

NEWS LETTER

December 1996

Dear Reader,

Another year has passed. Time goes very fast.

To me a week or a month seems like nothing. What has happened to 1996 I just do not know. This is probably a sign of myself having a good and busy time, as one only gets bored when there is little to do.

We are now close to the end of 1996 and it is time for me to write the traditional News-Letter. This year we publish the 10th edition, so it is some kind of anniversary.

We keep publishing our News-Letters because we get so much positive feed-back each year as most recipients seem to appreciate reading it.

I know it cannot be considered traditional business correspondence. I am always trying to combine family life and friendship with business, and it has obviously paid off very well.

I feel very privileged working together with my family and also having established so many friendships in business over the years, and therefore you may find that there is a special touch of privacy to the way we do business which should also be reflected in the News-Letter.

It is always a pleasure to write the News-Letter because I have to summarise what happened in the year soon expiring, and I recall all the nice experiences I had during the nearly past year. 1996 has been very special when it comes to the family, what you will see in the following.

I hope that you will all enjoy the letter, which I have tried to make as varied as possible.

OUR CHRISTMAS CARD

I have chosen the tiger as the symbol of this year's News-Letter and you will see the tiger on our envelope, Christmas card as well as on the Christmas gift.

When I was in India in February 1996, I went on a trip to the jungle in the Ranthambore National Park in one of the most interesting states in India, the desert state Rajasthan. We went into the jungle in open jeeps, and were trying to get a glimpse of a tiger, but it was very difficult. Finally, the last day in the jungle we met her.

How we saw the tigress on the Christmas card, I will tell you:

One afternoon we were driving in an open jeep as usual, it was around 3.00 p.m., and we got closer to a jeep driving in front of us. Suddenly the driver of the jeep ahead of us pointed towards the jungle on the right side of the jeep and said there was a tiger, and I saw a very slight glimpse of something yellow moving. It was a tigress walking in the opposite direction in the jungle so we turned the jeep and were so lucky that the tigress decided to get down onto the road. When she came to the sandy road in the jungle, where the tigers obviously like to walk, she stopped at the road side, looked at us and walked in the right side of the road away from us so we followed behind her and of course took a lot of photos.

Every now and then she was marking her territory. She was young - about 4 years old - and she was hungry as she was very thin. Suddenly she heard some deer in the jungle and she left the road with a fantastic jump and disappeared without a sound into the jungle. It was a breathtaking sight. We did not hear her move about in the jungle as tigers obviously move very noiselessly and we waited for 10 to 15 minutes and thought that we would never get a glimpse of her again.

We sat in the jeep and held our breath and then suddenly when we looked down we saw the tigress standing one meter from the jeep looking at us, and I guarantee you that a tiger has very big yellow eyes and very big, white teeth. She looked very peaceful, but we kept very silent as one never knows!

She looked at us for a while and then started walking down the road again in front of us and we followed her for some 3 to 400 meters. Then she left the road, went into the jungle, and down to a creek where she started drinking, and exactly at that time I took the photo which is on this year's Christmas card.

You know I am involved in rhino and general wildlife protection in South Africa. But I am now also getting somewhat involved in tiger protection as this is an even more endangered species than rhinos, because in the areas in South Africa where the rhinos live, they are taken very well care of and are being very well protected, which is not the case in many of the countries where you still find the tigers.

The number of tigers is diminishing mainly due to poaching and I can only recommend you, if you get a chance, to support the tiger protection as this is one of the world's most beautiful animals and it must be protected, also enabling our descendants to see the tigers in their own environment.

As I find wildlife protection very important, I thought it was a good idea to let 1996 be the year of the tiger and I hope that you like our enclosed tie which we could call a

TIE-GER TIE

I have had the tiger printed on this year's tie a little more colourful than the rhino, which was printed on the 1994 tie. These days ties can be a little colourful.

The tie has again been designed by myself, and as usual I tried to choose colours which make it wearable at nearly any occasion, and I have also tried to make sure that it is made from the finest, 100% handmade Thai-silk - I hope you like it !

OUR CHRISTMAS GIFT

As mentioned above the Christmas gift this year is a tie. I know that ties are generally worn by men only.

However, we shall make up for this when we send a Christmas gift again, which will probably be in 1997, if we have a good 1997.

If the nice Ladies, with whom we are doing business in various companies around the world, are not going to use the tie themselves, which some ladies do every now and then, I recommend that you give the tie-ger tie to

- | | |
|----------------|----------------|
| - your husband | - your brother |
| - your fiancé | - your son |
| - your father | - or whomever |

you appreciate very much. Thus I hope that the ladies will indirectly benefit from the Christmas gift, too.

FAMILY

Our family is doing extremely well. We are all still blessed with good health, which is very, very important.

This year was a very special one.

Morten and his wife, Marianna who worked in our shipping department for several years, have wanted to have a baby for a long time. Unfortunately it was not to be so. About a year ago Marianna and Morten therefore decided to adopt a baby girl from China.

On Sunday the 8th of September Marianna and Morten arrived in Copenhagen from Beijing with Laura, a beautiful 7 months old baby girl. She is a heartbreaker. She has a lot of black hair, a pretty little face, she is very mild and most importantly she is my 3rd grandchild.

Tove and I adore her and we think that it is very good for Marianna and Morten to have brought some new blood into the family. That I should end up being grandfather to a Chinese born girl I never dreamt of. Laura is now part of our family, she is also a Simonsen and I assure you that we shall take good care of her.

Klaus' only daughter, Sara - my first grandchild, is growing and is now 6½ year's old and she has become a lady. She is still the apple of my eye, the first grandchild is always very special. I adore her and we have a good time together when she comes to see us and stays with Tove and myself over the weekends - she is a darling.

Now we can also start talking to her about more serious things, and I think it is good for children to get the input from their grandparents, which is of course different from that of their parents. We can be a little more relaxed when we are together with Sara, and we certainly are.

Klaus' second child, Frederik is now 3 years old, and he is a real boy. You never really notice his small, slightly handicapped left hand. He is doing extremely well, and he is also a tough guy and wonderful to spend time with. He is mad about cars and planes. He knows all the various car names, so when I drive with him in my own car, I am never bored, because we are discussing cars. It is unbelievable the cars he knows considering that the little guy is only 3 years of age.

We study car magazines and of course he gets a model car every now and then, so we have a fantastic time with him, too.

I should also mention that Klaus' wife, Susanne, is pregnant again, so they are expecting their 3rd child my 4th grandchild in February 1997.

This means that when I turn 60 in April 1997 I have got 4 grandchildren - not bad, is it?

My black Labrador, Silla, is still absolutely wonderful, and all the grandchildren love her and so does the rest of the family. The advantage of living in the same city is that whenever any of us is travelling someone can always look after both the grandchildren, especially Tove and myself, and the dogs (we all have dogs).

Sometimes it is quite messy here when I am travelling and Tove takes care of the grandchildren as well as the dogs. It is a circus to put it mildly (according to Tove).

After such a time one understands better why the young people must have the small children - if you understand what I mean!

STAFF

Some changes have taken place this year.

First of all, Marianna, Morten's wife, has stopped working because she has got Laura. Marianna has been replaced by Tina Madsen, who is 27 years old and speaks fluent English and German. She married in September.

She is doing a very good job and has established very good relationships to our customers and suppliers already.

My secretary, Charlotte, is pregnant and she will stop working in December due to her pregnancy, as she is expecting in January 1997. She will not be back at work again until in September 1997. We have employed Miss Anne Mette Pedersen, whom we believe will be a good replacement for Charlotte.

OUR BUSINESS

1996 has been a good year for our company. But it is also about time we start doing well - on December 1, 1996, we have been in business for 12 years. We shall never become millionaires, but I think that at the end of the year we shall present a result satisfactory to our partners, The Morgan Crucible Company Plc in Windsor, UK, and ourselves. We also work hard already to try to make 1997 a good year.

It is obvious that we must try to remain competitive and ahead of our competitors when it comes to qualities and the range of products we offer, and I think that we have been successful so far.

In order to stay on the market as the alternative supplier with our various products it is absolutely essential to make money so that we get financially stronger and can extend our activities.

We have marketed various new products this year, which I will revert to later, and to us it is vital not just to stay with the products which we have been selling for a long time, as the world and the technologies change, and considering the contacts we have within the aluminium industry it would be unwise not to offer different and new products to the smelters.

HYDRO AUDIT

Our company has been supplying the 4 Hydro Aluminium Smelters in Norway for many years. All the producers from which we supply various products to Hydro are approved according to the ISO standards.

Being a sales and trading company we do not need to be accredited according to the ISO standards, but Hydro has asked us to provide a company manual describing our internal procedures when it comes to handling inquiries, orders, complaints, informing about possible delays etc. along with our company philosophy and a job description for each position in the company.

Such a manual was issued mid 1996, and our company was audited by two representatives of Hydro Aluminium early October, who among others controlled our procedures, and we were approved.

This is only to inform you that we try to be in line with the requirements to any supplier when it comes to the service we provide, i.e. we are not only talking about quality of materials, but also quality of the service we offered by our company to our customers and suppliers.

I find it important for you to know that everything is well organised, and I also take it as a big acknowledgement having been approved by Hydro Aluminium.

NEW PRODUCTS

BARRIER BRICKS

BURTON-WERKE in Germany and ourselves have together with an aluminium group developed two new qualities of chamotte bricks for the barrier part of the pot insulation, namely

ALUBAR 1100 &

ALUBAR 2000

These bricks fulfil most smelters' requirements for

- chemical composition
- strength
- cryolite resistance and
- tolerances

Bricks for protection of the insulation in the bottom of the pots must have a very good cryolite resistance in order to give the best possible protection of the insulation, and that has been the main target for developing these new ALUBAR qualities.

We have already sold the ALUBAR bricks in large quantities in 1996 and expect a considerable increase in sales in 1997, because

- the products are of a high quality
- they are especially developed for and in co-operation with the aluminium industry
- the tolerances are very tight and
- the prices are very competitive

Furthermore, BURTON have a very qualified R&D department supervised by Dr. Wolfgang Walz, who has visited various smelters and their laboratories together with the undersigned and Morten during 1995 and 1996, in order to learn about the aluminium industry and in order to be able to develop the right products for the aluminium industry.

We enclose technical data sheets for the ALUBAR 1100 and the ALUBAR 2000 qualities.

May I also point out that BURTON are ISO-approved and have a quality control system which is very professional and up to today's highest standards, meaning that you get certificates with each shipment showing that the bricks have the properties stated in the data sheets and those agreed for each individual order/contract.

FLUEWALL BRICKS

As it was the case with the barrier bricks for the pots, BURTON and ourselves also decided to go into the Anode Bake Furnace refractory business, and based upon information obtained from the market, BURTON have developed 3 new qualities which we are marketing as from the end of 1996 under the names

PERIAL 44

PERIAL 46 and

PERIAL 60

These bricks are also especially developed to meet the requirements of any anode bake furnace designer with optimal properties for fluewall bricks.

The extraordinary thing about the PERIAL 44 and 46 qualities is that they are produced without cristobalite, meaning that the shrinkage is very low. As the bricks have excellent properties, and seem to be competitive pricewise we feel convinced that they will very soon find their place on the market for refractories for the construction of fluewalls in anode bake furnaces.

We also supply standard qualities of chamotte bricks from BURTON used in certain parts of the carbon bake furnaces.

Special letters to carbon bake furnace superintendents have been mailed already worldwide.

We also enclose our technical data sheet for the above three qualities.

OTHER PRODUCTS FROM BURTON

BURTON are continuously developing better and new products for the primary aluminium industry, and early/mid 1997 we expect to bring new products on the market again, about which we cannot reveal much today, but we think that they will also be well received by the industry.

Further information follows in the next News-Letter, but before that time each individual smelter will be informed about this new range of products which will be added early/mid next year.

SILICON CARBIDE BRICKS, NITRIDE BONDED

During our frequent visits to the smelters worldwide we have learnt that the demand for silicon carbide bricks, nitride bonded, is increasing. Therefore, we have included this product in our package as it is natural for us to enter into this business as well.

We have now found a supplier of silicon carbide bricks of a high quality and made a contract with this particular Chinese producer, namely

Luoyang Institute of Refractories Research (LIRR)
Ministry of Metallurgical Industry
Luoyang
P.R. China

whose products are being exported through our new partners in China namely

MAYLONG RESOURCES, INC.
Dalian
P.R. China

I have visited the Chinese plant in Luoyang several times in 1996 and we have now set-up the quality control system, the data sheet has been finalised based on tests made according to international standards, and for this new product we also enclose our technical data sheet.

End this year we are also able to supply silicon carbide mortar to be used together with the SICATEC 75 bricks under the brand name

SICA - BOND

I would mention that LIRR is the largest ceramic institute in China. LIRR employs 700 engineers and 350 workers, so it is a very well-reputed company in China with a lot of expertise.

I have seen the production and have had the product checked in Europe. The product is outstanding and by buying the SICATEC 75 bricks you will get

- a) an alternative supplier
- b) a product which meets the strictest technical requirements
- c) a product which is up to the highest standards on today's world market for such bricks and
- d) a brick which is price competitive

Transportation from China to Europe, America or Australia is no problem. All bricks will be shipped out of one of the biggest ports in China, namely TIANJIN, and the export packing is also made professionally and according to international standards.

We foresee a very good future for this "new" product.

OUR SUPPLIERS

AKW

Our suppliers of moler insulating diatomaceous bricks, the only producer of the so-called moler bricks besides Skamol in Denmark, have closed their production as from October 1, 1996.

The production and sales were relatively small and over the past years we had bought the main part of the AKW production. However, as the plant was situated in the middle of the city of Uelzen, which had extended and grown around the plant, AKW slowly faced more and more environmental problems. The plant was more than a hundred years old.

As the profitability of the relatively small production over the years had limited the possibility of investing in improved production to eliminate pollution etc. there was only one thing to do and that was to close the plant down.

We can therefore only recommend our customers to use bricks from ISOLITE of Japan when diatomaceous bricks are required.

However, the closure of the plant in Uelzen means that we are no longer able to supply BF and BB blocks for anode bake furnaces, used for back-up insulation in certain furnace designs. Such special sizes cannot be supplied by ISOLITE either.

ISOLITE

ISOLITE are producing the same kind of diatomaceous bricks of a very high quality, machined all faces in exactly the same qualities as those produced by our competitors, and you also get an alternative supplier of diatomaceous bricks, moler bricks, as there is in reality only one European producer left making such bricks today.

We would appreciate getting the opportunity to offer you the outstanding bricks from ISOLITE, as THE alternative to moler diatomaceous bricks.

In the "JAI" diatomaceous earth quality ISOLITE only produce square bricks in various dimensions which we shall promote more extensively than before among others mainly for the bottom layer of anode bake furnaces, but of course also for pot insulation.

Furthermore, ISOLITE produce a wide range of IFB's (Insulating Fire Bricks) also in "high density" qualities which are widely used for various applications in pots and anode bake furnaces.

BASALT

In our last News-Letter we informed you about our producers BASALT in Düsseldorf. We have now been on the market for approximately one year with the products from BASALT, namely

VERMILITE 2000 & PROLITE SUPER

vermiculite boards with a density of approximately 375 respectively 1200 kg/m³. The two most used qualities of vermiculite in the primary aluminium industry today.

We have generally been approved by all smelters and have a got a decent market share so far, but we will continue our sales efforts in connection with these excellent boards, which are made from South African raw vermiculite and a binder produced in Germany. Therefore the quality of these boards is identical to the ones produced by our European and overseas competitors both when it comes to insulating values, densities and cryolite resistance.

The heavy vermiculite boards have a certain cryolite resistance, but if you want cryolite resistance then you must of course mainly use refractories, but the nice thing about the PROLITE SUPER board is that you both get a certain cryolite resistance and insulation combined in the same board.

We supply our boards in the large shapes. The boards have also been well received on the market, because all smelters want alternative suppliers.

BASALT in Düsseldorf are also an ISO-approved supplier.

MOSCONI

MOSCONI in Annicco, Italy, are one of our oldest partners. MOSCONI have extended their production, and the quality is still second to none. You do not get a finer and better brick from any other supplier within MOSCONI's range of low density, high insulating bricks.

MOSCONI are of course also ISO-approved and have just had their approval renewed, which normally takes place every three years.

MOSCONI have recently introduced sophisticated devices, meaning that all their raw materials will be analysed before the bricks are produced. This ensures that in the future the quality is controlled to a much higher extent than it has been the case in the past, meaning that the quality becomes more uniform, even though I must say that within the last many years we not had any complaints about any of MOSCONI's bricks.

The qualities are second to none, and tests carried out at independent labs show that the data in our technical data sheets are still valid and met by the actual production.

CAPE SIBORIT

As informed you last year CAPE SIBORIT in Lüneburg, our suppliers of calcium silicate boards, have also been ISO-approved and the quality is still excellent. We have had much success supplying large boards, length and width up to 1200 and 1500 mm (and more), because the larger the boards are the fewer boards the smelters have to install, the less joints you get, and the installation time is reduced.

We are also selling CAPE SIBORIT's high density calcium silicate boards for various smelters.

CAPE SIBORIT will expand their production during 1997 so that the continuously increasing demand for calcium silicate slabs can also be met by our suppliers in Lüneburg.

Also new products - calcium silicate boards - are being developed and shall probably be marketed during 1997.

CAPE SIBORIT are also an ISO approved supplier.

POLGRAPH

For quite a while POLGRAPH was one of our good suppliers of cathode blocks to the aluminium industry on various markets.

SGL acquired POLGRAPH in September 1996 and therefore our contract with POLGRAPH was cancelled. We deeply regret that we are not in this business any longer, but such things happen.

For your information we are now working on getting another supplier of cathode blocks. We shall tell you more about this move in our next year's News-Letter and if we succeed we will of course advise the individual smelters on the markets where we might be appointed to represent these blocks, for which we are trying to get a representation.

DELIVERY TIMES

Last year I stressed that delivery times are becoming a more and more critical question. It is obvious that when producers like for instance AKW are closing their production, there will be an even higher pressure on the remaining producers of similar insulating bricks. The pressure on the producers of calcium silicate boards is also increasing, as not only sales to the aluminium industry have taken a fantastic upswing and calcium silicate boards have many applications worldwide.

Therefore, as previously we can only recommend that you order your insulating or refractory products in good time, and again we suggest that all our customers make not only one but two to three year contracts.

We are able to provide firm prices for 3-year periods, so why have the annual hassle of negotiating prices for one year only when contracts can be made for a longer period? I think that it is in everyone's interest, because the producers can run a more smooth production and the customers can be hundred percent sure to get insulating or refractory products whenever needed, especially if an urgent demand arises.

CARS AND ALUMINIUM

For the industry and its suppliers the use of aluminium for car production is fortunately increasing. Already a few years ago Audi started using aluminium to a great extent for their cars, and this tendency seems to mean that steel will loose out over the coming years, as an increasing number of new model luxury and higher performance cars are designed with aluminium structures, and aluminium bodies. The reason for this tendency is that aluminium spaceframe structures, or spaceframe derivative structures, are cheaper to manufacture than steel monocoques at low to moderate volumes.

Overall, the market for aluminium auto body sheet is predicted to grow at about 15% per year from the existing small base in the medium-term, and then increase to a close rate of 20% a year beyond that. By 2005 it is predicted that body panels, combined with structural extrusions, will account for over 800,000 tonnes of primary based aluminium consumption.

Sheet aluminium will gain the greatest volumes in North America, where the need to save weight is very important, whilst the more innovative spaceframe technology is like to find special favour in the more fragmented European market. Steel will retain a stronger grip in the Japanese and other Asian markets, due to car makers' more conservative attitudes.

One of the cars which has been produced with a high quantity of aluminium is the new "Lotus Elise". Elise, by the way, is named after the Bugatti-director and Lotus-owner Artiolli's grandchild.

Lotus has together with Hydro Aluminium developed an entirely new spaceframe, consisting of aluminium profiles, which are glued together to an ultra stiff cage, coated with glass fibre and composite materials without one single welding.

The individual aluminium tubes are extruded.

Hydro Aluminium has a very big casting facility in a city called "Tønder" in the southern part of Jutland - the peninsula in Denmark where we are situated - where the spaceframes for the Lotus cars are produced. This means even Denmark contributes to establish a brighter future for aluminium in the car industry.

The development has taken place by Lotus Engineering of Hethel, UK, and Hydro Aluminium Automotive Structures a.s. (HAAS) of Tønder, Denmark.

This spaceframe represents a milestone in vehicle weight reduction, as the whole spaceframe weighs a mere 68 kilos. Compared to a similar steel chassis construction, the weight reduction is in the order of 50%. Combined with additional secondary savings in suspension, brakes and driveline, the total vehicle mass has been reduced, further improving driving performance and safety.

The complete vehicle is also noteworthy for the innovative use of aluminium extrusions in several body and chassis applications - such as suspension uprights, door structures, pedal assemblies and the dashboard fascia.

Hydro Aluminium Automotive Structures and Lotus have taken a significant step forward to spaceframe technology in this vehicle, and demonstrated a cost effective, low weight structure with superior performance achieved through the use of state of the art technology and design.

Also the new Renault Spider which was put on the market in 1996 is based on an aluminium spaceframe, and again this development has taken place in co-operation with Hydro Aluminium, a subsidiary of the Norwegian Norsk Hydro.

We of course all hope that this development will continue, because if this really gains foothold there will be enormous potential for aluminium in the years to come, and it is also obvious that the aluminium production keeps increasing, meaning that we are in a very prosperous industry.

ALUMINIUM PRICES

The price at the time of this News-Letter being written is about USD 1,450.-/ton on 3 months basis.

It is expected, however, that the prices will start increasing during the last quarter of this year, and looking further ahead to 1997 the 1,750 ton mark should be broken through the first quarter. It is expected that the price will gain further strength and that it will increase to USD 1,800.-/ton by the end of 1997.

Some people expect an average spot price of about USD 1,750.- during 1997. This means that we are on the right track again, and I still think that we will see reasonably good prices for aluminium until the end of this century.

INAUGURATION

On April 19, 1996, I was invited to participate in the inauguration of the new Alusaf Hillside 450,000 ton per annum Smelter to which we had supplied huge quantities of various insulating products, mainly for the anode bake furnaces.

It was, first of all, a great honour to be invited to such an event, but secondly, it was a very great pleasure and experience to be at the inauguration which was headed by

Mr. Rob Barbour, Managing Director of the Hillside Smelter

Mr. Nelson Mandela, the President of South Africa

Mr. Frederick De Klerk, former President of South Africa and

Mr. Bhutelezi, the Interior Minister of South Africa

and many other important South African ministers and ministerial employees and Zulu-princes, etc.

It was a colourful and absolutely indescribable event, and as it has always been a special pleasure for me to visit South Africa over the years and be to a loyal supplier to the Alusaf Smelters being it the Bayside or the Hillside Smelter, it was one of the highlights of my business life - something that I shall never forget.

NEW SMELTER ON ICELAND

It has obviously been decided to move the VAW smelter in Töging, Germany, producing about 120,000 tonnes a year to Iceland. What the name of the smelter will be I do not know, but it seems as if the smelter will start production sometime during 1998, as the move of this smelter should take place during 1997.

It is not often that a smelter which is not producing any longer is sold and is re-erected in another country. The last time I remember a similar event, was when Alusaf purchased a Japanese plant and erected this in Richards Bay, but this was some 15 years ago, at least.

Such things happen, and if the smelter is in good condition, why not move the entire plant instead of building a completely new smelter ? It will be very interesting to follow this project in the years to come, and we shall of course also work to become one of the suppliers to this new smelter on Iceland.

CONFERENCES

The only conference we really concentrate on is the TMS conference held in the US each year in February.

Next year it will be in Orlando, Florida, and Morten and myself will participate (Klaus will stay at home and take good care of Susanne who is about to give birth at that time).

We will include Dr. Wolfgang Walz of Burton-Werke in our party, as we want him to meet a lot of our friends from the industry in Orlando and also to have technical discussions about refractories for the primary aluminium industry, so if anyone is interested in meeting Dr. Walz and us in order to talk about barrier bricks, fluewall bricks and other refractories, Dr. Walz is *the* specialist and will be able to participate in any technical discussion.

POT LIFE

When you travel the world you learn about more and more pots getting unbelievably old. When I was in South Africa last time in April 1996 I learnt about two furnaces at the Alusaf Bayside smelter, in the old Söderberg line, which have an age of +12 years. It is quite something, isn't it ?

Also the Kaiser designed 150 KA pots in Sundsvall in Sweden are close to 9 to 10 years old, but you probably also have some very old pots in production.

However, we appreciate the long pot lives when some of our products are installed in the pots, as part of the long pot life success might be due to the high quality of our products, and we much prefer to have pots with long life and our products in them, than to have pots that fail after a short period.

INSTALLING INSULATING LINING

The below photo shows the installation of Mosconi bricks in pots in an European smelter.

The photo shows you how perfect the lining with the Mosconi bricks can be made. Please, first of all notice the accuracy of how the bricks are being laid but also the very tight tolerances and the high quality of the Mosconi bricks.



THE SURPRISING HISTORY OF ALUMINIUM

A long time ago, an acquaintance of the undersigned, Dr. Otto Knaisch, former President of Aluminerie Alouette Inc. in Canada, gave us permission to print an article he has written about the history of aluminium, and we thank Dr. Knaisch very much for his contribution to our News-Letter this year.

The Article goes as follows:

THE SURPRISING HISTORY OF ALUMINIUM

by Otto Knaisch

Aluminium, that metal that we all know so well, has had a surprisingly short history. At the Paris World Fair of 1855, scientists of the day got caught up in the euphoria of a new discovery, a metal which was "silver from clay", that is, aluminium. This excitement did not escape Jules Verne, the successful author of *20,000 LEAGUES UNDER THE SEA*.



Aluminium particles produced in 1845

Visionary that he was, in 1865, he published another scientific novel, *FROM THE EARTH TO THE MOON*, which

explored the possibility of fulfilling another one of his dreams. He foresaw building a rocket to go to the moon, a rocket built of aluminium. Up to that time, however, chemical experiments by scientists Wöhler and Deville had resulted in the production of but a few kilos of the precious metal.

In 1855, since the small amounts of metal produced did not have a large application, commercial aluminium was used mainly in jewellery fabrication. This did not prevent people like

Napoleon III from spending large amounts of money for the purchase of the metal. He spent 170,000 francs for 100 kilos which is the equivalent of 1,700,000 francs per tonne. Today, aluminium sells for \$ 1,700 US per tonne.

A major turning point for aluminium came about when Werner von Siemens from Germany designed and developed the electric dynamo in 1866. It is during that same period that Canada was being formed as a country and introduced its first constitution. At the 1881 International Electrotechnic complete energy Exhibition in Paris, the system was introduced for the first time, making it possible to transmit electrical energy from a generator through a power line into a motor. This energy system made the electrolytic process possible for the

production of metals. In 1886, two famous researchers, P.T. Héroult from France and C.M. Hall from the USA, both patented the electrolytic process to produce aluminium. This became known as the Hall-Héroult process. Interestingly, both men were born in the same year (1863), patented in the same year (1886), and died in the same year (1914).

In an attempt to expand the use of his electrolytic process, Héroult offered it to A.R. Pechiney, director of the *Société AR Pechiney et Cie* of France.

The story goes that during a visit to Mr. Pechiney, Mr. Héroult made the mistake of beating his host, twenty years his senior, at billiards. Whether or not this is true, we do know that Mr. Héroult

was casually dismissed and told that there was no future in aluminium. He, therefore, sought his fortune elsewhere, coming into contact with some Swiss industrial pioneers who had been intending to produce aluminium for some time. They thought of and of using hydro power from the Rhine waterfall near Neuhausen modifying a 200-year old nearby inoperative steel mill.

first pot design that aluminium could be produced using the newly patented electrolytic process. Based on these results, the *Société Métallurgique Suisse Inc.* was founded in the same month. Since he owned 10 percent of the company and participated in the profits, he eventually became a rich man.



**Birthplace of the European
aluminium electrolysis**

In August 1887, Héroult began to make tests. In October 1887, he successfully demonstrated with his



NEW STATIONERY DESIGN

Early this year we redesigned all our company's stationery. As you may have noticed already we have changed the appearance of our company name, meaning that it is written vertically, printed only in blue and placed at the top of the right side of the letterheads, invoices, etc.

We thought it was about time to renew and update our design. Also our business cards have been redesigned, and they have exactly the same layout as our blue covers, in which we are distributing quotations, data sheets, circular letters, etc.

Furthermore, our name has been officially registered and this is the reason for the "®" after "*simonsen*". I hope that you like the new design - we ourselves find it very nice. An extra bonus is that it is much cheaper only to have one piece of paper with only the name "*simonsen*" which can be used for letterheads, data sheets, invoices, etc., and we save quite a considerable amount of money as we now make all our data sheets ourselves in our computers, and the same of course goes for invoices, letters etc.

E-MAIL

In connection with introducing the new design we also decided to go on the Internet and have an E-mail address, which is

simonsen@pip.dknet.dk

We have started using E-mail, even though it takes some time before one gets hundred percent confident using it. No later than January 1, 1997, you will also find Simonsen's homepage on the Internet, and we will possibly also be among the subscribers on the aluminium internet address.

TELECOMMUNICATIONS

One of the first means of telecommunications we got hold of when we started the company on the 1st of December 1984 was of course a telephone and shortly after we acquired a telex. The telex was placed in our office situated above my wife's and my bedroom in our home, where we started our activities some 12 years ago.

This telex made a lot of noise and many were the times when we woke up in the middle of the night because the telex started working, and being new in business I could not wait to see the message on the telex, so many times I got up in the middle of the night to read telexes from among others Australia.

After some years we moved the office out of our home, and we got more peaceful nights after the telex left the family home.

The telex has been serving us for many, many years, but over the past few years, only two customers have used the machine whom we know are now also using fax machines, so as from October 1, 1996, we have cancelled our subscription to the telex and therefore our communication today consists of

telephone
telefax
E-mail

Working internationally one has to be in the front rank all the time when it comes to telecommunications and we try our best to keep up with our customers and competitors in all respect. So far we seem to have been doing very well.

ELEPHANT LAUNDERING

During my trip to India I got the opportunity of going to the river one morning with a beautiful elephant, a female called "Tara". A book has even been written about Tara by an Englishman who bought her many years ago and made a trip across India on Tara. Now at an age of 35 she enjoys her retirement in the Kipling Game Reserve in the very centre of India, where she has a very good life.

In this camp you can go with her in the morning which I could not resist, so I rode on her back to the river. Of course I got wet, too, when I rubbed her body and ears and trunk with a stone. She liked it very much, and when I retire it might be an idea for me to establish an elephant laundry in India, which I seem to be pretty good at. But maybe all elephants are not as peaceful as Tara. However, it was a fantastic experience, and she was a beautiful animal.



WINE

During a trip with Singapore Airlines in 1996 I got from the menu some statements made by some important people about Wine, and I think that you should hear what some famous persons stated about drinking wine.

Here goes:

*Wine moistens and tempers the spirit,
and lulls the cares of the mind to rest... Wine
commits no rape upon our reason,
but pleasantly invites us to agreeable mirth.*

Socrates

*Go thy way, eat thy bread with joy, and drink thy wine
with a merry heart: for God now accepteth thy works.*

The Bible, Ecclesiastes 7:9

*And, in winter, when you draw the wine, let there
be in your heart a song for each cup: and let
there be in the song a remembrance for the autumn
days, and for the vineyard, and for the winepress.*

Kahlil Gibran, in "The Prophet"

*Happiness is when a man can sit under the shade
of his own vine, with his wife and children about him
and the ripe clusters hanging within his reach.*

James Busby, the "father of Australian wine"

*Who loves not wine, women and song
Remains a fool his whole life long.*

Martin Luther

A SOLDIER

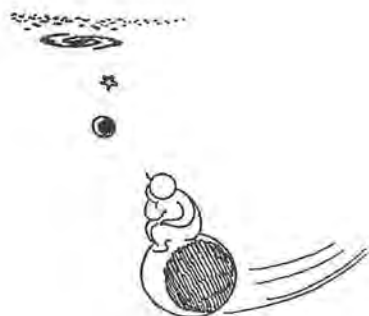
Exactly 40 years ago, when I was young, I was a soldier and was doing my duty as a member of the Royal Danish Lifeguard. As such you are guarding the Royal Palaces in Copenhagen and Jutland. However,

As I was a Royal Lifeguard and as I was guarding the Royal Castle in Copenhagen, "Fredensborg" and another castle outside Copenhagen, my photo was taken, and I think that you should see how I looked as a young soldier - how about that?

What a defence Denmark had those days.....



As usual we finish the News-Letter with a few words of wisdom by the Danish poet, Piet Hein, who passed away at the age of 90 this year. However, his Grooks are still relevant, and I hope that you will enjoy them.



I'D LIKE -

I'd like to know
what this whole show
is all about
before it's out.



THE CASE FOR OBSCURITY

On Thoughts and Words I.

If no thought
your mind does visit,
make your speech
not too explicit,

Finally, I will take this opportunity to wish you a happy Christmas and a prosperous New Year, and thank you for the excellent co-operation we have had in 1996.

Thanks also for all the orders and all the technical support we have had from both customers and suppliers. It is fantastic to run this business and even though I am turning 60 next year, I guarantee you (or threaten you?) that I will stay in business for many years to come. How should I be able to do without it, provided my health permits it?

The warmest regards from the entire dynasty and myself


Jørgen

Encls.:
Technical Data Sheet - ALUBAR 1100
Technical Data Sheet - ALUBAR 2000
Technical Data Sheet - PERIAL 44 & 46
Technical Data Sheet - PERIAL 60
Technical Data Sheet - SICATEC 75

alubar 1100

Chamotte Bricks for
Cathode Linings

Bulk Density: <i>ISO 5017</i>	Kg/m ³	2150
	Lbs./cu.ft.	134
Max. Service Temperature:	°C	1100
	°F	2012
Cold Crushing Strength: <i>PRE/R 14</i>	N/mm ²	> 60
	Lbs./sq.in.	> 8700
Apparent Porosity: <i>ISO 5017</i>	vol. %	< 14
Thermal Expansion: <i>DIN 51045</i>	@ 200°C (392°F)	0.15
	@ 400°C (752°F)	0.23
	@ 600°C (1112°F)	0.36
	@ 850°C (1562°F)	0.50
	@ 1000°C (1832°F)	0.60
Thermal Shock Resistance: <i>DIN 51068</i>		≥ 15
Cryolite Resistance: <i>Standardized "Cup-Test"</i> <i>Max. dissolved area permitted 5 cm².</i> <i>Test Procedure available upon request.</i>		≤ 4.5
Thermal Conductivity: <i>ISO 8894-1</i>		
	W/m K	
	@ 300°C	1.23
	@ 600°C	1.49
	@ 900°C	1.50
	@ 572°F	8.53
Btu/(sq.ft.h°F/in)	@ 1112°F	10.33
	@ 1652°F	10.40

simonsen & sons ltd
Møgelvangs Plads 7
DK-7900 Nykøbing Mors
DANMARK

Tel: Int. +45 9772 3000
Fax: Int. +45 9772 4455
simonsen@pip.dknet.dk



Producer:
BURTON-WERKE GMBH + CO. KG
An ISO-9001 certified company
Melle/Buer
GERMANY

alubar 1100

Chemical Analysis:	SiO ₂	%	68
	Al ₂ O ₃	%	26
	Fe ₂ O ₃	%	< 3

Dimensional Tolerances:	Length	mm	± 2.0
	Width	mm	± 1.5
	Height	mm	± 1.0
	Straight Angel Deviation	mm	≤ 1.5
	Bend (sagging)	mm	max. 1.0

Cutting: Diamond cutting disc - Type: WA 4 (DEM approx. 1,300.-) is recommended.

Producer:
DIAMANT WINTER GMBH & CO.
Postfach 2049
Schützenwall 13-17
D-22844 Norderstedt
Phone: Int. +49 40 52 58 0
Fax: Int. +49 40 52 58 201

Physical and thermal values are based upon regular, average test results.

No Warranty or guarantee is implied on the data which are given in good faith.

Deviations in data according to AQL 6.5.

alubar 2000

Chamotte Bricks for
Cathode Linings

Bulk Density: ISO 5017	Kg/m ³	2250
	Lbs./cu.ft.	140
Max. Service Temperature:	°C	1100
	°F	2012
Cold Crushing Strength: PRE/R 14	N/mm ²	30
	Lbs./sq.in.	4350
Apparent Porosity: ISO 5017	vol. %	15
Thermal Expansion: DIN 51045	@ 200°C (392°F)	% 0.13
	@ 400°C (752°F)	% 0.27
	@ 600°C (1112°F)	% 0.42
	@ 850°C (1562°F)	% 0.55
	@ 1000°C (1832°F)	% 0.65
Thermal Shock Resistance: DIN 51068		≥ 15
Cryolite Resistance: Standardized "Cup-Test" Max. dissolved area permitted 5 cm ² . Test Procedure available upon request.		≤ 5.0
Thermal Conductivity: ISO 8894-1	@ 300°C	1.24
	@ 600°C	1.47
	@ 900°C	1.50
W/m K	@ 572°F	8.60
	@ 1112°F	10.19
	@ 1652°F	10.40
Btu/(sq.ft.h°F/in)		

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GERMANY

alubar 2000

Chemical Analysis:	SiO ₂	%	60
	Al ₂ O ₃	%	35
	Fe ₂ O ₃	%	< 3
Dimensional Tolerances:	Length	mm	± 2.0
	Width	mm	± 1.5
	Height	mm	± 1.0
	Straight Angel Deviation	mm	≤ 1.5
	Bend (sagging)	mm	max. 1.0

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Deviations in data according to AQL 6.5.

perial 44 & 46

Refractory Bricks
for carbon bake furnaces

PERIAL 44 PERIAL 46

Bulk Density: ISO 5017	Kg/m ³	2250	2400
	lbs/cu.ft.	140	150
Max. Service Temperature:	°C	1500	1550
	°F	2732	2822
Cold Crushing Strength: PRE/R 14	MPa	55	80
	psi	7975	11600
Apparent Porosity: ISO 5017	%	16	13
Thermal Shock Resistance: DIN 51068 part 1	number of cycles	> 30	> 30
Creep Deformation: DIN 51053, BI.2	24 H @ 1280°C	< 0.50	< 0.20
	15 to 25 H @ 1280°C	< 0.005	< 0.003
Permanent Linear Change:	5 H @ 1400°C (2552°F)	- 0.3	0 - 0.1
Permeability to air: DIN 51058	µm ²	4.0	3.7
Thermal Expansion:	20 to 1000°C	0.55	0.50

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Melle/Buer
GERMANY

PERIAL 44 PERIAL 46

Thermal Conductivity:			
ASTM			
W/(m·K)	@ 700°C	1.50	1.53
	@ 1000°C	1.57	1.62
	@ 1300°C	1.65	1.70
Btu(sq.ft.h°F/in.)	@ 1292°F	10.40	10.61
	@ 1832°F	10.89	11.23
	@ 2373°F	11.44	11.79
Chemical Analysis:			
DIN 51001			
SiO ₂	%	≤ 51	≤ 47
Al ₂ O ₃	%	≥ 45	≥ 50
Fe ₂ O ₃	%	≤ 1.0	≤ 1.0
Na ₂ O + K ₂ O	%	≤ 1.7	≤ 1.5

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perial 60

Refractory Bricks
for carbon bake furnaces

Bulk Density: <i>ISO 5017</i>		Kg/m ³	2550
		lbs/cu.ft.	159
Max. Service Temperature:		°C	1500
		°F	2732
Cold Crushing Strength: <i>PRE/R 14</i>		MPa	≥ 60
		psi	≥ 8670
Apparent Porosity: <i>ISO 5017</i>		%	16
Thermal Shock Resistance: <i>DIN 51068 part 1</i>		number of cycles	40
Creep Deformation: <i>DIN 51053, Bl.2</i>	24 H @ 1280°C	%	< 0.10
	15 to 25 H @ 1280°C	%/h	≤ 0.002
Permanent Linear Change:	5 H @ 1400°C (2552°F)	%	0.0 - 0.1
Permeability to air: <i>DIN 51058</i>		µm ²	3.7
Thermal Expansion:	20 to 1000°C	%	0.60

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Producer:
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An ISO-9001 certified company
Melle/Buer
GERMANY

PERIAL 60

Thermal Conductivity:
ASTM

W/(m·K)	@ 700°C	1.51
	@ 1000°C	1.52
	@ 1300°C	1.65
Btu(sq.ft.h°F/in.)	@ 1292°F	10.47
	@ 1832°F	10.54
	@ 2373°F	11.44

Chemical Analysis:
DIN 51001

SiO ₂	%	≤ 38
Al ₂ O ₃	%	≥ 60
Fe ₂ O ₃	%	≤ 1.2
Na ₂ O + K ₂ O	%	≤ 0.7

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sicatec 75

Silicon Carbide Bricks
Nitride Bonded
(Hydraulic pressed or vibrated)

Bulk Density: <i>ASTM: C 20</i>	 Kg/m ³	2650
	 Lbs./cu.ft.	165
Max. Service Temperature:	 °C	1600
	 °F	2912
Apparent Porosity: <i>ASTM: C 20</i>	 %	15
Cold Crushing Strength: <i>ISO 10059/1-92</i>	 MPa	200
	 Lbs./sq.in.	29000
Hot Modulus of Rupture: <i>ISO 5013</i>	@ 1000°C MPa	45
	@ 1832°F Lbs./sq.in.	6525
Thermal Expansion: <i>DIN 51045 - Part 1</i>	@ 600°C (1112°F) 4.0 x 10 ⁻⁶ /K %	0.23
	@ 800°C (1472°F) 4.1 x 10 ⁻⁶ /K %	0.32
	@ 1000°C (1832°F) 4.3 x 10 ⁻⁶ /K %	0.42
Modulus of Rupture: <i>ISO 5014</i>	@ 20°C (68°F) MPa	42

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DK-7900 Nykøbing Mors
DANMARK

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Fax: Int. +45 9772 4455
simonsen@pip.dknet.dk



Producer:
LUOYANG INSTITUTE OF
REFRATORIES RESEARCH (LIRR)
43 Xiyuan Road
Luoyang, Henan Province
P.R. of China

SICATEC 75

Reheat Linear Change: ISO 2478	1000°C (1832°F) 8 h	%	0 - 0.1
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Thermal Conductivity:
LASER METHOD
(Shanghai Ceramic Institute)

W/(m·K)	@ 600°C	21
	@ 800°C	19
	@ 1000°C	17
Btu/(sq.ft.·h·°F/in.)	@ 1112°F	146
	@ 1472°F	132
	@ 1832°F	118

Chemical Composition:	SiC	%	77
	Si ₃ N ₄	%	18
	Si	%	< 0.5

Dimensional Tolerances: ASTM: C 134	Thickness	0 to 100 mm ± 1.0 mm
	Width/Length	0 to 300 mm ± 1.5 mm
		301 to 500 mm ± 2.0 mm
		> 500 mm ± 0.5 %

Air Oxidation Resistance:	Excellent
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Electrical Conductivity:	Very Low
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Errosion/Corrosion Resistance:	Excellent
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Brussels Nomenclature number:	6902.90.00 00
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Sizes: SICATEC 75 is available in all standard sizes within the following max. dimensions:

Length: 700 mm

Width: 350 mm

in thicknesses from 25 to 75 mm

Thicknesses up to 100 mm available upon request against extra charge.

Special shapes, sizes and thicknesses within the 25 to 100 mm range are available upon request.

Packing: Strong, double deck, export pallets with separation paper between each layer, corners, carton on all 4 sides and top, nylon straps, and plastic bag.

Physical and thermal values are based upon regular, average test results.

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