



Association for the Study of Peak Oil&Gas

NEWSLETTER No 45 –SEPTEMBER 2004

ASPO is a network of scientists, affiliated with European institutions and universities, having an interest in determining the date and impact of the peak and decline of the world's production of oil and gas, due to resource constraints.

The following countries are represented: Austria, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Missions:

1. *To evaluate the world's endowment and definition of oil and gas;*
2. *To study depletion, taking due account of economics, demand, technology and politics;*
3. *To raise awareness of the serious consequences for Mankind.*

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<http://www.asponews.org>

<http://www.energiekrise.de> (Press the ASPONews icon at the top of the page)

<http://www.peakoil.net>

A Spanish Language edition is available on www.crisisenergetica.org

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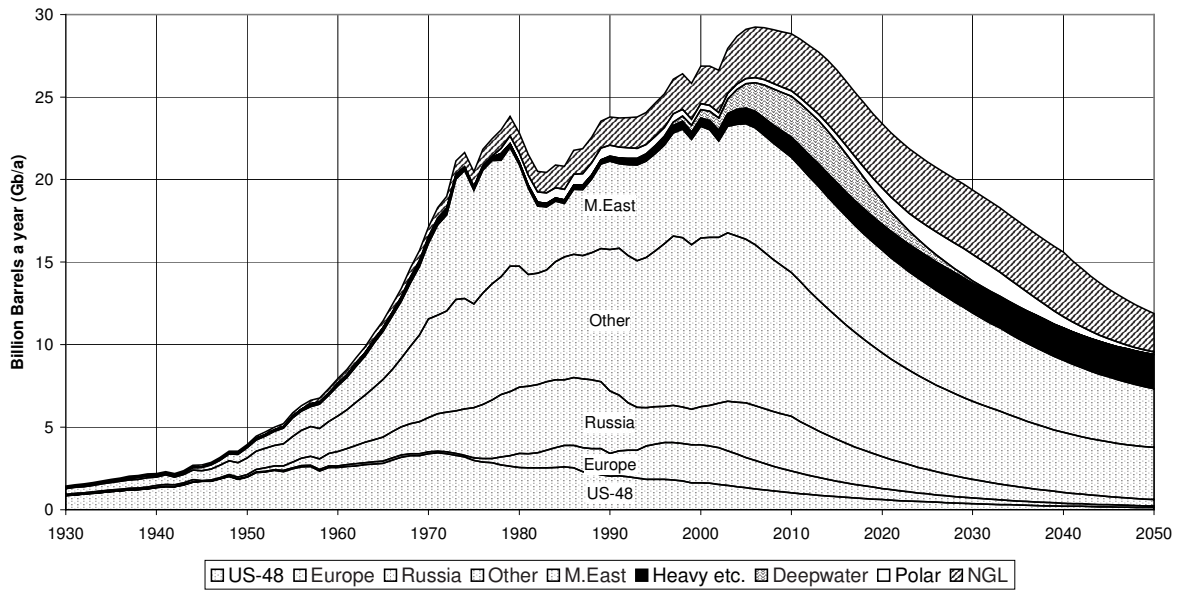
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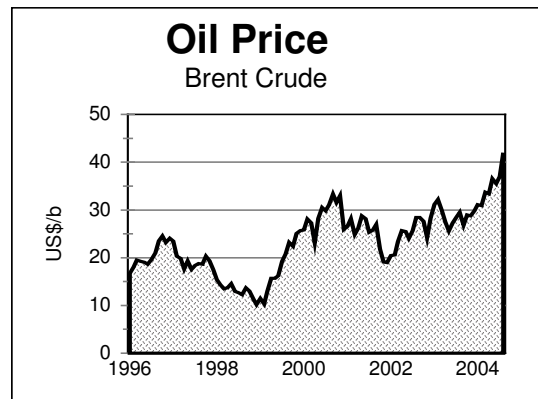
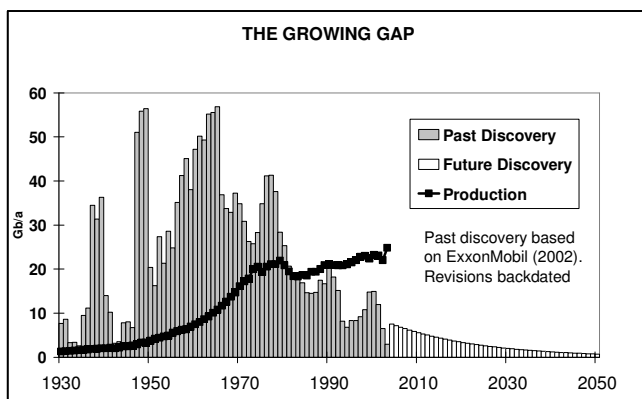
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The General Depletion Picture

OIL AND GAS LIQUIDS 2004 Scenario



ESTIMATED PRODUCTION TO 2100								End 2003		
Amount			Gb	Annual Rate - Regular Oil				Gb	Peak	
Regular Oil				Mb/d	2005	2010	2020	2050	Total	Date
Past	Future	Total	US-48	3.6	2.8	1.7	0.4	200	1971	
Known Fields	New		Europe	5.0	3.6	1.8	0.3	75	2000	
920	780	150	Russia	9.1	10	5.5	0.9	210	1987	
	930		ME Gulf	19	19	17	10	675	1974	
All Liquids			Other	27	23	17	9	690	1997	
990	1510	2500	World	64	58	43	20	1850	2005	
2004 Base Scenario				Annual Rate - Other						
M.East producing at capacity (anomalous reporting corrected)				Heavy etc.	2.6	3	4	5	195	~
Regular Oil excludes oil from coal, shale, bitumen, heavy, deepwater, polar & gasfield NGL				Deepwater	4.7	7	5	0	55	2014
				Polar	0.9	1	2	0	50	2030
				Gas Liquid	8.2	9	11	6	270	2027
				Rounding				-2	80	
Revised	06-08-04			ALL	81	80	65	30	2500	2006



405. The Date of Peak

The above table indicates the date of peak as delivered by the depletion model which is based on less than reliable reserve data and the composite of the depletion analysis of 65 individual country of greater or lesser confidence. In particular, it is based on a scenario that the key five Middle East countries (save Iraq) have negligible spare capacity, such that their production will be flat until their midpoints of depletion. There are of course other scenarios. For example, world recession might dampen demand, ameliorating the decline, and meaning that Peak would have already been passed this year. Further military or political miscalculations might curb supply with the same outcome. Moreover, it is a shallow peak, so that quite minor adjustments to the input data can shift it a few years.

When writing, it is easy to describe the situation in terms of “an imminent peak” without putting a specific date to it, but there is no such latitude in a table or a graph, which demands a specific date as computed. The table above has been slightly revised to include a Rounding element so as not to imply greater accuracy than is justified.

The flat earth Fundamentalists have already made much capital by pointing out how previous estimates have evolved. They take that as evidence to discredit any notion, or calculation, of depletion, whereas the scientist sees the evolution of complex models as progress

The real point is not so much the exact date of peak but the statement that First Half of the Oil Age, which was characterised by growing production, is about to be followed by the Second Half when oil production is set to decline along with all that depends upon it. On that at least we can stand firm.

406. Country Assessment – Peru

Peru covers an area of about 1.3 million km² on the western seaboard of South America. An arid coastal strip is separated by the Andes, rising to over 5000m, from the vast tropical rain forests of the Amazon headwaters. The population has doubled since the 1960s to 27 million, most living in the coastal region, in the vicinity of the capital, Lima, which holds over 5 million.

Archaeological research shows that human settlement began more than 13 000 years ago before culminating in the great Inca Empire, which in the 16th Century held dominion over a vast territory extending from Ecuador in the north to Argentina in the south. It however fell to the Spaniards under Pizarro, who landed with no more than 180 men in 1531. The development of the Potosi silver mines, a few years later, made Peru the jewel of the Spanish Empire, and Lima became a wealthy and sophisticated seat of imperial government.

Moves to independence in Latin America developed during the 19th Century, stimulated in part by the fall of Spain in the Napoleon Wars and the declaration of independence in the United States, but Peru remained relatively loyal with its aristocratic pretensions and large expatriate Spanish community. The country however eventually fell to General San Martin of Argentina, who had marched north eyeing the silver mines, and declaring independence in 1821. He in turn fell to General Bolivar, coming south three years later after liberating Venezuela, Colombia and Ecuador.

In 1879, Peru lost a resource war with Chile over control of nitrate deposits in the Atacamas desert. Europe, in the days before synthetic fertilisers, depended on these critical supplies to feed its growing population. The London-based, Peruvian Corporation, exploited a financial crisis in Peru to secure control of the railways and the right to mine 3 million tons of guano. British interests also took a stake in Peru’s early oilfields.

Haya de la Torre, a Peruvian exile in Mexico, founded the APRA Party in 1924 as a Latin American parallel to the fascist movements of Europe. It stood for an anti-capitalist, planned economy to improve the lot of the poor, and end foreign exploitation, while aiming to re-establish the heritage and status of the American Indian. The movement has continued to play an important role in Peruvian politics, albeit mainly in opposition. Some of its ideas were adopted by other parties in the eternal quest to resolve the great social disparities between an increasingly urban Indian poor, landowners, capitalists and foreign investment.

PERU		<i>Regular Oil</i>
Population M		27
Rates Mb/d		
Consumption	2003	0.15
per person b/a		2.2
Production	2003	0.087
	Forecast 2010	0.072
	Forecast 2020	0.055
Discovery 5-yr average Gb		0.001
Amounts Gb		
Past Production		2.36
Reported <i>Proved Reserves*</i>		0.29
Future Production - total		1.14
From Known Fields		0.71
From New Fields		0.043
Past and Future Production		3.5
Current Depletion Rate		2.7%
Depletion Midpoint Date		1988
Peak Discovery Date		1861
Peak Production Date		1983

*Oil & Gas Journal

Military governments have intervened twice in recent years, in 1948-56, and again in 1968-80, as democratic government failed, having sponsored open market policies that often led to burgeoning foreign debt and inflation. A neo-Marxist guerrilla movement, the Sandero Luminoso (Shining Path), was a later manifestation of the same conflict but has now fallen from prominence, no doubt to be replaced in due course by another such element.

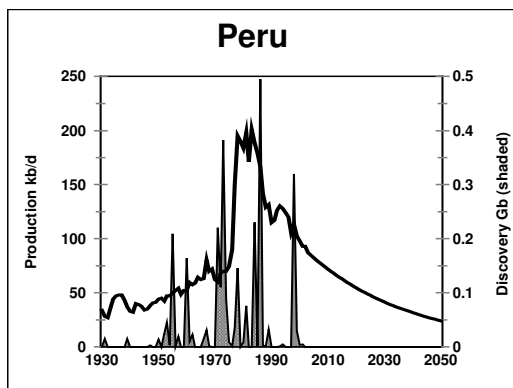
Peru has had a long oil history, being credited with the World's oldest giant oilfield, La Brea - Parinas on the northern littoral, which is attributed to 1869, although Pizarro had caulked his ships with tar from seepages in the area as early as 1528. This complex of fields lies in what amounts to the delta of the proto-Amazon, which flowed westwards into the Pacific prior to the uplift of the Andes in late Tertiary. The original title to the property, which included the mineral rights, was granted by Simon Bolivar himself. Various British companies were involved in the early years, but an Esso subsidiary, The International Petroleum Company, took a dominant position. Its absolute rights became increasingly anomalous after the Second World War in an environment of increasing socialism, and the Company's rights were eventually expropriated in an action leading to the creation of a State oil company, Petroperu. A second lease of life for this mature province came with the development of offshore extensions by Belco in 1959, but no prolific finds were made. There is some interest to-day in deepwater exploration both off this area, and farther south, but it is probably doomed to failure as the geology is generally adverse, save perhaps for gas.

Eastern Peru covers part of the great sub-Andean basin of northern South America. The first major discovery was the 200 Mb Orito Field in southern Colombia in 1963, which led to a series of major finds in adjoining Ecuador. These fields are sourced by a super-prolific Upper Cretaceous source-rock, caused by a brief period of extreme global warming some 90 M.y. ago. It was responsible for most of the oil in greater Caribbean region including the vast degraded deposits of eastern Venezuela. The oil is mainly reservoir in the underlying basal Cretaceous sands, although there are some important overlying reservoirs as well. In Ecuador and northern Peru, traps are mainly confined to subtle features on the east flank as most of the western flank of the original basin has been consumed during the Andean mountain-building.

Source-rock quality deteriorates southward into Peru, although Occidental succeeded in bringing in a productive trend near the Ecuadorian border, a border which incidentally has been subject to dispute, periodically erupting into mild military confrontation. Otherwise, this large tract of notionally prospective territory has failed to deliver any significant find, and probably never will.

The Marañon River, a tributary of the Amazon, marks an important plate boundary, responsible for easterly trending structures of the Amazon graben. The Andes too make an elbow bend at this latitude. To the south, develops a different tectonic plate with its own structural evolution and style, characterised by a wide zone of foreland folding. The Cretaceous source-rocks of the north have largely gone, being replaced by less prolific Palaeozoic sources, which have charged fields in neighbouring Bolivia. This inverted, deeper source sequence has given rise to a gas-condensate system, confirmed by Aguaytia and Camisea discoveries in Peru.

The Aguaytia Field, with reserves of about 630 bcf of gas and 23 Mb of condensate, was found by Mobil in 1961, and was followed by Shell's Camisea Field in 1984. It is reported to contain 11 Tcf of gas and 600 Mb of condensate, making it a discovery of major importance, especially since it will probably lead to other discoveries on the same trend. However, its development has been fraught with difficulties, as the local market was not sufficiently profitable for the foreign companies. The concessions expired before they were able to develop their finds, but the Government has now reportedly accepted offers to finance the development. The outcome remains clouded with some uncertainty.



To the east of the foothills, the basin rises towards the Brazilian Shield, which is broken up into various sub-basins by arches and spurs extending out from the shield. One of them is the exceedingly remote Madre de Dios Basin, which is attracting some exploratory effort. In general, it is not a promising area for oil due to the inadequate source conditions, but that does not exclude the possibility of the development of minor interior troughs with better local conditions, as perhaps were responsible for two small oilfields, Maquia and Aguas Calientes, which were found in the 1950s. It is a huge area that cannot be written off, but the omens are not good.

In summary, Peru is a mature oil country, well past peak, that has discovered a late-stage gas-condensate play, which will surely expand further. The country faces the challenge of attracting foreign companies to conduct high risk

exploration, without losing access to any surprise finds that might be made. A checker-board licensing policy might succeed in allowing Petroperu to watch from the sidelines and take offsetting acreage where justified.

The country is already a net oil importer on a trend that is set to rise. It faces the predicament of trying to encourage high risk exploration by foreign companies, while making sure that the proceeds of any successful outcome are used to meet domestic demand.

407. Prices and Production over a complete Hubbert Cycle: the Case of the American Whale Fisheries in 19th Century

by Ugo Bardi : ASPO – The Association for the Study of Peak Oil and Gas, and

The Dipartimento di Chimica - Università di Firenze, Via della Lastruccia 3, Sesto Fiorentino (Fi) – Italy
bardi@unifi.it, www.aspoitalia.net

The “bell-shaped” production curve of a non-recyclable mineral resource was described first by M. King Hubbert in 1956, and was used to correctly predict that the production of crude oil in the United States (Lower-48) would peak in 1970. It is reasonable to suppose that the worldwide production of crude oil will also follow a similar bell-curve, with much of the present debate focusing on when the peak will occur. It is anticipated that it will generate an epochal change deriving from a steep rise in prices.

The rise in prices at the peak is expected because of the switch from a market driven by production to one driven by supply. The Hubbert model, however, does not itself provide quantitative information on prices, and it is not possible to draw conclusions from individual country peaks because oil prices are set globally.

In order to obtain historical evidence for price trends, one needs to examine a case where a non-recyclable resource went through a complete Hubbert cycle worldwide. There are no previous examples of a mineral resource that has done so. In fact, crude oil may turn out to be the first, which incidentally may be one of the reasons why the concept of “peak oil” is so difficult for many people to grasp.

A resource does not need to be a mineral one to show a Hubbert curve. A biological resource which is produced (or “extracted”) much faster than it is replaced may also follow a bell-curve. Historically, there have been several cases of terminally depleted biological resources. The whaling industry of the 19th Century is a good example, as already noted by Coleman (Non Renewable Resources, Oxford University Press, 4(1995) 273). The present note re-examines the whaling example with the specific objective of determining how the production peak affects prices, confirming that prices should rise after peak production.

Two species of whale: the *Sperm whale* and the *Right whale*, were hunted in the 19th Century, mainly for the oil obtainable from their fat, which was used as fuel for lamps. Whales were also hunted for so-called Whale Bone (or baleen), which was used for stiffening clothing.

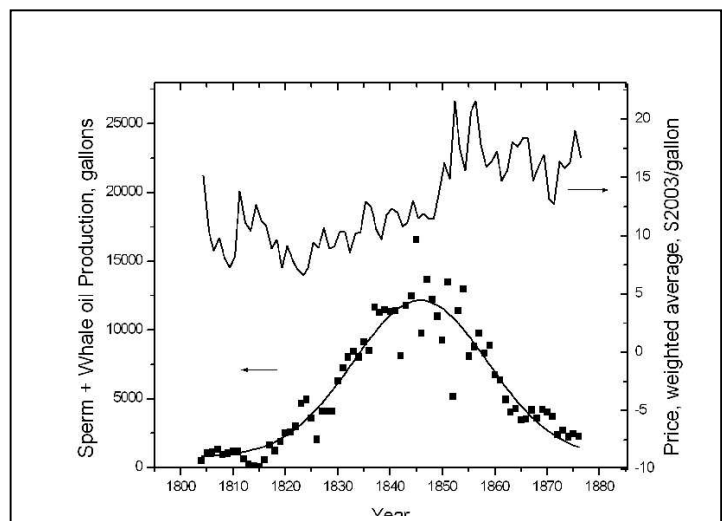
The following figure summarizes the production and price data extracted from Starbuck’s 1878 book (A. Starbuck, History of the American whale fishery, Seacaucus, N.J. 1878, reprinted 1989). Here, oil production is shown as the sum of the production of *Sperm* and *Right* whale oil. The indicated prices are the weighted average production of the two types of oil, corrected for inflation and translated into 2003 values, according to data by R. Sahr http://oregonstate.edu/dept/pol_sci/fac/sahr/sahr.htm

From the figure, it is evident that the production of whale oil followed a bell-curve according to Hubbert’s theory, modelled with a simple Gaussian curve, albeit showing strong oscillations. These data are in excellent agreement with the report on *Right Whale* abundance by Baker and Clapham (Trends in Ecology and Evolution Vol.19 No.7 July 2004), indicating that the fall in production after the peak was caused by depletion and not by the switching to different fuels.

Indeed, “Rock oil” (or “coal oil”) began to replace whale oil only in the 1860s, after the invention of the kerosene lamp by Michael Dietz in 1859. Despite the availability of kerosene, whale hunting continued well into the 1870s and 1880s, driving *Sperm* and *Right* whales to near extinction.

Turning attention to the price data, we may note first how expensive whale oil was in comparison with the crude oil that replaced it. Even at its lowest historical prices, in the 1820s, the least expensive type of oil (whale oil) was priced at more than \$200 (2003\$) a barrel (42 gallons). At its highest price level (1855) *Sperm Whale* oil sold at more than \$35 (2003\$) a gallon,

namely almost \$1500 (2003\$) a barrel (!). This tells us something about how difficult it may be to substitute fossil fuels with “biofuels” (bio-ethanol, bio-diesel, or other). Without the support of fertilizers, irrigation, transportation, and agricultural machinery, which all depend on fossil fuels, biofuels would probably cost as much today as whale



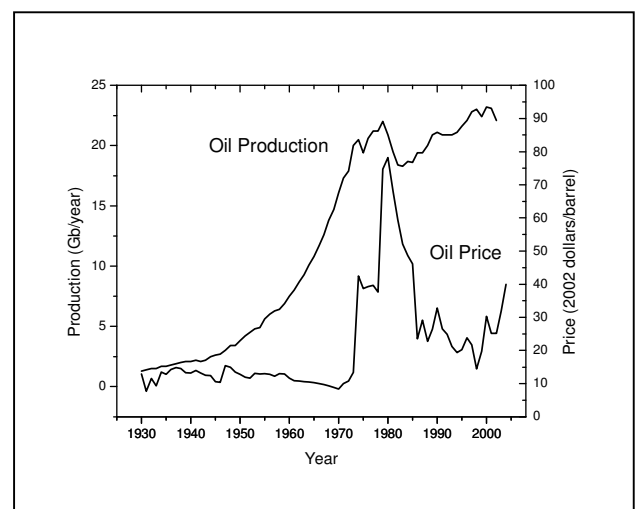
oil did in the 19th Century. It also shows what an incredible bonanza crude oil has been. When kerosene became first available in the 1860s, a barrel of crude oil sold for some \$90 a barrel in to-day's money (data from www.wtrg.com). In the 1870-80s it had already fallen to values in the order of \$20 (2003\$) a barrel, comparable with modern prices. If hydrogen were to substitute gasoline today at the same price differential, it would have to cost no more than a few cents for the equivalent of a gallon. Needless to say, we aren't getting there any time soon.

Finally, we can derive insight into crude oil price trends from the figure. Whale oil prices started to increase approximately at the inflection point of the curve well and before the production peak. An upward spike in prices took place a few years after the peak, being also detectable in the non-inflation corrected price data (see Coleman, *ibid.*). A somewhat surprising result is that the inflation corrected prices remained approximately constant after the peak despite the progressive depletion of whales.

In the case of crude oil, we can recognize an initial phase (up to 1971) of nearly constant prices. This phase was followed by an epoch of rising oscillation. If, as often claimed, we are close to the peak, and if the analogy with oil production holds, we may expect a further sharp increase in prices in the coming years, a trend that may, actually, have already started in 1999.

In his 1878 book, Alexander Starbuck cited several factors for the decline of production of the whale fisheries in times that for him were recent. He seems to have believed that it was not the extermination of the whales that caused the decline but, rather, the increase of the human population which led to "an increase in consumption beyond the power of the fishery to supply." But it was also clear to him that the cost and the length of voyages had increased beyond reasonable limits. He did cite "the scarcity and shyness of whales" as a problem, but he stops short of saying that the whale stock was depleted beyond recovery. Most likely, the concept of "extinction" was alien to him, as it was to most of his contemporaries.

Our perception problem with crude oil is equivalent to that of Starbuck, and indeed it is perhaps more severe. The concept of the terminal depletion of a mineral resource is alien to us, since there have been no worldwide precedents. In addition, we are apparently just near the midpoint on the production curve, so we still have to experience the peak, the associated price rise, and the decline. What the future has in store is uncertain: perhaps an energy equivalent of the "rock oil" of Starbuck's times will materialize in the near future. But if it does not materialise we will have to live with depletion and before long begin to see lamps going out.



408. Deutsche Bank warns Oil Price may hit \$100

by James Dow, Economics Correspondent

Oil prices could potentially hit \$100 per barrel, analysts at Deutsche Bank warned yesterday - as the cost of US light crude hit a 21-year record of almost \$44.

Adam Sieminski, Deutsche's global energy strategist, claimed that oil supplies have become so tight in recent weeks that a serious disruption in the Middle East could send prices rocketing to unprecedented heights.

He said: "It is worth asking ourselves - 'what would happen tomorrow if we lost four million barrels a day, due to some accident?' Or let's say Iraq's two million barrels a day became unavailable. OPEC's got no spare capacity. And that could be it - \$100 per barrel."

Sieminski stressed that this was not a wild claim. "The last time OPEC was at 95-100 per cent capacity was in 1973-74, and again around 1980. And disruptions put prices up by 50 to 100 per cent.

"We're at \$40 already, so a repeat gives you \$60-\$80 per barrel." Two separate instances of disruption, on this logic, could take the price up a further step to \$100.

Benchmark US light crude came within a whisker of \$44 yesterday, touching \$43.92 at its peak. The price sank back to \$43.50 by late evening.

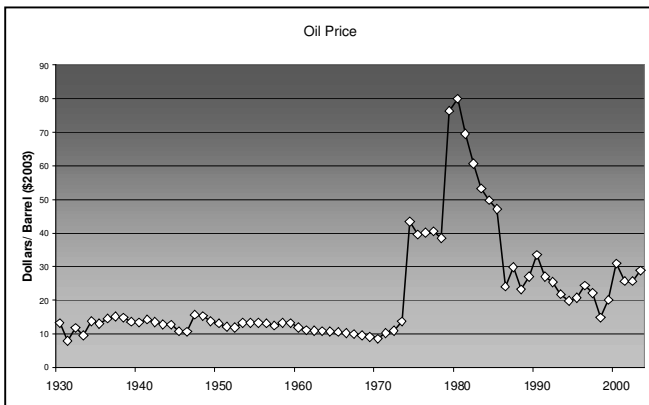
The spike came after the US raised its security alert to "high", citing a possible al-Qaeda attack on financial institutions. The announcement was made on Sunday, but yesterday was the first chance for markets to react.

Separately, Russian oil giant Yukos was told by Moscow it will begin investigating the company's tax payments from 2002 - earlier than before, and a move that could add to its already massive bill.

The news was softened by an announcement from the Russian energy ministry that oil output in the country hit a new post-Soviet high of 9.33 million barrels per day in July. Brent crude, which rose above \$40 to a fresh 14-year high of \$40.05 on Friday, sank 20 cents to \$39.85.

Sieminski said: "Most of the analysts who look at the fundamentals of supply and demand will tell you we're now at the top [of the oil price]. But as long as the incremental supplies continue to come from countries where availability is an issue, the potential for prices to stay high is, itself, very high."

Market fears will calm down if sabotage or other disruptions do not emerge, and this could see \$5 a barrel come out of the price by the end of the year, he estimated.



"But, fundamentally, we've got to slow down demand growth. And, historically, the only way to make a lot of progress with that is a recession. So if you're worried about the oil price perhaps you've got to ask, which do you prefer?"

(Reference furnished by Dale Pfeiffer)

The long-term price of oil in 2003 dollars through 2003 is shown in the attached graph. It looks as if the volatility imposed by the difficult swing role of OPEC is over, and that prices are set to rise to reflect the underlying supply constraints. The remarkable stability before the foreign

companies were expropriated in the main producing countries stands out, and a future rise into the \$40-60 range does not look altogether out-of place, still being below the 1980 spike.

409. How Realistic are OPEC's Proven Oil Reserves?

In an excellent article under the above title in the August issue of the *Petroleum Review*, Dr Mamdouh G. Salameh, who is a respected consultant to the World Bank and member of the Institute for Strategic Studies in London, suggests that reported OPEC Reserves are exaggerated by about 300 Gb, reducing the World Ultimate to 1800 Gb. He further lists annual world discovery (ex USA & Canada) as shown in the attached table, which has averaged 7.4 Gb, far below average consumption of 26 Gb. This incidentally further undermines the widely reported *Mean Probability* estimate for new discovery by the USGS which averages 21.6 Gb for the period 1995-2025. The *High Probability* estimate, which averages 11 Gb, is also still high but comes closer to the mark. Those not versed in Probability Theory might indeed expect the case with high probability to come closer to the truth than the Mean value. It is worth noting in passing that the relatively high discoveries for 1999 and 2000 result largely from just two exceptional finds: Kashagan in Kazakhstan and Azadegan in Iran.

1992	7.80Gb	1998	7.60
1993	4.00	1999	13.00
1994	6.95	2000	12.60
1995	5.62	2001	8.90
1996	5.42	2002	9.00
1997	5.92	2003	2.27

Annual Discovery (ex USA & Canada)

410. Stand by for more vitriol

As oil prices soar above \$40 a barrel, we can expect more vitriolic slander from an increasingly discredited community of flat-earth Fundamentalists. The draft of a paper by a prominent member of the sect has been received. A glib and vituperative tongue makes up for a lack of knowledge, professional experience, data and even academic qualification in Economics. (Reference furnished by Wall St Journal)

411. The Quotation of the Year

"Given that production is up about 3.5 mb/d so far this year, it's kind of hard to see evidence that depletion is driving prices. All of the 'models' of peak seem to show a leveling off well before the peak, don't they?
Mike Lynch Amherst, MA"

(Reference furnished by Malvyn Gregory)

412. IEA change of tune

A presentation by K. Rehaag in the July 12th Oil Market Report of the International Energy Agency now faces reality with the following key points;

- While political oil embargo less like, some argue that the global economy is faced with a supply crunch ("Peak Oil") with similar devastating results
- The critical issue is one of reserves and depletion rates
 - Older fields are mature and declining
 - New discoveries are smaller
 - The Industry is forced to extract the resource more quickly
 - Global reserves are over-stated for political reasons
 - The Industry is forced to shift to more expensive, risky, non-conventional, areas
 - The Industry has to run faster to stand still to offset depletion
- Resource constraints – we have already plucked the low-hanging fruit
- Supply constraints will push up price, limit demand, and curtail economic growth

This is a remarkable volte-face for an organisation that has consistently misled its member governments with bland assurances of near-limitless resources whose production was simply a matter of economic incentive and technological progress. (Reference to the term *Peak Oil* may hint that the work of ASPO is having an impact).
(Reference furnished by Julian Darley)

413 Experts dispute oil reserves countdown

By Amelie Herenstein AFP PARIS Petroleumworld.com 08 10 04

Soaring oil prices have stirred a long-standing debate among experts about how much crude remains in the ground and how to manage the countdown to when the reserves run dry.

"We have all been enjoying the greatest party the world has ever seen: the great oil party," said Kjell Aleklett, president of the Association for the Study of Peak Oil, an informal network of scientists and oil experts which aims to make "the world aware that the party is over".

"Few of us have realized that it was a party, still less that it is now reaching its climax as the champagne corks pop on all sides," Aleklett said, making an analogy between oil and champagne.

"After the climax comes the decline when we have to sober up and face the fact that the party is coming to an end," he said. The association maintains that the peak after which oil production begins to decline is much closer than is commonly thought, standing somewhere between 2008 and 2010 for oil and 2013 for gas.

These crucial dates, which would mark the beginning of an era of high energy prices, are particularly difficult to establish because of the quality and availability of the figures they are based on. The definitions used also complicate the task of calculating when the oil supply will begin shrinking because of ambiguity over the definitions used by experts. For example, there is a difficulty in determining the difference between reserves, of which there are three kinds, and resources, which are considered less certain.

Moreover, reserves change. Their levels have been steadily increasing over the past decades as new technologies are used to prospect, evaluate and recover crude.

Estimates for the peak of oil production vary widely in the industry from as soon as 2004 to as late as 2048, but the median date of 2020, based on the proven reserves of about 1.050 trillion barrels, is cited the most often. That would mean that production would remain robust until 2050, meeting half of energy demand. Under that hypothesis, oil would still be produced until the end of this century.

However, ASPO doubts the figures provided by producer countries and estimates proven reserves to stand at 878 billion barrels. Given the huge stakes involved, ASPO accuses governments and oil companies of withholding the truth because of unspoken political and economic motives. On the other hand, oil industry insiders suggest that ASPO members, who are often retired oil company employees and academics, use outdated technical and statistical methods.

Regardless the level of global oil reserves, the problem of their decline is real. That problem is exacerbated by the concentration of reserves in the politically volatile Middle East and steady growth in demand.

The International Energy Agency estimates that the energy market could grow by two thirds by 2030 and has called for massive investments to meet the challenge. The recent climb of oil prices above 40 dollars a barrel has so far not sparked much debate about how oil is consumed, although policymakers are worried about the economic impact of high oil prices.

A French MP for the Green Party Yves Cochet said in a recent newspaper opinion piece that "the imminent end of cheap oil is the most dire test that humanity has confronted" and the social consequences would be "devastating".

(Reference furnished by Jim Meyer)

414. Not tonight, Sweetie, No energy

An interesting article with the above slightly provocative title by Virginia Abernethy in *WorldWatch* (September October 2004) discusses the impact of oil depletion on world population. It suggests that the promise of better times tends to prompt larger families in the poorer sectors of society, concluding that world recession imposed by falling oil supply may lead to a converse decline in population. The author is not the first to see a silver lining to the Second Half of the Oil Age, if the survivors should succeed in finding a more sustainable and rewarding simpler life. (See also Hamilton Bergin – *The No.19 Bus*, 2004 ISBN 0-9545318-0-9). Managing the transition to the onset of decline is likely to be the main challenge, fraught with great geopolitical tensions.

415 UK moves to LNG imports

The BBC News has carried a report that Britain's gas domestic supply is falling steeply, forcing Centica, a major distributor, to construct an LNG terminal and sign a major contract for supply from Malaysia. The Company spoke with pride of how supply could be maintained for electricity generation and domestic consumption at least for the next few years. No doubt other countries, including for example Japan, will be competing for these distant sources of energy. Britain, with its new consumeristic society, is particularly

vulnerable having allowing its coal and nuclear industry to decay. The roast beef of old England may soon fade into history as cooking costs soar.

416. Shell and Total

Rumours are surfacing about a possible merger between Shell and Total, the French oil group that has already acquired Elf and Petrofina. It would make strategic sense to build a strong European group to protect regional interests in the face of depletion. Probably, the reserve base of the two entities is comparable. French leadership might be better able to meet strategic objectives than would the other major European company, which is driven by financial imagery and market performance, spanning the Atlantic.

417. China eyes Yukos

China has evidently recognised its increasingly dire energy situation. Its own production is set to decline while demand soars. It has been searching the world for the few remaining opportunities, and now casts its eyes on the possibility of acquiring the troubled Russian giant, Yukos. The impact of depletion is not lost on the Russian Government so it is unlikely to allow more critical national resources to pass into foreign hands. Such concerns may indeed lie at the root of its conflict with Yukos.

A CHINESE official said yesterday that Beijing was interested in buying the prize asset of Yukos, the Russian oil company on the brink of collapse. A successful bid from China, which needs to ensure its oil supply, would mean one of Russia's most important businesses being renationalised, albeit by another country.

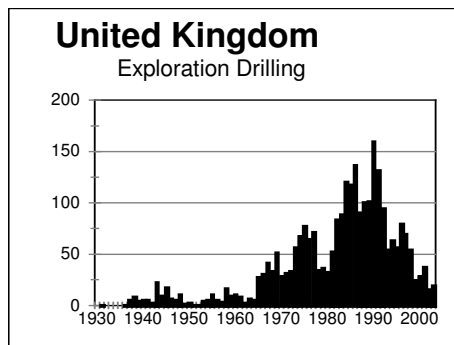
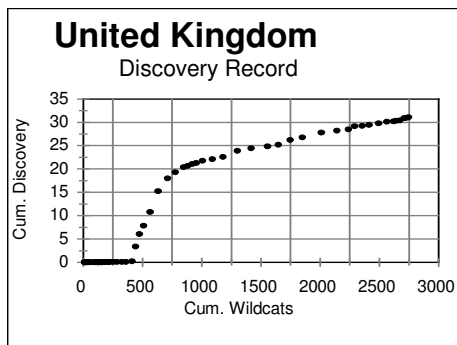
In a surprise move, a senior official from China's Moscow Embassy is reported to have said that Beijing would be very interested in the potential \$30 billion (£17.3 billion) acquisition of Yuganskneftgaz which accounts for 60 per cent of Yukos's oil production.

Fan Chunyong, an economics councillor at China's Moscow Embassy, said yesterday: "We are very interested in taking part in the bidding. But the question is what policies the Russian Government takes toward foreign companies."

<http://business.timesonline.co.uk/article/0,,8209-1224574,00.html> (Reference furnished by Kellia Ramares)

418. Odell Again

Emeritus Professor Odell's belief in near infinite resources is well known. Writing in the Guardian of 21st August, he attacks the UK Government, which now accepts that the Country's oil and gas will be approaching exhaustion by 2020. He makes the astounding claim that most of the North Sea is under-explored, when its geology is now very well understood.



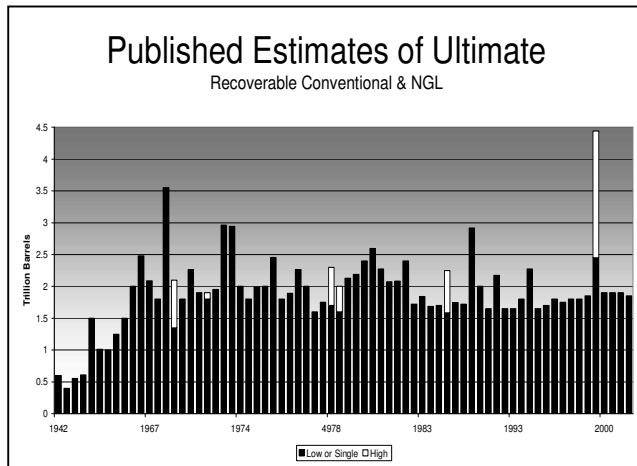
The actual record paints a very different picture. The first 20 Gb had been found by 1970 after about 750 exploration wells. The subsequent 2000 wells delivered only some 13 Gb, despite all the amazing advances in technology and geological knowledge. Exploration drilling has fallen steeply since a peak in 1990, despite a favourable tax regime whereby most of the cost can be written off against taxable income. It has fallen for the simple reason that progressively fewer viable prospects remain. In fact, it has been no mean achievement to hold discovery as high as has been the case in recent years and to do so with a high success rate, implicit in the decline in the total number of wells drilled.

The Professor recommends that Britain should follow Norwegian practice, which indeed was more efficient and closely controlled, with less wasted investment in dry holes, but discovery peaked there too in the late 1970s and production is set to decline steeply, as confirmed by the authorities. He is right however to draw attention to the adverse impact of falling production on Britain's balance of payments. Rather than invest in drilling more dry holes in the North Sea, as implicit in the Professor's proposal, a better solution would be to improve energy efficiency and bring in alternative energy sources to the extent possible.

(Reference furnished by Paul Metz)

419. High Oil Price and Depletion

World oil prices have soared in recent weeks, being widely attributed to further interruptions in supply resulting from the invasion of Iraq, rising demand in China, or tax claims against a Russian oil company, but the main reason is far more fundamental. The discovery of new oilfields has not been sufficient to offset the natural decline of the old ones.



The attached graph shows 76 estimates of the size of the resource, most having been published by major oil companies and serious scientific institutions. There is a consensus, notwithstanding the range of uncertainty and of definition, from which only a few eccentric high estimates depart. The average works out at 1930 Gb, of which 920 Gb, or almost half (48%), have been consumed. It is, therefore, hardly surprising that production approaches its long-term decline towards eventual exhaustion. High prices are inevitable until demand can be reined in either by market forces, spelling recession, or sensible government policy.

420. The Zionist agent

The Flat Earth Fundamentalists find a new ally in the form of Mr Vialls of Australia, whose newsletter describes Campbell (based on his Clausthal Lecture on Peak Oil) not only as an *idiot* but a decoy planted by Zionist interests to provide justification for the invasion of Iraq. He states that oil flows in limitless quantities from the depths of the Earth and that the decline observed in oilfields is due to the wells clogging up. He adds a request for funding, describing himself as a combat veteran, living on a small disability pension. While deserving every sympathy, we may speculate about the nature of the disability.

421. Calendar - Forthcoming Conferences

The subject of Peak Oil will be addressed at the following conferences and meetings, with presentations being made by ASPO members and associates [shown in parenthesis]:

2004

- September 8-9th – HEC MBA , **Jouy-en-Josas**, France [Laherrère]
- September 13th - Dutch Ministry of Economic Affairs, **Oosterdok**, Netherlands [Alekklett]
- September 15-17th - Asia-Pacific Energy Research Centre, **Tokyo** [Alekklett]
- September 15th - Murphy Oil, **Phoenix**, Arizona [Laherrère]
- September 16th – Heritage Ireland, **Skibbereen**, Ireland. [Campbell]
- September 26-27th – Emirates Center for Strategic Studies, **Abu Dhabi** [Alekklett]
- September 28th – Ecole des Mines, **Sophia-Antipolis**, France. [Laherrère]
- October 7th – Dutch Energy Platform, **Utrecht**, Netherlands [Campbell]
- October 8th - Renewable Energy Valley, **Den Halder**, Netherlands [Campbell]
- October 19–22nd – Global Peak Oil Gathering, **Karlsruhe**, Germany. [Campbell]
- November 5th – Community Action, **Ballyvaunie**, Ireland [Campbell]
- November 10th – Oil Depletion, Institute of Energy, **London** [Bentley]

2005

- March/April - Depletion Scotland, **Edinburgh** [Campbell] date to be confirmed
- May 19-20th - **ASPO International Workshop**, Gulbenkian Foundation, **Lisbon** [various]

[The calendar will be a standard feature of future newsletters. Information on future events is welcomed]

The Newsletter is distributed with the help of Mr O'Byrne and Arne Raabe in Canada, and several generous financial contributions have been received from others to defray operating costs. All are gratefully acknowledged. Articles and references from readers wishing to draw attention to items of interest, or the progress of their own research, are welcomed.

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Compiled by C.J.Campbell, Staball Hill, Ballydehob, Co. Cork, Ireland