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THE COMMONWEALTH GOVERNMENT'S
PETROLEUM SEARCH SUBSIDY

by M.A. CONDON

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In 1957 it had become evident that the oil search boom that followed the Rough Range 1953 oil discovery had come to an end and that, if oil were to be discovered in Australia, some means had to be found to stimulate exploration for oil.

The Bureau of Mineral Resources reported on possibilities and the Government decided to try some of the suggestions, namely, to increase the basic geological and geophysical surveys by the Bureau and to introduce a form of financial assistance to company exploration work.

It was decided to pay a proportion of the cost of oil exploration projects approved by the Minister for National Development. At first the subsidy was half the cost, payable by progress payments as the work progressed and a final payment after the data, including a final report, had been provided (P.S.S.A. 1957).

Initially the subsidy was confined to stratigraphic drilling and the amount appropriated was quite modest. Almost at once, however, the operating companies demonstrated the effectiveness of the scheme by proposing more drilling than the vote could cover. This led to selection of applications on what could only be a somewhat subjective basis.

Despite the lack of early discoveries the Government continued to provide funds for subsidy and, indeed, to increase the annual appropriation. When it became evident that more structural control of drilling locations was essential the Government in 1959 introduced subsidy for geophysical operations (P.S.S.A. 1959). This resulted in a marked increase in seismic surveys throughout Australia and to the use of aeromagnetic and gravity surveys for structural reconnaissance.

Late in 1960, the Government policy had its first positive result when Cabawin 1, a subsidized well located by subsidised geophysical surveys following seismic reconnaissance by the Bureau, discovered 60 barrels per day of clean oil in Permian at about 10,000 feet.

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This was followed, late in 1961, by the discovery of oil at Moonie, in the Jurassic at about 5800'. The development drilling of the Moonie Field is not completed but to date 16 wells are producers at rates ranging from 360 to 1700 b/d of 44° to 50° API gravity oil.

The Cabawin and Moonie discoveries led to a surge in exploration but the only discoveries were of gas and a little oil in the Roma area.

The subsidy scheme was continued but the Government decided to limit the annual appropriation by reducing the proportion of exploration costs payable as subsidy from 50% to 30%.

Exploration effort was tending to slacken in early 1964 and the Government decided to extend the subsidy scheme for another three years (P.S.S.A. 1964).

In the middle of the year important discoveries of gas were made at Mereenie (N.T.) and Gidgealpa (S.A.) and these were followed by discoveries of gas and oil at Barrow Island and Yardarino (W.A.) and of oil at Alton and Conloi (Qld.).

These discoveries have led to the setting up of larger exploration programmes for 1965 and the Government has decided to limit the subsidy payable by excluding areas surrounding discovery wells and proved fields from the subsidy scheme.

It should be emphasized that all the discoveries since 1957 have been made in wells approved for subsidy, and most of the locations have been obtained from subsidized seismic surveys.

The Australian subsidy scheme is unique as a method of Government encouragement of oil exploration and it is timely to consider some of its advantages and disadvantages, and some of its less obvious results, apart from the actual discoveries.

When the Bureau of Mineral Resources was charged with the responsibility of administering the Subsidy scheme several working principles were adopted that have continued to be basic to the operation of the scheme :

1. Proposals for operations should come from the operator.
2. Only proposals that were technically adequate would be recommended for approval.

3. The results of approved operations should be adequately reported and should be made available to the industry generally as early as practicable.

The Bureau takes the view that the multiplicity of experience, viewpoint, and skills that are inherent in a diversity of operators (and contractors) provides a spread of exploration experimentation that is more likely to succeed than a single operator no matter how skilled and experienced.

On the other hand the Bureau's experience dictates that there should be minimum standards of planning, equipment, operations and interpretation if money is not to be frittered away.

Accordingly operators are required to make their own proposals but if these fall short in any respect of the minimum requirements the shortcomings are discussed with the applicant who may modify his proposal before it is presented to the Minister with recommendations.

The Bureau has always been happy to discuss, either in general or in detail, any proposed programmes and has encouraged the use of established new equipment and techniques. Before 1957 there was no adequate well logging unit available in eastern Australia. The Bureau indicated that adequate logging was regarded as essential to an adequate drilling programme and this resulted in the introduction and use of satisfactory logging services where formerly only limited logging had been possible. Adequate pressure-recording during testing was not common earlier but has been encouraged by the Bureau and gradually adopted as normal practice.

The Bureau has encouraged the use of new techniques in seismic work as they have become available: magnetic tape recording, variable area and variable density record sections, stacking, and digital recording. These developments have continually improved the quality and usefulness of seismic records. "Vibroseis" and Thumper techniques have been used in difficult areas. The calibration of seismic results in terms of stratigraphy has been encouraged by the use of well velocity surveys and continuous velocity logs.

The seismic surveys have established much more structural relief and found many more closed anticlines than had been considered likely before these surveys were undertaken. Whereas in 1959 a shortage of structural drilling targets was

developing (based on geological surface mapping) new structures are now continually being found by seismic surveys.

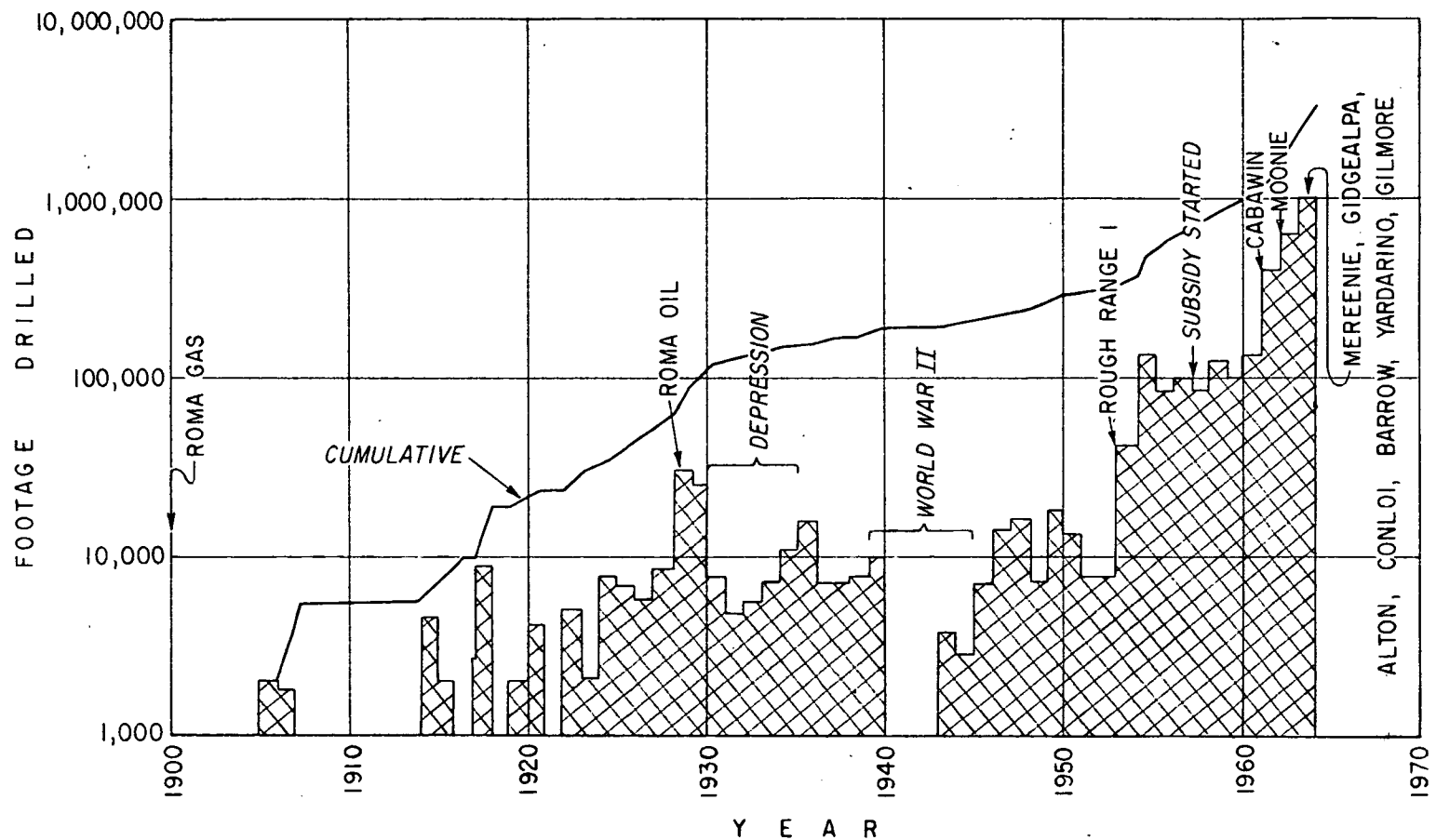
As the standard of exploration work in Australia has improved the standard acceptable for recommendation for subsidy approval has risen also so that some programmes that were approved earlier would not now be recommended for approval.

In terms of the national return for subsidy money spent, the rapid dissemination of reliable information about exploration throughout Australia is one of the earliest dividends. Because of the release of the information the overall knowledge of the geology and geological history of Australia has been growing very fast. The significance of geological discoveries in one part of the country can be investigated in all other relevant areas.

Companies interested in participating in the search can examine the information available in a particular area and assess its prospectiveness independently of any information that may be provided by a concession-holder.

Subsidy is, of course, not an unmixed blessing either to the industry or to the nation. From the national viewpoint the amount of subsidy tends to control, to some extent, the amount of exploration that will be undertaken (although the number of operators is probably much more important in this). The minimum technical standards acceptable to the Bureau may be considered too high by some operators. The requirement to report work adequately in form suitable for publication commonly adds to the normal company requirement. Ensuring that the information is available to interested parties and prepared for the printer is a necessary but thankless chore for the Bureau. Subsidy assistance may encourage exploration in areas of very low prospect that could perhaps better be left for examination later. It may tend to develop a less critical approach to the relation between cost and prospectiveness of an operation but encourages the drilling of the essential early wells to obtain the first information about subsurface lithologies and stratigraphy.

To the end of December 1964, 340 geophysical projects and 279 drilling projects had been approved, £A15,805,869 had been paid in subsidy and an additional £3,433,602 had been committed.



At this time it can fairly be claimed that the Subsidy Scheme has been successful in its main aims: to stimulate exploration and through this to discover petroleum in Australia. The accompanying figure (showing annual footage drilled) demonstrates very clearly the effect of the Subsidy Scheme in increasing and sustaining effort even when spectacular discoveries were not forthcoming, as compared with the former sharp peaks and long low troughs. It took 58 years from the discovery of gas at Roma in 1900 to drill one million feet of hole; the second million was drilled in five years and the third million in one.

And this significant increase in drilling was achieved in spite of a world position where petroleum was being found in much greater amount than was being used.

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