

Institute visit

Visit to the Datsun Nissan Company's body pressing and assembly plant at Rosslyn, Pretoria, and the Claremont-Danville Tunnel on 27th February, 1970.

The excursion arranged for the 27th February to the Datsun Nissan motor car assembly plant at Rosslyn, near Pretoria, in the morning and the Claremont-Danville tunnel in the afternoon was well supported by some 43 members.

The visitors were met at the factory by Mr Rademeyer, the Industrial Relations Manager, and members of his staff and were taken to the artisan training centre for light refreshments. There is a well-equipped training section with an air-conditioned lecture hall; we were told that such training facilities were important because of the cosmopolitan nature of the artisan staff.

The visitors were divided into small parties and taken to the tool die and jig-making section, which is perhaps the key department for a factory of this nature. There the many dies for the presses in the body pressing section, as well as the complicated jigs for body welding are made.

The technique for making the castings for the dies is interesting. A polystyrene model of the casting is embedded in moulding sand. In a neighbouring foundry molten metal is pressed into the headers and burns away the polystyrene, which leaves no residue, and this exactly fills the space occupied by the model. This rough casting is then machined in large copying machines (costing as much as R180 000). An exact plastic model of the surface of the pressing required, set up in juxtaposition to this casting is traversed by a master stylus which operates the slave milling cutter, thereby machining the surface to close tolerances. The machined casting is cleaned up by hand and finally finished in large spotting machines, using a blue dye to show up high spots, to the fine degree of accuracy required. The body pressing section was next visited. There the large number of pressed parts which make up a vehicle body are pressed out of special deep drawing steel plate. Some of the largest presses were capable of applying a pressure of 1 200 tons and cost as much as R185 000 each. The visitors then followed through to the assembly section where jigs are used to hold together the many pressings, which are then spot welded into body frames. The frames go to an assembly line where they are finished to the stage for painting. The continuous crawl painting assembly line carries the frames through all the stages of prime coating with zinc phosphate sprayed on in a tunnel, followed by immersion of the lower parts in a priming bath, then drying and spray painting and baking in tunnels.

The body frames, after painting, join another assembly line, where the doors, upholstery and many fittings are attached. After this stage the completed bodies are lowered onto and attached to the chassis units which are largely assembled from imported parts (engines, transmission units, etc.). From the end of the line the completed cars are driven off to the trial track and then pass through a tunnel with powerful water sprays to detect leaks in the body work.

The proportion of locally made parts is just on 45 per cent. An interesting aspect of the assembly organization is that, of the 140 or 160 cars completed each day

there may be included some of each of the Datsun model as well as some Renault and Alfa Romeo models models which are assembled by this company. The change from one model to another several times a day does not present any difficulty to the organization. Each section of the assembly plant 'buys' the units from the preceding section and 'sells' to the succeeding section. This means that the responsibility of each section ends when the unit is sold to the next section. The cost of repairing any faults found subsequently is charged to the section where it is found, which puts a powerful emphasis on meticulous inspections between sections to safeguard their costs.

After the tour the parties assembled at the lecture hall where a lavish cold buffet luncheon was provided by the company. After luncheon Mr A. R. C. Fowler, on behalf of the Institute, thanked the Managing Director, Mr W. J. Wilson and his staff for this most interesting and well organized visit.

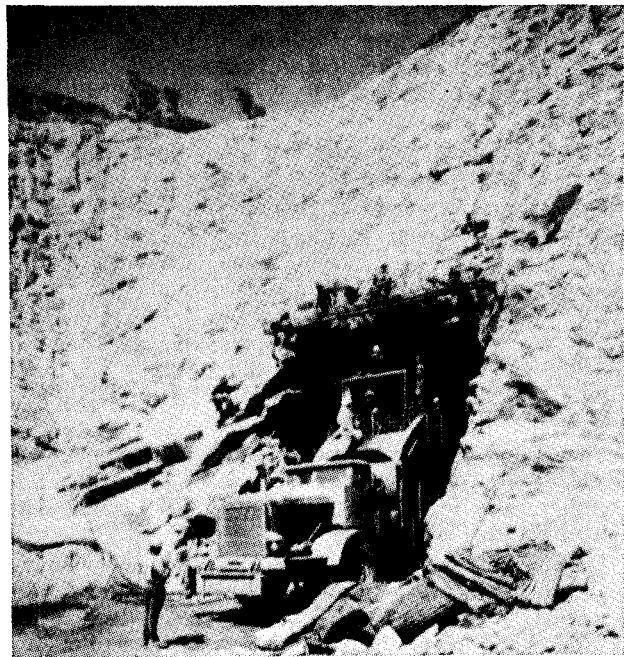


Fig. 1—North portal of Claremont-Danville tunnel

The party then left for the Claremont-Danville tunnel. The tunnel is being driven by General Mining Federale Kontrakteurs through the Daspoort Range, Pretoria, to link the suburbs of Danville, near Iscor, and Claremont, which at present can only be reached by a nine mile detour. It is estimated that some 6 000 vehicles per day will use the tunnel.

Before entering the tunnel a short talk was given by Mr Ross who is in charge of operations. He called on various officials and staff of the Consulting Engineering firm, Basil Read (Pty.) Ltd., to describe the tunnel and

the many problems encountered. An interesting aspect was the effect of the different rock formations on the breaking of the face as the tunnelling advanced. The tunnel was commenced from the north side of the range because of the harder quartzite on that side (Fig. 1). From the south end it is proposed to put through a small pilot tunnel, because of the soft shale, to meet the main

tunnel from the north. It will then be possible to assess the difficulties of tunnelling and devise the best methods of attack.

The party was conducted on foot into the tunnel and many questions were asked of the guides.

A.E.G.

Proceedings

MARCH GENERAL MEETING

The March General Meeting of the Institute was held in Kelvin House, Johannesburg on 18th March, 1970, at 4.30 p.m.

Mr J. K. E. Douglas (President) was in the Chair.

There were also present fifteen Fellows, Messrs H. Britten, R. C. J. Goode, Prof D. D. Howat, Mr T. C. A. Meyer, Dr R. E. Robinson, Messrs V. C. Robinson and P. W. J. van Rensburg (Council Members), S. K. de Kok, Dr N. P. Finkelstein, Messrs K. W. Findlay, H. N. Hepker, J. Levin, Dr K. A. Murray and Mr A. H. Mokken.

Four Members including Mr D. Ayres, Dr M. I. Britten and Dr A. Granville.

One Associate: Mr G. S. Stander.

One Student, Mr R. N. Guest.

Four Visitors, Messrs S. A. Allison, C. N. Leibb, C. J. Kooij and A. Mavrogordato.

Secretary: Mr D. C. Visser.

Total present: Twenty-seven.

OBITUARY

The President: "It is my sad duty to announce the death of Henrik Johannes Van Eck, Honorary Life Member, who joined the Institute in 1929 and passed away on 18th February, 1970.

Dr van Eck started life as a chemist and chemical engineer and, as we all know, he rose to become one of our most distinguished leaders of industry in the country. On many important occasions we, in this Institute, have been privileged to have him address us on subjects which were always of great importance and relevance to the developments in this country. He was a man of great vision and imagination and could put across his ideas in a most eloquent and convincing manner. In his important position as chairman of the Industrial Development Corporation and of Iscor, whatever he said carried great weight. Busy as he was he always found time to participate not only in the affairs of this Institute but in many other technical and public bodies. His passing is a great loss to South Africa and we in this Institute wish to associate ourselves with the many other tributes which have been paid to this great man. We extend our sympathy to his wife and family and as a mark of respect I would ask you to rise and observe a few moments silence."

MEMBERSHIP

The President: "I have much pleasure in announcing that the names of the undermentioned candidates, having been published in accordance with By-Law 5.2.2, Council has elected them to membership of the Institute in the following grades:

Fellow: Ian Douglas Bruce Corner, Joachim Bernhard Rolfs.

Member: Michael Vernon Nolan.

Associate: Karl Franz Wilhelm Eick.

MEMBERS TRANSFERRED TO A HIGHER GRADE

From Member to Fellow: Nilo Zolezzi.

From Graduate to Member: Roger Billingham.

I welcome the newly elected members to the Institute and congratulate the members who have been transferred to a higher grade."

PAPERS FOR PRESENTATION

The President: (i) "Mr Lee, may I call on you to deliver your paper entitled 'A new bubble pick-up technique as a rapid flotation test method'."

After the presentation of the paper the President said:

"The paper which Mr Lee introduced this afternoon was a short one but was nonetheless important in that it described a new tool for use in flotation test work. Those of us who have experienced the frustration of trying to solve flotation problems by trial and error methods know what this means. I well remember 25 years ago at T.G.M.E. trying to improve the recovery from the flotation plant there by trying various combinations of reagents and then having to wait a couple of days for the assay office to give results. Even then, on the small scale laboratory tests which had to precede full scale tests one could never be sure that the results obtained were reproducible on the full scale. Here it seems we have a relatively simple apparatus which can measure instantly the effectiveness of various reagents under different concentrations and pH values, etc. It is most important, I believe, that developments of this kind be reported in our journal for the benefit of all involved in such work, not only so that we know about it but also in order to provoke constructive discussion which might lead to further developments. I would like to invite members, therefore, to submit papers or notes on important