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## Prefabrication makes shipbuilding competitive

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# INTERVIEW

## Prefabrication Makes Shipbuilding Competitive

Interview with Mr Joseph H. Van Riet and Mr Fritz Sandmann, Blohm & Voss A.G., Hamburg

**At the beginning of February the Hamburg shipyard, Blohm & Voss, introduced the public to a new technical concept which may mean a revolution in shipbuilding: the "Pioneer"-multi-carrier. This design is composed of prefabricated elements. It is based on the mechanical assembly technique and more than one hundred variations are available. INTERECONOMICS\* asked two representatives of this shipyard about the economic advantages of this new system and what effects it will have upon the shipbuilding industry.**

**QUESTION:** Mr van Rieth, recently there has been a certain activity in developments in the German shipping industry. At the beginning of 1966, Blohm and Voss took over the shipyard of H. C. Stülcken Sohn. The nationalised Howaldtswerke in Kiel will soon merge with Howaldt Hamburg and the Deutsche Werft. Further shipyard mergers are being discussed. What are the reasons for this concentration?

\* The interview was arranged by Gerhard Schildmann and Wolfgang Reisener.

**ANSWER:** In my opinion, large enterprises are essential, since only large units—because of their turnover—can afford the high cost of development in this sector. It is obvious that a firm with a turnover of DM 100 or 200 million p.a. can invest less in development than a firm with a turnover of DM 1,000 million. In Japan such large groups do exist; these big units are able to perform their essential development function. I do not mean that the German shipbuilding industry is inactive in this field,

but it must be obvious that a large firm has greater opportunities to make more intensive use of technical progress.

**QUESTION:** In the cargo business, freighters have not only become larger and faster, but their construction and equipment has become more specialised. As well as building carrier ships for buoyant, large-size containers and developing the barge carrier—to mention only some of its new lines—Blohm & Voss has recently announced its multi-carrier system. The development of the "Pioneer" was acclaimed as a revolution in world shipbuilding. What is special about this type of building process? What are the most important technical characteristics and economic advantages of this ship, compared with other types of transport?

**ANSWER:** I should like to make it clear what we were aiming at with our multi-carrier system. We started from the idea that, with an exciting technical concept, it would be possible to carry out a worldwide market research investigation, in order to test how future technical development at B & V should be orientated. We also wanted to offer a liberty-replacement ship, since the existing Liberty Ships are soon to be withdrawn because

### JOSEPH H. VAN RIET

was born in St. Niklaas (Waas) in Belgium on May 1, 1923. After his education at the medium technical school at St. Niklaas he started aeroplane construction. World War II set an end to his studies. After the war he worked as a ship constructor for the reputed dockyard Jos. Boel & Zonen in Tamise, which in 1950 delegated him to the organising and planning staff. In 1953 Willy H. Schlieker called him to Hamburg to build up his dockyard. Since October, 1962, Van Riet has been member of the Board of Directors of Voss A.G. He is heading among others those central departments of the biggest but one German dockyard being engaged in development, construction and building of ships.

they can no longer cope with international requirements. We found out that we should have to take a different line from that of our competitors. It was not sufficient simply to offer a replacement ship, the concept of which would replace the formerly very successful Liberty Ship. On the contrary, we would have to offer a design, the prime object of which was to foresee likely future developments in world shipping. In addition—and in order to get away from "bespoke work" in shipbuilding—we should have to offer shipowners standard construction elements, but without inclining too much towards any special type of ship. We wished to remain free to build, from the various basic elements, whatever ship was right in each individual case.

**QUESTION:** Parallel with the development of the multi-carrier, you have developed the so-called B & V installation system. What is this exactly?

**ANSWER:** In developing the "Pioneer", we had two aims clearly in mind. The ship would have to combine as reasonably as possible a working area, planned in prefabricated elements—i.e. cargo holds, loading gear, and propulsion plant—and a living area. To begin with, the two areas were planned by two different development groups. In the living quarters too we tried to devise standard elements which could be combined as desired. This means that the time required for mounting such

parts on board is greatly reduced. With that the installation system is constructed in the workshop rather than on board.

**QUESTION:** Mr Sandmann, the expression "multi-carrier" leads us to believe that the ship can be used for a variety of purposes. What are its possible uses?

**ANSWER:** The term "multi-carrier" means that this is not a single ship, but a system. It is not a "ready made" job pure and simple, but a sort of bespoke work. We want to be in a position always to offer a suitable ship for any type of freight, from our production range. For one thing, the range of operations is extended by installation of different types of equipment. This type of ship can be used to carry general freight or bulk cargoes or as an automobile transporter with B & V hoistable decks. In addition, the cargo holds are so dimensioned that their length and width are many times those of the containers. Thus, also with guide frames, this ship can be used as a container ship. Another innovation of this system is that it can be adapted for different types of cargoes with regard to loading gear. The equipment can vary from simple gear to gear for heavy cargo. We can also vary the size of the ship. We have not developed any special size. We can build ships from 13,600 tons to 22,000 tons. And, finally, the propulsion power is also variable. The engine room is laid out so that various types of propulsion plant can be built in.

**QUESTION:** In building bulk carriers, shipyards have already achieved sizes of 50,000 GRT. The multi-carrier can be delivered in sizes ranging from 13,600 to 22,000 GRT. Do you not think that the "Pioneer" is lagging somewhat behind developments in the construction of large ships and that, particularly from the point of view of attempting to reduce operating costs, it is inferior to larger ships?

**ANSWER:** That I do not believe. Large bulk carriers with a capacity of 70,000 tons and over are intended for certain clear-cut uses. They are more like liners. The multi-carrier, on the other hand, is primarily a tramp ship which can take on loads of a size comparable to the availability of cargoes. We can see from Liberty Ships that it is precisely ships with a capacity of between 10,000 and 16,000 tons which are always fully laden. The demand for cargo space is so great in this field that we think that we have found the right size for this ship.

**QUESTION:** Can any comparative information yet be given on construction and operating costs for the multi-carrier and for ordinary types of ship?

**ANSWER:** The cost factor was the decisive one in planning this type of ship. Therefore, in working out the designs, a great deal of thought was given to production. If we accept as a basis that for a conventional ship of this size the costs for the hull are 100 % per ton, we can say that the "Pioneer" will

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certainly not cost more than 75% per ton. This means a reduction in building costs of about 25% for the hull alone. This counterbalances the Japanese advantage in material costs, since they can obtain their material about 25% cheaper than can German shipyards. So this is the first time that our technical and constructional deliberations have placed us in a really competitive position.

**QUESTION:** What about costs for maintenance, repair, insurance, and crew?

**ANSWER:** One of the aims of this design was to build a ship which is reasonable not only in construction costs, but also in operating costs. The fact that the body of the ship is a polyhedron means repairs are reasonable. For ship-owners, the crew and its costs is always an important item in a breakdown of operating costs. Therefore, an attempt has been made under this system to manage with a minimum crew. This is true of all functions. On deck, we have developed a hatch system which is very simple to batten down. The cargo holds are so designed that they can be cleaned down with a minimum of effort and held in readiness for whatever type of cargo is to be taken on. The installation is so arranged that all the service quarters—saloons, pantries, galleys—are concentrated in one locality. This means a much smaller expenditure upon service; finally, as far as the engines are concerned, these can be adapted for automation.

**QUESTION:** Mr Van Riet, ship-owners are imbued with tradition. Every shipowner has his own idea

about the "proper" type of ship. Do you believe that the "Pioneer" will be able to overcome the psychological inhibitions of owners so that this new type of ship will soon be in service?

**ANSWER:** If we have the opportunity to show shipping line managements the exhibition which we are holding in connection with the development of the "Pioneer" and our installation system, we shall certainly be able to overcome traditional and psychological inhibitions. We believe that our design is convincing. After all, what we want to achieve in developing the "Pionier" is a greater degree of economy, the end-result of which will benefit not only the shipyards but also the shipping lines

**QUESTION:** At the present stage, are you already negotiating with German or foreign shipping lines.

**ANSWER:** Our design has met with terrific interest all over the world. And I must say we have had so many enquiries that at the moment we cannot cope with them. Of course we realise that a large number of these are only requests for information. But we can already see that 10—15% are serious and, on the basis of preliminary talks, I believe it will not be long before we have some contracts.

**QUESTION:** Are similar experiments in design being made in other countries, for example, by your competitors in Japan and Sweden?

**ANSWER:** We know that the Japanese are offering a Liberty-replacement ship. We also know that there are yards which are offering not only a simple replacements for Liberties, but also

a bulk carrier of 22,000 and 25,000 tons. But all these ships are of traditional design. They have no standard system. I believe that at present we are the only ones to offer a complete system.

**QUESTION:** Financing is of importance, as well as the technical advantages of the design. Can the German shipyards, with their payment conditions, satisfy the requirements of foreign buyers?

**ANSWER:** There are two major deficiencies in the German system of financing. First of all, the ceiling is too low and needs to be raised as soon as possible. Secondly, the application procedure should be simplified; hitherto it has been very complicated and tedious. We could use the Dutch system of financing which has just been passed as an example. It is less bureaucratic and is easier to handle in practice.

**QUESTION:** What are the financing conditions for German and/or foreign clients?

**ANSWER:** We normally count on cash payment. German shipping lines have to make their own arrangements for financing orders. On the other hand, for foreign shipping lines we can obtain credits from the Ausfuhrkredit-AG, (Export Credit Company) or Kreditanstalt für Wiederaufbau (Reconstruction Loan Corporation) at preferential rates of interest and can have building risks insured with HERMES. Financing facilities are obtainable for a maximum of 80% of the order value. The interest rate depends upon the period of time for which credit is granted and the amount of the individual instalments.



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