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International were also called in on a short-term basis and most of them, with the exception of two have returned. Howe India's staff today includes over a hundred engineers.

"I have found Indian engineers to be among the best in the world," says Roessler. "We also have taken in recent graduates and have trained them, even sent some of them abroad, so that they can come back to work on our projects here." But that is not all. Engineers from Howe India have also gone out to work on design and construction projects in Hongkong, Singapore and Djakarta. "So we even earn foreign exchange for India," says Roessler. "One of the best instances of this is that we are at present cooperating with certain Indian public sector undertakings who will bid for a project in S. E. Asia with our assistance."

So much organisation and administrative work, one supposes, would have really bound him down to his managing director's desk. Roessler smiles again "No, I've tried to arrange my life in such a way that I still do a good deal of field work and designing. I have done much of the basic design on the outer harbour complex and I am still project engineer for Vizag," he says. "For the berth we used a

simple—though not so simple, really,—Canadian invention of placing huge slip formed concrete cribs into the sea and then filling them with water for weight and stability. It was a nerve racking business, in the waves of the Bay of Bengal. But once the cribs are in place, we place precast girders over them and have our ore berth ready. So you see, only the idea was taken from Canada—we made it work in hundred per cent Indian conditions."

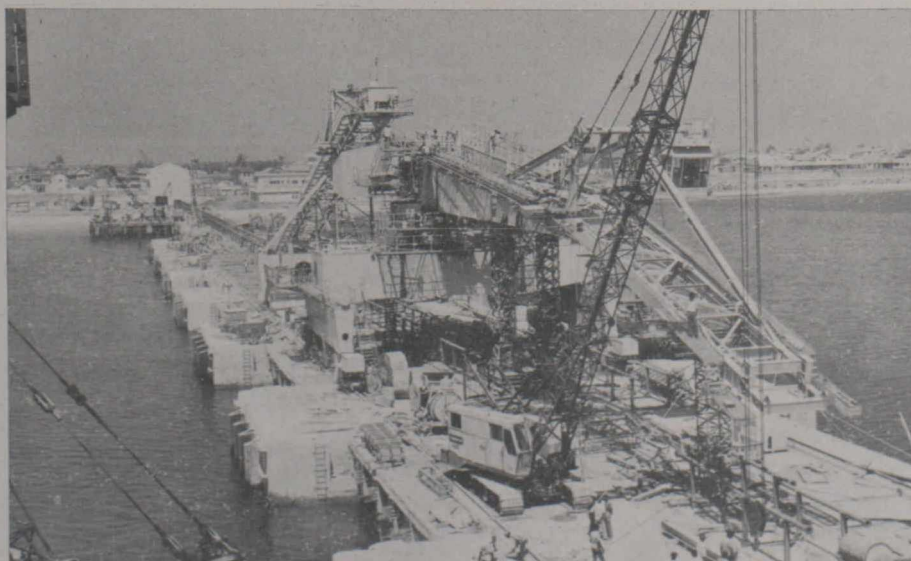
"In fact, my engineers design much more than is usual, especially equipment. We make designs so that the equipment can be manufactured in India to our specifications. For instance, for Mormugao port, we have 300-ton per hour barge unloaders which are being made to our design by a Calcutta firm. This is the first time they are being made here."

So Steve Roessler has remained an engineer first and last and has his heart in the unusual problems and solutions that each project involves. One such was the construction of 3.5 kilometres of breakwaters for the Visakhapatnam outer harbour (See diagram p. 7). These breakwaters would have to stand up to the severe cyclonic storms of the Bay of Bengal. To design the breakwater sections, the consulting engineers made studies of cyclonic storm records for the

past 70 years and then prepared their design which took into account the intensity of waves from the principal directions of approach and varied accordingly from breakwater to breakwater. The climate and oceanographic conditions at the project site limited the construction period of the breakwaters to five months (December to April) in a year and this posed an added problem. Special construction equipment designed by Roessler and his staff was made available to the Indian contracting firms carrying out the construction work and this equipment included the floating crane 'Hanuman', three propelled hopper barges, two flat top pontoons, two gantry cranes, one large crawler crane and an electronic position fixing system for sea-going vessels. "But we finally did it," says Roessler after spelling out the details, "and the first ship will be loaded with iron ore by the end of this year."

Modern techniques, Indian engineers and Roessler's ideas and determination are the mixture for the kind of success Howe India has been having. As a Canadian in India, he has contributed a great deal to the country's economy and technological progress. But he doesn't say it. With a man like Roessler, you have to keep watching for his next move, his next project.

*Roessler takes Mr. Ramakrishnayya, Secretary in the Ministry of Transport and Shipping, round the installations at Visakhapatnam*



*A view of the ore berth and the gigantic shiploader at Visakhapatnam*