

Colin Campbell 1931 - 2022

Eine Erinnerung von Jörg Schindler und Werner Zittel

Colin Campbell – der große Kommunikator von Peak Oil und Initiator von ASPO

Colin Campbell hat das Konzept von Peak Oil popularisiert. Er war der Initiator von ASPO, einer Ansammlung von mehr oder weniger losen Initiativen in vielen Ländern. Ohne Colin Campbell gäbe es keinen Verein ASPO Deutschland.

Man kann die Wirkung von Colin Campbell kaum überschätzen. Er war ein großer Kommunikator, mit Witz, Ironie und einem untrüglichen Blick für das Wesentliche. Er hat sein Licht nicht unter den Scheffel gestellt, jedoch ohne jede störende Attitude eines Selbstdarstellers. Seine bemerkenswerte berufliche Biographie als Geologe kam immer auf anekdotische Weise daher. Im persönlichen Austausch und in seinen Vorträgen waren auch die weitreichenden Argumente immer unterhaltsam verpackt. Jede Begegnung mit ihm war ein Erlebnis.

Er hat jede sich bietende Gelegenheit genutzt, um das Konzept von Peak Oil zu vermitteln. Genauer und wichtiger: Peak Oil als Paradigma für den jetzt – und nicht in ferner Zukunft – erlebbaren Ausdruck der Endlichkeit des Öls, allgemeiner noch: das Ende des fossilen Zeitalters. Und er hat mit seinem Engagement Erfolg gehabt, soweit das bei so einem unbeliebten Thema überhaupt möglich ist.

Seine Peak Oil Biographie werden wir in unserem Beitrag nicht referieren, denn niemand kann sie besser erzählen als er selbst. Deshalb haben wir seine kurze Autobiographie in den **Anhang** gestellt, zum Nachlesen für alle Interessierten. Es lohnt sich.

Unsere Begegnungen mit Colin Campbell und die Gründung von ASPO Deutschland

Die Vorgeschichte unserer Begegnungen mit Colin Campbell hat ihren Ausgangspunkt in der Planung und dem Ablauf eines Symposiums anlässlich des 85. Geburtstag von Ludwig Bölkow, das mit renommierten Rednern und hochrangigen Gästen aus Wissenschaft, Wirtschaft und Politik 1997 im bayerischen Landtag stattfand. Bölkow hatte klare Vorstellungen, welche Themen er behandelt wissen wollte. Unter dem Einfluss des Berichts zu den Grenzen des Wachstums des Club of Rome von 1972 und der aktuellen Debatte über das Waldsterben standen für ihn der anthropogene Klimawandel und die Endlichkeit der fossilen Energieträger im Mittelpunkt.

Im Jahr 1995, zwei Jahre vor dem geplanten Symposium, beauftragte Bölkow uns (wir waren Mitarbeiter in seinem Team, der Ludwig-Bölkow-Systemtechnik – LBST), die Quellenlage zu recherchieren und dabei auch nach geeigneten Referenten zu suchen. Die Suche nach einem Referenten, der auf die Endlichkeit der fossilen Energien und die Folgen eingehen sollte, gestaltete sich schwierig. Eine Rundfrage im deutschsprachigen Raum bei Vertretern von Wissenschaft, Beratungsunternehmen und Parteien brachte immer dasselbe Ergebnis: Im Prinzip ist die Endlichkeit der Fossilen natürlich unstrittig, aber es werde auf absehbare und auch auf lange Zeit keine Probleme mit der Verfügbarkeit geben. Viel wichtiger sei es, den Klimawandel zu bekämpfen.

Die Ressourcenfrage lenkte nur ab.¹ Entsprechend fiel dann auch der diesbezügliche Festvortrag aus.

Diese Einschätzung entsprach so gar nicht der Intuition von Bölkow.² Was durchaus begründet war, wie es unsere Recherchen seit 1995 ergeben hatten. Dies war der Anlass für Bölkow, uns in der Folge mit weiterführenden Arbeiten zur künftigen Verfügbarkeit der fossilen Ressourcen zu beauftragen – in Anbetracht der Tatsache, dass niemand sonst in Deutschland sich dem Thema unvoreingenommen annehmen wollte.

In der Vorbereitung des Symposiums sind wir auf das World Resources Yearbook 1996/1997 gestoßen. In dem Yearbook wurde auf die Arbeiten von *Colin Campbell* und *Jean Laherrere* Bezug genommen. Gleichzeitig veröffentlichte McKenzie, der Lead Autor des Yearbooks, dazu einen ausführlichen Artikel. In diesem Artikel wurde die Bedeutung des Konzepts des Höhepunkts der Ölförderung für die künftige Verfügbarkeit vorgestellt – als Gegensatz zu dem irreführenden Konzept der statischen Reichweite der Ölreserven.³

Daraufhin beschafften wir uns die im Yearbook zitierten Arbeiten von Campbell und Laherrere. Für uns erschwinglich war nur der Summary Report von 1995, den wir für \$1.000 gekauft haben (Petroconsultants 1995)⁴ und Campbells Buch *The Coming Oil Crisis* von 1997 (Petroconsultants 1997). Diese Arbeiten erwiesen sich für uns als ein Schlüssel für unsere weiteren Aktivitäten.

Ein Besuch von Jörg Schindler bei der BGR in Hannover im Jahr 1997 ergab einen weiteren Hinweis. Herr Hiller, damals zuständig für die fossilen Kohlenwasserstoffe, berichtete von einer Präsentation von Colin Campbell bei der BGR im Jahre 1994 und empfahl uns seine Arbeiten.

Im Jahr 1998 veröffentlichten wir einen ersten Aufsatz zur künftigen Verfügbarkeit von Erdöl im Jahrbuch *Scheidewege* (Schindler und Zittel 1998). Darin nahmen wir ausdrücklichen Bezug auf die Arbeiten von Campbell und Laherrere.

Im Jahr 1999 haben wir Colin Campbell eingeladen, nach Ottobrunn zu kommen. Er hat sofort zugesagt. Am Vormittag des 11. August hat er eine Präsentation bei der LBST vor nur wenigen Kollegen gehalten. Bölkow konnte leider nicht dabei sein, er war wegen Krankheit verhindert.⁵ Das hat jedoch unserer späteren Zusammenarbeit keinen Abbruch getan. In Erinnerung geblieben ist auch ein anschließendes gemeinsames Mittagessen mit Colin Campbell und seiner Frau Bobbins in einem bayerischen Wirtshaus. Vom Wirtsgarten aus konnten wir das seltene Ereignis einer fast vollständigen Sonnenfinsternis beobachten.

Hier ist die Visitenkarte, die er uns bei seinem Besuch dagelassen hat:

1 Diese verbreitete Einschätzung hat sich auch in den folgenden Jahren nicht wirklich geändert, wie es sich in den Reaktionen auf unsere diversen Publikationen gezeigt hat.

2 Bölkow dazu im Schweriner Dialekt: "... det glob ik nich"

3 Begründer des Konzepts von Peak Oil war M. King Hubbert, der schon 1956 den Höhepunkt der US-amerikanischen Ölförderung für Anfang der 1970er Jahre vorausgesagt hatte (Hubbert 1956).

4 Der vollständige Bericht sollte nach unserer Erinnerung \$45.000 kosten. Laut Colin Campbell sind davon nur etwa 15 Exemplare verkauft worden.

5 Die im Buch *Peak Oil Personalities* (Campbell 2011) von uns behauptete Anwesenheit von Bölkow war ein Irrtum.



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Colin Campbell war, nach der Beendigung seines regulären Berufslebens, zu diesem Zeitpunkt ein Einzelkämpfer auf der Suche nach Verbündeten.

Bei diesem ersten Treffen hat Colin Campbell Werner Zittel zu einem Besuch bei sich zu Hause eingeladen, nach Ballydehob (bei Cork in Irland). Werner hat ihn im Frühjahr 2000 für mehrere Tage besucht, es war die Gelegenheit für ein näheres Kennenlernen und einen intensiven Gedankenaustausch. Ein weiterer Besuch folgte im Jahr darauf..

Im Dezember 2000 organisierte der Geologe Prof. Blendinger einen Workshop mit Colin Campbell an der Hochschule in Clausthal-Zellerfeld. Werner hat daran teilgenommen, zusammen mit Frauke Liesenborghs vom Münchner Verein Global Challenges Network (GCN). Dieses Zusammentreffen bildete die Initialzündung für ein gemeinsames Buchprojekt, das zunächst auf bisher unveröffentlichten Manuskripten von Colin basieren sollte. In einem gemeinsamen Treffen im Frühjahr 2001 in München nahm das Projekt Gestalt an. Das Ergebnis war das Buch *Ölwechsel*, das zuerst 2002 im renommierten dtv Verlag erschienen ist und mehrere Auflagen erlebt hat (Campbell et al. 2002). Es war das erste Buch im deutschsprachigen Raum, das sich diesem Thema fundiert gewidmet hat.

Im Jahr 2001 wurde Colin Campbell 70 Jahre alt. Werner war eingeladen zu einer Geburtstagsfeier in London. Dort waren viele Personen versammelt, die bei diesem Anlass erste Schritte für eine Peak Oil Initiative machten und die später das Gesicht von ASPO prägen sollten. Genannt seien zum Beispiel Kjell Aleklett, Roger Bentley und David Fleming. Colin und seine Frau sorgten für eine besondere familiäre Atmosphäre, ein verbindendes Merkmal das auch alle späteren Treffen und Konferenzen geprägt hat. Ein erster Workshop wurde von Roger Bentley organisiert, der noch bescheidene Beginn aller späteren ASPO Konferenzen.

Ab den 2000er Jahren etablierten sich in mehreren Ländern ASPO Vereinigungen, die in den Medien mit einer Botschaft mit eigener Identität auftreten konnten. In Deutschland hatten sich in dieser Zeit ebenfalls einige Interessierte informell zusammengefunden. Nach mehreren Jahren wuchs jedoch bei uns die Überzeugung, dass ein Verein wohl eine größere öffentliche Wirkung entfalten könnte. Das führte zur Gründung von ASPO-Deutschland e.V. im Juli 2006, mit Prof Blendinger als 1. Vorsitzenden. Die von der LBST ab dem Jahr 2000 aufgebaute Website *Energiekrise* kam nun unter die Obhut von ASPO Deutschland.

Jörg und/oder Werner haben über die Jahre an den meisten ASPO Konferenzen teilgenommen mit Gelegenheiten für Gedankenaustausch und Begegnungen mit Colin. Besonders in Erinnerung ist die Konferenz 2007 in Cork. Im Anschluss an die Konferenz gab es für die Teilnehmer und ihre Begleiter die Möglichkeit eines mehrtägigen Aufenthalts in einem wunderschönen Hotel am See in Killarney. Dies war Gelegenheit für ein vertieftes gegenseitiges Kennenlernen bei gemeinsamen Busfahrten zum Ring of Kerry, Besichtigungen und festlichen Essen – mit den Campbells als die guten Geister und Organisatoren im Hintergrund.

Berlin war der Ort von ASPO Konferenzen in 2005 und 2009. Die Konferenz in Berlin in den Räumen des WZB war Colins letzter öffentlicher Auftritt.

Der prägende Einfluss von Campbell auf unser Denken – und damit auf die Arbeit der Ludwig-Bölkow-Systemtechnik (LBST)

Colin Campbell verdanken wir einen vertieften Zugang zur Welt des Erdöls. Er hat uns das methodische Rüstzeug vermittelt für das Verständnis und die Analyse einer Vielzahl von relevanten Aspekten. Das beginnt bei der geologischen Entstehungsgeschichte des Erdöls und der geografischen Verteilung der Vorkommen. Dann das Wissen über die verschiedenen Arten und Qualitäten von Erdöl sowie die Mengen und die Verteilung der entsprechenden Vorkommen. Damit verbunden sind jeweils unterschiedliche Fördermethoden und typische Verläufe der Ölförderung. Generell haben wir gelernt, wiederkehrende Muster zu erkennen im zeitlichen Verlauf der Exploration und der Förderung. Wir haben von dem Erkenntniszuwachs profitiert, den die Analyse von Zeitreihen bringen kann.

Von besonderer Wichtigkeit ist das Thema der Erdölreserven, ihrer Definition und ihrer Größenordnungen. Die verbleibenden Reserven sind das Maß für die Menge des in der Zukunft noch förderbaren Erdöls. Wir haben gesehen, wie problematisch und unzuverlässig die öffentlich zugänglichen Reserveangaben von Firmen, Staaten und sonstigen Institutionen sind. Colin hat uns die Wichtigkeit der sogenannten Industriedatenbanken nahegebracht. In diesen Datenbanken sind weltweit der Zeitpunkt und Größe der Ölfunde aufgelistet (die von Petroconsultants war die erste dieser Art). Die Größe der Funde wird gemessen in "wahrscheinlichen Reserven" statt in "sicher nachgewiesenen Reserven", ein entscheidender Unterschied für die Analyse. Vor allem aber hat er uns den Zugang zu entsprechenden Datenbanken ermöglicht. Trotzdem verbleibt immer noch ein großer Bereich der Intransparenz und der Manipulation der Daten.

Wir haben gelernt, die Interessen und die Denkweisen der verschiedenen Akteure zu verstehen. All das beeinflusst deren öffentliche Kommunikation (wir mussten lernen, versteckte Botschaften zwischen den Zeilen zu lesen). Leider gibt es mehr Desinformation und Propaganda als belastbare Informationen. Das Thema ist kompliziert und das öffentliche Interesse an Aufklärung ist immer noch gering.

Colin Campbell hat uns eine neue Sicht auf die Welt und die Zukunft der Energieversorgung vermittelt. Entscheidend ist nicht die Frage, wie lange das endliche Öl reicht (der sprichwörtliche *letzte Tropfen*), sondern der (ungefähre) Zeitpunkt von Peak Oil (der maximalen Föderrate) und der

anschließende Verlauf des unaufhaltbaren Rückgangs der Ölförderung. Damit wird die Endlichkeit von Öl *jetzt* spürbar – und nicht erst in einer unbestimmten fernen Zukunft.

Diese Herangehensweise hat zu einem veränderten Rahmen geführt für unsere Studien und Beratungen bei der LBST in den Nullerjahren: In was für eine Zukunft bewegen wir uns? Es macht einen Unterschied, ob man glaubt, dass alles so weiter gehen kann wie bisher, oder eben nicht.

Colin hat unser Denken und unsere Arbeit seit den späten 1990er Jahren entscheidend mitgeprägt. Dafür bleiben wir ihm dankbar.

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Anhang

Colin Campbells Peak Oil Biographie, geschrieben 2010

[Quelle: Colin Campbell (ed.), Peak Oil Personalities, Skibbereen (Ireland), 2011]

An Autobiographic Starting Point

Colin J. Campbell

M.A., D.Phil., FGS.

Born : Berlin, 1931

Nationality : British

Residence : Ireland

Profession : Petroleum Geologist and Executive

Position : Retired



My early years were spent as a somewhat isolated only child living on Chapel Point in Cornwall on the west coast of England. It is a remote headland in the sea where my father, an architect⁶ was hoping to build a model village, using stone quarried from the cliffs. In those distant days before television, I had to amuse myself with simple rural pleasures, such as clambering across the rocks looking for flotsam and jetsam washed up in a storm, watching the seagulls or the fisherman catching mackerel from their boats below the cliffs. My childhood reading comprised the books by Arthur Ransome⁷, which my mother read to me before I learned to read for myself. They concerned a family of children, who had all kinds of adventures in rural settings. One of the books, Pigeon Post, described their summer holiday in the Lake District of England when they fell upon the idea of looking for gold. One day they woke to observe a sinister figure, armed with a hammer, a hand lens and a notebook, who they nicknamed *Squashy Hat*. He was a geologist who, they suspected, was watching them in the hope of staking a rival claim.

This gave me my first vision of geology, and I began to look at the rocks at Chapel Point more consciously, observing their configuration and spotting the quartz veins that cut across them, images of which are still locked in the back of my mind. The war brought the days at Chapel Point to an end, and we moved to live with my grandmother in Buckinghamshire outside London, where eventually I was enrolled in St Paul's School. At the age of about sixteen we were required to declare our future career plans. I had no particular ideas, nor did I excel in the scholastic or sporting activities of the school, but for want of a better answer, I wrote that I wanted to be a geologist following in the footsteps of *Squashy Hat*. Gradually this chance direction began to build a momentum of its own. I began to enjoy the lessons in Geography and especially Physical

6 Power A., 1997, *John Campbell – Rediscovery of an Arts & Crafts architect*; Prince of Wales Inst. of Architecture.

7 A well-acclaimed children's author of the day, having also been a secret agent observing the Bolshevik Revolution in Russia.

Geography, concerning the formation of mountains, rivers and oceans, which was taught to us by Major Robinson.

Following the death of my father in 1947, my mother decided to try to build a new life for herself and took up residence in a flat at 189 Brompton Road in London itself. My interest in geology grew, and somehow I decided to take evening classes at Chelsea Polytechnic, which I enjoyed.

My school days drew to a close in 1949 when I took the final examination, passing with most indifferent results. I was then enrolled at Davis, Laing and Dick, so-called crammers, in an effort to improve my academic results sufficiently to meet my mother's hope that I should go to Oxford University. I also took tutorials in geology from a Dr Higginbottom at Imperial College.

I had the necessary academic results for general entry to the university, and the challenge was to be accepted by one of the colleges of which the university is composed. It was a more difficult process, depending on sporting and other prowess as well as family connections which I lacked. The first attempts at University and Balliol Colleges predictably failed, but then I discovered that I could ask to be examined in a subject of my choice. So, on the third attempt at Wadham College, I asked to be examined in geology, but on arrival found that they had failed to meet this unusual request. If God ever shined on me, it was then, for instead of slinking away to chalk up another failure, I somehow concluded that they, rather than I, had failed, and decided to ask the Porter if I could speak to the head of the college. I was told that if I rang a door-bell in the corner of the *Quad*, the Warden might answer. In due course, the portly figure of Sir Maurice Bowra did appear, and I explained the problem. He replied: *Most regrettable on our part, I will make a note of your interest in geology.* Two weeks later, a letter arrived offering me a place at the College for October 1951. On this slender thread hung my subsequent career.

I enjoyed Oxford greatly. My first experience of field mapping came in the summer vacation when I joined Stuart McKerrow, one of the lecturers, on a trip to Leenane in Connemara on the mountainous west coast of Ireland, which he was investigating. It was spectacular country, and I was captivated by the charm of the place, including the local people, who we met in Gaynor's Bar. Accordingly, I returned there with two fellow undergraduates to do a mandatory mapping project in our second year. The final examination followed at the end of our third year, and I succeeded in getting an upper Second Class Honours Degree in Geology, which was good enough.

My tutor, Dr Sandford, then asked me what my plans were. When I said that I did not know but would like to remain at Oxford, he suggested taking a D.Phil (elsewhere known as a Ph.D), a proposal which I accepted with enthusiasm. It did not take long to decide to follow up my earlier mapping in Ireland to cover the country between Leenane and Lough Corrib. The project was however interrupted when I accepted a chance invitation to join the Oxford University Expedition to Borneo, spending a year (1955-56) under gruesome, if colourful, conditions, mapping a very remote area in the interior of Sarawak⁸.

8 Arnold G., 1959, *Longhouse and Jungle*; Chatto & Windus. 206p.

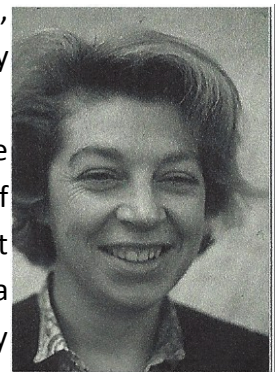
In 1957, I presented my thesis, entitled *Geosynclinal Problems in Sarawak and Co. Galway*, and was duly awarded a D.Phil. My Oxford days had finally come to a close, meaning that it was time to join the real world. The oil industry was an obvious direction but my initial interviews went badly as I expressed a reluctance to return to the tropics after my gruelling time in Borneo. After several rejections, I went to see Professor Wager at Oxford to ask his advice. He called his old friend, Norman Falcon, the Chief Geologist of BP, who explained why they had turned me down, saying that I did not give the impression of being someone who was willing to take the rough with the smooth. But he did suggest that I approach Texaco because he knew that they were looking for geologists for their Trinidad operations. He thought that I might be able to handle the West Indies.

Somewhat chastened, I applied to Texaco expressing enthusiasm for field work in the jungles, and was duly offered my first job. In April, 1958, I boarded the *Regent Springbok* tanker in the London docks as what was called *supernumery crew* for the voyage to Trinidad, making a stop at Santiago de Cuba on the way, where we heard distant gunfire from Fidel Castro's uprising in the hills. Texaco had bought an old-established British oil company, called Trinidad Leaseholds. The department was run by Dr Barr, the Chief Geologist, George Higgins and Dr Kugler from Basel in Switzerland, who had spent his career in Trinidad⁹ and Venezuela as a pioneer. There was also a palaeontological laboratory run by John Saunders. Trinidad's geology was extremely complex but Dr Kugler had pioneered the use of micro-palaeontology to identify the various formations and thus unravel the structure and identify the oil prospects. He had a scientific approach to petroleum geology and was a great inspiration.

The staff was entitled to so-called local leave each year, and I decided to see more of South America with a visit to Myles Bowen in Venezuela. He was a Shell geologist, also from Oxford, whom I had met in Borneo. I found Venezuela a very colourful and exciting country, and told Dr Kugler of my reaction when I returned. He then mentioned my interest his friend, Mr Christian, who was now Manager in New York in charge of all of Texaco's operations in Latin America and wanted to introduce Trinidad's scientific approach throughout the region. I was accordingly transferred to Colombia in October 1959, as a missionary for palaeontology.

I had met a charming girl called Bobbins, who was a secretary in Trinidad, and I proposed marriage on arrival in Bogotá. She accepted, and we were duly married by the British Consul, later to be blessed with a son and a daughter.

I then had two heroic and fantastic years doing field work in the Andes and Magdalena Valley. It involved riding mules with a field party of about twelve Colombian workers, camping in very remote and often bandit infested country. The Cretaceous rocks were richly fossiliferous, and I made a large collection, duly identified by Dr Hans Bürgli who taught at the university in Bogotá, also running a small paleontological consultancy. The fossils, especially the ammonites, allowed me to identify the precise ages of the strata and hence develop an understanding of the geological evolution of the area. I wrote a comprehensive report, full of



9 Higgins G.E., 1995, *A history of Trinidad Oil*; Trinidad Express Newspapers. 498p.

photographs of the fossils, believing that I had successfully accomplished Kugler's mission. But the Chief Geologist returned it, saying it was the practice of the Colombian Division of the company to make *Presentations* and not write lengthy reports. It was evident that they did not exactly welcome the missionary from Trinidad, and when home in England on leave in 1963, I approached BP again to see if they would offer me a job, having now demonstrated that I could indeed take the rough with the smooth.

They did, and sent me back to Colombia where they were building a new position. The Colombian terms allowed companies to take up so-called *Applications* which could be held for a couple of years before being converted to full *concessions*, carrying drilling commitments. There was accordingly a substantial trade in applications as companies shifted their positions on the results of preliminary evaluations, often seeking partners to share the burden of drilling commitments. My job was to evaluate such offers. It allowed me to build up a comprehensive knowledge of the country. BP also undertook a valuable survey of the country based on air photographs, which I had to integrate with the field observations.

It was BP's policy to rotate its staff around the world, and in 1966 I was told that I would be transferred, but before leaving was told to write a comprehensive report on Colombia. This occupied me for several months as I identified and defined the many geological provinces, noting how many exploration wells had been drilled in each and what they had found. Relating this to the underlying geology gave an indication of the resource limits of each basin and eventually the country as a whole. Indeed, it correctly identified the merits of the remote Llanos Basin to the east of the Andes, which was evidently prime territory, although the company then turned it down on economic grounds. Twenty-five years later, it was confirmed as a major new province, and the company was forced to buy its way back in, becoming operator of the giant Cusiana and Capiagua Fields.

This study gave the first insight into the finite natural limits of a country's oil and gas as well as the general pattern of depletion, although at the time I had no perception of the global limits.

I was in due course transferred to Australia and undertook another field survey in the interior of Papua, where I had to work in the midst of tribal warfare and massacres. For some strange reason, BP's Personnel Department treated Australia as if it were an extension of the United Kingdom and I found myself earning about half as much as I had been in Colombia. I took this as reason to resign although in reality I missed the colourful life of South America and the stimulus of the pioneering geological studies that I was making. Perhaps BP's original assessment that I *would not take the rough with the smooth* was correct after all. I started applying for jobs advertised in professional journals. I received some positive responses, and resigned, flying to New York for interviews in 1968. I rejected an offer from a university, but accepted the job of Regional Geologist for Latin America with Amoco International, an affiliate of the Standard Oil Company of Indiana.

I had a good impression of the company which was made up of an interesting group of people with varied international experience under the leadership of Bill Humphrey, a charismatic man who had worked around the world and understood the international environment. My

immediate boss was Dr Nestor Sander, known as Sandy, who had in fact played a key role in the discovery of major fields in Saudi Arabia (see Chapter 2). He was an intelligent and scientific man for whom it was a privilege to work. We enjoyed living in Connecticut, and New York had a certain buzz to it. In addition, I began to make interesting trips to Latin America to investigate opportunities in Venezuela, Colombia, Argentina, Bolivia, Peru and Ecuador, Panama and Nicaragua.

The international arm of Amoco was growing strongly, but then the Head Office in Chicago decided that it should take greater control, moving the office there to the dismay of the staff. A new bureaucratic regime was applied with tiers of committees and economic evaluations, typical of a head office, which effectively destroyed the initiative and independence responsible for the company's international success to that point, but it did lead to one very positive outcome. The senior management had virtually no knowledge or understanding of the wider world, and accordingly instituted a programme to evaluate the world's resource base and potential for exploration. I had the task of evaluating Latin America which led me to gradually perceive that the pattern I had already identified in Colombia applied to all countries in varying degrees. The most prospective areas were normally identified early, and the major fields within them discovered first, being too big to miss. My colleagues evaluating the other regions of the world confirmed the same general relationships, and it became evident that the world, as a whole, faced limits that in turn set the pattern of production. Admittedly, in those days, we had limited knowledge of the offshore, which has produced much more than we foresaw, but the evaluation of the onshore regions has been generally confirmed.

For me, this was so to speak my *Peak Oil Moment* making a deep impact, both professionally in that I realised the transcendental value of a genuine geological prospect, whatever its current economic attributes might be, and in more personal terms as it became obvious that the age of consumerism, nowhere more evident than in Chicago, could not continue indefinitely.

It is not necessary for this purpose to cover the ensuing years in detail. We successfully escaped from Chicago in 1969 when I was appointed Chief Geologist of Amoco in Ecuador, exploring the Amazon headwaters. In 1972, the threat of a recall to Head Office, and a certain nostalgia for home, led me to join the Shenandoah Oil Corporation, as manager of European operations based in London and Dublin. It was a small Texas company of which no less than the film stars, Julie Andrews and James Stewart, were prominent shareholders. I enjoyed several years negotiating oil rights in the United Kingdom, Ireland, Holland, Portugal and Turkey. When it was sold out in 1979, following a change in US tax rules, I spent a year with Aran Energy, our Irish partner, before rejoining Amoco in London as a New Ventures Supervisor for Europe. That in turn was followed by an appointment as Exploration Manager in Norway, which provided much valuable experience. Finally, the threat of a transfer to Houston in 1985 led me to join the Belgian company, Fina, as Executive Vice-President of Norwegian operations. That ended in 1989 when I was effectively fired following a Head Office reorganisation and the appointment of a new overlord

who resented my independence, which had been in fact responsible for the company's success in Norway, even to the extent of becoming an Operator there.

In most countries, apart from the onshore United States, oil rights are controlled by the Government, and so it is necessary for successful companies to present a good image and exert political influence. Corruption is perhaps too strong a word, although every country has its own power structure. I remember asking a General in Ecuador if he wanted to receive the payment in Panama or Switzerland, being surprised when he replied that a local cheque would do fine. I once received a call from a senior British civil servant in connection with the transfer of oil rights, who said: *it is not the policy of Her Majesty's Government to tell licensees what action to take, but we are in a position to tell you what our reaction would be if certain actions were taken.* In Norway, the trick was to sponsor *Research*. I accordingly had Fina sponsor research by the Norwegian Petroleum Directorate into my pet subject, determining the world's oil and gas resource base so that Norway could see where it fitted.

It was another turning point. A country by country study was made and published data collected from various sources, including the US Geological Survey. The Directorate took up the study with enthusiasm, seeing its significance, and built a main-frame computer model. By the time it was finished, I was no longer employed, and suggested that the results should be published as a book. The Directorate agreed, and I wrote it up as *The Golden Century of Oil 1950-2050*, which was published in 1991 by Kluwer Academic.

This study was substantially based on published reserve data, principally that compiled annually by the *Oil and Gas Journal*. To that point, I had always assumed that the published estimates were generally genuine, although the book did note the anomalous reporting by the OPEC countries, following Kuwait's decision to add 50% to reserves in 1985 at a time of low oil prices although nothing particular had changed in the oilfields. OPEC production quota was based on reserves, so the more they reported, the more they could produce, and the more money they could make. The other main OPEC countries later had to increase their estimates in varying degrees to hold their own share in the face of Kuwait's action. Abu Dhabi is perhaps the most extreme example, having decided in 1988 to exactly match Kuwait at 92 Gb (billion barrels) up from 31 Gb, and fail to update its reports subsequently despite production.

The book attracted the attention of a company, known as Petroconsultants, based in Geneva, which ran the industry's database with the informal support of the international oil companies. They don't like to talk to each other directly, but do like to follow what each other's activities. It made sense therefore for them to create a valid common database in this way. It was a rather old-fashioned company, employing a staff of experienced oilmen with knowledge and contacts around the world who developed a spirit of trust and continuity with their informants. The company approached me and invited me to redo the study based on its comprehensive data. Harry Wassall, the owner of the company, supported the project, seeing its wider significance for Mankind. An initial report was followed by a more comprehensive one, co-authored with Jean Laherrère, formerly the Exploration Manager of the French company, TOTAL, who had developed various sophisticated mathematical and graphical methods of evaluation, including the *parabolic*

fractal (see Chapter 4). In 1995, the Company invited me to give a talk presenting the findings at a conference in Cyprus attended by Middle East officials and major oil company executives, which I duly gave together with a handout. A few weeks later, Petroconsultants was contacted by the Houston Office of a major international company and pressured into suppressing the report, with an attempt to discredit the handout being duly published by the American Petroleum Institute¹⁰. However, I wrote another book, *The Coming Oil Crisis*, in 1997 to summarise the findings, having received the oblique blessings of Petroconsultants, who agreed to act as co-publisher. Another key development came when the Scientific American became aware of the study from a press release, and requested an article, which Jean Laherrère and I wrote, entitled *The End of Cheap Oil*¹¹, attracting much attention.

The International Energy Agency also became interested and sent an analyst to spend a week with me studying the data. It eventually held a conference in November 1997 at which Jean Laherrère and I confronted the flat-earth economists. The team within the IEA, led by Jean-Marie Bourdairé, was satisfied with the evidence for Peak Oil but faced many political constraints. They did however succeed in delivering a coded message in their *World Energy Outlook* of 1998 in the form of a table showing that oil demand would outpace supply by 2010, save for the entry of *unidentified unconventional*, a euphemism for shortage. When the message was decoded in a published article¹², the IEA evidently came under pressure from its masters in the OECD governments, and in the next issue of the *World Energy Outlook*, the *unidentified unconventional* miraculously became *Conventional Non-OPEC* without comment or explanation. The IEA's reaction was understandable as it had come to see itself as representing the consumers' lobby in the face of OPEC, realising that any reference to natural limits would strengthen the latter's hand. It is noteworthy that the IEA now begins to come clean as the long predicted crisis unfolds.

These books and various papers that I wrote began to attract attention, leading to invitations to address conferences. The first was at Reading University in England in 1995, which was organised by Dr Roger Bentley, a solar energy researcher, who has subsequently made a major contribution (see Chapter XX). In fact, I have now delivered over a hundred such lectures to a wide range of audiences, including the British and Danish Parliaments, the Irish Senate and the European Union. One such lecture was given at Clausthal University in Germany (see Blendinger Chapter X) to which came a delegation from the BGR, the responsible German Government Department. I suggested to them that we should endeavour to form some kind organisation to research the subject further. That led to a meeting with their Director, Professor Dr Wellmer in Hannover, who supported the idea informally. By now, I was in touch with a number of scientists and government officials in various European countries, and started to issue a newsletter as a simple attachment to an e-mail sent to about a dozen recipients. I entitled it the Newsletter of the Association for the Study of Peak Oil ("ASPO") to give it a degree of substance.

¹⁰ Porter E., 1995, *Are we running out of oil?* API Discussion Paper 081.

¹¹ Scientific American, March 1998

¹² Fleming D., 1999, *The next oil shock?* Prospect April

The next major step came when I was approached in March 2001 by Professor Kjell Aleklett, a nuclear physicist from Uppsala University in Sweden, who expressed keen interest. He went on to organise a workshop at his university in May 2002, which was attended by about 60 delegates and received press coverage. It led to the formal establishment of ASPO under a committee, led by Professor Aleklett, which set about promoting successive annual conferences in Paris, Berlin, Lisbon, Pisa, Cork, Barcelona and Denver which attracted increasing numbers. The readership of the ASPO Newsletter expanded in parallel to be read by thousands and reproduced on several websites, until I finally decided to give up last year on the 100th Edition. The ASPO network expanded in parallel with the establishment of associates in more than thirty countries. The organisation lacks any formal management or structure which at first sight might be seen in a negative light, but in fact proves a successful formula allowing the development of associates to match the needs, postures and resources of the different country concerned, giving at the same time a desirable breadth of analysis.

Media interest in the subject grew too, such that I have now given many radio and television interviews, to be broadcast widely around the world, and journalists frequently call or visit to discuss the issue. One notable early television programme was produced for the BBC by David Strahan, and broadcast on the Money Programme in November, 2000, to 80m million viewers. He became absorbed in the subject and went on to write a book¹³. Another contribution was *Peak Oil – Imposed by Nature*, made by Amund Prestegaard for Norwegian Television. More recently, came *A Farm for the Future*, was made by Rebecca Hosking in late 2008. It evaluated the impact of Peak Oil on agriculture and was broadcast twice by the BBC, receiving high ratings. A particularly moving aspect was that Rebecca became so convinced of the impact of Peak Oil that she resigned from the BBC and returned to a small ancestral farm in the west of England in order to try to build a sustainable future for herself and her family.

I updated the *Coming Oil Crisis* with a second edition, entitled simply *Oil Crisis* to coincide with peak of production of *Regular Conventional Oil* in 2005, and went on to produce *An Atlas of Oil and Gas Depletion*¹⁴ with the help of Siobhan Heapes. It reviews the situation in some sixty-five countries, including a summary of their political and historical circumstances to see how they are placed to face the *Second Half* of the *Oil Age* which now dawns.

It has been a successful endeavour in many ways as the term *Peak Oil* now almost enters the dictionary, and a growing library of books is being written to cover the impact of what promises to be a major turning point for mankind¹⁵. Governments have difficulty in coming to terms with what unfolds because there are no easy solutions. It is significant however that, shortly before he left office, President Bush justified the invasion of Iraq with the words : *our energy*

13 Strahan D., 2007, *The Last Oil Shock- A Survival Guide to the Imminent Extinction of Petroleum Man*: John Murray, 292p.

14 Campbell C.J. and Siobhan Heapes, 2008, *An Atlas of Oil and Gas Depletion*: www.jeremymillspublishing.co.uk

15 See in particular Heinberg R., 2005. *The Party's Over – Oil, War and the Fate of Industrial Societies* , New Society Publishers, 306p and Murphy P., 2008, *Plan C – Community Survival Strategies for Peak Oil and Climate Change*: New Society Publishers 326p.

supply was at risk. This is however not the place to dwell on political manoeuvres or conspiracies, fascinating as they are.

The picture that emerges is that the peak of *Regular Conventional Oil* was passed in 2005, but that the shortfall was made good by expensive oil from tarsands and deepwater fields. Prices began to firm, and the upward trend accelerated when shrewd traders started buying contracts on the Futures Market. The high prices delivered a flood of petrodollars to the Middle East, where it still costs \$10-20 to produce a barrel, with the surplus being returned to western financial institutions who were encouraged to lend it out against ever less reliable collateral. As prices approached a peak of almost \$150 in mid-2008, the traders perceived a limit to the surge and started selling short, while the high prices themselves triggered a recession dampening demand such that prices fell back to 2005 levels before edging up to around \$75 by the end of 2009. World financial stability was seriously undermined¹⁶, and governments found themselves having to rescue major banks from collapse. The banks had been lending more than they had on deposit confident that *Tomorrow's Expansion* was collateral for *To-day's Debt*, without recognising that expansion depended on an underlying supply of mainly oil-based energy to fuel the economy and the agriculture needed to feed a population that had expanded six-fold in parallel with oil supply. The Governments have reacted to the crisis by printing yet more money, lacking any real collateral, in the hope that it will stimulate consumerism and restore past prosperity. The policies may indeed briefly succeed, but if they do, logic suggests that the demand for oil will rise to again breach the supply barrier, leading to another oil price shock followed by renewed economic recession.

The evidence indicates that the peak of all categories of oil was also passed in 2008, heralding the onset of long term decline during what may be termed the *Second Half* of the *Oil Age*. A debate rages as to the precise date of peak, but misses the point when what matters is the vision of the long decline on the other side of it. The decline is gradual at no more than a few percent a year, but there is a significant difference between going up and coming down. Some forecasts suggest soaring oil prices, but the consequential economic impacts may limit both the demand and price of oil, thereby reducing the investment needed to bring on expensive unconventional oil and gas and tap renewable energy sources. The transition to the new chapter of history threatens to be one of great tensions as indeed are already being observed around the world, especially in urban circumstances.

It is, however, not necessarily a doomsday scenario as the end of financial and military empires may herald a return to rural living in local communities, opening a new more benign age for the survivors who may develop a greater respect for themselves, their neighbours and, above all, the limits within which Nature has ordained them to live.

¹⁶ Surprisingly, I had already predicted the coming financial crash on a TV interview made in 2005, which now circulates on the U-Tube.