



THE EARLY HISTORY OF THE BARLEY IMPROVEMENT PROGRAM

H.P.C. Trumble – October 2001

Background

In the early 50s Australia's rural industries had largely recovered from the shortages and restrictions under which they had been constrained during the 1939-45 war and its immediate aftermath. At the same time the post-war economies of many countries started to grow and, generally, there was a burgeoning demand for the wool, meat and crops Australia was capable of producing.

This expansionist atmosphere led the Commonwealth and State governments, in the forum of the Australian Agricultural Council (AAC) and its Standing Committee on Agriculture (SCA), to start to work towards the creation of a structure whereby the various agricultural industries might contribute funds to research and extension services for their own benefit. Even in this early stage of its evolution, it was clearly envisaged that the Commonwealth Government would match the funds which might be raised from the industries (1). It was also clear from the outset that any compulsory industry funding scheme would have to operate under Commonwealth legislation since, constitutionally, only it could validly impose a levy on production - in legal terms, an excise.

In 1949, Allan R. Callaghan - a man of vision, enormous energy and a great capacity to inspire and to lead - became Director of Agriculture in South

Australia. Also, at that time and through the 1950s, the Head Brewer of the S. A. Brewing Company was Lance S. Walters, a driving force in the Australian Section of the English-based Institute of Brewing, ever seeking new and improved ways of applying science and technology to brewing and malting processes. The conjunction of these two men and the ripeness of the times led to the creation of the Barley Improvement Program.

Getting Started

On 31 August 1954, in Sydney, Callaghan addressed the Second Convention of the Australian Section of the Institute of Brewing (2). He summarized the significance of the Australian barley industry, largely centered on South Australia and Victoria, and outlined the scope for improvements in the crop, especially as regards malting quality. He contrasted the lack of progress in barley breeding, where little work had been done, with wheat where great strides had been made in the previous 50 years as a result of purposeful, scientifically-based genetic improvement programs. He highlighted the predominance of Prior Chevalier (commonly known as Prior) as the totally dominant variety for decades and postulated the probability of improving on its qualities, both agronomic and for malting. A feature of his address was to urge brewers and maltsters to define quality and to help in developing a simple malting quality test, requiring only a small quantity of grain, which (like the Pelschenke Test in wheat breeding) could be used by barley breeders to screen for malting quality in early generations.

Callaghan also floated the notion of the two elements of the processing industry giving financial backing to an enhanced barley improvement program. One speculates about the extent to which he and Walters were in cahoots about this idea, but knowing both men it seems highly probable that they together planned this initiative at the Convention.

It is evident that Walters by the early 50s had been developing ideas for the improvement of malting quality of the barleys used in Australian breweries (3). His role and understanding are clearly revealed in a letter dated 25 January

1955 from C.M. Donald (recently appointed Professor of Agriculture at the Waite Institute) to K.W. Finlay, at that time studying at the Plant Genetics Station at Cambridge (*but see note A1 from D. Sparrow*). In this Donald speaks of a meeting with Walters and C.S. Piper over lunch where Walters “is quite convinced that the Waite Institute will be approached in connection with a plan to breed better malting barleys”. Obviously Walters was aware of Finlay’s genetic expertise and potential interest in barley breeding for he suggested contacts at the Institute of Brewing headquarters and an associated brewery in London. These contacts, in addition to directly helping, could be expected to provide “suggestions for places to be visited in the U.K. or Europe” where Finlay could be brought abreast of breeding programs and techniques in respect to malting barleys. Walters promised to write personally to these men, paving the way for Finlay’s contact.

A few days before Donald’s meeting with Walters, Callaghan outlined to the S.A. Minister of Agriculture (A.W. Christian) the broad concept of a Barley Improvement Scheme (4). Christian supported the scheme and in February wrote to W.J. Spafford, Chairman of the Australian Barley Board (A.B.B.)(5) urging that the Board, on behalf of barley growers, make a substantial financial contribution to the plan, and to R.E. Jacobs, Chairman of Directors of the S. A. Brewing Company (6), encouraging him to continue and widen his already apparent support for brewing and malting industry contributions.

Spafford at first appeared less than enthusiastic, telling the Minister that the A B B . would wait and see what the maltsters were going to do before committing growers’ funds. Christian quickly replied, pointing out that barley grain exports were sufficiently important in their own right that the Board should not have to wait and see what the brewers and maltsters were going to do before making up its own mind.

Commitment to Financial support *

The first firm offer of finance came in on 18 March 1955 -£500 p.a. for five years from the Swan Brewery, W.A. This was quickly followed by a letter from Jacobs committing S.A. Brewing Co. to £1000 p.a. for five years for a barley

improvement scheme. The groundwork that Jacobs had been laying with the industry is clearly shown by his statement in this letter of 23 March that he was confident that other elements of the brewing and malting industries will also help. Furthermore, he proposed in the same letter that “some sort of special advisory committee be established to include technical people from breweries and makings, concluding with the suggestion that Callaghan discuss this with Walters.

Over the next two months, advice came in from malting and brewing firms and associations of companies that they would contribute amounts aggregating £3525 p.a. for five years. In the meantime there was correspondence between Spafford and Minister Christian, starting with a rather lukewarm note from the former stating that he was not impressed with the support from the “processing industry” so far (30/3/55). However, after being informed on 6 April 1955 that industry contributions had been promised at the rate of £2250 p.a. for five years, the A.B.B. became much more cooperative and on 21 April Spafford advised the Minister that the Board offered a contribution of £2500 p. a. for three years, the remaining term of the Barley Marketing Acts of S. A. and Victoria under which the Board was constituted. It is worth noting that the A.B.B saw this as “half the cost of the scheme as estimated by the Director of Agriculture”, recognising neither the further processing industry contributions in prospect nor the anticipated Commonwealth contribution.

Formulating the Structure of the Scheme

In order, firstly, to lay the ground work for securing the financial support of the Commonwealth and, secondly, to keep the official agricultural organizations of the country informed of what was proposed, a submission was made by the S. A. Department of Agriculture in June 1955 to the S.C.A. for support to the A.A.C. due to meet in early July immediately following. This submission was pre-circulated in draft form to the brewing/malting industry (i.e. to Jacobs), to the A.B.B., to the Victorian Department and to the Waite Institute. It provided for a ministerially-controlled trust fund, separate technical and contributors’ advisory committees and an overall controlling role for the S.C.A. and A.A.C.

In hindsight, it was an unbelievably complex and heavy structure.

An outline was also given of the type of program envisaged:

1. Appointment of an officer in the S. A. Department of Agriculture (S.A.D.A.) to coordinate the whole program and to be responsible for the S.A.D.A. projects.
2. A program of breeding and selection in S. A. with associated work in plant physiology and chemistry, involving S.A.D.A. and the Waite Institute, with cooperative testing and evaluation projects in other states and in brewery and malthouse laboratories.

The circulation of this document brought two immediate adverse reactions, both dated 10 June 1955, from:

J.A. Prescott, Director of the Waite Institute who objected, firstly, to the proposed cumbersome arrangements involving S.C.A. and A.A.C. in more than just setting the broad policy and agreeing to operational structures based on the stake-holders; and secondly, to the concept of research programs being “coordinated” by an officer of another organization - a concept which would be “quite unacceptable to the University” (of Adelaide).

Callaghan and Prescott discussed these matters by telephone on the same day (7) and, in a hand-written note, Callaghan records that it was “agreed (a) that my submission should go as it is and (b) that this (i.e. Prescott’s) letter should be circularised to members of S.C.A. and A.A.C. by way of presenting W.R.I. viewpoint”.

W.J. Spafford, Chairman, A.B.B. regarded the proposal as so radically different from the original that, although the Board would not be meeting until later in the month, he was convinced that the A.B.B. would withdraw altogether if the scheme were “enlarged on the lines proposed”. This view was confirmed by the Board at its meeting on 20 June when it was decided it was “not prepared to give financial assistance to such a grandiose

scheme in which the principal barley growers of the Commonwealth are to have practically no say in the direction to be taken”.

On 5 July 1955, the A.A.C. adopted a report from the 49th meeting of the S.C.A. which read: “The Standing Committee agreed that Victoria and South Australia should together formulate a research and extension program [for the barley industry] and discuss means of financing it”. This simple statement swept away all the heavy, bureaucratic overtones implicit in Callaghan’s submission and cleared the way for the development of a sensible, practical scheme.

Later in the month, Callaghan forwarded to Minister Christian an outline of the proposed structure for the Barley Improvement Scheme - in essence the same one which came into effect - and expressed the view that this might meet the A.B.B. objections (and implicitly, the different concerns expressed by Prescott). The Minister forwarded the revised proposal to the A.B.B., asking that it reconsider its decision on finance. A copy of the proposal is available.

By early August, Spafford was to advise the Minister that the A.B.B. “accepts the new administrative structure and re-instates its offer of £2,500 p.a. for three years provided that no material changes are made to the agreed arrangements for management and control”.

On 4 August of that year, a very significant discussion took place between Callaghan and Donald; they had good rapport, having been close working colleagues in the agricultural section of the Department of War Organization of Industry in Canberra during World War II. Also, Callaghan was a strong supporter of Donald’s candidature for the Chair of Agriculture at the Waite Institute the previous year.

Callaghan’s notes for this discussion have survived and make it clear that the pattern of allocating responsibility for the various aspects of the Barley Improvement Program had been thought out. The arrangements were as follows:

1. Development of a technique for determining malting quality in small

samples to be in the hands of the Waite Institute in association with maltsters and brewers.

2. Breeding programs to be developed cooperatively by the Waite Institute and the S.A. and Victorian Departments of Agriculture.
3. Field trial work - S.A. and Victorian Departments.
4. Physiological studies related to both quality and environment - Waite Institute.
5. Extension programs - the two State Departments of Agriculture.

Donald was apparently content with the outcome of this discussion for in a letter to Callaghan dated the following day he says: "I much appreciated our discussion yesterday - it cleared up many points in my mind".

In October, Walters advised Callaghan that the Australian Institute of Brewing had set up a Barley Improvement Sub-Committee comprising himself as Chairman, with Sir Arthur Barrett (Barrett Bros., maltsters, Adelaide), R.D. Lees (Tooth & Co., brewers, Sydney), F.A. Reddish (Carlton & United Breweries, Melbourne), and C.S. Fraser (Joe White Maltings, Melbourne). I do not have any picture of the way, if any, that this sub-committee formally interacted with the barley improvement scientists in university or government institutions; it seems likely that during its relatively short life (1955-62), its impact on the Barley Improvement Scheme may have been through the membership of Barrett, Walters and Fraser of the Barley Technical and Advisory Committees (8). *(see also David Sparrow's note 2)*.

Between July 1955 and January 1956, the structure and working arrangements for the Barley Improvement Scheme were developed and refined. Major matters were:

- a) At the request of Sir Roland Jacobs, Sir Arthur Barrett was added to the membership of the Barley Improvement Technical Committee (B.I.T.C.). Callaghan's hand-written note on Jacobs' letter says: "Give him what he wants".
- b) Colin Donald suggested that it would be helpful if a representative of the Waite Institute were a member of the Barley Improvement Advisory

- Committee (B.I.A.C.) so that it would not be the only participating body without such representation; agreed.
- c) J.G. Crawford, Secretary, Department of Commerce and Agriculture, while endorsing the proposed organization, saw no need at that stage (25/11/55) for Commonwealth representation.
 - d) On 1/12/55 the S.A. Government approved the establishment in the State Treasury of a Barley Improvement Trust Fund, with a note by Premier Tom Playford, in his own hand: "Drawings to be limited to credit in the Trust".
 - e) On 8/1/56 the Minister of Agriculture Arthur Christian died of a heart attack while fighting a bush-fire near his home at Kimba. Premier Tom Playford became Acting Minister of Agriculture, pending the appointment of Glen Pearson some weeks later.
 - f) Acting Minister of Agriculture approved the membership of the two Committees on 23 January 1955, as follows:
 - a. *B.I.A.C.* Sir Roland Jacobs (Australian Associated Brewers), W.J. Spafford (A.B.B.), C.S. Fraser (maltster contributors), A.R. Callaghan (S.A.D.A.), W.B. Miller (Vic. D.A.), J. Melville (W.A.R.I.);
 - b. *B.I.T.C.* L.S. Walters (Australian Section, Institute of Brewing), Sir Arthur Barrett (Australian maltsters), A.J.K. Walker (S.A.D.A.), W.B. Miller (Vic.
 - c. D.A.) and K.W. Finlay (W.A.R.I.).
 - d. H.P.C. Trumble, Scientific Liaison Officer, S.A.D.A. was appointed Secretary of both committees and A.G. Strickland, C.M. Donald and L.H. May were recognised as alternates to Callaghan and Melville (*B.I.A.C.*) and Finlay (*B.I.T.C.*) respectively. The submission left open the question of Chairmanship, either for the Minister himself to decide or the committee to appoint "whichever you consider most desirable". Playford wrote in his own hand "with Dr. as Chairman", meaning Callaghan was appointed Chairman of *B.I.A.C.* The Minister was

silent on the Chairmanship of the B.I.T.C.

- g) A few weeks later, the Minister (Pearson by now) ruled that the B.I.T.C. should elect its own chairman but on 24/2/56 Callaghan recommended A.J.K. Walker as Chairman and this was approved without reference to the B.I.T.C. At about the same time, Melville requested that C.M. Donald be the Waite Institute representative on the B.I.T.C., with K.W. Finlay as alternate - approved.

By 14 February 1956, the structure was in place and the Secretary called the first meeting of the B.I.A.C. for 14 March, a month later.

The Barley Improvement Program Gets Underway, 1956-57

The first meeting of the B.I.A.C. was largely concerned with “getting to know you” and establishing a pattern of operations as between it and the B.I.T.C. It was followed by the first meeting of the latter body but unfortunately, any record of that definitive occasion seems not to have survived. The early minute book of the B.I.A.C. has been preserved, however, and I have appended some interpretative notes on its operations in the years I was its Secretary.

I was also secretary to the B.I.T.C. and well remember how significant its first meeting was; I have done my best to garner from my memory the issues canvassed and the atmosphere in which it was held.

I believe that meeting took place in April 1956 in Geoff Strickland’s office (though not in his presence) in Agriculture Building, Gawler Place, Adelaide, under the Chairmanship of Lex Walker, with all members present. I also think Keith Finlay, Lance May, perhaps Les Paleg (all Waite Institute Staff) and Allan Raw (Victorian breeder of ‘Research’ barley) were in attendance with the warm concurrence of the Committee. It was certainly the first occasion on which I heard Arthur Barrett’s oft-repeated plea “But all we really want is a better Prior”. The representatives of the three R. and D. organizations tabled and spoke to submissions on what they felt their respective groups could and should contribute to a barley improvement scheme, providing estimates of

annual and capital costs. I have a clear recall of the very effective presentations made by Finlay and May on the nature of the genetic and physiological contributions they believed could be made by their departments at the Waite Institute and I believe these caught the imagination of the B .I.T.C. members who were, in the event, most willing to support these two elements of the total program with recommendations for substantial funding.

The first Barley Improvement Program was developed at that meeting and recommended for consideration at the second meeting of the B.I.A.C. on 23 May 1956. The Minister of Agriculture Pearson on 6 June approved the program and Budget for 1956-7, as recommended by the B.I.A.C. and authorised an approach to the Department of Primary Industry (successor to Commerce and Agriculture) seeking matching funds. The first staff appointment financed by the Trust Fund - P.M. Barrow, Barley Agronomist in S.A.D.A. was made on 13 September 1956.

The second meeting of the B.I.A.C. also agreed that malting and brewing industry contributions should be payable in advance, i.e. as at 1 January preceding the financial year (1 July to 30 June) adopted as the operational year of the Trust Fund. This was an initiative of R E. Jacobs, ensuring that the greater flexibility available to industry was used to favour cash flow.

It took some time for the Commonwealth to come to the party, with a hiccup in October when the Minister for Primary Industry (McMahon) asked Glen Pearson what the S.A. and Victorian Governments were doing about putting their money into barley improvement. A quick reply from Pearson spelled out the extensive existing barley work being done by the two State Departments of Agriculture and the back-up, management and support facilities they were providing. On 3 December the Commonwealth Minister advised his approval of the matching contribution and Rupert Wilson, First Assistant Secretary (Agriculture and Fisheries) in the Department of Primary Industry was nominated for membership of the B.I.A.C.

Other matters to arise and, in most cases, to be resolved during the year were:

- The Commonwealth Taxation Office approved the B.I.A.C. as a Research Institute for the purposes of Sections 73 A and 78(l)(a)(x) of the Income Tax and Social Securities Contribution Assessment Act, thereby enabling the maltsters and brewers to claim tax deductibility for their financial contributions.
- The position of staff appointed under the program as being subject to the normal terms and conditions of the employing institution was clarified (see *Sparrow note 3*). In the early days of industry funding of R. and D., there was an expectation among some contributors that the staff engaged would “belong” to the funding committees. The vexed question of superannuation was raised but not resolved until later.
- It was made clear that Commonwealth financial contributions matched approved expenditure and could not be accumulated if unspent, in the way that the industry contributed funds could.

A system of advances from the Trust Fund was introduced in April 1957, with accounting for expenditure by certified statements from the Waite Institute and Victorian Department. The S.A.D.A. was able to debit its approved expenditure directly to the Fund.

Fully Operational

From here on in, the pattern with which we all became familiar was established. In the early years, the problem of budget variations arising from delays in recruiting staff and the need to get seasonal tasks done on time with temporary field assistance and so on caused a few problems at the B.I.A.C level. These requests seemed to cause Spafford particular concern and in the early years he expressed reservations about such variations and several times formally registered his dissent. It was almost as though he feared that the research organizations were in some way using Trust Fund monies for matters they should have been able to deal with out of their “ordinary” budgets. The processing industry representatives (Jacobs and Fraser), however, were well used to dealing with contingencies and, given reasonable explanations were always supportive of budget modifications for a good cause.

I must say that Spafford became more relaxed about requests of this kind after a couple of years; I suspect that he became more confident in the integrity of the research organizations and by the time I resigned as Secretary, B.I.A.C. in January 1962 he was as positive about all aspects of the program as the other members of the Committee.

In Conclusion

I have focused on these pages on the political, legal and administrative issues and events and tried to convey something of the personalities and dynamics. I have relied as much as possible on written documents discovered, supplemented by my memories of the period concerned.

The major issue of concern is the way that Callaghan seems to have handled the submission to S.C.A./A.A.C. Even on reading the draft submission which caused Prescott and Spafford so much resistance, I find my memory not to be refreshed. It may have been that he deliberately pitched the organizational scheme at such a cumbersome level in order to have S.C.A./A.A.C. reject it as such - he was known to employ such tactics in laying groundwork for new developments. It also needs to be remembered that at that time there was very little experience of how to organize industry-funded research schemes and a “play-safe, keep it all under control at the highest level” attitude may well have prevailed. I feel less than satisfied with these speculations about what might have been going on, especially as I worked so closely with Callaghan at the time.

Regarding the other matter to which Prescott took such strong objection (the program coordinator in the S. A. Department of Agriculture) I feel more comfortable. Callaghan would initially have seen a “need” for coordination and would have thought it quite proper for his department to seek such a role, given the dominant position of the South Australian sector of the nation’s barley industry. It is to be noted that he never pursued the idea.

Acknowledgements

I should like to record my appreciation to John Harvey, my first boss after

graduation, who was most helpful in supplying copies of Institute of Brewing documents and in discussing people and events in the malting and brewing industries of the late 1950's.

Also to John Radcliffe for letting me see the original Barley Improvement Advisory Committee Minute books which he managed to rescue from destruction. It gave me a fascinating feeling of déjà vu re-reading the minutes, most of which I had personally written.

And finally, to the unnamed staff of State Records at Netley who were most helpful in extricating documents for me and making photocopies where requested.

Footnotes

- (1) The precedent for this concept came firstly from the Wool Research and Promotion Scheme, operating under Commonwealth legislation, which levied the wool industry a set amount per pound of wool and provided a matching amount with regard to research expenditure from Commonwealth general revenue, and secondly, the later Tobacco Industry Research Scheme.
- (2) Proc.Inst.Brewing (Aust.Sect), 2nd Convention Sydney 30/8 to 1/9/54.
- (3) J. V. Harvey, personal communication. John Harvey was Laboratory Superintendent for the S.A. Brewing Company from the mid-1940's well into the 1970's when he became Head Brewer. He was the Foundation Secretary of the Australian Section of the Institute of Brewing (1953-57) and has written its official history.
- (4) Minute in D.A. 72/55, dated 21/1/55. Copy available.
- (5) Walter J. Spafford (known as "Bill"), holder of a Diploma from Roseworthy Agricultural College, was the first wheat breeder appointed to the College staff (1904), transferring to the Department of Agriculture

in 1914 as Superintendent of Experimental Work and later becoming Director of Agriculture (1935 to 1949). He had become Chairman of the Australian Barley Board in 1948, holding that office until his death in 1962.

- (6) Roland E. Jacobs had always had strong connections with the S.A. Brewing Company, his father S.J.Jacobs having been its leading executive at the turn of the 19th century. After working in associated industries, e.g. Mauri Bros, and Thomson, in the late 1940s, R.E. Jacobs became Managing Director of S. A. Brewing Co. (in which he had a considerable share holding) and, on the appointment of C.R. Aitken as General Manager in 1950, became Chairman of Directors. For many years he was the doyen of Associated Brewers of South Australia and a highly respected figure in the brewing industry Australia-wide.
- (7) Prescott's letter must have been hand-delivered to Callaghan's office.
- (8) J.V. Harvey, personal communication.