Part II: Licensee View of Arrangement

Implementation by Australian firm of license with U.S. steel company; lessons learned from experience

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Joe O'Keefe has presented us with a very detailed and truly excellent history of the events and negotiations leading up to the granting of a license to John Lysaght (Australia) Limited for the production of zinc/aluminum alloy coated steel. I would like to present a slightly different viewpoint of the licensing arrangement from the point of view of John Lysaght (Australia) Limited concentrating on the reasons for our introduction of this new technology, the marketing effort which accompanied the launch of the new product into the Australian market and finally the application of our existing know-how and technology to the technology licensed to us.

I do not intend to comment in any detail on Joe O'Keefe's paper but would prefer to leave that as a testament to his efforts because I believe that the enormously successful licensing program implemented by Bethlehem Steel Corporation was very dependant on those efforts. I would not hesitate to add Joe O'Keefe's name to the list of people he mentioned as deserving credit.

The story of zinc/aluminum alloy coated steel was far from over at the time John Lysaght (Australia) Limited entered into a licensing arrangement with Bethlehem Steel Corporation. I will now tell briefly the continuing story from the licensee's viewpoint.

BECOMING A LICENSEE

In 1974 John Lysaght (Australia) Limited was faced with a dilemma. It then had four traditional galvanizing lines producing zinc coated steel strip which were running at 85% capacity. The smallest of these lines was producing 180,000 tons of galvanized steel per annum which was worth over $80 million. If it was to produce a new zinc/aluminum alloy coated material it had a choice of building a new line for around $20 million or to convert one of the four existing lines for about $3 million. Because the new zinc/aluminum alloy coated steel was seen as a replacement for traditional galvanized steel the building of a new line would at least initially have taken business from one of the four existing lines resulting in under utilization of capital equipment. If we converted a line then we could not afford to have it run at less than full capacity for the first year.

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Lysaght was and still is the only manufacturer in Australia of galvanized coil and sheet steel and color coated coil and sheet steel. Consumer research had shown us that the market was happy with the then galvanized steel product and was not actively looking for a change. In fact, there was a surprisingly high level of resistence to the introduction of a new product not the least because it would involve entirely new joining methods instead of the traditional soldering, soldering being regarded as an intricate part of the plumber's art while other joining methods using sealants were regarded as amateurish. John Lysaght at the time had a virtual de facto monopoly in the Australian galvanized steel market (i.e. one not brought about or assisted by government controls or other non-free market forces) and one might well ask how the company came to think about the introduction of a new product at this stage as a replacement for a substantial part of its traditional products and place itself in the position of dilemma which I have outlined. The risk in the decision was heightened because our dominance of the market was de facto and galvanized steel was available from overseas sources. This meant that by reducing our galvanizing capacity in favor of the new product we could run the risk, if the new product was unsuccessful, of being unable to service the local markets requirements for galvanized steel and thus encouraging a quite enormous lift in import competition. Essentially, business worth $80 million per annum would be at risk.

However, John Lysaght had always maintained its galvanized products at the top of the quality scale. Essentially, this quality was obtained by maintaining thick zinc coatings which makes the steel last longer because of the greater depth of corrosion inhibitor. In 1973, however, we were faced with the position that zinc was rising sharply in price on world markets and that its reliability of supply was becoming questionable. Our long-term predictions were for a continued inflation of the price of zinc.

Competitive Price

Accordingly, we were concerned that the thick zinc coating on our products could only be maintained at a cost which would eventually make the end price of the products completely uncompetitive. If we reduced the coating thickness in order to hold prices down this, as we saw it, would have only a temporary effect which would lower the quality and life of our products eventually leading to a decrease in steel usage. However, in the short term we felt that imported steel prices would be held down by lower coating thickness and we saw ourselves suffering possible and considerable damage from this quarter if zinc prices continued to rise. It therefore became obvious to us that we needed to find a product that lasted as well or better than the traditional zinc coated or galvanized product but which used a thinner coating of rust inhibitor. We saw this as the next logical step in maintaining our strength in the Australian marketplace and the phrase "the next logical step" came to figure prominently in our marketing campaigns to follow.

John Lysaght maintains, as part of our ongoing technical research, a close study of developments in the rest of the world in steel production and coating. Over a number of years we had considered aluminum coated steel but this had been rejected for technical reasons as not being a viable alternative.

We had become aware of a product developed by Bethlehem Steel Corporation in the United States. It was a technical breakthrough that offered up to four times the life of traditionally galvanized steel but it used less than half the zinc to achieve the required coating. It had been marketed for several years but its penetration of the market in the United States and general acceptance was very slow. The product used a combination in alloy form of aluminum and zinc as the coating and as aluminum was then readily available at a stable price in Australia the product had the potential to overcome our problems in relation to zinc.

We purchased a quantity of the U.S. product, examined it and found that the product would indeed provide a substantially longer life before corrosion became a problem and that, in fact, the surface of the material was also easier to paint. The second factor was very important to John Lysaght as a large part of our product volume is in supplying pre-painted sheet steel and coil to manufacturers, a product we sell under the trade name Colorbond® . We also have a rollforming division, Lysaght Brownbuilt Industries (LBI), which supplies manufactured building products to the end usage market and which at the time was supplying around 70% of the Australian market's requirements for steel roofing and walling sheets, largely from pre-painted steel. There were also disadvantages. The product could not be soldered so that the traditional and almost universal jointing methods were not acceptable. This became one of our greatest obstacles in introducing zinc/aluminum alloy coated steel to the local market. There were other problems, too. It suffered from chemical incompatibility with lead, copper and other materials commonly used in the steel building marketplace.

Sign Agreement

In early 1974 we signed an agreement with Bethlehem Steel Corporation under which Bethlehem agreed to disclose to us such of its technical know-how as was necessary to enable us to properly evaluate their developments. We paid a significant sum of money for this disclosure but our policy is always to weigh such payments against our own cost of research and development and in any event the payment was rebatable against future license fees if we decided to enter into a license. No doubt that payment had some bearing on Bethlehem's decision to enter into a disclosure agreement, by establishing our seriousness and good faith. We were thus entering an evaluation stage that included an evaluation of the patent protection and of the technical qualities of the product.

Because of the risks I have referred to in introducing a new product to the Australian market we had to be sure that the new product was a success. Of course, our position was aided by the fact that our Division LBI was supplying 70% of the roofing and walling market and we therefore had at our disposal a means of quickly converting a substantial part of that market to the new product.

However, I cannot overemphasize the importance to us of our initial technical assessment.

It was considered necessary that the assessment of the product performance be based on product as closely resembling the final Australian product as possible. Accordingly, we sent some of our own coils of steel to Bethlehem Steel in the U.S. with our own sets of specifications for their coating. On receipt of the coated coils back from the United States the product was then carefully inspected and assessed.

There were a number of problems, including as we saw it, some poor coating mass distribution and some pinhole-like areas where there was no coating at all. Normally such pinholes in the coating would not cause problems in the life of the steel but we could see problems with pinholes when it came to painting the steel on our paint lines. We decided not to test the Australian market by releasing any of these coils and subsequent experience has vindicated this decision. Our later introduction of the new product was met with resistance and criticism which would only have been magnified by the release of less-than-perfect steel. I think there is a lesson in that for all of us in that we should ensure that new products based on technical innovation should only be introduced after proper evaluation and development.

We learned many lessons from these coils that alerted us to the need to apply very carefully our own technical expertise in introducing this product. However, we were at the same time confident that we could solve these problems. We were experienced galvanizers with a significant body of our own pre-developed galvanizing technology and expertise which greatly aided our assessment particularly after the disclosure to us of Bethlehem's technical information. We felt our available skills could be applied to the new technology and our initial assessment included a close consideration of this aspect.

We knew that the introduction of this new technology would face strong opposition from traditionalists and competitors. We were aware that the product's penetration in the United States had been very slow but we did believe that the American decision to enter a wide variety of markets had thrown up many different technical problems. We believed the correct decision was to concentrate on one area of the marketplace only and overcome the particular problems of that area more quickly in order to smoothly introduce the product.

Differences

These comments are not critical of Bethlehem Steel Corporation. Rather, they reflect the different positions of Bethlehem Steel and John Lysaght in their respective marketplaces. Bethlehem Steel is a steel maker and galvanizer. It did not paint steel and it did not rollform or fabricate steel into end products. John Lysaght on the other hand was not a steel maker. Its raw materials were steel, which were subjected to further processes including galvanizing, painting, rollforming and fabrication. John

Lysaght's position could therefore perhaps be described as being closer to the marketplace. In our view we were better situated to carry out the necessary conversion of the end market. Therein lay the seed for a closer relationship between Bethlehem Steel Corporation and John Lysaght (Australia) Limited.

In October 1974 we signed license agreements with Bethlehem Steel Corporation to practice its patented inventions and to use its technology for the manufacture and sale of zinc/aluminum alloy coated steel in Australia. We asked for and eventually were granted an exclusive license. The enormous marketing effort envisaged required us to have security for our market. We were also acutely aware that we were ideally placed in the Australian market as a licensee, i.e. in the best position to successfully launch the product in Australia. Accordingly, we saw also a benefit to Bethlehem in providing us with added incentive. We felt exclusivity would have some attraction to Bethlehem as well.

We went ahead with a marketing plan for the new product, which we called Zincalume® steel, designed initially to convert the steel roofing and walling market. The decision was taken that all of LBI's operations would immediately convert to the new product. It was decided that we would encourage other rollformers, some of whom were friendly to us and bought all their products from us and some of whom were hostile and bought as little as they could, to convert their own rollforming operations to Zincalume steel. We decided to convert one of our existing galvanizing lines rather than to build a new line for the production of Zincalume steel.

As stated before we were then faced with the task of making that converted line run flat out in the first year of operation as the remaining galvanizing lines were insufficient to service the Australian market unless a substantial part of that market was converted to the new product. Accordingly, one of the major constraints on our marketing plan became the need to achieve results quickly.

Marketing Plan

Following our assessment of the market and the product, we developed a marketing plan. The objectives and strategies in marketing the product were:

1. To increase profits by developing volume to a level where the coating line would be fully utilized within the first year of launch.
2. To convert the majority of sheet and coil sales to our customers to the new product for roofing and walling applications.
3. Establish the new product in Australia and develop a strong reputation for performance and quality to provide the basis of further expansion into other applications (in addition to roofing and walling).
4. To increase rollforming profitability by a predetermined amount in the first year of launch by converting Lysaght's own roofing and walling production to the new product.
5. To establish (when capacity allowed) an export market for the new product in both sheet and coil.

These objectives and strategies formed the basis of all planning and were the criteria against which all decisions were measured. Ultimately, they were the benchmark against which we measured our performance in the market. It was also enormously important that we appointed one man responsible for marketing the new product.

Following our decision to go ahead with the production of Zincalume steel a second batch of coil was prepared and shipped to the United States where it was coated by Bethlehem. This batch satisfactorily passed our quality checks on arrival in Australia. At the same time we carried out an enormous amount of research in the end usage market. We wanted to ensure that we could overcome all the problems to be faced by users of the new product and to prepare ourselves to give detailed and expert advice to end users. This would enable them to overcome easily any technical problems that might arise as a result of the differences between the new product and the old. We commenced the huge task and the necessary meticulous planning to run down our stock levels of galvanized steel prior to launch date for the new product.

We knew that the new product could not be satisfactorily soldered so we began a study of all sealants and sealing methods available in Australia. We contacted all manufacturers of sealants and obtained samples that were subjected to the most searching technical tests and practical appraisals. During these tests it was noted that some of the samples that had been sealed together using the most common sealants available and suitable for our purposes were showing signs of rust. This could have been explained by the fact that bare edges were left exposed when the samples were cut, but again we left no stone unturned. We found after further careful checking that this rusting occurred only with sealants containing a certain curing agent. A new product which was then under test in Australia by another company overcame this problem and was finally recommended.

We then embarked on what could be called a mini-marketing plan within our overall marketing plan. We had to arrange that the sealant would be available throughout Australia through building supply wholesalers and retailers. We had to import and stock large quantitites of the sealant on our own account and we had to arrange distribution of this product which was new to us and outside our usual experience. We had to be careful to incorporate the brand in our advertising program. This is but one example of the backup service that we saw as being required for introduction of the new product.

Incompatability

Lead flashings were incompatible with the new product. Because much of our product goes into roofing of buildings where lead flashing is already in place, we developed a technique of insulating the lead from the roof sheeting. For new roofing applications we encouraged the zinc sheet manufacturers to prepare flashing made from pure zinc, which was compatible with the new product, and to promote its use and we recommended the use of zinc and soft aluminum on all new flashing applications with the new product.

We had to overcome technical problems relating to forming of the new product and its handling. This we were able to do by utilization of available skills in our roll forming division, Lysaght Brownbuilt Industries.

In deciding our pricing policy we felt that if the new product was priced above the traditionally galvanized steel product we would simply create a further obstacle that would have to be overcome. We therefore decided to market the rollformed and manufactured steel product which we made ourselves at the existing price per unit area as that for galvanized steel. We would also sell coils of steel to other rollformers and manufacturers at the existing tonnage price for galvanized steel and because the new product was slightly lighter this gave the manufacturer a small price advantage. Pricing was submitted to and approved by the Prices Justification Tribunal which existed at that time.

It was recognized very early that the introduction of Zincalume steel as a replacement for traditional galvanized steel would require a large educational campaign directed toward distributors, manufacturers, architects, engineers, government bodies, tradesmen and not the least our own staff. One person was nominated in each state to take control of the educational program for that state. That person also had a reporting function which became more and more important as the launch of Zincalume progressed in providing early warning signals of potential problems. A detailed education program was prepared covering all relevant data on Zinclaume steel and demonstrations and trade evenings were held to educate people in the different methods of usage of the new product.

A great deal of product is sold against building specifications and this had traditionally been galvanized steel. Accordingly, a great deal of effort went to ensure that Zincalume was at least included as an alternative in building specifications. While these were vital marketing steps, they also underlined the need for an introducer of radical new technology to meticulously evaluate the new product and to anticipate all of the technical problems likely to be encountered with its usage. I believe our ability to do this was a key to our success.

Indeed, the launch was a success. In the first 12 months the converted production line was totally utilized and after the first 18 months of sales we had increased the capacity of our Zincalume line twice to take it from its original operating capacity of 180,000 tons to 230,000 tons per annum. Sixteen months after launch we committed $15 million to the building of an additional new greenfield Zincalume steel line which is now operating at our works in Westernport, Victoria. Total sales of Zincalume in the first year of manufacture accounted for 70% of all rollformed steel roofing and wall cladding. Today that figure exceeds 90%. In five years we produced our first million tons of Zincalume steel.

HOW WE BECAME A LICENSOR

Our extraordinary success achieved, as I have said, not because we are better than Bethlehem Steel but because we are differently placed in the market meant that our experience essentially complimented the technical expertise and experience of Bethlehem Steel Corporation. We had also applied many of our own highly technical galvanizing procedures to the production of Zincalume and had developed specialized painting techniques for the product. It was not unusual for John Lysaght to exchange information with overseas corporations regarding galvanizing and to receive inquiries and even delegations from overseas corporations seeking the use of our technical information. We had already engaged in some licensing of galvanizing technology of our own.

By the end of 1979 Bethlehem Steel had licensed at least one European manufacturer and late in 1979 that manufacturer approached John Lysaght with regard to sending a delegation to Australia. They were interested in our own plant design and equipment, in our production data, our testing results and our production line painting procedures. I have gained the impression that both John Lysaght and Bethlehem Steel were not fully aware at that stage of the potential for cooperation between the two companies or at least they had not embraced it.

I know we had expressed concern about licensees and potential licensees of Bethlehem Steel Corporation requesting permission to visit our plants. We considered that we had used our pre-developed technology and existing experience to build up a range of developments, innovations and extensions to the basic Zincalume production practices and that we had made progress with the product and its marketing. We believed we had made advances to reduce the capital cost of new facilities and to improve performance.

Separately to Zincalume, hot dip coating of steel had been a very important and specialized area for John Lysaght. It had been our aim to exploit various opportunities by putting together process technology, design and equipment manufacture and services, plant erection, training and commissioning resources either as a package sale or in partnership with other parties. This would cover not only hot dipped coating but painted products derived from this coated steel product and application engineering. We were concerned very much to protect this and we were also concerned about our confidentiality obligations to Bethlehem. However, we did receive from Bethlehem permission for a European manufacturer to visit our plant. But at the same time we made it clear that we regarded Zincalume coating as lying within a field of Lysaght's prior developed expertise in the feed production, hot dipped coating, post-coating treatment, product design and marketing areas.

Assistance

We naturally did not wish to provide free access to our prior-developed know-how in these areas to other licensees of the zinc/aluminum alloy coated product. Bethlehem Steel recognized that we had no obligation to pass over our prior developed know-how or grant access to our factories to Bethlehem licensees. However, we thought it was important that new operators did not damage the product reputation by quality problems and we felt some pressure to grant some level of assistance to third parties. We envisaged doing this for a fee. There were all sorts of problems for us in this.

The technology involved in operating a Zincalume steel line was closely entwined with our general prior-developed hot-dip coating experience and knowledge and there was some difficulty in separating out clearly that know-how which belonged solely to John Lysaght and to attach a price to it. We nevertheless proceeded to assess a value for our own know-how and we did this in conjunction with specialized taxation advice.

In the upshot we proceeded to grant a license of our own know-how to the European manufacturer. By this time we had certainly realized that we had a lot to contribute to supplement the Bethlehem Steel know-how and technology. At the same time we were negotiating with

Bethlehem Steel for licenses to export Zincalume steel to other parts of the world and we felt we had much to offer in terms of assisting market penetration in other countries.

We also wished to facilitate our own plans for offshore investment in joint-venture type or wholly-owned operations to produce Zincalume steel and to sell our Zincalume technology offshore. This was consistent with our existing activities of maintaining certain manufacturing operations throughout South East Asia and the Pacific region.

In our discussions with Bethlehem Steel we detected a more active approach to the marketing of its patents and technology and we felt that Bethlehem Steel saw our part in the whole exercise as being beneficial. The seeds of closer cooperation between the two companies seem to have sprouted and commenced to grow.

Our discussions during 1980 with Bethlehem Steel had three objectives. The first was to obtain from Bethlehem necessary licenses under its foreign patents for JLA to proceed with its Zincalume export program. The second was to establish a license in favor of John Lysaght to enable it to establish Zincalume production lines in the areas of South East Asia and the Pacific basin consistently with its other operations in those areas. The third aspect, which started to be discussed in detail during mid-1980, was the prospect of Bethlehem Steel offering as part of its total package a supplementary package of John Lysaght technology and general assistance.

It was then envisaged that John Lysaght would agree to receive visiting delegations from third-party licensees and would assist in any license assistance program, if required. It was also envisaged that John Lysaght would proceed on this basis in return for a fee. However, this third aspect of our discussion was not particularly specific at this stage. We did, however, begin to package our technology together in preparation for a more concerted licensing program. Toward the end of 1980 final agreement was reached to enable us to invest in the South East Asian and Pacific basin areas using the total Bethlehem Steel and John Lysaght Zincalume technology as a base.

This was a forerunner to our later arrangements. In 1981 we signed agreements with Bethlehem that enabled either Bethlehem or John Lysaght to market and sell the Zincalume technology of each company as a combined package wherever that was possible. I am pleased to say that these latest arrangements have been highly successful and the combined package has been marketed into many overseas countries.

Prior to these arrangements coming into effect in July 1981 Bethlehem had granted licenses of its own technology to certain overseas companies and John Lysaght has granted supplementary licenses of its part of the technology to some of those overseas companies. The result has been not only to ensure that each licensee has the most up-to-date technology available in as complete a form as possible but as well the exchange of technical information and improvements among a great number of producers.

Last year in Sydney we were pleased to have here representatives from many overseas companies to attend the second "Interzac" Conference, which is a conference of representatives of producers of zinc/aluminum alloy coated steel and at which information is freely exchanged on both a formal and informal basis between technical representatives of licensees of the zinc/aluminum alloy coating technology.

I know those sort of contacts and exchanges greatly assist to keep John Lysaght as one of the world leaders in steel coating technology today.

CONCLUSION

I believe a number of lessons can be learned from our experience with the licensing of zinc/aluminum alloy coating of steel. First, with all technology it is absolutely vital that the most scrupulous research be put into the product to the implementation of any marketing program.

I believe Lysaght made the correct decision to introduce the product into the marketplace for certain specific applications only. Since introducing the product for roofing and walling we have gradually introduced it to other areas of the marketplace as our research efforts justified the use of the new product in those areas. It is obvious, however, from the resistance we received to the new product, that if we had marketed a product which was open to quality criticism then our job would have been so much harder and perhaps we would have failed.

Second, and perhaps related to that first point, is the need to recognize the availability and applicability of one's own available skills to implement and improve the technology being licensed in. This is one of the reasons we found the initial disclosure and evaluation of the Bethlehem technology, prior to the licensing arrangement, to be so valuable. We could see problems with the product and possibly because of our firsthand knowledge of on-line painting of steel and roll forming and steel fabrication we could see problems to be overcome in those areas too. However, we were able to assess that our own extensive technology could be applied to supplement the Bethlehem package, and thus we were able to make an informed and technically sound decision to license in the technology.

Third, licensees must be careful to protect their own body of existing technology. We were acutely aware of this. We had already had some experience with technology marketing and we had a large body of technology that we were anxious to protect. In this respect we were fortunate in that we were not faced with a lot of unreasonable demands by Bethlehem for access to our technology, for a far-reaching definition of "improvements" or for provisions requiring us to assign improvements to Bethlehem. In my experience, however, there are many licensors who will ask for a lot more than Bethlehem asked of us. I have found some licensees who are not sufficiently aware of the importance of the improvement provisions. For example, I have come across licensees who are not aware that by assigning their improvements to the licensor, even if they receive back a limited license for the use of that improvement, they give away the right to license that technology, perhaps as part and in completion of another body of technology.

Another important point is the definition of improvements. As Joe O'Keefe mentioned in his paper, the definition of improvements was arrived at in our agreements with Bethlehem after a thorough review by both parties and it was certainly important to us to define improvements very precisely. In arriving at acceptable wording for this definition, we very thoroughly thought through the various types of technology which we might need to disclose.

My last point may seem obvious from the case study of the licensing of zinc/aluminum alloy coating technology but in my experience, at least with Australian companies, and I suspect with companies from other countries as well, too little attention is paid to the opportunity for a licensee to contribute its own technology to an overall package. We at John Lysaght still have no doubt that the way to market our own technology relating to zinc/aluminum alloy coated steel was to market it jointly with Bethlehem's information. Had we attempted to market it separately our task would have been far greater.

I have heard talk at meetings of this Society that many Australian companies simply do not have the resources to develop and successfully market a technology package. I am sure that is the case with some companies, but I do not think it is correct to always think in terms of being a sole licensor. One must remember that with our early mineral development there was simply not the investment capital in this country to carry out projects of any worthwhile size so invariably Australian companies participated as minor joint venturers. Perhaps Australian companies with worthwhile technology should begin thinking in these terms because if they fail to do so they may miss opportunities to make contributions toward licensing programs. Their technology, like the technology of Lysaghts which was contributed to the joint Zincalume technology package, might not consist of a major new breakthrough, but may simply be the results of years of experience and the practice of specialized skills.

That should not prevent that technology supplementing a major breakthrough made by another company even if the result is only a small participating interest in the overall technology package. It must be remembered that the benefits of joining a licensing program are not simply monetary. They also give rise for the opportunity to exchange technology at venues like the Interzac Conference and they assist enormously in establishing the reputation of a company so as to give rise to a further opportunity for technology exchange. That certainly is one of the important lessons that we learned from our dealings with Bethlehem.