    Long before the opening of year-round shipping in
the western sector of the Arctic, specialists weighed all
the pros and cons of the new venture and calculated the
economic feasibility of shipping operations, taking into account
the use of the fleet under difficult ice conditions, the
building of new icebreakers and transport ships, the
operation of trans-loading equipment... One thing they did
not look at was how dock facilities would respond to the
harsh conditions of the Far North. By the way, ten linear
metres of dock here add up to a colossal amount of money -
roughly 100,000 rubles. And this is the minimum. At a
maximum it comes to between 200,000 and 250,000. The very
first year of operation showed that the docks in winter
came close to being dangerous. And so much so that even in
the summer one couldn't work here. What's more, there
could be no question of their lasting another winter. Then
a second and third dock reached the same state and had to
undergo major repairs.

    One evening the port's chief engineer, Mr. Budin,
invited me to the hydraulic engineering laboratory, which
is now headed by his student A. Kasarkin. Now, the
laboratory has well designed research equipment, a good
part of which, I might add, was built in Dudinka. Viktor
Aleksandrovich led me to metal containers of impressive
proportions filled with sand and water.

    "During the summer the equipment 'takes a rest',
but in the winter we perform our experiments here.
In this basin, which has a capacity of twelve cubic
metres, we build a dock on a scale of one to ten. Then we
attach heat sensors that can record the temperature at all
points of the container. In the boundary regions parameters
are maintained to within one hundredth of a degree.

    When 'construction' is complete, the installation,
weighing thirty tonnes, is rolled into a special hall where
the contents freeze from natural cold into a solid mass.
We model the wind, too. That's very important. Then we
begin the actual experiment. We break up the ice, freeze
the ships to the 'docks' and free them... The principal