill and destroy all they could find, leaving little to allow construct of the other side of the story.

In the centuries that followed the native Princes of Gwynedd, descendants of the ancient Britons, became the most powerful of the Welsh kings, benefitting from the natural protection of the mountains and from the fertile land of Anglesey. In the 1200s, Llywelyn the Great came closer to the creation of a unified Welsh nation than at any other time in history. The region was not overrun by the English until Edward I, following his accession in 1272, determined to extend his dominions and invaded Gwynedd, killing the last of the Llywelyns and destroying the remains of the Welsh resistance. To ensure the subjugation of the region, Edward built a series of formidable castles in strategic locations along the coast. These included the castles of Caernarfon, Beaumaris, Conwy and Harlech, which remain dominating features of the coast around Snowdonia. Edward also offered his first-born son to the Welsh as their new prince in a ceremony at Caernarfon castle that has been repeated by English monarchs ever since. The current Prince of Wales was so designated by Queen Elizabeth in a televised ceremony at Caernarfon some years ago. We should also note that the Welsh had some small, symbolic revenge about two centuries after Edward's invasion when Henry Tudor, with princely Welsh blood in his veins,



defeated Richard III at the battle of Bosworth Field and was enthroned as the first of the Tudor Kings of England. The Welsh like to attribute the vitality of the great Tudor monarchs, Henry VIII and Elizabeth I, to their Welsh heritage, to say nothing of Elizabeth's red hair.

Again, Gwynedd faded into a backwater for many centuries. It achieved brief renown during the Victorian era when the demand for slate promoted the development of large quarries in Snowdonia, leaving livid scars on some of the foothills. There were also smaller-scale attempts to mine copper and other semi-precious metals but these brief efforts were quickly superceded in effectiveness by much richer veins in other lands. Tourism became the major industry in the early years of this century. Holyhead on the island of Anglesey became the major port of embarkation for Ireland and the construction of a railway through Snowdonia to Holyhead enhanced access to the region. Railways, especially of the narrow gauge type, had become a local speciality in order to transport slate and ore from the quarries and mines. As tourism increased, narrow gauge railways were also built as tourist attractions. So it was that a narrow gauge, cog railway was constructed from Llanberis at the foot of Snowdon to the summit. Built in 1896, this triumph of Victorian engineering is the only rack and pinion railway in Great Britain; the 5 mile journey climbs an average gradient of 1 in 7. Today the Snowdon Mountain Railway continues to carry tourists to the summit during the summer months.

In 1951, Snowdonia became a National Park, a belated response by the British Government to the example set in the United States by Theodore Roosevelt about 40 years earlier. Today, it is heavily used throughout the year by a British public for whom it remains one of the few areas of relatively unspoilt wilderness in the British Isles. But, to the American visitor, there remain some intrusions that would hardly be tolerated in the US or Canada. For example, sheep roam freely throughout the Park, the ancient grazing rights of the local shepherds clearly unimpeded by the newly acquired status of the land. Sheep have grazed these mountains (and all others on these islands) for so many centuries that they have become a part of the natural order. One wonders how different the mountains would have looked without the sheep. Other human intrusions do not have the excuse of centuries of habit. Some of the lakes, including Llyn Llydaw, are used as reservoirs, which, in itself, is not necessarily objectionable. However the large diameter concrete pipe that carries water from Llyn Llydaw down toward the local towns and villages is an ugly eyesore, an unexcusable scar upon this land. No attempt was made to bury the pipe; instead it is suspended some feet above ground by regularly spaced concrete plinths that add to its ugliness.

Once, many years ago, I had driven quickly through Snowdonia on my way from Holyhead to London. I had seen enough through the rain and evening gloom to know that I wanted to return some day. And in the fall of 1992 I had an opportunity to revisit many of the places and people of my youth. In that year I travelled back to my academic roots for an all-too-brief sabbatical term in Oxford. Doreen joined me for the first four weeks and we delighted in this opportunity to revisit the city where we spent three years in relative poverty while I completed my graduate studies. We went to concerts and high table, delighting in the effortless elegance of the senior common rooms of Oxford colleges. We made many lazy tours through the Cotswolds, relishing marvellous meals in the gentle English country pubs. And we strolled through and around the city itself, exploring the many ancient walkways and distributaries of the Thames and the Cherwell. It was one of the best times Doreen and I ever had together and yet it was tinged with sadness for we knew we could not hide away there forever. And the four weeks came to an end too quickly.

Left alone for the remainder of the term I busied myself with lectures, academic discussions and visits to other friends in England. My host in Oxford, Terry Jones, had been a graduate student with me in the Engineering Department in the early sixties. I remember many hours when Terry and I had sat and talked over our cigarettes. I suppose we hoped that inspired theses would miraculously materialize out of thin air. He and his wife Lesley were at the same stage as Doreen and I, both with very small children. I had seen Terry very briefly on several occasions since those times. However, it was still surprising how easily we fell into the same pattern of chat, the same easy camaraderie. I have often wondered how it is that we sometimes find other people who fit naturally and easily into our personalities and vice-versa. Almost like two halves of a jigsaw puzzle. Not only do I experience pleasure in the company of people like Terry but I must also admit to a certain analytical fascination. Perhaps if I studied such people sufficiently closely I would find myself in sympathetic silhouette. There seemed to me to be many parallels between Terry's life and my own since our days as graduate students. On the mundane side we had both shed the nicotine devil and had both come to enjoy hiking and solitude. At a deeper level, I could now see in Terry some of the mindless drive that I knew lay within me. But more importantly, I came again to enjoy his company. On several occasions, I had mentioned to him my desire to see Snowdonia and when he suggested that we go hiking there together I eagerly agreed.

So it was that early on a Saturday morning in November, Terry and I set off from Oxford for Snowdonia. The drive is quite uninteresting until one begins to enter the hills of northwestern Wales. Despite the fact that it is the main road to the Irish ferry at Holyhead, the road narrows from a motorway to a winding, two-lane country road by the time it reaches the land of the Welsh at Llangollen. Not only does the quality of the highway decline significantly but, simultaneously, the names on the signposts become strangely foreign. Instructions to motorists are bilingual. And yet the faces of the people and the atmosphere of the villages were oddly familiar to me for they reminded me of my native Ireland, not really surprising considering the common Celtic heritage. Even more specifically one could sense the stern cultural overlay of non-conformism similar to my native Ulster, a feature that gives the villages an iconoclastic bleakness. My eyes see this as unattractive but this judgement is overridden by my affection for the culture and the people.

The road winds through increasingly wooded and hilly terrain and then drops into a very beautiful, forested glen at Betws-y-Coed, a favorite holiday base for outdoorsmen since the turn of the century. The substantial annual rainfall feeds marvellous rivers and waterfalls, making this area a favorite venue for kayakers and canoeists. Indeed, as we passed through the next village, Capel Curig, it was clear that a substantial kayaking event was being held there.

After Capel Curig, the road climbs toward the mountains around Snowdon and the land becomes bleaker. The trees disappear and the landscape takes on that aspect common to most land above 1000 ft. in the British Isles. Valleys were covered with heather whose

accumulation over many centuries has blocked the easy runoff of rainwater forming many small, cold lakes. The uplands are rocky but have, to some degree, been rounded by glaciation. Only the hardiest grasses seemed to survive on these rugged hills, lashed for most of the year by rain and gales. At higher altitudes even the grasses have difficulty surviving and lichens and mosses become more prevalent.

We drove to the gap through the mountains that is called the pass of Llanberis or Pen-y-Pass. A small group of dark, stone houses on the saddle at the top of the pass service the needs of the stream of hikers who stop here. One of these structures is a well-known youth hostel. We stopped in the crowded parking lot and were immediately approached by a group of very demanding sheep. It appeared to us as though they would attempt to eat just about anything including boots! It required quite vigorous protestation to hold these scavengers at bay. Eventually, however, we organized our equipment and food, strapped up our daypacks and were ready for the trail.

Very crudely, the summit of Snowdon can be visualized as the confluence of six ridges or spines running north, northwest, southwest, south, southeast and northeast from the peak. Glaciation during the ice ages scooped out great amphitheatres between many of these spines, leaving precipitous cliffs on the sides of the ridges. The spine to the north is the broadest and least steep and it is up this route that the railway runs on its way from Llanberis to the summit. Another popular trail skirts the great amphitheatre between the northwestern and southwestern ridges; it then climbs the scree to the top of the northwestern ridge and thence to the summit. Actually two parallel trails called the Pyg Track and the Miner's Track follow this route, the former high above the latter. They both begin at the trailhead at Pen-y-Pass, where the road from Llanberis to Capel Curig reaches a saddle summit at an elevation of 1100 ft. It was this route that we followed to the top, taking the Pyg Track during the ascent and the Miner's Track for the descent.

The Pyg Track climbs along the north side of the ridge that runs due west from Pen-y-pass to the summit of Snowdon. Quickly our view north toward Llanberis and the sea opened up and we paused several times to admire the scenery. It had rained the day before (and would rain heavily the next day) so we felt very lucky that to have been spared a soaking. Better still, our view was relatively unimpeded; only the very top of the mountain was hidden by the clouds.



*Climbing Snowdon with Terry Jones*



*Climbing Snowdon with Terry Jones*





*Climbing Snowdon with Terry Jones*



*Climbing Snowdon with Terry Jones*

After about half a mile the trail reached a notch on the crest of the ridge and suddenly revealed a marvellous view to the south. Below us shimmered the lake known as Llyn Llydaw, lying in the bottom of a large bowl scooped out by glaciation. The other side of this bowl consisted of quite dramatic cliffs forming the northern side of the ridge known as Y Lliwedd. At this saddle one can choose to continue directly up the spine of the ridge, a very challenging climb along the jagged rocks known as Crib Goch. We chose to continue up the easier trail that climbed gradually up the south side of the ridge. Above us we could occasionally catch sight of more intrepid climbers negotiating the rocky obstacles on the ridge. Below, others were hiking up the other trail, the Miner's Track that starts along the shore of Llyn Llydaw but then climbs to meet the Pyg Track that we were following. As we climbed the trail eventually graduated from the large glaciated bowl into a much smaller and steeper amphitheatre containing the circular lake called Glaslyn. A ribbon waterfall hundreds of feet high fed the lake. At this point the trail became considerably steeper and rougher as it climbed the steep scree in one corner of this small amphitheater. Gradually we climbed into the cloud cover and the temperature fell quite dramatically. Then, quite suddenly, we reached the railway line and turned south to follow the railway for the last quarter mile to the summit. Here in the clouds, the temperature was below freezing and a thick frost covered all the rock surfaces. The frost had a quite unusual shape. The crystalline icestalagmites seemed formed by the combined effects of a temperature wavering below and above freezing, the continuous supply of moisture in the air and sculpturing by the wind. The crystals adorned the rocks and the rails and, with the mist, lent our surroundings a slightly surrealistic aura.

We paused briefly at the large, vertical lith marking the trail junction before walking the last few hundred yards along the railway to the summit. There, the station building was boarded up for the winter, but still served to provide some shelter from the freezing wind. About thirty feet above the station a substantial cairn marks the summit and we imposed on one of the many nearby hikers to take our photograph on top of the cairn. People were standing and waiting in the hope that a break in the clouds would allow a momentary view from the summit. One could detect that the top of the clouds were not far above us for hints of blue sky could be glimpsed. And we knew that the bottom was not far below us. But we waited in vain for that break in the clouds.

It was too cold to lunch at the summit so we soon decided to begin our return journey. Retracing our steps down along the railway line we had no difficulty in locating the monolith marking the trail junction and so began the steep descent into the amphitheatre of Glaslyn. Where the two parallel trails meet we left the Pyg Track and followed the Miner's Track down the scree slope to the shore of Glaslyn itself. Here the remains of a miner's barracks provides an attractive novelty. Perhaps the purist would see these ruins as an eyesore equal to the concrete pipeline. But to the average arbiter its age and the fact that it was constructed of native stone makes it quite

unobjectionable. Terry and I ate our lunch seated on the stone steps of this antiquity. But we did not dally long for the day was ebbing. From Glaslyn the Miner's Track follows the shores of that lake and of the lower Llyn Llydaw. A broad track it passes other ruined buildings from the mining era including the remains of the ore-crushing mill of the Britannia Copper Mine. Near the end of Llyn Llydaw the trail crosses the lake by way of a causeway that was originally built so that copper could be more readily transported down the mountain. Finally we contoured along the ridge back to the Pen-y-pass car park.

As the late afternoon gloom settled over the mountains and people and sheep gathered themselves for the coming cold, we resigned ourselves for the long drive back to Oxford. The gloom seemed to summon silence and was bolstered by the thought that that was that. On Snowdon we had chatted as we almost always do when we are together. Yet I remember little of the subjects we covered. What I will remember is that sense of easy and enjoyable companionship that characterized all our times together. Mountains help bring those feelings into sharper focus. They provide perspective not only for the surrounding landscape but also for the landscape of our emotions, relationships and desires. But they do not make it any easier to put those feelings into words.

Third I.Mech.E. Int. Conf. on Cavitation, Cambridge, England, Dec. 1992.

Kuhn de Chizelle, Y., Ceccio, S.L., Brennen, C.E. and Gowing, S. (1992). Scaling experiments on the dynamics and acoustics of traveling bubble cavitation. Proc. 3rd I.Mech.E. Int. Conf. on Cavitation, Cambridge, England, 165-170.

**Thursday, Dec.3, 1992**

Fly BA 4592, LHR to BFS



*Birthday Party, Magherafelt*



*Birthday Party, Magherafelt*





*Birthday Party, Magherafelt*



*Birthday Party, Magherafelt*



*Birthday Party, Magherafelt*





*Birthday Party, Magherafelt*



*Birthday Party, Magherafelt*



*Birthday Party, Magherafelt*





*Birthday Party, Magherafelt*



*Birthday Party, Magherafelt*



*Birthday Party, Magherafelt*





*Birthday Party, Magherafelt*



*Birthday Party, Magherafelt*



*At Mum's house, Magherafelt*

**Tuesday, Dec.8, 1992**  
Fly BA 4593, BFS to LHR

**Saturday, Dec.12, 1992**  
Fly United Airlines 935, LHR to LAX

[Back to table of contents](#)

---

*Last updated 7/30/99.*



*Christopher E. Brennen*

# CALIFORNIA INSTITUTE OF TECHNOLOGY

OFFICE OF THE DEAN 102-31

## MEMORANDUM

RECEIVED  
MAR 12 1992  
DEANS' OFFICE

**TO:** Faculty

**FROM:** Christopher E. Brennen, Dean of Students

**DATE:** January 14, 1992

**SUBJECT:** Resignation as Dean of Students

*Christopher E. Brennen*

A few days ago, I informed President Everhart and Vice President Lorden of my decision to resign as Dean of Students, effective at the end of this academic year. This was not an easy decision to make for I have and always will have an abiding affection and respect for the undergraduates of this Institute. It has been my privilege to serve both the faculty and students for eight years, first as Master of Student Houses and lately as Dean of Students and it is with sadness that I come to the end of this part of my life.

However, I do want you to know that I have no plans to leave the Institute and that I look forward to interacting with many of you as I resume my teaching and research in the Mechanical Engineering Department. I also intend to remain active in student affairs and to retain my contacts with the student houses. Nevertheless it seems to me appropriate at this moment in time to thank all of the faculty who made the task of being Dean such a rewarding experience.

*3/11/92*

*Dear Chris:*

*My compliments to you for  
all your efforts on behalf of our undergrads  
and the Institute*

*Peter W. Gillie*





Left to right, Pamela Abshire, Dr. Kip Thorne, Maneesh Sahani, Dr. Stephen Hawking, and Rob Hanna. Dr. Hawking visited Dabney House, where the three students reside, for dinner on Monday night. Dr. Hawking and Dr. Thorne were invited by Pamela Abshire as her last official act as Dabney House vice president.

## Brian Bedford to Perform at Beckman Auditorium

*Cara Stemen*

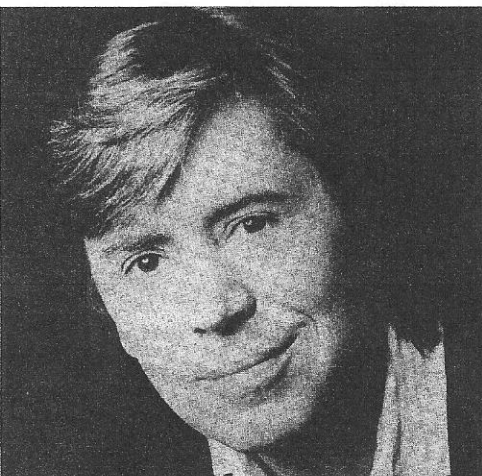
Classical actor Brian Bedford presents his one-man show "The Lunatic, The Lover and the Poet" on Friday, March 6 at 8 p.m. in Beckman Auditorium.

Bedford explores the identity of William Shakespeare through his greatest sonnets and plays. In this production, Bedford portrays Malvolio in "Twelfth Night," Macbeth, Bottom in "A Midsummer Night's Dream," Hamlet, King Lear, and Romeo to name a few.

Born in Yorkshire, Bedford has lived the last quarter of a century in North America. He has performed on Broadway and has received Obie and New York Drama Desk Awards for his performance in Mike Nichols' production of "The Knack." He has also been seen in movies and on television.

Tickets to this concert are priced at \$25.00, \$22.50, and \$20.00. Caltech students (with I.D.) can purchase half-price tickets in advance and \$7.50 Rush Tickets beginning on Friday, March 6 (subject to availability). Tickets can be purchased at the Caltech Ticket Office. For more information, call campus extension 4652.

Brian Bedford will be performing "The Lunatic, The Lover, The Poet" at Beckman Auditorium on March 6.



Inside this week's

## TECH

Letters to the Editors 2  
Crime & Incident Beat 2  
Big Jim 3  
Events Around Caltech 3  
Bridge Without Sam 4  
Y News 5  
outside view 5  
Sports 6-7  
What Goes On 8  
Seniors Only 8

### Response to U.A.E Sexual Harassment

page 2

### Bridge Without Sam

page 4

### SENIORS ONLY

page 8

## Dr. Stephen Hawking Visits Dabney House

*Rajesh "Q" Bilimoria & Christopher Orri*

Last Monday, physicist legend Stephen Hawking and Kip Thorne visited Dabney House for dinner. The distinguished physicists were invited to a formal dinner at Dabney House by erstwhile Dabney vice president Pamela Abshire. During dinner announcements, Alf Mikula, Dabney House president, offered honorary social membership to Dr. Hawking. Upon accepting the offer, Dr. Hawking asked if he could now list D.E.I. after his other academic titles. When some students inquired as to whether or not Dr. Hawking understood what D.E.I. stood for, he answered with a simple "Yes" that produced laughter from the students. In the after dinner conversation, Dr. Hawking told of one of his earlier ambitions to be a civil servant, and his opinion of the ability to explain psychic phenomena ("Rubbish").

Although most know of Professor Hawking's visit, few know what exactly he is doing here. Stephen Hawking is part of the Fairchild Scholar program, a program unique to Caltech, where world-prominent leaders in their fields are invited to stay at Caltech and provide their own points of view to discussion and research. The program has begun in 1973, and since then there have been as many as twenty Fairchild Scholars residing at Caltech in a given year.

One prominent topic for discussion these past weeks has been Professor Hawking's theory of "black hole evaporation." This is a particularly appropriate area of discussion, since Professor Hawking himself began the controversial aspect of his theory during his last visit here in 1974. Hawking's position, as outlined in his book, *A Brief History of Time*, seems to be that as black holes are absorbing matter, on the quantum level they are also emitting matter. For small black holes the rate of emission can

be faster than the rate of absorption. The result is a black hole that is losing mass, i.e. that is evaporating. There is no controversy about this fact; the controversy surrounds the question of what happens at the end of the evaporation. Dr. Hawking maintains that the evaporation causes a breakdown of "quantum coherence." In other words, the material that formed the black hole was in a "pure quantum state," but the remnants of its evaporation are in a "mixed quantum state." Nowhere else in fundamentals physics can a pure quantum state evolve into a mixed state, but Dr. Hawking insists that this happens when black holes evaporate, and theory holds that if you wait for a very long time the black hole might evaporate completely.

Recently other physicists have developed several idealized models have been formed in attempts to disprove Professor Hawking's theory. Part of Stephen Hawking's efforts over the past weeks have gone into developing a mathematical proof to defend his theory against such attacks. In his proof, he may have even managed to turn his critics' arguments around to support his own theory, but in the very least he exposed that our current techniques of dealing with such problems are highly inadequate.

By coming to Caltech to discuss theoretical physics, Stephen Hawking has caused, in some cases, a "forty-five degree change in the direction of our thinking," in Professor Kip Thorne's words. Hawking's visit has generated new ways of thinking, not only about black hole evaporation, but also about what is inside black holes and about whether the laws of physics permit time machines. It seems Professor Hawking, true to the role of a Fairchild Scholar, has made a lasting impression on both the faculty and student bodies.

## IHC Minutes of 26 Feb 92

*Ben Smith*

The Y is celebrating Earth Day with a number of festivities. There will be events, such as a dunking booth, a TFM hotdog stand and a rock band. The Y wants the houses to build things to heighten environmental awareness. Nate says that if building things includes more power tools in Blacker Courtyard, then NO!! Earth Day will be on a Friday. If you have questions call the Y. If you want to help out, contact Phil Cofield in Ruddock. [Clo and Lowey left at 2112]

Discobolus: Page beat Ruddock. Lloyd will challenge on Monday.

Baseball: Bryce related that Steve Harkness had talked to Dan Bridges and the baseball coaches. Dan Bridges thinks that it is not a good idea to have baseball as a minor sport because of the number of injuries that occur in baseball. Secondly, the Athletic Department does not have the money for equipment and will not loan out what they

have. I'll talk to Dan about this issue soon.

Bryce passed around a letter concerning Interhouse basketball. The letter mentioned that last year there were "multiple incidents of unnecessary official violence last year." In short, such harassment will not be tolerated. NCAA rules include calling technical fouls due to actions of non playing team members who harass officials. Bryce wants to widen this to all spectators. Bryce asked for all students to be cool and not cause a problem.

Chris reminded us that OPI will be next weekend (7 Mar). The Rudds will be selling T-shirts.

Debbie Tuttle would like the CLUB reviews in by Today (Friday 28 Feb 92).

At 9pm on Monday (2 Mar 92) the Hazing committee will have its first meeting in the IHC room (next to Kim's office).



The American Society of  
Mechanical Engineers

# 1992 Honors & Awards

## Fluids Engineering Award

CHRISTOPHER E. BRENNEN

*Conferral at the President's Luncheon, 1992 Winter Annual Meeting*

THE FLUIDS ENGINEERING AWARD was established by the Fluids Engineering Division in 1968 and presented as a Division award until 1978, when it was elevated to a Society award. It is conferred upon an individual for outstanding contributions over a period of years to the engineering profession and in particular to the field of fluids engineering through research, practice, or teaching.

CHRISTOPHER E. BRENNEN, D. Phil., Professor of Mechanical Engineering, California Institute of Technology, Pasadena, California, *for exceptional contributions to fluids engineering through outstanding research, teaching, and service to ASME.*

Born in Belfast, Northern Ireland, Dr. Brennen attended high school in County Derry. He went on to win a scholarship to Oxford University, where he received a B.A. with first-class honors in 1963, and a M.S. and D. Phil. in 1966, all in engineering science. His doctoral research involved numerical solutions of flows with large attached cavities (or vaporous wakes) and began a lifelong interest in cavity flows.

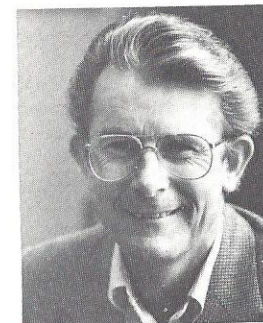
Following graduation, Dr. Brennen took up a postdoctoral position at the National Physical Laboratory just outside of London. In 1968 he won a Fulbright Scholarship and traveled to the California Institute of Technology for a year as a research fellow, where he worked on water wave problems and in the newly emerging field of micro-organism locomotion. He joined the faculty of Caltech in 1976 and was named to his current position as professor of mechanical engineering in 1982.

With Professor Allan Acosta, Dr. Brennen has made many contributions to fundamental understanding of cavity flows and a wide variety of unsteady flow problems in modern high-speed turbomachinery. His current research includes cavity flows, cavitation inception and noise, turbomachinery and rotordynamics, and the mechanics of granular material flow.

Dr. Brennen has also taken a broad interest in the education and welfare of students. From 1983 to 1987 he served as master of student houses in charge of the many non-academic undergraduate affairs. In addition, he served as dean of students from 1988 until 1992. In recognition of his dedication, he was awarded a student teaching award in 1982 and a honorary alumnus in 1988 from Caltech.

A past chairman of the Fluids Engineering Division, as well as the Division's Multiphase Flow Committee, Dr. Brennen was awarded the Division's R.T. Knapp Award in 1978 and 1981. He was also awarded the ASME's Centennial Medallion in 1980 and served as associated editor of the *Journal of Fluids Engineering*.

Dr. Brennen received the National Aeronautics and Space Administration's New Technology Award in 1980.





## **In Memory of Bruce Kahl**

*Christopher E. Brennen*

It is with great sadness that I must tell you of the death of Dr. Bruce Kahl, who served the Caltech community as Director of Counseling Services from 1980 to 1989. Bruce died at the Sherman Oaks Community Hospital on February 5, 1992, after a long and valiant struggle with AIDS. The strength of character and dignity he showed during his final illness marked him as a man of very special quality. Our sympathies go out to his family and his devoted partner Simon.

Those of us who were privileged to know Bruce and to benefit from his wise counsel and advice are deeply grieved by the passing of a man whose kindness and fundamental humanity will long be remembered. When Bruce took over responsibility for the Counseling Center in 1980, he had to work hard to establish a new sense of trust amongst the staff and students and to create a center which truly met the needs of individual students. That legacy continues today and is testimony to the deep commitment and kindness Bruce displayed in abundance throughout his days at Caltech. It is in the nature of Bruce's work that few knew the dimensions of comfort which he brought to so many of our students. In my role as Dean and previously as Master of Student Houses, I came to know something of the magnitude of his contributions and of the gentleness which he brought to that mission. We shall always be in his debt.

Bruce was born in Sacramento on May 11, 1946, and was a graduate



*Dr. Bruce Kahl*

of Stanford University and the University of Cincinnati Medical School. Prior to his time at Caltech he was a clinical Associate Professor of Psychiatry at Los Angeles County U.S.C. Medical Center where he served on the staff for 15 years. He loved ballet and played classical piano. He was also an avid reader, cook, and back-packer, and hiked throughout the California desert and the Sierras.

A memorial service will be held at 2 pm Saturday, February 29, at All Saints Episcopal Church, 132 N Euclid Ave., Pasadena. In lieu of flowers you may send donations in Bruce's memory to: All Saints AIDS Service Center, 126 W. Del Mar Blvd., Pasadena, CA 91105 or the Gay and Lesbian Community Service Center, 1213 N. Highland Ave., Los Angeles, CA 90012.



**Issue 29,  
May 29!**

# THE T

Volume XCIII, Number 29

Pasadena, California



Photo by Rajesh "Q" Bilimoria.

Outgoing Dean of Students Christopher Brennen, left, sports the hat given to him by Dabney House President Alf Mikula, right, and the Oakley Razor sunglasses given to him by ASCIT at a farewell party for him on Wednesday evening. Each of the house presidents, the BoC, the ASCIT president, and Dean Brennen's fellow administrators all had kind words for the Dean. Students expressed gratitude for the four years of service Brennen has given as Dean. In front of the Dean is the chair, emblematic of his position.



# Caltech in the News

## Brennen Receives ASME's Fluids Engineering Award

Caltech engineer Christopher E. Brennen received the Fluids Engineering Award of the American Society of Mechanical Engineers (ASME) at its winter meeting November 8-13 in Anaheim.

The Fluids Engineering Division of ASME established the award, consisting of a bronze medal and a certificate, in 1968 to recognize outstanding contributions over a period of years to fluids engineering through research, practice, or teaching.

Brennen joined Caltech in 1969, where he is now a professor of mechanical engineering. He specializes in the study of cavitation—how pockets of vapor form and behave in rapidly moving fluids, for example in high-speed turbines, in pumps, and around boat propellers. ASME cited Brennen “for exceptional contributions to fluids engineering through outstanding research, teaching, and service to ASME.”

As a member of ASME, Brennen served as chairman of the Fluids Engineering Division and of the Division's Multiphase Flow Committee, and worked as associate editor of the *Journal of Fluids Engineering*.

The American Society of Mechanical Engineers is a worldwide engineering society focused on technical, educational, and research issues, with 118,000 members, including 21,000 students. It conducts one of the world's largest technical publishing operations, holds more than 30 technical conferences each year, and sets many industrial and manufacturing standards.

For further information, contact Jay Aller, (818) 356-3631





The American Society of  
Mechanical Engineers

345 East 47th Street, New York, NY 10017

NON PROFIT ORG  
U.S. POSTAGE  
PAID  
American Society  
of  
Mechanical  
Engineers

# FED

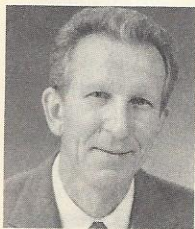
000457176/ FED /111100/08  
LOREN A. GROSS, PE  
N A S A  
EE21  
MARSHALL SPACE FLAL 35812-0001

## Fluids Engineering Division Newsletter

Richard R. Schultz, Editor

Fall, 1992

### From the FED Chairman



Richard Bajura

**T**he Fluids Engineering Division is celebrating its thirtieth anniversary since changing its name from the former Hydraulics Division, which dates back to the early years of the Society.

We began our celebration with a successful "stand alone" summer conference in Los Angeles in June which replaced the canceled National Fluid Dynamics Congress.

One of the goals of the FED is to increase intercommunications among the members of the fluids engineering community. Our Division consists of groups with varied interests in basic and applied fluid mechanics, fluids engineering education, and uncertainty estimates for measured and calculated data. We actively disseminate technical information through our highly respected *Journal of Fluids Engineering* and through symposium and forum programs which are international in scope and participation.

To achieve our goal of increasing intercommunications, the Division will focus future efforts on programs for our annual summer meetings (FEDSM) which will have a substantial breadth of coverage to attract large numbers of participants. While we welcome the opportunity to

### Fluids Engineering Award



Chris Brennen

**T**he winner of the 1992 Fluids Engineering Award is Dr. Christopher Brennen of the California Institute of Technology. Chris is well known to many of our members because of his long involvement

in FED affairs. He seldom misses the technical sessions of the Division, where his incisive comments, given in the most friendly manner, add greatly to the sharing of technical information.

The Fluids Engineering Award is the Society-level honor in fluid mechanics, and is the most prestigious award which the ASME can give to workers in this area of engineering.

Chris is Professor of Mechanical Engineering at CalTech, and until recently was also Dean of Undergraduate Students. The many outstanding contributions of Prof. Brennen in fluid mechanics have led to his receiving the R.T. Knapp Award twice for innovative papers in the field. He is a world authority in cavitation and turbomachinery. He has inspired extremely competent and successful graduate students, who are now themselves leaders in fluid mechanics.

We congratulate Dr. Brennen on his many achievements and upon receiving this important award.

*Christopher Brennen*, professor of mechanical engineering, has been elected the Christensen Visiting Fellow at St. Catherine's College, Oxford, for the fall term 1992/1993; and, in a separate honor, has been selected by the American Society of Mechanical Engineers (ASME) as this year's recipient of the Fluids Engineering Award "for exceptional contributions to fluids engineering through outstanding research, teaching, and service to ASME." Brennen will receive the prize at the ASME annual meeting this November in Anaheim.

\$7500 to the person selected as Freeman Scholar.

The 1994 Freeman Scholar competition will soon be announced. Persons suggesting reviews of any topic in the general scope of interest of the Fluids Engineering Division would be eligible for this major award.

1992 WAM  
Technical Information  
pages 5-6

(continued on page 6)





The California State University



July 6, 1992

Dr. Thomas E. Everhart  
President  
California Institute of Technology  
Pasadena, CA 91125

RECEIVED  
JUL 08 1992  
DEANS' OFFICE

California State University, Northridge  
Department of History  
18111 Nordhoff Street — HIST  
Northridge, California 91330

Dear Dr. Everhart,

*My wife and I wanted to thank you for the recent commencement. The entire affair from the reception at your residence through the post-graduation buffet was most rewarding.*

*We especially appreciate the excellent education that Tim received at Caltech. As a member of academia I have particularly enjoyed the attitude displayed by Dr. Christopher Brennen as Dean of Students which we first noted at freshmen parents' weekend and had reconfirmed by the student remarks at the pre-graduation dinner. He is a most refreshing example of a dean who keeps in touch with teaching and the students.*

*We also want to commend the contribution of Clinton Dodd and his efforts on the non-academic side. Through his patience and encouragement, Tim and other students found not only a positive release from the academic pressures but also opportunities to develop in many ways.*

*Our only suggestion comes in the area of expanding the Career Center's interaction with the alumni on employment. The Career Center should be more aggressive in promoting the Caltech graduates. In this continuing recession I think alumni would be willing to help new graduates if they were informed about those seeking employment and their qualifications. Tim interviewed all year through the Career Center but the major firms like Hughes are not hiring. He has found it difficult to get access to smaller firms and here, I think, contact with alumni would be most helpful.*

*We leave with debts but no regrets. Caltech offers an excellent education for the future scientist.*

Sincerely,

Prof. Thomas R. Maddux

**CALIFORNIA INSTITUTE OF TECHNOLOGY**

Pasadena, California 91125

Thomas E. Everhart  
President

(818) 356-6301  
FAX (818) 449-9374

July 15, 1992

Dr. Christopher Brennen  
360 Olive Tree Lane  
Sierra Madre, California 91024

Dear Dr. Brennen:

The Executive Committee of the Board of Trustees, at its meeting on July 14, 1992, acknowledged your request to relinquish your responsibility as Dean of Students, effective August 1, 1992. As we discussed, the \$10,000 salary increment for service during your deanship will be recaptured in two equal installments.

The Institute is greatly indebted to you for your outstanding service as Dean of Students. Gary Lorden, in particular, wanted me to pass on his personal gratitude. We all thank you and we wish you the best as you return to full-time teaching and research.

Sincerely,



Thomas E. Everhart

cc: G. Lorden



# Dean Brennen to Step Down

## Staff Writer

Dr. Christopher Brennen has informed President Everhart and Vice President Lorden of his resignation as Dean of Students. In a memo dated January 14, 1992, Dr. Brennen stated that beginning with the end of the current academic year, he will retire his post. He will continue his activities until that time.

In his memo, Dr. Brennen said, "This was not an easy decision to make for I have and always will have an abiding affection and respect for the undergraduates..." He also assured that he has "...no plans to leave the Institute..." since he will resume "...[his] teaching and research in the Mechanical Engineering Department."

Dr. Brennen first arrived at the Institute on January 7, 1969 with, as he says, "2 suitcases, 2 kids, and \$200," to begin his post-doctoral position as a Research Fellow under a Fulbright Scholarship. After moving up the academic hierarchy to become Professor of Mechanical Engineering, he decided to try for the job of Master of Student Houses, which he held from 1983-1987. Beginning in 1988, he filled the position of Dean of Students.

He took on the positions of MOSH and Dean because of a professed interest in the status of students. He said that he valued a concern for the undergraduates at the Institute and that he still does. When asked what he would like being remembered for, the response is: "I want to be remembered as caring."

He says that the best things remembered from his posts were memories of "...the private successes of individual students." In addition, he states "The thing about being MOSH and Dean is that the most difficult things are the most rewarding. You really can't do the jobs without caring."

Near term plans for Dr. Brennen involve taking a year off from the Institute. He hopes to spend 1 term at Oxford and 1 term at Tokyo University. Moreover, he intends to finish two text books in mechanical engineering which he says are about 80-90% complete—the first will be on multi-phase flows, and the second on modern high-performance turbomachinery.

Eventually, Dr. Brennen plans to return to resume his career as a professor and continue with his research. He says that "I want to avoid becoming too much of a bureaucrat."

When asked for reasons why he is resigning as Dean, he replies: "It was just time to move on. I didn't want to continue [as Dean] while being tired, and I also thought that it was time for new faculty members to become involved... Gary Lorden and Dr. Wales and I have been shifting around [the same positions] for awhile."

If the selection process for a new Dean will be anything like the past few times, a new committee composed of faculty, staff, and students will be formed to interview candidates. A final decision will be made by the President, who will then pass on his decision to the Trustees for an approval.

---

*Christopher E. Brennen, D. Phil.  
born Belfast, N. Ireland.  
Professor of Mechanical Engineering; Dean of Students*

*B.A. University of Oxford,  
1963*

*M.A., D. Phil., 1966*

*Caltech affiliation:*

*Research Fellow, 1969-72;*

*Sr. Research Fellow 1972-75;*

*Research Associate, 1975-82;*

*Associate Professor, 1976-82;*

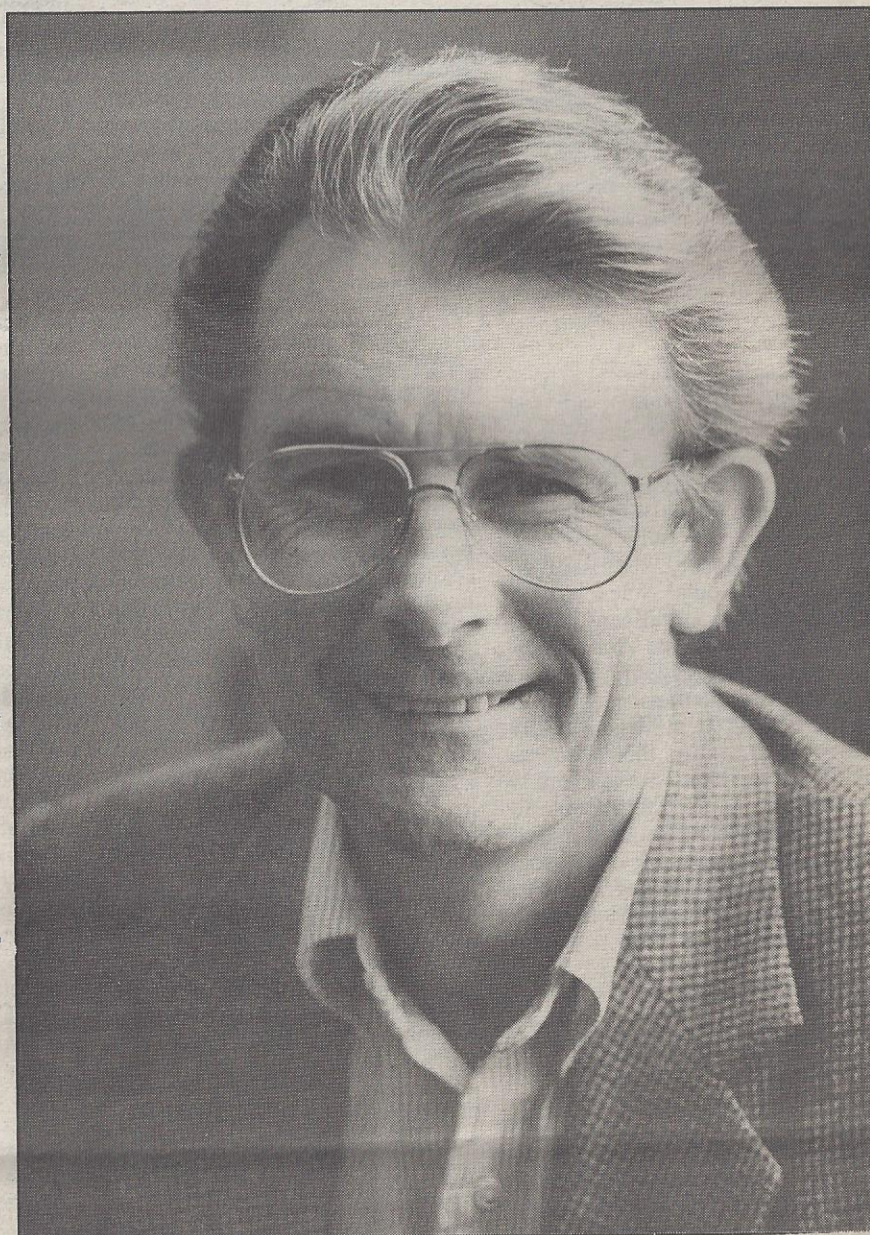
*Professor, 1982-present;*

*MOSH, 1983-87;*

*Dean, 1988-1992.*

---

*Dr. Chris Brennen, who has served Caltech through the years as Professor, Master of Student Housing, and Dean will remain at Caltech to teach.*



*Photo Courtesy of Caltech Public Events*



# The Caltech Y

california institute of technology, 218-51, pasadena, california 91125

Lucy Guernsey  
Executive Director

April 17

Dear Chris -

Good show!

Thank...

You are truly special.

Lucy



Member Agency  
United Way

Chris!

4/19/92

I never got a chance to thank  
you for your incredible performance  
as the first dunker for E-Day.  
The days fun & educational memory  
will ~~last~~ <sup>last</sup> for many <sup>remembering</sup> your game antics  
at the booth. Thank you ever so much  
for your participation. Sincerely

Loay Werking



RECEIVED  
JAN 16 1992

CALIFORNIA INSTITUTE OF TECHNOLOGY DEANS' OFFICE

DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES 228-77

Jan. 15

Dear Chris,

I was quite sorry to hear that you're going to resign from the Deanship.

I don't know why anyone ever takes such a job, but from my contacts with you, you always seemed to be excellent in it.

This is a considerable loss for Caltech.

Sincerely,  
Morgan



The American Society of  
Mechanical Engineers

David L. Belden, Ph.D., P.E.  
Executive Director  
212-705-7730  
FAX 212-705-7739

345 East 47th Street  
New York, NY 10017

May 20, 1992

Dr. Christopher E. Brennen  
Dean of Undergraduate Students  
Division of Engineering and Applied Science  
California Institute of Technology 104-44  
Pasadena, CA 91125

Dear Dr. Brennen:

The Fluids Engineering Award is bestowed for outstanding contributions to the field of fluids engineering through research, practice and/or teaching. Originally a division award, it was elevated to a Society award in 1978.

I have the honor of advising you that you have been selected as the recipient of the 1992 Fluids Engineering Award, "for exceptional contributions to fluids engineering through outstanding research, teaching and service to ASME."

This award will be formally presented during the ASME Winter Annual Meeting, November 8-13, 1992, at the Anaheim Hilton & Towers in California. The presentation is scheduled for the President's Luncheon on Monday, November 9. Further details will be sent to you at a later date.

We will appreciate your early acceptance of this award. We also would like to have you send to us, by June 16, a glossy print of your most recent photograph and material for a biographical sketch (outline enclosed), which will appear in the 1992 ASME Winter Annual Meeting Program.

Please accept my congratulations on your receipt of this important honor.

Sincerely,

A handwritten signature in black ink, appearing to read 'David L. Belden', is written over the word 'Sincerely'.

David L. Belden

Enclosure





The American Society of  
Mechanical Engineers

David L. Belden, Ph.D., P.E.  
Executive Director  
212-705-7730  
FAX 212-705-7739

345 East 47th Street  
New York, NY 10017

August 14, 1992

Dr. Christopher E. Brennen  
Department of Mechanical Engineering  
California Institute of Technology  
Mail Code 104-44  
Pasadena, CA 91125

Dear Dr. Brennen:

Plans have been completed for the presentation to you of the Society's 1992 Fluids Engineering Award at the President's Luncheon during the ASME Winter Annual Meeting. The Luncheon will be held on Monday, November 9, 1992, at 1:15 p.m., at the Anaheim Hilton & Towers.

It gives me sincere pleasure to extend to you and Mrs. Brennen an invitation to be guests of the Society on that occasion. You will be seated at the head table, and your wife will be seated at a reserved table. Head table guests will assemble at 12:45 p.m. for the purpose of having photographs taken. Because of the number of presentations at this Luncheon, there will only be time for a few brief words of acceptance when receiving the award.

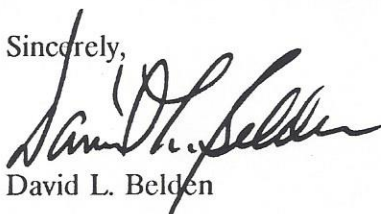
As one of the recipients of an ASME honor this year, you are also invited to attend the Honors Assembly at 6:00 p.m., on Wednesday, November 11. On behalf of President Falcon, may I invite you and Mrs. Brennen to be guests of the Society at the Reception and Dinner which will immediately follow the Honors Assembly. President and Mrs. Falcon would also like to extend an invitation to attend the President's Reception which will follow the Honors Dinner. Further details, including room assignments for these events, will be provided to you at a later date.

Business attire will be suitable for both occasions.

To facilitate our making a hotel reservation for you, a 1992 WAM VIP Guest Room Reservation form is enclosed. A Special Status Registration/Ticket Purchase form is also included. If you require additional tickets, complete the ticket purchase portion of the registration form. Please return both forms to Carolyn Bostick in the Honors Department, no later than September 7.

We look forward to receiving your acceptance.


Sincerely,

  
David L. Belden

cc: J.A. Falcon

Enclosures

R.S.V.P. by September 7, 1992

Ms. Bostick  
Dear ~~Mr. Belden~~,  
I attach the forms you  
requested.  
Yours sincerely  




345 East 47th Street  
New York, NY 10017  
  
Suite 906  
1828 L Street, N.W.  
Washington, DC 20036

For Release:  
Upon Receipt

Contact: Jeff Lenard  
Public Information  
212-705-8157

### BRENNEN TO RECEIVE ASME AWARD

Christopher E. Brennen, D. Phil., professor of mechanical engineering, California Institute of Technology, Pasadena, will receive the Fluids Engineering Award of the American Society of Mechanical Engineers (ASME) during its winter annual meeting Nov. 8-13 in Anaheim.

The award, established by the Fluids Engineering Division in 1968, is given for contributions to the engineering profession, particularly to fluids engineering through research, practice, or teaching.

Dr. Brennen is receiving it "for exceptional contributions to fluids engineering through outstanding research, teaching, and service to ASME."

Born in Belfast, Northern Ireland, Dr. Brennen attended high school in County Derry. He went on to win a scholarship to Oxford University, where he received a B.A. with first-class honors in 1963, and a M.S. and D. Phil. in 1966, all in engineering science.



Brennen -- 2

Following graduation, Dr. Brennen took up a postdoctoral position at the National Physical Laboratory just outside of London. In 1968 he won a Fulbright Scholarship and traveled to the California Institute of Technology for a year as a research fellow, where he worked on water wave problems and in the newly emerging field of micro-organism locomotion. He joined the faculty of Caltech in 1976 and was named to his current position as professor of mechanical engineering in 1982.

A past chairman of the ASME Fluids Engineering Division, as well as the Division's Multiphase Flow Committee, Dr. Brennen was awarded the Division's R.T. Knapp Award in 1978 and 1981. He was also awarded the ASME's Centennial Medallion in 1980 and served as associated editor of the Journal of Fluids Engineering.

Dr. Brennen received the National Aeronautics and Space Administration's New Technology Award in 1980.

ASME is a worldwide engineering society focused on technical, educational, and research issues, with 118,000 members, including 21,000 students. It conducts one of the world's largest technical publishing operations, holds more than 30 technical conferences each year, and sets many industrial and manufacturing standards.

-###-

National Aeronautics and  
Space Administration



**George C. Marshall Space Flight Center**  
Marshall Space Flight Center, Alabama 35812  
AC(205)544-2121

Reply to Attn of:

OCT 26 1992

EE25/92-80

*Professor Christopher Brennen  
California Institute of Technology  
Pasadena, California 91109*

*Congratulations Chris:*

*Your many acquaintances at MSFC are unanimous in feeling that the award is deserved. We have enjoyed working with you over the years.*

A handwritten signature in dark ink, appearing to read "Loren A. Gross".

*Loren A. Gross  
Chief, Advanced SSME Engineering*





**Executive Committee Members  
1991-1992**

**Chairman**  
Dr. Warren F. Wade  
President  
FluidDesign, Inc.  
28675 Hidden Valley Drive  
Orange Village, OH 44022  
216-248-1922  
FAX: 216-248-6940

**Program Representative (1992)**  
Dr. Richard A. Bajura  
Associate Provost for Research  
105 Stewart Hall  
West Virginia University  
Morgantown, WV 26506-6001  
304-293-3449  
FAX: 304-293-7554

**Secretary**  
Mr. Donald R. Webb  
Manager  
Hydraulic Testing & Standards  
Voith Hydro, Inc.  
P.O. Box 712  
York, PA 17405  
717-792-7595  
FAX: 717-792-7263

**Membership**  
Dr. Michael L. Billet  
Head, Fluid Dynamics Dept.  
Applied Research Lab.  
Penn State University  
P.O. Box 30  
State College, PA 16804  
814-863-3001  
FAX: 814-865-3287

**Senior Member**  
Dr. Clayton T. Crowe  
Professor  
Washington State University  
Dept. of Mechanical and  
Materials Engineering  
Pullman, WA 99164-2920  
509-335-3214  
FAX: 509-335-7632

**Administrative Committees**  
**Technical Editor, JFE**  
Dr. Demetri P. Telonis  
Engineering Science and Mechanics  
Virginia Polytechnic Institute and  
State University  
Blacksburg, VA 24061  
703-231-7492  
FAX: 703-231-4574

**Professional Development**  
Dr. Helmut E. Weber  
Flow Energy Engineering  
5433 Drovers Drive  
San Diego, CA 92115  
619-265-0500

**Honors and Awards**  
Dr. Jack W. Hoyt  
Dept. of Mechanical Engrg.  
San Diego State University  
San Diego, CA 92182  
619-594-4491  
FAX: 619-594-6005

**Division Newsletter**  
Dr. Thomas Morel  
Ricardo ITI, Inc.  
645 Blackhawk Drive  
Westmont, IL 60559  
708-789-0003  
FAX: 708-789-0127

**Government Relations**  
Dr. Jules L. Dussourd  
Fluids Engineering Associates  
4 Cleveland Road West  
R.D. 2  
Princeton, NJ 08540  
609-466-2860

**ASME Staff**  
Raj Manchanda  
345 E. 47th St.-MS 5A  
New York, NY 10017  
212-705-7284  
FAX: 212-705-7674

345 East 47th Street  
New York, NY 10017

Reply to: W.F. Wade

15 February 1992

Committee on Honors  
American Society of Mechanical Engineers  
345 East 47th Street  
New York, NY 10017

Subject: 1992 Fluids Engineering Award

Gentlemen:

It is with great pleasure that the Executive Committee of the Fluids Engineering Division recommends Dr. Christopher E. Brennen for the Fluids Engineering Award. I personally have known Chris for many years, both as a dedicated and tireless worker for the ASME, and as a Professor of Mechanical Engineering and Dean of Students at the California Institute of Technology, where my son recently received his Doctorate.

Dr. Brennen has a long and distinguished career of research in turbomachinery and cavitation, starting with his Doctoral dissertation, and continuing over his long tenure at Cal Tech. He has made many outstanding contributions to the field of Fluid Mechanics, both in his own research and in that of the students he has supervised and advised; many of his students have gone on to make their own valuable contributions to the field. He has been an inspired and inspiring teacher of both undergraduate and graduate courses in Mechanical Engineering for many years. When the position of Dean of Students recently became open, he was the first choice of administration, faculty, and students; Chris accepted this position, but made it clear that he wanted to continue to teach while Dean.

Dr. Brennen has ably held virtually every office in the Fluids Engineering Division. His service to ASME started for the Fluid Machinery Committee, where he was Secretary, Vice Chairman, and Chairman; he continued on to the Executive Committee, serving as Membership Chairman, Secretary, Program Chairman, Chairman (1984-85), Senior Member, and Newsletter Chairman. Most recently, he is serving on the FED Advisory Board, giving the present Executive Committee the benefit of his experience and his innovative, incisive mind.

In summary, the members of the FED Executive Committee unanimously feel that Dr. Christopher E. Brennen is highly deserving of the Fluids Engineering Medal for 1992.

Sincerely yours,

Warren F. Wade, ScD, PE  
Chairman, Fluids Engineering Division  
Alternate Fax: 216-692-6639

cc: FED Executive Committee  
Dr. Jack W. Hoyt



Executive Committee Members  
1991-1992

**Chairman**  
Dr. Warren F. Wade  
President  
FluidDesign, Inc.  
28675 Hidden Valley Drive  
Orange Village, OH 44022  
216-248-1922  
FAX: 216-248-6940

**Program Representative (1992)**  
Dr. Richard A. Bajura  
Associate Provost for Research  
105 Stewart Hall  
West Virginia University  
Morgantown, WV 26506-6001  
304-293-3449  
FAX: 304-293-7554

**Secretary**  
Mr. Donald R. Webb  
Manager  
Hydraulic Testing & Standards  
Voith Hydro, Inc.  
P.O. Box 712  
York, PA 17405  
717-792-7595  
FAX: 717-792-7263

**Membership**  
Dr. Michael L. Billet  
Head, Fluid Dynamics Dept.  
Applied Research Lab.  
Penn State University  
P.O. Box 30  
State College, PA 16804  
814-863-3001  
FAX: 814-865-3287

**Senior Member**  
Dr. Clayton T. Crowe  
Professor  
Washington State University  
Dept. of Mechanical and  
Materials Engineering  
Pullman, WA 99164-2920  
509-335-3214  
FAX: 509-335-7632

**Administrative Committees**  
**Technical Editor, JFE**  
Dr. Demetri P. Telonis  
Engineering Science and Mechanics  
Virginia Polytechnic Institute and  
State University  
Blacksburg, VA 24061  
703-231-7492  
FAX: 703-231-4574

**Professional Development**  
Dr. Helmut E. Weber  
Flow Energy Engineering  
5433 Drovers Drive  
San Diego, CA 92115  
619-265-0500

**Honors and Awards**  
Dr. Jack W. Hoyt  
Dept. of Mechanical Engrg.  
San Diego State University  
San Diego, CA 92182  
619-594-4491  
FAX: 619-594-6005

**Division Newsletter**  
Dr. Thomas Morel  
Ricardo ITI, Inc.  
645 Blackhawk Drive  
Westmont, IL 60559  
708-789-0003  
FAX: 708-789-0127

**Government Relations**  
Dr. Jules L. Dussourd  
Fluids Engineering Associates  
4 Cleveland Road West  
R.D. 2  
Princeton, NJ 08540  
609-466-2860

**ASME Staff**  
Raj Manchanda  
345 E. 47th St.-MS 5A  
New York, NY 10017  
212-705-7284  
FAX: 212-705-7674

345 East 47th Street  
New York, NY 10017  
21 February, 1992  
Reply to:

Committee on Honors  
American Society of Mechanical Engineers  
345 East 47th St.  
New York, NY 10017

Gentlemen:

The Fluids Engineering Division Awards Committee, endorsed completely by the Fluids Engineering Division Executive Committee, recommends Dr. Christopher Earls Brennen, Professor of Mechanical Engineering at the California Institute of Technology, as our candidate for the 1992 Fluids Engineering Award.

The many outstanding contributions of Prof. Brennen in fluid mechanics have led to his receiving the R.T. Knapp Award twice for innovative papers in the field. He is a world authority in cavitation and turbomachinery. He has inspired extremely competent and successful graduate students, who are now themselves leaders in fluid mechanics.

Dr. Brennen has also been especially active in Society affairs, having been Chairman of the Executive Committee of the Fluids Engineering Division. He seldom misses the technical sessions of the FED, where his incisive comments, given in the most friendly manner, add greatly to the sharing of technical information.

We propose that the Award be given to Christopher Earls Brennen

"For exceptional contributions to Fluids Engineering through outstanding research, teaching, and service to ASME".

We appreciate the opportunity to make this nomination for your consideration.

Sincerely,

*Jack W. Hoyt*  
Jack W. Hoyt  
Chair, FED Awards Committee

Encl: C.E. Brennen Resume  
Letters of Recommendation

cc: FED Executive Committee  
FED Honors & Awards Committee





Washington State University



Department of Mechanical and Materials Engineering

Pullman, WA 99164-2920  
509-335-3654 FAX 509-335-4662

Feb. 10, 1992

J.W. Hoyt, Professor  
Dept. of Mechanical Engineering  
San Diego State University  
San Diego, CA 92182

Dear Jack,

It is my honor to write a letter to support the nomination of Professor Christopher Brennen for the Fluids Engineering Award. I have known Professor Brennen for over 15 years and am well aware of the contributions he has made to fluids engineering through research and teaching.

Professor Brennen is highly respected throughout the fluids engineering community for the continuously high quality of his work. The graduate students that have worked under his tutelage are also leaving their mark for high quality research and teaching in the community. There is no doubt that he is an effective and outstanding teacher.

The early work of Professor Brennen involved the dynamics of cavitating cascades with application to turbo-pumps. The conceptual model and analysis he developed for the cavitating turbopump is a current standard reference in the field. In his continuing work, he introduced a new system identification method for cavitating turbomachines. Also he has developed void fraction instrumentation to study the behavior of cavitating flows over bodies with the resulting acoustic effects.

Professor Brennen has also made significant contributions to the understanding of granular flows with the development of new analytic approaches and clever experimental techniques. His visualizations of particle-particle interactions were truly remarkable. These studies have introduced new ideas for the handling of bulk materials.

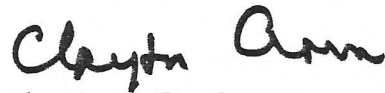
Professor Brennen has also built up a laboratory for the measurement of two and three phase flows. His experimental studies have shown the interaction of bubbles and particles in an upward liquid flow. This work has made a major contribution to the understanding of three phase flows.

Professor Brennen has also contributed to ASME through his service

on the Multiphase Flow Committee and the Executive Committee of the Fluids Engineering Division. His wise counsel and dedication to the Society have lead to the healthy state of the Division today.

I strongly support Professor Brennen for the Fluids Engineering Award because of the outstanding contributions he has made through his teaching and research in fluids engineering. He definitely deserves this prestigious award.

Sincerely,

A handwritten signature in cursive script, reading "Clayton Crowe".

Clayton T. Crowe  
Professor  
Senior Member, ASME FED





**Executive Committee Members  
1991-1992**

*Chairman*  
Dr. Warren F. Wade  
President  
FluidDesign, Inc.  
23675 Hidden Valley Drive  
Orange Village, OH 44022  
216-248-1922  
FAX: 216-248-6940

*Program Representative (1992)*  
Dr. Richard A. Bajura  
Associate Provost for Research  
105 Stewart Hall  
West Virginia University  
Morgantown, WV 26506-6001  
304-293-3449  
FAX: 304-293-7554

*Secretary*  
Mr. Donald R. Webb  
Manager  
Hydraulic Testing & Standards  
Voith Hydro, Inc.  
P.O. Box 712  
York, PA 17405  
717-792-7595  
FAX: 717-792-7263

*Membership*  
Dr. Michael L. Billet  
Head, Fluid Dynamics Dept.  
Applied Research Lab.  
Penn State University  
P.O. Box 30  
State College, PA 16804  
814-863-3001  
FAX: 814-865-3287

*Senior Member*  
Dr. Clayton T. Crowe  
Professor  
Washington State University  
Dept. of Mechanical and  
Materials Engineering  
Pullman, WA 99164-2920  
509-335-3214  
FAX: 509-335-7632

**Administrative Committees**

*Technical Editor, JFE*  
Dr. Demetri P. Telonis  
Engineering Science and Mechanics  
Virginia Polytechnic Institute and  
State University  
Blacksburg, VA 24061  
703-231-7492  
FAX: 703-231-4574

*Professional Development*  
Dr. Helmut E. Weber  
Flow Energy Engineering  
5433 Drover Drive  
San Diego, CA 92115  
619-265-0500

*Honors and Awards*  
Dr. Jack W. Hoyt  
Dept. of Mechanical Engrg.  
San Diego State University  
San Diego, CA 92182  
619-594-4491  
FAX: 619-594-6005

*Division Newsletter*  
Dr. Thomas Morel  
Ricardo ITI, Inc.  
645 Blackhawk Drive  
Westmont, IL 60559  
708-789-0003  
FAX: 708-789-0127

*Government Relations*  
Dr. Jules L. Dussourd  
Fluids Engineering Associates  
4 Cleveland Road West  
R.D. 2  
Princeton, NJ 08540  
609-466-2860

*ASME Staff*  
Raj Manchanda  
345 E. 47th St.-MS 5A  
New York, NY 10017  
212-705-7284  
FAX: 212-705-7674

345 East 47th Street  
New York, NY 10017

Reply to:

23 January 1992

Dr. J. W. Hoyt  
Department of Mechanical Engineering  
San Diego State University  
San Diego, CA 92182

Subject: *Nomination for 1992 Fluids Engineering Award*

Dear Jack:

It is my pleasure to support the nomination of Professor Christopher Brennen for the 1992 Fluids Engineering Award of the American Society of Mechanical Engineers. He has achieved an international reputation for this multiphase flow research and is very highly respected as an educator. I have great personal respect for his many technical contributions to the cavitation state-of-the-art as well as his contributions to the Division of Fluids Engineering, ASME.

There is extensive evidence that the professional community has benefited from the many contributions of Chris Brennen such as the many references to his journal articles, numerous invited lectures at meetings, and as Chairman of the Fluids Engineering Division. Under his leadership, the Multiphase Flow Committee was reorganized which has resulted today in new technical areas.

His research into the dynamics of cavitation has resulted in not only new theories and analytical approaches but also new two-phase flow instrumentation. This work has significantly impacted the direction of research. He has the unique ability of combining basic academic research and engineering.

I very strongly endorse the nomination of Professor Christopher Brennen for the 1992 Fluids Engineering Award.

Very truly yours,

Michael L. Billet  
Head, Fluid Dynamics Department

MLB:hw



645 Blackhawk Drive  
Westmont, IL 60559-1115  
U.S.A.  
Tel (708) 789-0003  
Fax (708) 789-0127

February 3, 1992

**Ricardo North America, Inc.**

Fluids Engineering Award Committee  
ASME Fluids Engineering Division

Subject: Nomination of Prof. Christopher Brennen

By this letter I would like to add my voice to the nomination of Professor Christopher Brennen for the prestigious Fluids Engineering Award. This Award is the most esteemed recognition that Fluids Engineering Division of ASME can give to its members. The list of the past awardees is impressive as it serves to recognize the few true luminaries of the profession. Professor Brennen will be a well suited member of that elite club.

I have known Professor Brennen for some 15 years through our joint work on ASME fluids Engineering Committees. He served ASME well in various functions, culminating by membership on the Executive Committee and his chairmanship of that committee. His presence at all of our meetings has always provided the needed leadership. He has been looked to for advice and direction, since he has always been recognized as the quiet leader among his peers. As such, his contributions to the Division and to ASME have been numerous and invaluable, and we will continue to look to him for advice for years to come.

In the technical area, his contributions to the research on multiphase and cavitating flows have been recognized to be of exceptional quality, undiluted by his prolific contributions (some 100 papers). Although this subject areas is not one in which I have much expertise, I can attest to the great attention that his presentations at ASME meetings have drawn, as well as to the favorable mentions they produced.

Looking from the perspective of the Fluids Engineering Award and what it seeks to recognize, I would like to stress the undisputed leadership technical, organizational and personal of Professor Brennen as his main qualification. I am proud to have been associated with Professor Brennen through out ASME activities and I support his nomination without any hesitation. I trust you will agree, and award Professor Brennen with the Fluids Engineering Award.

Sincerely yours,

Thomas Morel  
Executive Vice President  
(Past Chairman  
Fluids Engineering Committee)

TM:jeg



# CALIFORNIA INSTITUTE OF TECHNOLOGY

DIVISION OF ENGINEERING  
AND APPLIED SCIENCE 104-44

December 19, 1991

Board of Governors  
American Society of Mechanical Engineers  
345 East 47th Street  
New York, New York 10017


Gentlemen:

I am delighted to sponsor my colleague, Christopher Earls Brennen, Professor of Mechanical Engineering at Caltech, as a nominee for the Fluids Engineering Award. I have had the pleasure of knowing him and working with him for about 20 years. During this time he has become highly skilled in research on cavitation, hydraulic turbomachines, and the flow of complex fluids. In addition to becoming a highly sought-after teacher, he has been responsible for major developments in our engineering understanding and application of hydraulic pumps in unsteady flow (for which he has received the Knapp prize), and developed new instrumentation for the measurements of two and three-phase flows. These applications have had a major impact on how the POGO oscillations of large rocket boosters develop, as well as the bubbly flows that affect the vibrations of ship propellers. He has been active in ASME, serving as Invited Lecturer on several occasions, including the ASME centennial celebration in San Francisco and as an officer and then chairman of the Fluids Engineering Division of ASME in the 1980's.

As a close colleague, I have come to appreciate Professor Brennen's engineering judgement and skills, as well as his intellectual ability. It is seldom that one person has accomplishments in the several fields of engineering that he has, all done with his individual enterprise and unusual technical insight. His impact in the Fluids Engineering Committee of ASME has won him many friends and admirers, but he is also well known for his work in granular flows (reported in the Applied Mechanics Division) and earlier work in bio-fluid mechanics and hydrodynamics as his many publications attest.

In his role as a Caltech professor, Professor Brennen served for many years as the ASME Student Chapter advisor. His concern with teaching and the guidance of youth led him to become the Dean of the undergraduate students - a highly demanding task that has not detracted from his contribution to engineering and ASME, as evidenced in his recent talk at the Fluids Engineering Dinner at the 1991 Winter Annual Meeting. There is no doubt that he will continue his high level of engineering achievement in the fields of cavitation, cavitation noise, hydrodynamics of turbopumps and complex fluid flows in Mechanical Engineering for the foreseeable future. For all these reasons I most strongly support his nomination for the Fluids Engineering Award.

Sincerely,

  
Allan J. Acosta  
Executive Officer and  
Hayman Professor of  
Mechanical Engineering

AJA/dy



# CONCEPTS engineering education and technology for industry

January 3, 1992

ASME Council  
345 East 47th Street  
New York, NY 10017

Gentlemen:

The nomination of Christopher Earls Brennen for the 1992 Fluids Engineering Award is made without reservation. Professor Brennen's qualifications have been detailed in various supporting documents; I wish to emphasize the impact that his career has had on the engineering profession.

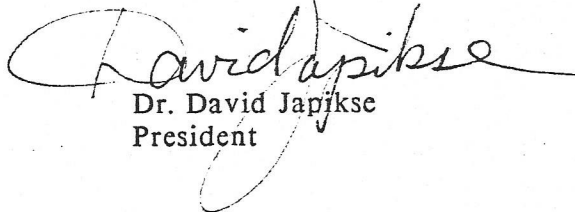
I have known Professor Brennen for approximately 15 years in various industrial consulting and ASME collaborative activities. However, during the past seven or eight years, Professor Brennen has lectured with me in courses presented by Concepts ETI, Inc. (CETI) on the subject of cavitating flow and unsteady forces in pumps, based on the work that he has carried out. Many individuals are able to carry out advanced research; few are also gifted with the ability to present their work clearly to the next generation of practicing engineers and with such clarity and enthusiasm that they are drawn deeply into the subject matter. Professor Brennen possesses these qualities.

Due to the articulate and absorbing presentations given by Professor Brennen over the past years at CETI, many engineers have been guided to the better application of advanced work on unsteady forces and cavitation, including not only the work by Professor Brennen, but also the work by his many colleagues around the world. Every time Professor Brennen lectures at CETI, the students find his lectures to be extremely provocative and there are always long question and answer periods following his presentations.

I also wish to note that his contributions during ASME presentations are always of the highest quality and his willingness to help his fellow man, either with professional activities or related personal matters, has always been abundant. I strongly recommend Professor Brennen for the 1992 Fluids Engineering Award.

Sincerely,

CONCEPTS ETI, INC.



Dr. David Japikse  
President

DJ/pp



DEPARTMENT OF THE NAVY

NAVAL POSTGRADUATE SCHOOL  
MONTEREY, CALIFORNIA 93943-5100

IN REPLY REFER TO:

Dr. Jack W. Hoyt  
Dept. of Mechanical Engineering  
San Diego State University  
San Diego, CA 92182

6 January 1991

Dear Dr. Hoyt:

It is with great personal pleasure and professional pride I recommend that the **1992 Fluids Engineering Award** be bestowed upon Professor Christopher Earls Brennen of the Department of Mechanical Engineering of the California Institute of Technology.

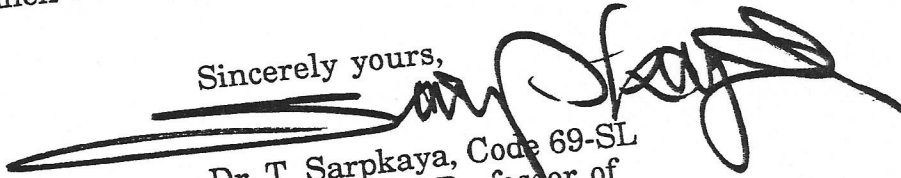
During the past decade, **Turbomachine Fluid Dynamics** has become one of the most important topics in the general area of fluid mechanics. As in every new development, this rapidly emerging field needed few pioneers who had the rare talent to be experts in fluid dynamics, computers, and experimental methods. Dr. Brennen has been one of these pioneers. Through seminal papers published in refereed scholarly journals, he has made, during the past decade, numerous outstanding contributions to the state of the art of cavitating turbopumps, mechanics of cavitation, cavitation bubbles, and provided new insights on the behavior and acoustics of bubbly flows over bluff bodies. His works have inspired other researchers and provided invaluable design information to the engineering community in general. He is widely quoted and appreciated for his works on the hydrodynamic forces on impellers of hydraulic machines. I can cite many more examples and go over the details of his contributions to many branches of hydrodynamics and to the creation and evolution of numerous new instrumentation for two-phase flows, but I will refrain from doing so in order to keep this recommendation within reasonable limits. Dr. Brennen's contributions are not confined to Turbomachinery alone. In fact, our paths have crossed numerous times during the past fifteen years in connection with his fundamental work on drag reduction. Suffice it to note that Dr. Brennen's contributions are scholarly, timely, original, thought provoking, path finding, and are most likely to lead to many additional contributions in the years to come.

It has been my privilege to hear many of his technical presentations and be inspired by them. He brought much honor and recognition to CALTECH. I have every reason to believe that he will continue to make major contributions in the years to come, not only as a scholar respected among his contemporaries but also relative those who have ever contributed to his area of specialization.



In summary, I respectfully and strongly recommend that Professor Christopher Earls Brennen be designated as the next recipient of the Fluids Engineering Award.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'T. Sarpkaya', written over a horizontal line.

Dr. T. Sarpkaya, Code 69-SL  
Distinguished Professor of  
Mechanical Engineering  
Naval Postgraduate School  
Monterey, CA 93943

TS:pc



DEPARTMENT OF THE NAVY  
DAVID TAYLOR RESEARCH CENTER

ANNAPOLIS LABORATORY  
ANNAPOLIS, MD 21402-5067

CARDEROCK LABORATORY  
BETHESDA, MD 20084-5000

IN REPLY REFER TO:

2 January 1992

Dr. Jack W. Hoyt  
Chairman, FED Honors and Awards Committee  
Department of Mechanical Engineering  
San Diego State University  
San Diego, CA 92182

Subject: Recommendation of Christopher E. Brennen for the 1992 Fluids  
Engineering Award

Dear Dr. Hoyt:

It gives me great pleasure to recommend the nomination of Prof. Christopher E. Brennen for the 1992 Fluids Engineering Award. I have known "Chris" for over 20 years when he started his work at the California Institute of Technology as a Research Fellow. He is well known both nationally and internationally for his work on the physical understanding of cavitation and on the fluid mechanics of turbomachinery. He has made numerous contributions to the literature on these subjects and has developed many engineering procedures useful for design based on his expert insight. His work on cavitation has been extremely important to the U.S. Navy.

Besides his technical contributions, Chris has been very active in the affairs of ASME. I have served with him on the Multiphase Flow Committee of the Fluids Engineering Division (FED) and the FED Executive Committee. In addition, I have served with him on other Committees of FED and he has always been very energetic and willing to do his part in support of the ideals of ASME.

It is a privilege and a pleasure for me to strongly support the nomination of Prof. "Chris" Brennen for the 1992 Fluids Engineering Award. He is most deserving of this honor for the work he has done for our profession and for ASME.

Sincerely,

William B. Morgan, Fellow ASME  
Associate Technical Director for Ship  
Hydromechanics



Sandia National Laboratories  
Albuquerque, New Mexico 87185

February 19, 1992

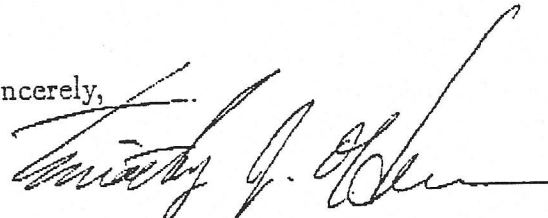
To: ASME Fluids Engineering Honors and Awards Committee  
Re: Chris Brennen nomination for 1992 Fluids Engineering Award

This letter is written in support of the nomination of Professor Chris Brennen of the California Institute of Technology for the ASME 1992 Fluids Engineering Award. I feel that Professor Brennen is an outstanding and well-deserving nominee for this award.

I have known Professor Brennen since 1981, when I entered Caltech as a Mechanical Engineering graduate student. While I did my doctoral dissertation on cavitation under the guidance of Professor Allan Acosta, I frequently consulted with Professor Brennen, who was a member of my examining committee. His insightful questions and comments were very valuable in shaping my research directions. I also took his excellent course in Multiphase Flows, and still use these course notes in my current research. Since graduating from Caltech and joining Sandia National Labs, I have kept in touch with Professor Brennen, primarily at the semiannual ASME conferences and technical committee meetings. In a recent example of his technical knowledge, I introduced several of my Sandia colleagues to him at an ASME meeting. When he found out they were working on cavity closure problems (water-entry vehicles), he provided a number of insights that they have been able to use in their later work. This is a good example of Professor Brennen's approach to a technical problem; he applies a great deal of physical insight in a multidisciplinary approach, providing a fresh viewpoint that often is the key to full understanding of the problem. His record of publications, active involvement in ASME technical committees (especially the Multiphase Flow Committee), outstanding rapport with his students (both at the undergraduate and graduate levels), and obvious love of teaching are further aspects that should be considered when making this award.

In conclusion, I strongly support this nomination. Please contact me if further information is needed.

Sincerely,



Dr. T. J. O'Hern  
Division 1512  
(505) 844-9061  
FAX (505) 844-4523

INTEROFFICE MEMORANDUM  
**CALIFORNIA INSTITUTE OF TECHNOLOGY**

**TO:** Chris Brennen  **DATE:** January 21, 1992  
**FROM:** David A. Edwards **EXT.:** 4491 **MAIL CODE:** 217-50  
**SUBJECT:** Thoughts on Your Resignation

Seeing you at the King Day Observance reminded me that I still had not sent this memo out to you. It's been a real zoo around here lately!

I can't begin to describe all the feelings I had when I heard of your resignation as dean. A little surprise (though I knew you had been contemplating it for a while), a little sadness (for obvious reasons), and a little relief (since I knew what a toll the job had taken on you at times).

In my five years here, I have not spoken to one undergraduate who ever questioned your integrity or fairness. Now and again your decisions weren't popular, but people always considered you to be fair and even-handed. You continually maintained a balance between those who wished to meddle too much with student autonomy and those who, wishing to please everyone, did little.

During your tenure as dean, you have seen monumental changes in the way Student Affairs operates and the priorities the Institute has regarding students. Through it all, you allowed the transition to be as smooth as possible while still somehow finding time to give personal attention to each student that passed through your doors.

We'll all miss you, Chris. Not only those who are undergraduates now, but all of us whose lives you touched. You will leave a big set of shoes to fill, and I hope that you will be given significant authority in choosing your successor. I am glad to hear that you will be finishing up a few books and doing some traveling. As you may remember, I too faced the conflict between service, family, and research, and I know well the strain it can cause.

Here's hoping you'll have a nice "rest" just working on your research. The graduate students continue to agitate for a faculty ombudsman, and I'll be sure you'll be asked when the position becomes available. Though the answer may be no, you should have the opportunity to provide to graduate students the same experience, leadership, and wisdom the undergraduates have enjoyed.

Take care, and good luck.



0000010

360 Olive Tree Lane  
Sierra Madre  
Calif. 91024  
USA  
Sep.27, 1992

Dear Alfredo,

When I returned home I could not find the pink slip for the Chevrolet Citation. Next week I will go to the Department of Motor Vehicles in order to get one for you. Perhaps the attached document testifying that the vehicle now belongs to you will be sufficient. If not then I will send you the pink slip when it arrives though that can take several weeks. My apologies for that. I also enclose some other documents relating to the California Smog Test in case they are of use to you.

Let me say again how deeply grateful Douglas and I are to you and all the other marvellous people at the Observatory. We will always have very fond memories of our days in San Pedro Martir National Park. I do hope the car has some value to you.

With very best wishes,

Christopher Brennan

Alfredo Meling 2,  
Calle Fco. Marquez,  
# 1640 Col. Ninos,  
Heroes Ensenada  
Baja California, Mexico  
C.P.22840  
I get to Oxford.

We hope to have a little time to visit N.Ireland though we probably

DEL010

360 Olive Tree Lane  
Sierra Madre  
Calif. 91024  
USA  
Sep.27, 1992

Dear Edgar,

Now that I have returned home safely after my adventures in San Pedro Martir, I recognize that I will have long and very pleasant memories not only of that beautiful country but also of fantastic hospitality and generosity we found at the National Observatory. Both Douglas Hart and I (as well as our rescuers Ann Hart and Beth McKenney) want to thank you once again for your part in that experience. We were, in a way, fortunate that our old car had such difficulties for otherwise we might not have had the good luck to meet all of you at the Observatory.

Again many, many thanks,

With very best wishes,

Christopher Brennen

Edgar Saenz,  
National Observervatory of Mexico,  
P.O.Box 439027,  
San Diego, Cal. 92143-9027  
[]



Jan.1, 1992

Dear Terry,

If I may I would like to resume a correspondence which I began a number of years ago concerning the possibility of my visiting Oxford. You may recall that I had to suspend those previous plans when I was asked to be Dean of Students here at Caltech. The end of my four year term as Dean is now approaching and I am making plans for a sabbatical year in which I hope to finish two books and to reinvigorate my research and teaching plans for the future. As a part of this process I would very much like to spend a term in Oxford and I have taken the liberty of writing to Les Woods, Ray Franklin and others to explore this possibility.

As you can see from the publications list in the attached curriculum vitae much of my recent research has been focussed in two areas: (i) unsteady flows and instabilities in turbomachines and (ii) the dynamics and acoustics of cavitation. I would, of course, be more than willing to present whatever seminars or lectures which you might feel would be useful to your students or staff.

It transpires that there is a cavitation conference in Cambridge (I.Mech.E.) on Dec. 9-11, 1992, to which I have submitted a paper. Consequently I have tentatively visualized spending a period of about three months in Oxford beginning about Oct.1, 1992.

I would very much appreciate any suggestions you might have regarding my plans.

With best wishes,

Yours sincerely,

Christopher E. Brennen

Dr. Terry Jones,

Dept. of Engineering Science,  
University of Oxford,  
Parks Road,  
Oxford, England.  
Engineering Science,