

## **In memorium: Sir Graham (Mont) Liggins FRS:**

*Eulogy by Prof Sir Peter Gluckman FRS  
Saturday 28 August 2010*

It is difficult to explain what a scientific giant we have lost. I doubt that any New Zealand scientist who chose to do their research in New Zealand has had greater impact.

Since Tuesday, tributes have flowed into my inbox. One email from a famous fetal physiologist from the USA says it all - "He was indeed a giant and we will not see his like again as friend and intellectual". Another, one of America's most distinguished obstetricians simply says "Great man, great sadness, but great strides as a result".

These are not hyperbole; they are honest assessments of a man who was unique, a man whose scientific contributions were extraordinary, a man who effectively gave life to many people. Beyond all else, a man full of extraordinary collegiality, of modesty and without ambition to build a giant team or laboratory, of dry humour and mischief, creative both in science and in other ways (particularly when dealing with university administrators): a man of enormous compassion and dedication to family.

So what is it that justifies these statements about a pipe smoking general practitioner from Thames who reinvented himself as an obstetrician? On his return from the UK, where he not only managed to pick up his obstetrical qualification but also his beloved Celia, he fell under the influence of Bill Lilley and turned towards academic life. His early research was on the oral contraceptive; it was Mont who invented the idea of including the sugar pills in the packet – if the University had known about patenting at that time, it might now be considerably richer.

But he turned his mind to the biggest issue in obstetrics: what causes premature labour? His research changed the way people thought about the initiation of labour, shifting the focus from the mother to the fetus. And in a set of absolutely brilliant and now famous experiments done first at Ruakura, then at University of California at Davis and then at National Women's Hospital, Mont essentially demonstrated that it is the fetus and not the mother that controls the timing of its own birth. So much of our understanding of the birth process and the care of the premature infant and indeed much ongoing research is entirely based on this extraordinary set of experiments; which surely rank alongside Rutherford's in the lexicon of New Zealand science.

Without going into the gory details (such as how Mont managed to leave dead sheep in the boot of his car for weeks on end with quite explosive consequences) the experimental techniques he developed were extraordinary for that time. And he generously shared his expertise with others and laboratories around the world. These were signs of an extraordinary scientist, one informally trained in science but who quickly developed the highest standards of experimental design, except for one frustrating thing: he was a most reluctant writer.

The most annoying thing for me in the 1980s was that whenever I thought I had an idea for a new experiment, I would tell Mont and he would inevitably tell me, "Oh, I did that years ago, I never wrote it up. I have some old note books somewhere, I will dig them out." And sure enough he would and there would be the data!

But doing great experiments and having great ideas does not alone make a great scientist. It is recognising that within the unexpected result lies the most informative clues. In the late 1960s following his earlier experimental line, Mont was giving hormones to pregnant sheep to accelerate birth, and he noted that the lambs that were born premature and should not have been able to breathe easily, could now do so. This was not what he was seeking to find. It was an accidental finding but one of enormous importance.

This was a very rare moment in science, one most scientists would have missed. A Eureka moment when in one observation driven instant, our world view of the natural world was radically changed.

At that time, to be born 2 to 3 months premature was often a death sentence – the lungs could not work, they were too immature to stay distended and the air sacs were not properly developed. What Mont had discovered, and what he quickly turned his immense talents to, was that steroid hormones could accelerate the maturation of the lungs. So if he gave the fetus the hormone cortisol before the age at which the fetus would normally have made it, the lungs matured, the baby could be born prematurely and its lungs would work well enough for survival to become possible. And he realised that he could give a form of the hormone to the mother and it would cross to the fetus and also work.

With a speed that seems incredible by today's standards, Mont turned to the clinic. Together with Ross Howie he undertook a clinical trial of giving steroid hormones to mothers in premature labour. Again as in his animal work, the trial design was impeccable and still, almost 40 years later, is recognised as an example of best practice. Their results have been confirmed repeatedly.

The results published in 1972 radically changed the care of the premature newborn for all time – babies who would have died could now live if their mothers were given steroid hormones when in premature labour. Mont spent many years refining our understanding of how this therapy worked. Over time this therapy, first as Mont described it and then in multiple derivative ways, has meant that literally hundreds of thousands of people are alive today who otherwise would not be.

Honours flowed - honorary degrees, royal decorations, research medals and in 1980 he received the award he was most proud of, he was elected a Fellow of the Royal Society of London. The obstetrical and paediatric community advocated strongly for the Nobel Prize. Mont retired early – not to leave the University as he continued to be active as a researcher - but to avoid his biggest enemy, the University bureaucracy. Every time I was about take on a new administrative role he would scheme with my wife over the

reasons why I should not. Then he would turn up with the whiskey and have a more direct attempt to dissuade me. I should have listened.

There are many other aspects to Mont's scientific contributions – his fertility research, his research on how the placenta worked, his discovery of fetal breathing, his studies of diving seals in the Antarctic – all evidence of an extraordinary mind and an extraordinary man.

Too often collegiality is not as intense in academia as we would like to claim. But when I first went to the States in 1976, it was clear that the imprint that Mont had left on San Francisco and elsewhere was one of intellectual and personal generosity. The same was true in Oxford, in Cambridge, in Melbourne, and in many other places. I have never met a New Zealander held in such high regard across the world of science. His scientific competitors became his closest friends.

Mont loved life in science, and he loved his life outside science: fishing, sailing, trees, Opahi, Rotoiti, his pipe, his dogs. But most of all he was a family man. His open love for Celia, his love for his children and grandchildren; they came through in every interaction one had with him. His last few years were not easy; Celia's long illness then her premature death, Graham's death, his slow decline as the battle with his many illnesses was finally lost. But as long as he could, he remained committed to his passion to see great science. He was often in the front row at seminars in the Institute asking an insightful question; the last time he was in the Institute was exactly a year ago to award prizes to the students for their research presentations – he was in his element. Knowledge matters.

Mont has left his mark on the world in many ways; in how we think about the birth process, in allowing premature children to live, on how we study the fetus. And he has left his mark on me – quite literally. After I returned to New Zealand in 1980 we started sharing pregnant sheep for our research. But in those days we did it all ourselves out on One Tree Hill and we were no great farmers. One Saturday we are out there in the paddocks doing what we did, Mont with pipe in mouth doing vaginal examinations on sheep to see if they were pregnant, Mont, with pipe in mouth, palpating them to see how pregnant they were, Mont with pipe in mouth putting ear tags in their ears for identification while I held them. Except that Saturday morning Mont managed to miss the sheep's ear but tagged my hand with a lovely painful yellow ear tag – Mont's scar is on my right hand for life. As of course will be his wisdom, his advice, his extraordinary knowledge, his support, his passion for great science, his disdain of bureaucracy and his love for a good single malt.

New Zealand has lost a remarkable individual, the medical research community has lost a true icon, his family and friends have lost someone irreplaceable. But, as a former Vice President of the Royal Society of London wrote to me earlier this week,

“What a sad loss but what a great life.”

Thanks Mont.