our opinion will grow, would benefit from a separate class. A short lecture (half-hour) followed by a discussion and a final summing up would be the programme for such an evening. The lecturers could be varied and should be drawn from all parts of the docks.

A very difficult problem on which we have not formed a definite opinion is whether an age limit of 19 years or something similar should be set for entrance to this course. The argument for having such an age limit is that it would be better for younger students to have more general subjects, e.g. commerce with a special regard to Transport, English and Geography. The argument against it is that it would deprive students of the advantage of passing the Port Working Examination before being called up for military service so that after return from the services they could start right away on the Institute of Transport Examination, and our fear is that most of the young boys would not come to a class which has a general educational background because there would be a tendency to look at it as a mere continuation of their school activities, and not a professional or semi-professional course.

The next question we asked ourselves was whether this one-year course would form a substitute for a preliminary examination for a professional body. We feel that the passing of the examination will be a real and sufficient test that the students have reached the necessary standard of maturity to be ready for the full course of the Institute of Transport. It has been suggested (Institute of Transport Bulletin No. 27 for 1951) that English should be introduced into the syllabus. The argument advanced against it, that the inclusion of an academic subject would deter many students, is one with which we agree.

There are no suitable text books available for this particular course. The existing text books, although excellent, are too expensive, and also go too deep. What is needed is a short and precise text book written in easy language. I am sure that amongst the new lecturers who have been taking this course this year many who have prepared notes, and these notes might perhaps form the foundation for such a text book.

We have no experience yet of the examination but we feel that three evenings of three hours each will be a heavy strain for students who have been working all day and have to take an examination at night. The suggestion made above that two evenings would be sufficient, together perhaps with the cutting down of the time from three to two and a half hours would ease the burden materially. At the same time we feel, that a purely written examination may handicap some students, and some thought should be given to the possibility of having a combination of oral and written examination, or even only an oral examination.

A last word about what, although it seems trivial, proved to us of great importance. The responsibility and the full initiative for the running of the course must rest fairly and squarely on the school, and the Institute of Transport. In no circumstances must the impression be given that this course is mainly sponsored by the Dock Labour Board, or the Trade Unions. Suspicion is rife in dockland and grievances die hard. The dockers may not trust the Dock Labour Board, and may suspect even his own Union. He will welcome the independence of the school, the independence of his lecturers, and he will benefit by mixing with other students of the institute. In our case we preferred to run the course even in our own building which is a grammar school normally used by boys, in preference to better equipped premises offered to us by the Port Authority and Trade Union. We feel that if the impression gained ground that this course is one run by the Dock Labour Board it would not attract the best type of student who wants to keep independent of his employer.

This is the first attempt to bring education to the dock worker. Nothing must stand in the way of making it well known and successful. The efficiency of our docks depends in the last resort on a well informed and alert labour force which understands not only its own job but its background and its place in our economic life. We make this course a success we can contribute towards this aim.

Evening School of Commerce, Salford Education Committee.

April 15, 1952.
Correspondence—continued

abolished these fences about 1730; it would therefore appear that
two centuries ago the Dutch engineers protected their coast better,
and in a more economical way, than they do now (pages 221 and
222 of the book). Mr. Minikin’s idea is to promote “sea-sense”
and he writes: “It is only right that new works and methods
should be tried out, but they must be more closely related to the
ends in view.” Now this is a rather serious doubting of our horse-
sense as well as our sea-sense.

Knowing the English shores fairly well (and admiring their
beauty) and having noted down my views on coasts, estuaries
and tidal hydraulics in the new “Civil Engineering Reference
Book” (Editors Probst and Comrie). I venture to explain the
difference between the English and Dutch methods of shore pro-
tection as they are to-day. They are as follows:

The Dutch want artificial capes, the English mobile material to
protect their coasts. Mr. Minikin says, page 34: “The erosion
of high cliffs containing durable minerals is a very useful source
of supply of littoral drift for beach economy. The loss of ground
of high cliffs containing durable minerals is a very useful source
and cliffs included.

The 12 mile stretch between Hook of Holland and Scheveningen
with its 66 groynes which are specially evoking Mr. Minikin’s
scorn, had to be built because the sand dunes there became so
narrow that the sea would have broken through. The cape-like
expensive groynes have kept the depth-line of 7 metres well out
of the shore, and kept the whole low country behind it safe. We
have learned to look under water. The tidal currents had to be
kept off, well away from the shore. Mr. Minikin says that nobody
“should interfere drastically with the natural regimen of the
lower foreshore,” but we had to do so. There would not have
been any cheaper way to escape calamity.

The English method is always the cheapest in England so long
as that country can suffer the sea to produce enough littoral drift
from its shores. We would perhaps welcome England to provide
us also with some material of its eroded shores, but England is
on the wrong side of the Channel, and I fear we even would suffer
from it in our river and harbour entrances. Littoral drift has its
disadvantages too.

Of one thing we are sure; there is no other way to stop sea-
erosion than by making or keeping strong capes. In the long run,
even in England, the coasts will recede in the same proportion
as its capes and cliffs recede, many low parts between the capes
and cliffs included.

Yours faithfully,

35. Stalperstraat,
The Hague, Holland.
April 7, 1952.

DR. J. Van VEEN.

Book Reviews

Maritime Works (Travaux a la mer) by Marcel Blosset. Published
by Eyrolles, 61, boulevard Saint-Germain, Paris, 5th, 510 figs.,
653 pp. price 3950 francs.

This book is divided into four parts: (1) the Elements, (2)
Necessary adjuncts to maritime traffic, (3) Construction of Mar-
time works, (4) Harbour Exploitation. There are 24 chapters, 635
pages, and 500 sketchy illustrations, mostly of the type that would
be depicted on a blackboard accompanying a lecture. This is un-
derstandable as the author is Professor of civil engineering at the
Ecole spéciale des Travaux Publics. It is a feature which is con-
venient as it rivets attention upon the matters discussed in the
text. The book covers a very wide field in one volume, and is a
veritable compendium of maritime engineering activities featuring
design, construction, use and administration. It will be appreci-
ated that such an extensive range does not allow of detailed
treatment, nevertheless, the author has succeeded in producing a
volume of great interest upon a technical subject that never
becomes uninteresting or boring. Such treatment makes it a
valuable aid to students to master the ramifications of the subject
before specialising in any of the branches discussed.

The first part deals with wave action, tides, and currents; sea
industries, and various schemes for utilising tidal power; hints on
constructional materials, etc.

The second part commences with descriptions of post-war vessels
and their harbour needs; and then discusses the provisions, from
the naval architectural standpoint, for the seaworthiness, security,
and navigability, of vessels. The modern development of naviga-
tional aids, and the design and construction of harbours, lighthouses,
or associations, for safety provisions are examined. Useful notes on
the production of charts and the preparation of soundings diagrams
are given, lightships, lighthouses, harbour direction lights and
radar equipment stations are also treated.

The third part is the most extensive and covers more than half
the volume sketching maritime works from harbours of refuge,
outer harbours, calling piers, etc., to those works required in the
largest of commercial ports. There are 13 chapters in this section
dealing with tipped rubber breakwaters and vertical walls and the
methods of design and construction; the layout of the essential
facilities for discharge and transfer of cargoes to land transport
and storage, the expeditious loading, or unloading, and despatch
of bulk cargoes, the economics of transporter and luffing cranes, etc.

Lengthy treatment is given to the construction of various types
of quay walls for shallow and deep water docks and to mooring
facilities alongside, wharves, dolphins, buoys, etc. Numerous
hints are given on materials of construction and for fending
off the waves alongside quays. One of the chapters is devoted to
dock gates and shipping locks. The book also has a chapter on grips
building and repair berths, slipways, and floating docks. Various
types of bridges for spanning navigable waterways and channels
are described. Other matters receiving attention are: dock and
harbour maintenance, wreck removal, dredging, etc. Then
follow chapters on coast defence and the improvement of tidal
rivers, and canals.

The fourth part, of three chapters, deals with commercial,
arbitration, and special matters such as seaplane bases, oil
ports, fish marketing facilities, and the duties of a harbour
engineer.

To sum up, the book is most interesting reading and gives full
attention to the essentials of the subject as a whole. It provides
an excellent, although sometimes a sketchy, summary of the con-
struction of maritime works and maintenance, and should be of
great use to young engineers wishful to acquire information over
the whole of maritime harbour activities.

R. R. M.

Three Hundred Years on London River by Aytoun Ellis, The
Boodle Head, 30s.

This book is the Hay’s Wharf story from 1651 to the present day
and is rich in the history of riverside Bermondsey and Southwark.
It traces its development from a small wharf to the present-day
continuous line of wharves extending from Oval Bridge to Bank-
side with ancillary cold stores and wine and spirit vaults lying
behind the riverside warehouses. The book also traces the deve-
lopment of the lightering, cartage, and shipping and forwarding
interests associated with the present-day company, The Proprietors
of Hay’s Wharf, Ltd.

In the early days of Hay’s Wharf hoyes and other sailing coas ters
were the only vessels to berth at the wharf. In the early part of
the nineteenth century there were services from the wharf to Swan-
sea, Plymouth, Stockton, Ipswich and other coastal ports. In the
middle of the century the China clippers came to the wharf to be
followed later in the century by steamers. The author has dealt
generously with the history and the warehousing side of the Hay’s
Wharf business; he has also brought into his narrative the family
records of those far-seeing men who built up the business as Lon-
don knows it to-day, but much of interest has been lost by not
valuing the old records for something about the ships which so many
thousands of Londoner’s see day by day as they cross London Bridge.

The book is well illustrated with old sailline bills, maps, plans
and contemporary pictures and prints. Several of the illustrations
have been specially painted by the author’s son, Mr. Gordon
Ellis.

A. G. T.
Correspondence

To the Editor of The Dock and Harbour Authority.

Dear Sir,

English and Dutch Methods of Shore Protection

Adverting to the letter on the above subject in your May issue over the signature of the well-known maritime authority, Dr. Van Veen, of the Dutch Rijkswaterstaat, may I also ask the hospitality of your columns, as thereby readers who have not read my book on "Coast Erosion and Protection" may the more easily appreciate the argument. First of all, I should like to clear the ground by assuring the worthy Doctor that my approach to maritime matters is with humility and never scorn. The paragraphs, pages 221 and 222, of my book from which he quotes a few sentences read as follows:—

"The sandy foreshores of the Low Countries have for centuries been given careful and constant attention, and the fame of the engineers concerned is widespread. It was always opined that the outstanding feature of these important coastal protection works was the resourceful utilisation of cheap and readily acquired materials, yet the modern tendency on these shores during the last few decades has changed considerably. The constructions become more and more grandiose and expensive; in fact, viewed against the history of the simple early works of generations ago, it does not appear that these modern methods have even the functional success of their forerunners. It is only right that new works and methods should be tried out, but they must be more closely related to the ends in view, and the natural conditions, than to the material characteristics of the construction: for example, the construction of the Scheveningen groynes was a formidable undertaking."

"On a 12-mile stretch of coast north of the Hook of Holland there are 66 groynes extending for about 330-ft. below low water line. The cross section of these groynes shows that they are about 80-ft. wide and about 12-ft. high from the base to the crest. The central body consists of a tier of fascine mattresses tapering from nearly 80-ft. wide on the bottom to 30-ft. at the top. On the top fascine a straw mattress is laid and staked, and then covered with a blanket of rubble to a humped form. Over this, for a central width of 20-ft., basalt blocks are laid, and confined at the outer edges with heavy timber stakes. Then on the outside of the stakes, large rubble is tipped to completely cover the whole of the fascine mattresses projecting beyond the basalt crest, at both sides. This rubble is then grouted with bitumen mastic of 20 per cent. bitumen, 60—70 penetration, 10 per cent. filler, and 70 per cent. dune sand, poured at temperature of 180 degrees Centigrade."

"The groynes so treated remained in good condition for six years without maintenance, but those which were not grouted suffered considerable damage."

"Now, as the foreshore is of fine sand and there are no sand-banks off-shore for a considerable distance, the question arises, are the functional benefits obtained from these massive structures commensurate with the cost? The overall problem of this coastline is without doubt best understood by the coastal engineers but, as far as sand accretion is concerned, in no way has a case been made out for solid obstructions opposed to wave or current. It is much more likely that large solid obstructions will accelerate sand transportation by prolonging the time the grains remain in suspension under wave action and subjected to current movement, and thus promote local scour and settlement of the groynes. If the turbulence about them is sufficient to scatter the rubble, then it is obvious there will be no deposit or accretion of sand grains. As each of these Scheveningen groynes cost between £20,000 and £25,000, it will be appreciated that such works cannot lightly be undertaken."

"Surely this is a fair comment in view of the fact that elsewhere on the sandy west coast of Denmark similar heavy groynes of concrete blockwork have not given the degree of efficiency commensurate with their cost. For example, on a 4½-mile stretch of coast north of Bovbjerg the coast recession before groynes were went to 12-ft. per year. After the construction of the groynes the erosion was eventually reduced to 3-ft. per year but, unfortunately, in the immediate lee of the series, the coastline for a considerable distance (originally stable and comprising valuable agricultural land with cliffs of moraine clay 30—40-ft. high) suffered the severe erosion of 200—250-ft. in ten years."

Another factor proved alike by the Danish and Dutch engineers was the high cost of maintaining the seaward extremities of these structures; in fact, while the Dutch were forced to shorten their groynes by 300-ft. Further, the settlement rate of the groynes into the sand entails a considerable renewal every ten years or so. Many other examples of a similar nature show the hazards attendant on massive groynes or "strong capes."

Dr. Van Veen's explanation that these capes were constructed with the sole intention to throw the tidal currents further out to sea, with the full acceptance of the consequent loss of any available littoral drift, constitutes probably the most daring expedient to reduce erosion that has ever been devised. I sincerely hope it shows good measure of success. My doubts, however, arise from the conviction that an offshore gap and conditions of the sea bed that make for wave convergence create severe turbulence and out-to-sea under currents of strong erosive power. Against this, groynes, or capes, alone, are of little use.

Much as I admire the maritime skill and wide knowledge of Dr. Van Veen I cannot subscribe to his penultimate sentence, I quote, "Of one thing we are sure; there is no other way to stop sea erosion than by making or keeping strong capes."

I would like to emphasise that what I have written above is the portrayal of my thoughts and is not fault-finding criticism of his helpful letter nor yet solely justification for statements in my book. I am as keen as Dr. van Veen to arrive at reasonably effective practical solutions of sea problems within the economy of social values and logical geophysical limits.

Yours faithfully,

R. R. MINIKIN.

Handling of Cargo at European and U.S.A. Ports continued

(a) Hardly more than 50 per cent. of all present day ships dispose of sufficient booms as to be worked by more than 5 gangs.

(b) Even in the case of modern ships equipped with a larger number of booms, these are generally working to full handling capacity with 5 gangs, as part of the winches have to be employed for shifting cargo below deck.

If quayside cranes are available for the handling of cargo the picture is as follows:

(a) If the ship and the hatches are large enough a number of up to 13 gangs may be working to the shore.

(b) In addition the ship can work simultaneously a further 5 gangs on the off-shore side into floating craft and still has available a sufficient number of winches for the shifting or stowage of cargo below the deck.

The above figures agree with the practical experience that the loading and unloading of ships in European ports is performed considerably faster than in U.S.A. ports. Reports from ships' officers and port operators tell that, by the use of quayside cranes the handling output of a ship is increased by 50—70 per cent. as compared with the exclusive employment of ships' gear. This, after all, is the decisive point of our study, since by faster dispatch of the ship the quayside cranes fulfil their foremost task: to contribute in setting the ship free for its true purpose, i.e. moving across the seas. Thus the use of cranes increases the productivity of the whole operation and promotes the business of the port. Unavoidable demurrage of the ship is of no account for the comparison of quayside cranes with ships' gear as either means of cargo handling is affected in the same degree.

(To be continued)