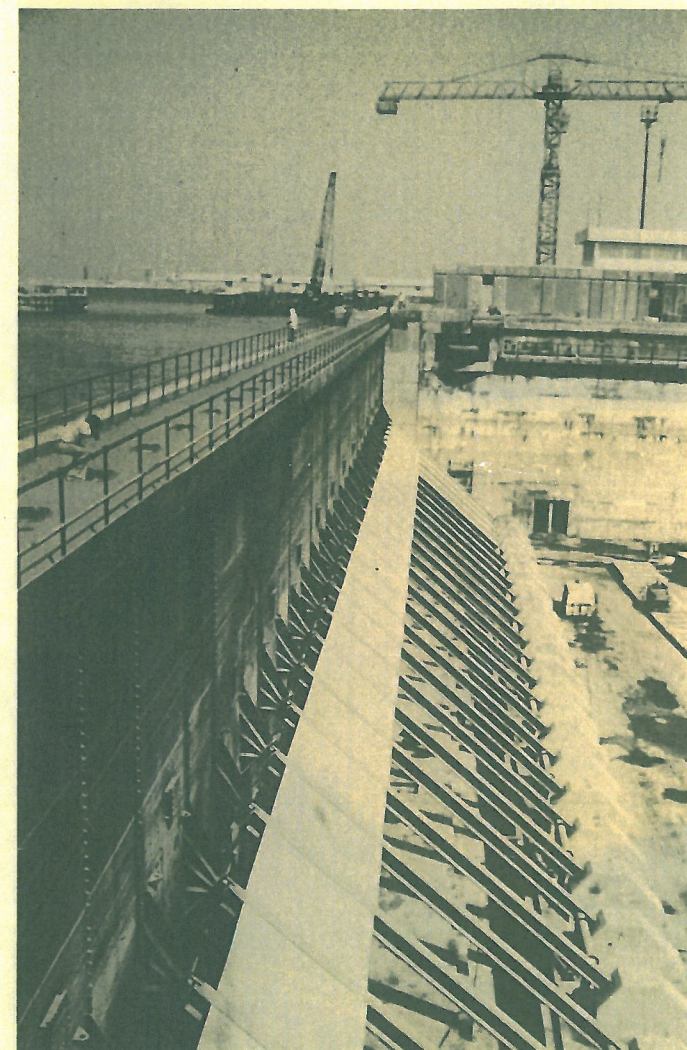
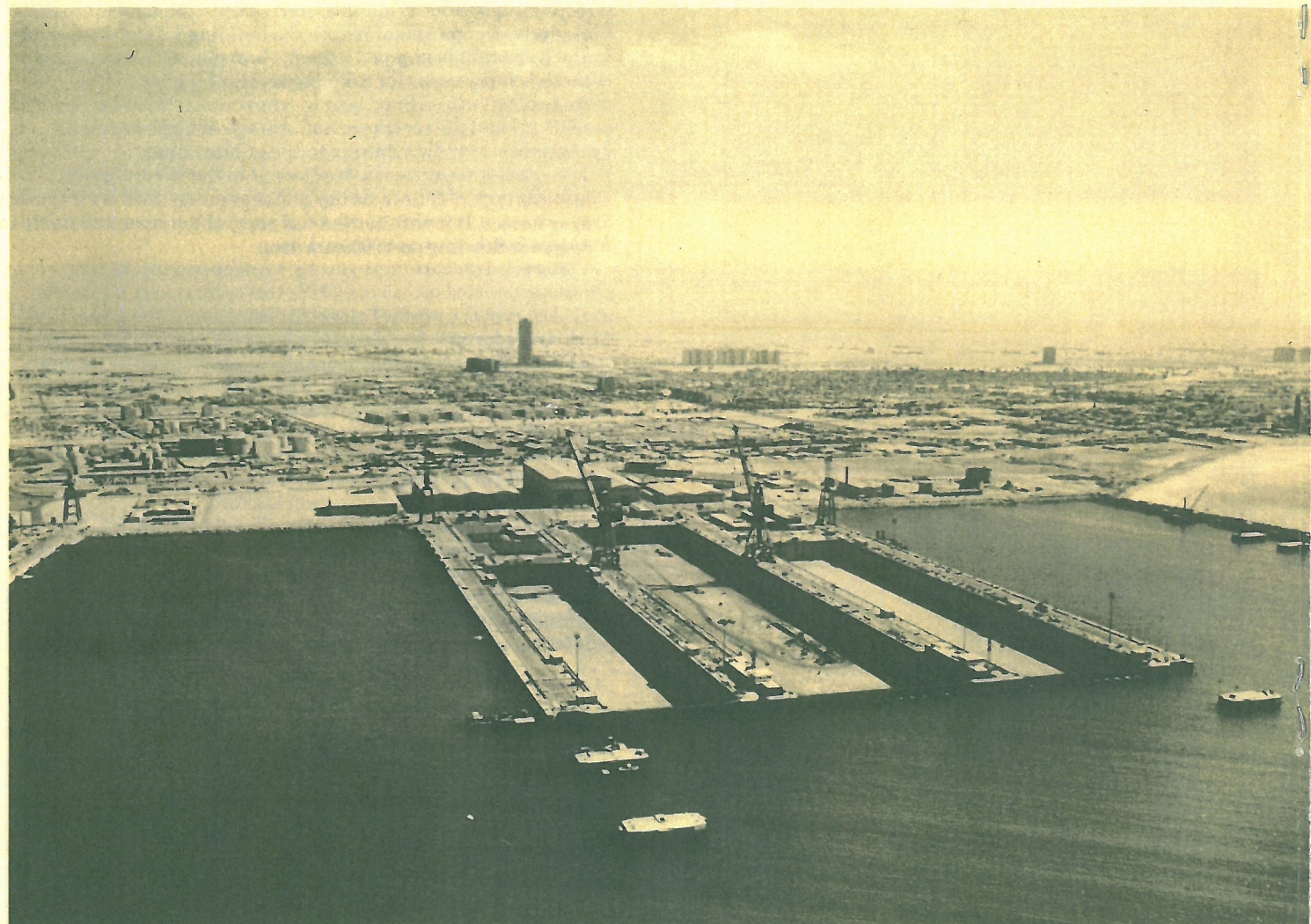


Dubai dry dock gates

For The Dubai Dry Dock Company



EXPORT AWARD

The structure, a vital component of the Dubai dry dock facility, is composed of three gates each 15 metres high and 66 metres, 80 metres and 100 metres wide respectively. Their modular form provides repetitive fabrication and allows interchangeability. The components are simple, involving virtually on-site assembly only. They are easily repairable, or replaceable, on the spot.

The gates are of modular construction hinged along the sill line and capped by a horizontal plate girder. This acts as a stiffening beam for raising and lowering of the gates, and also serves as a roadway for light vehicles. The gates are effectively a series of buoyancy tanks (modules) hinged at the bottom with stiffened plates between and supported by steel props which hold them in position against the pressure of the water. They open out from the dock and in the open position fit into recesses outside and below the dock entrance.

Each gate is normally operated by two winches working together. When the water levels on each side of the gates are equalised, the props and bearing pads are relieved of their load, the buoyant weight of the gate being carried by a trunnion bearing at the base of each module rib. As the restraining winches are paid out, so the gate rotates about the trunnions and the props run down the back of the gate.

One factor which affected operations at Dubai was the climate. Temperatures vary from about 8°C at night to over 50°C at noon. The operating temperatures of the gates are nearly the temperature of the surrounding water, which is approximately 27°C.

A crucial aspect of the Dubai project concerned the seals. Clearly these were vital to the entire contract and were subjected to intensive prior investigation and testing. The main seals, between the steelwork and the concrete, become effective on the closing of the gate. These were developed, tested and supplied on behalf of the Joint Venture and operate over an effective compression range of 33 millimetres. The inter-unit seal, the material of which is of British origin and which was tested in the UK, provides a watertight seal between each buoyancy module and the skin plates, after bolting-up.

Structural Engineers:
T.F. Burns & Partners

Steelwork Contractor:
**Consortium of Redpath Dorman Long International Ltd
and Sir William Arrol NEI Clarke Chapman Cranes Ltd**

Judges comments

The bold and imaginative solution to this dock gate problem is impressive and the size of the project and the tonnage of steel involved enhances the prestige of this export contract. The neat solution to the operating design, the attention to detail, the careful consideration of secondary factors such as temperature differentials and the plan to minimize site fabrication are noteworthy.