

AUSTRALIAN OIL EXPLORATION — THE DYING ENTREPRENEUR

by

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Australia has a fledgling oil exploration industry. It has been in its infancy for many many years and now one must express concern that it may never reach maturity.

Despite its highly important successes exploration activity in Australia remains low. Even in boom times with some thirty rigs working, our effort, when compared to other countries or to our country's potential, is pathetically low. Thirty rigs is less than 1 per cent of the rig count in the United States and about 15 per cent of the rig count in the Province of Alberta, Canada. Right now there are probably less than fifteen rigs working.

It has often been claimed that lack of infrastructure and distance from markets has kept exploration and development costs very high in Australia. It has been put that this isolation has reduced exploration activity and has made many small discoveries and prospects uneconomic. True to some extent. But look at Northern Alberta and the North West Territories of Canada, not so long ago as isolated and as rugged as anyone would wish upon an explorer. Or consider our own Cooper Basin — miles from anywhere, no roads, no water, lots of sand and sand hills. At least, that's how it was. Now these places are considered to have infrastructure, exploration is relatively cheap and small discoveries are viable to develop.

Clearly exploration has been the "horse" that has come before the infrastructure "cart". "Extreme cases!" is no doubt the cry, but this illustrates what has happened and will *slowly* come about in other places, such as the Canning Basin.

Isolation, I would argue, cannot be claimed as a reason for our lack of activity.

General economic conditions for the oil explorer in Australia are favourable and competitive. World parity price and an assured market for crude; freely negotiated price for condensate, often in excess of the crude price;

† This article is adapted from a recent address to the Western Australian Branch of the Petroleum Exploration Society of Australia.

on meeting domestic requirements an average 80 per cent of parity price for LPG's; the ability to freely market ethane at negotiable prices and predicted gas shortages in two and possibly three of our major cities. Rates of royalty in Australia are acceptable at 10 per cent to 12½ per cent and allow for recoupment through amortisation of costs downstream of the wellhead.

Certainly the fear of a resource rental tax is real and dissuades investors, but this surely cannot be blamed for a weak industry. All in all our economic and political conditions are favourable.

A taxation regime, designed and administered to encourage investment into oil exploration would enable the industry to regain lost exploration activity. Even in this rather depressed climate taxation incentives could lift exploration to near boom levels. Such levels of activity, desired and welcome as they would be, remain far short of what I believe could otherwise be achieved.

The FIRB and policies relating to foreign investment cause some concern and have caused reduced investment in Australia. However one must note that all major oil and gas fields are or have been substantially foreign owned.

Bass Strait has a foreign equity of about 60 per cent.

The North West Shelf has a foreign equity of over 70 per cent.

The Cooper Basin is now essentially Australian, but this only as a result of voluntary sales by Burmah Oil (37.5 per cent shareholding in Santos) and Delhi International (with equity sales to South Australian Oil and Gas and to the CSR).

If it wasn't so serious, it is perhaps amusing that the only forced divestment was against an Australian company. When Bond Corporation (very Australian, probably in excess of 95 per cent) bought the 37.5 per cent shareholding in Santos from Burmah Oil (very British) legislation was brought down by the South Australian Government forcing Bond to reduce to less than 15 per cent.

Foreign companies should take heart.

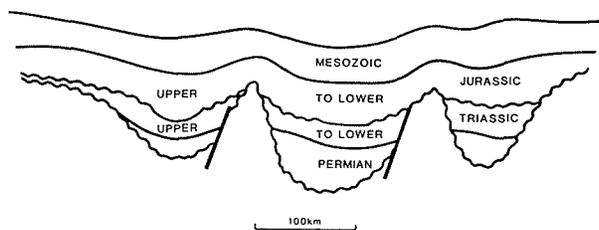
Certainly lower oil prices and a bearish outlook have dampened investment, but in \$A terms oil prices have remained firm while costs of exploration and development have dropped, in cases of excess of 40 per cent. The economics of investing risk capital has clearly improved and with the many opportunities now available, now is surely a good time to invest.

But investors are staying away in droves. Why?

It is not, I believe, our lack of potential. Many Australian basins have excellent potential, and while this is not the place to argue the point, I think it would be a brave man to say we only have a dozen or so rigs working and that is a reflection of our potential for discoveries.

Oil explorers are poorly understood, and often misunderstood by potential investors. They have a language of their own and a plethora of terms that frightens investors. Recently a national paper reported test results of the Woodside et al Whiting well. Extrapolating the reported figures led to the conclusion that the well tested at the rate of 21 million barrels of condensate per day — considerably in excess of OPEC's total crude production. An error. But do you ever see errors of this magnitude in respect of other industries? Cars that can travel at 200,000 kmh, ore that goes 2,800,000 gms to the tonne, farms that produce 11,000,000 bags (of anything, any size bag!) to the hectare?

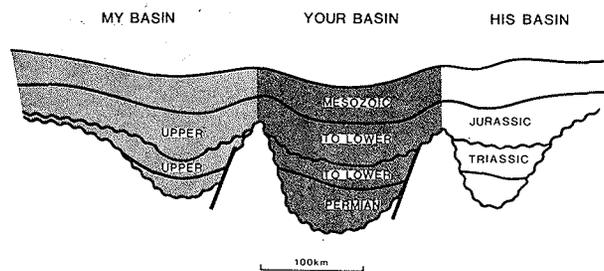
No, we are misunderstood. We seldom understand ourselves. Take the term "basin", perhaps the most often used term in oil exploration, one used in communication with the press, investors, management and between geologists. Basin — "a depression filled with sediments". Simple. Let's look at examples. I have chosen three of Australia's most active exploration areas.



AUSTRALIAN BASINS TYPE (A)

Here is a cross section through the Cooper Basin area. It shows some minor unconformities, but in the central basin areas the sequence could be entirely conformable.

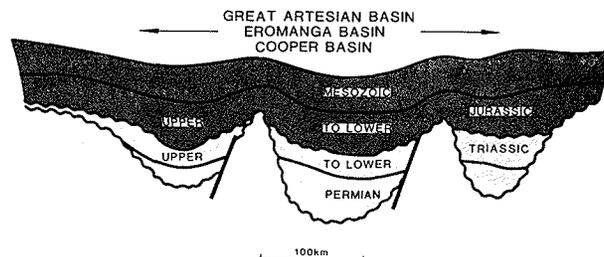
A relatively simple pile of sediments which is divided into three separate basins, and one would expect the division to be like this —



AUSTRALIAN BASINS TYPE (A)

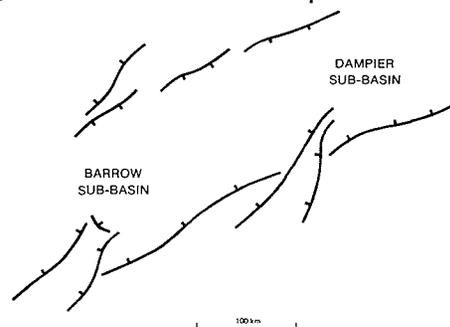
but it is not. It is divided into three basins, like this —

IS THE UPPER TRIASSIC & THE LOWER JURASSIC CONFORMABLE IN THE UNDRILLED TROUGHS?



AUSTRALIAN BASINS TYPE (A)

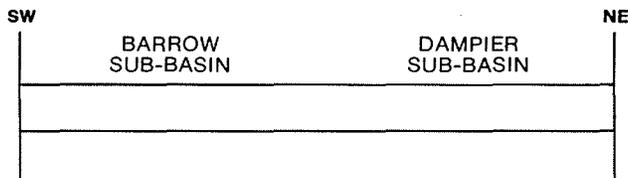
Or the Carnarvon Basin and its two important sub basins, the Barrow and the Dampier.



AUSTRALIAN BASINS TYPE (B)

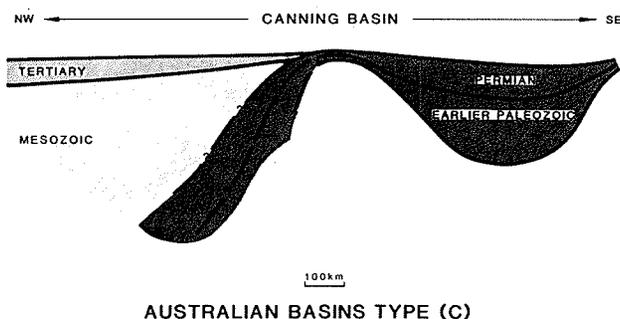
The reason we have the Barrow and the Dampier divisions is best explained diagrammatically.

STRUCTURAL RELATIONSHIP OF THE TWO SUB-BASINS



AUSTRALIAN BASINS TYPE (B)

The other exciting area, the Canning Basin.



A huge area comprising a number of Palaeozoic (500 to 225 million years old) "basins" onshore and a Mesozoic and Tertiary (225 million years to present) "basin" offshore. The offshore basin trends at right angles to the onshore basins and appears in no way related. For inconvenience, however, we use the one name.

So we have difficulty in communicating with investors and often a lengthy "education" period is necessary for both investors and politicians. Further, the industry is only a minor employer, it is geographically scattered, it operates in remote locations and most of its expenditure occurs underground, unseen. For an industry of such vital importance in both economic and strategic terms it is obscure and has little clout.

But these are minor inhibitions to the raising of capital and the lack of activity. Surely, you ask isn't there one prime reason for the industry being so weak?

Let's look at what the industry has achieved to date and in particular at the role of the entrepreneur.

I would like to describe two basic sorts of companies that operate in the oil business.

The first, typically staffed by highly qualified exploration teams and managed by experienced oil exploration personnel, would take up an area after careful consideration and fully intend to carry on exploration with its own money and often as operator.

The other type of company would be the one with no technical staff and with very little exploration knowledge. This, the entrepreneurial company may or may not have financial backing, the main consideration being that the company virtually knows nothing of the industry and is willing to take advantage of what it considers to be an opportunity. Most importantly, it has no intention of spending its own money on risk ventures. It will get someone else to.

To find our successful entrepreneurs, take a pipeline map of Australia and follow the pipelines to the

producing field. In each case you will find our entrepreneurial company.



Bass Strait. Permits taken by BHP, rich but no experience in oil exploration. No oil exploration staff or exploration management. No intention to explore the area with its own money. Farmed out prior to drilling even one well to Esso. BHP's entrepreneurial skills led directly to Australia's largest oil discovery and arguably the single most significant event in Australia's economic history this century.

Cooper Basin. Santos took the original permits. Santos the Adelaide establishment. But a very entrepreneurial establishment and one with real foresight. Hardly a penny to its name and although acting on excellent technical advice (Reg Sprigg), it certainly could not claim to have an exploration staff or experience. Did not intend to nor did it in fact drill one well, but farmed out to Delhi to carry it through a substantial risk expenditure program. Resulted in Australia's largest onshore gas discoveries which feed Adelaide's energy umbilical cord and are Sydney's sole source of natural gas. Crude oil and condensate have also recently come on stream.

The North West Shelf. Australia's largest ever natural resource project. Permits taken out by Woodside and Mid-Eastern — the penny dreadfuls of the sixties. Little staff and no money — reportedly to the extent that their management (one) and exploration people (one) occasionally went without pay. Took on an immense exploration project far beyond its resources. Farmed out before drilling one well. Results: Australia's largest gas reserves.

Wapet is an interesting case. Permits originally taken out by Ampol Ltd., but instead of farming out, Ampol's method of obtaining the funds and the technical and management expertise to explore was to form Wapet. Wapet, with its foreign capital and experience, was formed prior to the original permittees drilling a well. Exploration has resulted in the discovery of Australia's

largest onshore oil field and important onshore and offshore gas fields.

All of Australia's important oil and gas discoveries have been made as a direct result of entrepreneurial Australians, opportunist, inexperienced in exploration, biting off far more than they could swallow and then selling their ideas to major exploration companies. Not only have they played a most vital role in this important industry, but they, and they alone, with no interference or direction from Government, have enabled Australians to maintain an equity in these resources.

But all that was long ago. The industry has changed. Most disappointing are the times when discoveries are made, and are followed by only a marginal increase in activity. Jackson, Blina, Yellowbank Creek, Woodada, South Pepper and other recent discoveries should all have led a rush of exploration activity. I experienced such a rush — similar in many ways to a late 19th century gold rush — in Canada, following a Devonian reef oil discovery known as Rainbow Lake. Within months seismic crews and soon after rigs flooded into the area. It was exciting and numerous discoveries followed.

This could not happen in Australia. This reason is simple.

The vast majority of exploration companies are denied the opportunity to acquire permits and explore.

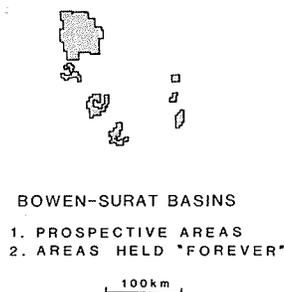
This is the reason for the lack of activity in the oil industry. This is the reason our industry, old as it may be, is immature.

Consider the Cooper/Eromanga Basin complex, an area of 150,000 square kilometres. No new capital, new companies, new technical thinking or new ideas have been introduced into this vast area for the past two years. Precious little prior to that. This area, where results have indicated sediments are prospective from Lower Permian to Lower Cretaceous in age is approximately one third the size of Alberta. In 1981 \$550 million was spent in Alberta in acquiring exploration rights and a greater amount spent on exploration. This involved activity by tens if not hundreds of different groups of companies. Not only did each group add to the total expenditure but acted on their own geological concepts, introduced different and sometimes innovative exploration techniques and acted under a broad spectrum of exploration philosophies. The geology of the Cooper/Eromanga Basins is evolving as being complex and traps occur in a multitude of zones and often have

a strong stratigraphic nature. It too demands vigorous and innovative exploration. Only a different form of tenement system would allow this.

Similar fates can be related about other promising areas within Australia and even in the present climate there are many companies that have funds they would willingly invest in these areas.

A shining example is the Surat Basin. On making a discovery which may cover an area of only 5 or 10 square kilometres, a company has the right to take out a lease covering an area of 250 square kilometres and hold that lease in practical terms for 20 or 30 years. To put this into prospective, look at the following map. This map only shows the Production Leases, it does not show the surrounding exploration permits by which control of the remaining areas of potential is held — albeit for a shorter period.



As a result large prospective exploration areas remain idle and activity totally dependent upon the budget and the whims of the few companies that have the right to explore. This is in an area of complex geology, one that calls for imaginative and diverse approaches to exploration.

I believe companies holding these areas explore in a professional and conscientious way. This is no criticism of these companies. It is simply a fact that the amount of expenditure and the amount and variety of technical input required to explore these large permits is beyond the ability of even the largest of oil companies.

A number of states have almost totally lost the initiative to attract new exploration funds or ideas. Areas of clear petroleum potential have been lost to one or two "landlord" companies. Well intentioned administration by the state has all too often had the effect of inhibiting and even preventing exploration.

Many highly prospective areas remain virtually unexplored. State Governments "administering" these areas want exploration, but it is now out of their hands. It is certainly a sad reflection upon the administrators

of these areas of potentially vast wealth that they have passed the rights to explore, and the rights *not* to explore, to a few public companies.

Australia is fast moving towards a feudal system of oil exploration tenements. A few major groups will hold those areas of established potential and will decide if and when exploration takes place, and by whom.

A number of companies already have a unique opportunity to, in effect, manage the states' petroleum

resources. The companies are not in a dissimilar situation to Canadian provincial governments. They can administer and grant the right to explore as if they held sovereign power.

Large tenement holdings greatly restrict Australian exploration activity. This need not necessarily be the case, but unless the landlord companies regain their entrepreneurial flair, or until the states act to regain the initiative, then Australian exploration will remain immature and explorers and the country will suffer.

PERIODICAL REVIEW

PACIFIC MINERALS REVIEW

This monthly review, first published in January 1983, concentrates on metals and minerals production and trade in the Pacific Region. Economic, political and technological factors affecting production and trade are also treated as part of a comprehensive coverage of this subject.

The first two issues of the Pacific Minerals Review ("PMR") covered the markets for a very wide range of metals and minerals: coal and uranium; and the fertiliser minerals, phosphate and sulphur. This coverage took the form of LME market reports and new briefs supplemented by feature articles and reports on current developments.

A separate section in each edition was devoted to the business environments of the principal Pacific Region economies. This was necessarily in short, summary form; it drew attention to some key influences on these economies rather than provided sophisticated or comprehensive economic analysis.

The January PMR included a literature survey giving references and short summaries of articles relating to Pacific Region metals and minerals. Also in this edition appeared a more general article describing recent developments in mining, mineral processing and exploration equipment.

The PMR adds its own comment on matters reported. With a senior production team that includes Kyran

Casteel (editor) and Dr. Wyn Davies, this comment could prove as valuable to readers as the factual reporting.

On the negative side, differences in format between the first two editions created an impression of untidiness, which however should prove only a temporary phenomenon. A greater problem could arise from the apparent desire of the PMR to cover as many matters as possible which bear on Pacific Region markets. However, some of the subjects attacked would probably be better left to more specialised periodicals; for the PMR to devote regular attention to such matters as economics and technology would divert effort from the prime subject matter, and add to cost without commensurate benefit to likely readers.

Mining company personnel who tend to be interested in *world* markets for a *limited* number of products may be dissuaded from subscribing £260 sterling per annum for a monthly review with such a narrow geographic concentration and wide spread of commodities covered.

However, the PMR will be a useful addition to the reading list of those specifically interested in Pacific Region developments in minerals and metals. These could include a number of institutional investors, stockbrokers generally and certain trading personnel.

A.M.L. (Kim) Baylis

The Pacific Minerals Review is available from Metals and Minerals Publications Ltd., 222 The Strand, London, WC2R 1BA, England. Annual Subscription: £260.