The Charting and Safekeeping of Oceans and Waterways: Legal Implications

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Introduction

In the world of shipping and maritime affairs the task of charting the oceans and waterways is one, the indispensability of which cannot be overemphasized. Without nautical charts marine navigation would virtually come to a standstill. The apparent backstage role of chartmakers deserves more attention than is generally accorded them by the beneficiaries of the seas.

Chartmaking basically consists of two disciplines, namely, hydrography and cartography. Hydrography is a science dealing with the description of the physical features and conditions of the waters of the earth's surface. Hydrographic surveying is the age-old art of collecting and collating all the data which goes into the preparation of nautical charts and other similar publications, such as Sailing Directions. Cartography deals with the actual construction of charts.

In terms of the historical perspective, hydrographic surveying is probably the oldest form of oceanic research. Its origin is lost in antiquity. Early mariners used to observe the changing colours of the sea to identify bodies of water and their depths. A passage from one of the earliest known Sailing Directions, written in Sanskrit in 424 A.D., renders an intriguing description of navigation in that era.

The pilot ... distinguishes the regions of the oceans by the fish, the colour of the water, the nature of the bottom, and birds, the mountains and other indications.¹

Today hydrographic surveying has matured into a sophisticated scientific art where laser and electronic technology are used to determine the position, bathymetry, volume, configuration and

¹The source of this translated excerpt is an article entitled “The History of Position Finding — Part 2” written by this author for the August, 1975 issue of Hudsonite, an unofficial magazine of the Canadian Scientific Ship HUDSON, of which this writer was a former editor. The original source is unavailable to the writer at the present time.
motion of bodies of water. Computer technology is used to disseminate and process the data so collected. It is interesting to note that for many years sea-faring pioneers surveyed waters for future navigators in the course of their own ventures in search of new horizons. Most of the waters around the Canadian coast, including the Arctic, were thus surveyed by such stalwart pioneer-hydrographers as Captains James Cook, George Vancouver, Henry Hudson and William Baffin.

Closely related to chartmaking is the task of installing and servicing navigation aids such as buoys, beacons and leading lights which in conjunction with the charted information assist the mariner in avoiding hazards and conducting a safe passage. Another important task is that of maintaining rivers and channels dredged to the charted depths.

Having presented this brief introduction to chartmaking and its associated tasks, the obvious query is — what relevance does all this have in terms of the law? Some preliminary thoughts on the subject, arising out of personal involvement with the Canadian Hydrographic Service, have led this writer to believe that legal implications are considerable in terms of the liabilities to which chartmakers, and those involved in associated tasks, may be exposed. There appears to be a host of unanswered questions regarding legal responsibility for charted information, the maintenance of physical conditions in accordance with such information and the duties owed to users of charts, waterways and navigation aids. This article will generally address itself to these questions.

In particular, the body of the article will be divided into two parts. In the first part a problem will be presented in the form of a scenario describing details of a stranding incident together with the various actors involved. The official responsibilities of the Canadian Hydrographic Service in terms of its specialized activities and its interaction with associated governmental agencies will be examined. The issues arising from the problem will be identified and the approaches which may be adopted in attempting to resolve them will be outlined.

The second part will consist of a detailed analysis of the issues with reference to applicable legal principles. Some resort will be made to hypothecation and analogies to address questions for which there is an apparent dearth of case law on point. Where the law appears to be fragmented and uncertain, submissions will be made towards achieving a cogent formulation of the same.
In conclusion, an attempt will be made to collate and summarize the state of the existing law in the area.

Part I. The Problem: Anatomy of a Stranding

1. The Scenario

On September 28, 1974, the steam tanker GOLDEN ROBIN departed the port of Montreal, P.Q. at approximately 2300 hours local time, with a cargo of 35,968 long tons of bunker "C" oil destined for the port of Dalhousie, N.B. At approximately 0100 hours on September 30, 1974, she arrived in the vicinity of the entrance to Dalhousie harbour and anchored 1.1 miles south of Miguasha Point awaiting pilot. At about 0120 hours, the pilot came on board. The vessel then weighed anchor and proceeded along the buoyed channel into the harbour towards her assigned berth.

At about 0410 hours, while in the channel the vessel struck an uncharted, underwater obstruction as a result of which her bow sheered heavily to port. All immediate efforts to control her failed, whereupon, she struck a second uncharted, underwater obstruction as a result of which extensive hull damages were sustained by the vessel, in particular, by way of cargo tanks Nos. 1, 2 and 4 being holed on the port side and a large quantity of the cargo oil escaping into the waters of the Baie de Chaleur.

Investigations subsequent to the stranding incident revealed a number of facts which are manifestly significant to the purpose of the present inquiry. These are outlined as follows:

(1) The first instance of striking the bottom may have been due to the phenomenon of "squatting" or "bottom interaction". The sudden sheering to port may have been due to the "cushion effect" created by the first bottom contact. The sheering in turn caused the vessel to strike bottom a second time.

(2) The first underwater obstruction which the vessel encountered was a large mud pinnacle which extended southerly across the 260° (T) range line shown on the then current C.H.S. chart.

2. The vessel was beneficially owned by Warwick Shipping Ltd. of Hamilton, Bermuda and operated under a time charter by Golden Eagle Liberia Ltd.

3. Among the several court actions which were generated by this incident, the relevant ones for the purposes of this paper are the proceedings pertaining to the alleged liabilities of the Crown. The factual details have been obtained from the pleadings of the parties concerned which are on record with the Federal Court of Canada. These are No: T-3324-75 and No: T-3325-75.
No. 4426. In the second instance, the vessel having then sheered to the south side of the channel, struck a huge rock or boulder, of which a spur or tooth measuring about 2 ft. x 3 ft. x 3 ft. protruded above the mudline.

(3) Between the late fall of 1973 and early spring of 1974, pursuant to a contract entered into with the Crown, The Foundation Company of Canada was engaged in a variety of activities related to the construction of a new government wharf and warehouse which included drilling, blasting and excavation of rocks. As a result of these activities the north side and rocky seawall of Dalhousie Island had undergone considerable changes in contour. Occasionally rocks and boulders were dumped at or near the slope in the southern part of the navigation channel and in the harbour. During the time of the casualty, ‘on site’ construction work was in progress.

(4) On August 19, 1974, The Foundation Company of Canada in turn entered into a contract with J. P. Porter Company Ltd. to supply equipment and labour necessary to carry out dredging within the berthing area of the cargo wharf at Dalhousie Island.

(5) The pilot did not bring the vessel up along the bearing of the range lights which was 260° (T) and marked on the chart. Instead he steered her slightly to the south of the range line relying on his own local knowledge. Whether the vessel was inside or outside the channel at the time of the grounding was in dispute.

(6) The ship’s echo sounder was not used despite cautionary notes in the chart.

(7) The vessel did not carry the latest corrected Canadian chart and Sailing Direction of the area in accordance with the Charts & Publications Regulations, P.C. 1973-3554 as amended.4

(8) The latest available chart and Sailing Direction of the area were in fact incomplete, misleading and did not truly depict the physical conditions prevailing. Furthermore, some of the aids to navigation were physically out of position. The leading lights were misleading. These were evidenced by the following changes effected in the editions of the chart and

Sailing Direction of the area issued by the C.H.S. subsequent to the casualty.

In C.H.S. Chart No. 4426

(a) a previous sounding of 7 fms. (42 ft.) on the 260° (T) range line immediately south of buoy 2-½D was revised to indicate a depth of 25 ft.;

(b) the position of buoy 2-½D was changed;

(c) the 260° (T) range line which was previously a solid line designating "recommended track defined by fixed mark or marks" was changed to a line comprised of dashes designating "recommended track not defined by fixed marks";

(d) a 'mud bottom' symbol in the navigation channel in the area of the first obstruction (mud pinnacle) was changed to a 'rocky bottom' symbol;

(e) various soundings were deleted;

(f) changes were made in the specific area of the middle ground including different tinting of colours;

(g) In the 1975 edition of the C.H.S. Sailing Direction entitled *Gulf and River st. Lawrence*, some additions were made to the text on pp. 303-304. The italicized portions of the following passages were these additions.

Dalhousie Island is high, rocky and wooded. Middle ground of sand and stones, with a least charted depth of 6 ft. (1m. 8 cm.), lies on the north side of the channel to the harbour. *A survey in 1974 indicated that this shoal had extended southward into the channel.*

Leading lights are shown at Dalhousie. The front light is exhibited from a red skeleton tower, 17 ft. (5m.2cm.) high, with a white and fluorescent orange rectangular daymark, on the extreme NE of the old wharf ruins in the booming grounds west of the Canadian International Paper Co. wharf. *In 1974, there was a least depth of 25 ft. (7m. 6 cm.) on the range line.*

(9) Shortly after the casualty, a team of hydrographers from the C.H.S. conducted a survey of the navigation channel, the results of which brought about the above changes in the C.H.S. publications.⁵

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⁵ Interestingly enough, the shipowners also engaged a private surveying company in Halifax to survey the area. Needless to say, the results of that survey were the same as those of the C.H.S. survey. This information was obtained from Mr.
2. The Actors and Their Roles

In a scenario typical of the one depicted here, the variety of interests affected could quite conceivably engender several potential litigants. In this case the principal actors are the owners of the vessel, the shippers and consignees of the cargo, the Crown, the private company under contract with the Crown and the sub-contractors who were hired to dredge the channel. There are also other parties such as the charterers of the vessel, the master and crew, the pilot, underwriters for the ship, the cargo and the lost freight, and private property owners who may have suffered pollution damage as a result of the oil spill. The interests of these parties however, are extraneous to the purpose of this discussion.

Insofar as the shipowners and cargo owners are concerned although their causes of action are different, since they each suffered a different type of damage, the grounds for their respective claims are basically the same. In the separate actions by the shipowners and the cargo owners against the Crown, the contractor was enjoined as a third party. The thematic essence of the

Donald A. Kerr, Q.C. whose company, Atlantic Towing & Salvage Ltd. was employed for the job.

6. In actual fact, The Foundation Company of Canada had entered into sub-contracts with Henry J. Kaiser Company (Canada) Ltd., Standard Construction Co. Ltd. and J.P. Porter Co. Ltd. for the performance of parts of their contractual obligations. The last named company was hired to carry out dredging within the berthing area of the cargo wharf at Dalhousie Island. Incidentally, the Crown had also hired a private company, Verreault Navigation Inc. to carry out dredging operations in the navigation channel. In the actions by the shipowners and the cargo owners against the Crown, the contractor was named as a third party and the J.P. Porter, Henry J. Kaiser and Standard Construction Companies were named as fourth parties. Since this paper is primarily concerned with the liabilities of the Crown, it will be unnecessary to examine the rights and liabilities as between the contractor and its sub-contractors. For the present purposes it will be sufficient to assume that there were no sub-contracts and that the jobs performed by these sub-contractors were carried out by The Foundation Company of Canada itself. This will limit the discussion to an examination of the vicarious liability, if any, of the Crown in respect of a contractor.

7. The shipowners claimed the following damages:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repairs to the GOLDEN ROBIN</td>
<td>$ 860,976.00</td>
</tr>
<tr>
<td>Loss of time</td>
<td>$ 253,751.47</td>
</tr>
<tr>
<td>Extra fuel</td>
<td>$ 143,935.61</td>
</tr>
<tr>
<td>Survey of vessel</td>
<td>$ 16,591.00</td>
</tr>
<tr>
<td>Survey reports</td>
<td>$ 5,000.00</td>
</tr>
<tr>
<td>Overtime charges</td>
<td>$ 3,850.00</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>$1,000,000.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$2,284,104.08</strong></td>
</tr>
</tbody>
</table>
discussion in the second part of this paper will be an analytical consideration of the duties, rights and liabilities as between parties similar to these.

It is also important to examine and comprehend the functional roles of the actors in their own respective spheres. These roles have a contextual significance in the light of which duties, obligations, rights and liabilities have to be analysed. With the exception of the Crown, the roles of the remaining parties are self-evident. The function of the shipowner is to provide a seaworthy ship and undertake the transportation of the cargo from one port to another in a safe and expeditious manner. The performance of this task is usually pursuant to a contract of carriage. The cargo owner is a trader. He pays freight to the shipowner to have his cargo delivered in accordance with the terms of the contract of carriage. He is not directly involved with the safe navigation of the ship although his principal concern is the safe and timely arrival of his cargo at the port of destination. The private contractor’s function is to perform the dredging in accordance with the terms of the contract without failure or negligence. Relatively speaking, the functional role of the Crown is a highly complex one and warrants some detailed examination.

The Crown has a multifarious role comprising of a number of separate functions carried out by different agencies which operate under different government departments. The Canadian Hydrographic Service, an agency of the Department of Fisheries and Oceans is responsible for the surveying and charting of waterways, and the publishing of charts, sailing directions and other similar publications. It is also responsible for re-surveying areas, the cargo owners claimed as follows:

(A) Loss of cargo $ 32,146.65
(B) Expenses $ 16,878.00
(C) Survey reports $ 5,000.00

TOTAL $ 54,025.19

8. A typical scheme of operations is as follows:

A hydrographic survey vessel carrying a team of hydrographers sails into a designated area. The off-shore survey is usually carried out by the mother ship herself. The in-shore waterways such as navigation channels, fairways and waters close to the coastline which are relatively shallow are surveyed by launches sent out by the mother ship.

A launch crew usually comprises a team of two hydrographers, a coxswain and a seaman. The hydrographic operation primarily consists of measuring water depths...
physical characteristics of which have undergone change. Accordingly the charts have to be updated and amended. When a chart has been substantially amended from the original, usually a new chart is produced.

The responsibility for marking dangers and obstructions, buoying channels and fairways and maintaining the same in working order, lies with the Aids and Waterways section of the Canadian Coast Guard, an agency of the Ministry of Transport. The C.C.G. is also responsible for the issuance of the Canadian Notices to Mariners. These notices are weekly publications which are made available to the mariner to assist him in keeping his charts and other navigational publications such as sailing directions, list of lights and list of radio signals, updated on an on-going basis.

The responsibility for dredging channels and fairways in order that they may be maintained at the charted depths lies with the Public Works Department. Often private dredging companies are engaged to carry out the jobs under contract, although some ports do own and operate their own dredgers.

Canadian ports are administered in a variety of ways. Most of the larger ports are administered by National Harbours Boards which, along with the St. Lawrence Seaway Authority, are in essence Crown Corporations. Within the governmental infra-structure however, they fall under the Administrator of the Canadian Marine Transportation Administration which in turn is a branch of the C.C.G. Some ports, notably Toronto and Hamilton, are administered by Harbour Commissions which are predominantly composed

in accordance with a pre-determined pattern or grid known as “running sounding lines” and correlating each measurement with a corresponding observation of the position of the launch at that instant which is known as “fixing.” The depths are measured by an electronic instrument called an echo sounder; a more sophisticated version is the side scan sonar which performs basically the same function. There are different types of sounders, wide or narrow beam, using variable depth or fixed transducers. The main positioning devices used by the launches are the Mini-ranger and Decca Hi-Fix. The mother ship uses a variety of sophisticated systems including Satellite Navigation and Loran-C.

The survey data thus collected is then processed on board the ship either manually or through a computer. All fixes are plotted on what is known as a master boat board. Soundings are then scaled off the echo sounder rolls and correlated with the fixes. The hydrographer then prepares the field sheets from the processed data which is sent to the cartography section. The cartographer uses the field sheets to construct the final chart. It is a laborious task consisting of an accurate translation of the hydrographer’s original work into the final product which often involves the reduction of the field sheet to a suitable scale to eliminate distortions.

The chart is then published by the Dominion Hydrographer under the seal of the Canadian Hydrographic Service.
of federal officials, with some representation from the local city councils. Some of the smaller non-commercial ports which harbour mostly fishing vessels and pleasure crafts are administered by the Small Craft Harbours Branch of the Department of Fisheries and Oceans. Some semi-commercial ports which are not large enough to require a N.H.B. are administered directly by the C.C.G.\textsuperscript{9}

The complexity of the Crown’s functional role is further accentuated by the blurred interfaces of responsibilities between the agencies. For example, the P.W.D. under notification from a port authority undertakes a dredging operation in a channel to maintain charted depths. Presumably the dredger engaged for the job will be equipped with depth sounding devices and will in fact be taking and recording soundings to ensure dredging to the charted depths. Although in practice, dredging the bottom and sounding the depths would be done contemporaneously, the latter is technically a hydrographic operation which is a responsibility of the C.H.S. and not the P.W.D. Therefore, unless the C.H.S. re-surveys the channel after it has been dredged, it cannot be in a position to assume legal responsibility for the actual depths which the charted soundings purport to represent.

Another grey area is the interface of responsibility for installing navigation aids and that of charting the same. The C.H.S. carries out a survey and discovers a dangerous shoal. The Aids and Waterways Branch physically marks the danger with a buoy. The C.H.S. surveys and marks the sites for a set of leading lights. The C.C.G. undertakes the physical erection of the lights and the maintenance of their alignment. Does the C.H.S. as the publisher of the chart assume legal responsibility for the accuracy of the physical positioning of the shoal buoy or the alignment of the leading lights as depicted in the chart? This was one of the issues to which the Court in The HERMES\textsuperscript{10} addressed itself.\textsuperscript{11}

This case involved a collision between the m.v. TRANSATLANTIC and the m.v. HERMES in the navigation channel of Lake St. Peter in the St. Lawrence River. The collision was caused by the

\textsuperscript{9} Incidentally, Dalhousie, N.B. happens to be one such port.
\textsuperscript{11} The situation is further complicated by the fact that as an interim measure, warnings and corrections to existing information on charts are first published in “Notices to Mariners” which are issued by the C.C.G. These are subsequently incorporated in the next amended edition of the chart which is published in the regular manner by the C.H.S. while the preceding edition is cancelled.
misalignment of a set of leading lights. The Court's finding was that the front range of the Pointe du Lac leading lights was displaced by about 40 ft. causing the HERMES to be dangerously close to the south bank of the channel. The vessel sheered owing to bank suction as a result of which the collision occurred. The British Admiralty chart No. 422 which the HERMES was using showed the transit bearing to be 056° 13' (T) which was intended to indicate the mid-channel course to be steered. The Pointe du Lac lower range light had originally been erected on the basis of a 1935 survey. In 1941 another survey had been conducted by the Hydrographic Section which was then under the Department of Energy, Mines and Resources. The evidence at the trial revealed that within this period of six years, there had been an apparent shift of the lower range light of anywhere between 2 to 61/2 ft. to the south. On cross-examination, the Dominion Hydrographer stated among other possible explanations with respect to the apparent shift, that “the light was not built right over the cross.”12 The erection and maintenance of the lights was a task with which the Ministry of Transport had been entrusted by virtue of Part IX of the Canada Shipping Act.13 The evidence further revealed that the administrative methodology adopted by the Ministry which was characterized by a proliferation of delegatory powers was grossly inefficient due to the inadequate exaction of responsibilities from the personnel concerned.14 Consequently the Crown was found liable in negligence. As a result of this decision, departmental directives were issued whereby the C.H.S. was made responsible for maintaining the alignment of all leading lights in Canadian waters.

In light of the complexities of the administrative structure and the distribution of responsibilities, one can easily appreciate the difficulties which a prospective plaintiff would have to encounter. There would be problems associated with the procurement of evidence by way of access to department files, official records and documents, holding discovery examinations of the right personnel and calling the appropriate witnesses. Fortunately in Canada, seldom need a prospective plaintiff be concerned with naming the appropriate agency or authority as the defendant in the action. Normally proceedings would be commenced against “Her Majesty the Queen.” If however, a shipowner was contemplating legal

12. Supra, note 10 at 437-438
13. R.S.C. 1952, c. 29, s. 591
14. Supra, note 10 at 473-474
action for damages sustained by his ship as a result of grounding in an improperly dredged channel in the port of Toronto, he would have to name the Harbour Commission separately as a defendant since it is not a Crown agency.

The necessity of a link between the party named as defendant and the cause of action pleaded was aptly demonstrated in the leading English case of *Workington Harbour and Dock Board v. Owners of the s.s. TOWERFIELD*. In this case a nautical chart published by the British Admiralty contained as an inset, a plan of Workington Harbour which was inaccurate and misleading. The inset was based on a plan supplied by the appellant Board and a note to that effect was inscribed in the inset plan. Perpetual accumulation of silt shallowed the entrance channel which had to be constantly dredged. The appellant Board was responsible for this operation. The inset plan stated that a depth of $4\frac{1}{2}$ ft. at chart datum corresponding to 7 ft. below L.W.O.S.T. was maintained by dredging in the approach channel and the turning basin. A set of leading lights bearing $131^\circ$ (O.S.T.) supposedly marked the middle of the channel, the charted width of which was 250 ft. In fact, neither the charted depth nor width was maintained by proper dredging. In an action by the shipowners against the Workington Harbour and Dock Board following the grounding of the TOWERFIELD in the entrance channel, it was argued in defence that where the Board was named as the defendant and the inaccurate information in the inset plan appeared in a chart published by the British Admiralty, it would have to be shown that the Admiralty was in effect acting as an agent of the Board.

From the foregoing discussion, which in essence is a consideration of some basic procedural issues, it should be abundantly clear that an appreciation of the functional roles of the Crown agencies, their administrative framework and the interactions between them in terms of their designated responsibilities is of crucial importance.

15. [1951] A.C. 112 (H.L.)
16. The abbreviation stands for “Low Water Ordinary Spring Tides”, the mean height of which is the datum to which all charted soundings are reduced.
17. See *supra*, note 15 at 119, where reportedly, counsel for the appellants contended that “It would have to be shown that there was an offer made on behalf of the board by the Admiralty . . .” The point has been elaborately discussed later in the text, where the whole passage has been cited in its proper context. See note 31, *infra*. 
3. *The Substantive Issues*

Insofar as the substantive issues are concerned, the central question is whether or not liability may be imposed on those responsible for the charting and safe-keeping of waterways for damages suffered as a result of a casualty similar to the one described.

In attempting to resolve this question, one approach would be to enquire into the possible existence of a contractual relationship between the party seeking damages and the party sued. The other approach would be to consider liability based on tortious grounds, *i.e.* negligence. This will necessarily involve the question of whether or not any duty was owed, the breach of which caused the injury allegedly suffered. In this regard, the distinction between official responsibility and legal duty as exemplified by relevant case law must be given due consideration. Another issue of crucial importance is the standard of care expected of a professional. This involves such parameters as errors, accuracy factors, the degree of reliance placed by mariners on charts and navigation aids and the legal effect of disclaimers and warnings. The question of vicarious liability with respect to negligence of Crown employees and contractors also deserves some analytical treatment.

There are other legal ramifications which are extraneous to the scenario presented. One of these is the question of liability related to casualties in uncharted and unmarked waters. It is felt that this is within the thematic scope of the paper and deserves some elucidation.

*Part II. The Analysis*

1. *Liability In Contract*

Stated simplistically, if a certain party has agreed with another to supply an accurate chart and has failed to do so inasmuch as there is an error or mistake in the chart, then the supplier of the chart is held liable in that he has failed to fulfill his contractual obligation. However, such is rarely the case. Seldom do chartmakers enter into such express contracts. Even then, can it be argued that when a person acquires a published chart and acts upon it in good faith, he is entitled to assume that there is an implied warranty that the information contained in the chart is accurate? To answer this question in the affirmative it must be shown that an offer was made and accepted whereby a contractual relationship was established. Whether or not there was an offer depends on two crucial issues,
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namely, the mode in which it was made and by whom was it made. In the following discussion, these issues will be examined in detail.

In the TOWERFIELD case, supra, the alternative ground on which the respondent shipowners rested their claim was the breach of an alleged warranty by the appellant harbour board "that the condition of their harbour was in accordance with a statement and plan inserted on the appropriate Admiralty chart..."18 As mentioned in the earlier reference to this case, there were in fact a number of inconsistencies between the charted information and the actual physical conditions in the harbour at the time of the casualty.19 The "implied warranty" argument was advanced by counsel for the respondents as follows:

... the board contracted with the shipowners either to keep the channel at the width and depth advertised in the inset to the Admiralty chart and in the West Coast of England Pilot, 1933 and 1941, Supplement, or to warn them that they had not done so... There was a breach of the implied warranty that the ship could navigate safely in any part of the dredged channel... The board offered to receive any ship entering the port on the terms that the channel was safely dredged to the extents shown on the chart and the offer was accepted by the Towerfield entering the port. The master, ... went in on the faith of the special contract so concluded and he was entitled to its being carried out unless he was given warning that he ought not to enter. It was no part of the contract that he ought to go

18. Supra, note 15 at 113
19. The general weather in Workington harbour was predominated by the prevailing south west winds which had a tendency to cause a littoral drift of rubble and slag to be swept along the coast and being deposited along the north and south sides of the channel. This in turn resulted in the formation of banks which in effect substantially reduced the width of the channel. The charted width was 250 ft. As a result, the transit line of the leading beacons did not in reality mark the centre of the existing channel as was misleadingly depicted in the chart. The charted range line was correct in terms of the original construction of the channel in 1927 when the width was 150 ft. When it was subsequently decided in 1931 to extend the width by another 100 ft. by dredging along the south side, the leading beacons were kept in their original positions. This rendered the range line apparently shifted by about 50 ft. to the north of the actual new mid-channel line. Furthermore, floods in the Derwent River caused silting in the channel. There was a bar abreast of the seaward end of the south jetty where perpetual silt accumulation often resulted in depths being substantially less than the soundings shown on the chart. In all these respects, the inset plan in the chart had remained considerably inaccurate since its date of publication in 1941 until the date of the casualty. See supra, note 15 at 114-115 for full details.
up the middle of the channel.\textsuperscript{20}

In support of this ingenious argument, the authorities cited were \textit{Williams v. Swansea Harbour Trustees}\textsuperscript{21} and \textit{Bede Steamship Co. v. River Wear Commissioners}.\textsuperscript{22} In the first case, the trustees of a dock issued a notice addressed to shipowners and merchants wherein it was stated that "the depth of water on the dock sill was 26 and 23 ft. at the highest spring tides, and 15 ft. at the lowest neaps." The Court held that the statement amounted to a warranty that there was an available depth of water approximating that stated in the notice. The trustees were thus liable to shipowners who relying on that representation docked their vessels alongside to load cargo and suffered losses as a result of delays due to insufficiency of water. In the second case, the harbour commissioners advertised a certain dock sill depth in the Shipping World Year Book. The Court held that the advertisement constituted an implied warranty of accessibility for all ships of such draughts as to enable them to pass over the dock sill.

With reference to the foregoing cases and the GOLDEN ROBIN incident, there is a conspicuous factual element that is a common feature of all. In each case there was less water encountered by the respective vessels than was reasonably anticipated. The question is, what was the basis in each case for the anticipation or assumption? In the \textit{Williams} case it was a notice especially issued to shipowners, merchants and other interested parties, while in \textit{Bede Steamship Co.}, the depth was advertised in a Shipping Year Book. On the other hand in \textit{TOWERFIELD} and the GOLDEN ROBIN, the basis was simply the information contained in the respective charts. It is submitted that the distinction in the mode of communication of the relevant information is crucial to the determination of whether or not there was an offer coupled with an implied warranty. The obvious question which follows is what is the distinction?

The outstanding feature of a special notice or advertisement is the inherent element of specificity. The notice in \textit{Williams} was issued

\begin{itemize}
\item[20.] \textit{Supra}, note 15 at 123
\item[21.] (1863), 14 C.B. (N.S.) 845
\item[22.] [1907] 1 K.B. 310
\end{itemize}
and the advertisement in *Bede Steamships* was likewise inserted in the Year Book to draw the attention of interested parties to a very specific matter, namely, the depth of the water at the dock sill in each case. The very purpose of a notice or advertisement is to attract public attention to its particular subject matter or content. Furthermore, in both these cases there was a business motive underlying the issuance of the notice and the publication of the advertisement. Insofar as a notice or advertisement is a serious and specific business or commercial proposition which is intended to be relied upon by a reasonable man and is in fact acted upon, it will constitute an unilateral offer to all the world under the rule established in the well-known case of *Carlill v. Carbolic Smoke Ball Co.*

In contrast, a chart is neither published for purposes of commercial profiteering, nor is it a document intended to draw the attention of its user to one particular aspect or specific information. Water depths, channel widths and the likes are among thousands of other details presented in a chart. A chart is fundamentally a different mode of communication of nautical information as compared to a commercial notice or advertisement, although the nature of the information in a particular instance may basically be the same. The point was well made by Lord Normand in his judgment in the *TOWERFIELD* case, when he said

> Commercial advertisements published by a harbour authority are not in *pari casu* with official charts and sailing directions, and the present case is not ruled by the cited decisions. I think that there was no contract, . . .

In the same context the statement of Farewell L. J. in *Bede Steamships* is also worth noting.

> If a dock owner for his own profit invites shipowners to bring their ships into a dock upon a statement that there is a minimum depth of water on the sill of the dock, he thereby, in my opinion, impliedly warrants that there is access . . .

The significant words in the above statement are “for his own profit” which emphasize the commercial connotation behind the publication of a special advertisement.

Furthermore, where a business relationship between the parties is apparent from the nature of the document in question, or as in the

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23. [1893] 1 Q.B. 256
24. *Supra*, note 15 at 138
25. *Supra*, note 22 at 328
Williams and Bede Steamships cases, the mode of communication of the relevant information, i.e. notice or advertisement, the rule regarding implication of terms in business documents is the one laid down by Bowen L. J. in the well-known case of The MOORCOCK\textsuperscript{26} as follows.

In business transactions such as this, what the law desires to effect by the implication is to give such business efficacy to the transaction as must have been intended at all events by both parties who are business men.\textsuperscript{27}

It is submitted that in the case of information presented in a chart as opposed to a notice or advertisement, no such business relationship can normally be inferred. Therefore neither an offer nor an implied warranty can be found and the rule in The MOORCOCK is irrelevant.

However, attention is drawn to the word "normally" in the preceding paragraph indicating an exception or reservation, which indeed there is. This was the crux of the whole matter in the TOWERFIELD case which is apparent from the diversified opinions of their Lordships. In essence, this brings us to the threshold of the second crucial issue, namely, if it is contended that the publication of information in a nautical chart constitutes a unilateral offer of the type in the Carlill case, the question still remains as to who is the offeror in a given situation? This is highly significant with reference to the earlier discussion on the division of official responsibilities between various administrative bodies. In the TOWERFIELD case it was, in this writer's opinion, particularly significant, although the judgment did not directly elucidate the point.

The initial premise upon which the analysis of this issue stands is the presumption that all information contained in a chart is the product of the chartmaker's work.\textsuperscript{28} Can the published work of a chartmaker be characterized as a unilateral offer which if relied and accepted upon constitutes an acceptance, whereby the chartmaker is contractually bound and the accuracy of his information in the chart is impliedly warranted by him? The answer was very aptly and unequivocally provided by Lord Denning in the case of Candler v. Crane Christmas & Co.\textsuperscript{29} where he said

6. (1889), 14 P.D. 64
7. Id. at 68
8. For the present purpose, the term "chartmaker" includes the hydrographer, cartographer and publisher of the chart.
9. [1951] 1 All E.R. 426. This case did not have anything to do with chartmaking. It dealt with liability arising out of an alleged negligent preparation of
a scientist or an expert (including a marine hydrographer) publishes his works simply for the purpose of giving information and not with any particular transaction in mind at all.\textsuperscript{30}

This is the basic ground rule. Under ordinary circumstances there is no contractual obligation on the part of a chartmaker for the information which he presents in a chart. However, there may be instances where a particular piece of information in a chart may not have been the product of his work. This was precisely the case in \textit{TOWERFIELD}. The inset plan of Workington Harbour in Chart No. 1346 was not based on survey data collected by the British Admiralty, the publisher of the chart, but on a plan supplied by the harbour board with additions from the ordnance survey. A notation to that effect was inscribed in the chart. Counsel for the appellant harbour board advanced the following argument.

If the shipowners are to succeed on contract they must establish (a) the existence of the contract alleged, (b) a breach of that contract by the board and (c) that the damage flowed from the breach. They must establish this chain of causation and they cannot do so. In the first place, a contract cannot be inferred from the information given on the Admiralty chart. \textit{It would have to be shown that there was an offer made on behalf of the board by the Admiralty and that it was accepted by the shipowners. If the Admiralty itself prepared the map, it cannot have been offered by the board.}\textsuperscript{31}

With reference to the italicized portion above, it is noted that their Lordships refrained from addressing themselves squarely to this rather subtle argument. Lord Porter in agreeing with the Court of Appeal simply stated that he was prepared to accept the contention that a contract had been concluded between the harbour board and the shipowners in that

\begin{quote}
inasmuch as the inset chart was issued by the Admiralty at their instigation the harbour board offered to receive any ship entering or intending to enter the port of Workington upon the terms that the channel was safely dredged to the extent indicated on the chart, and that that offer was accepted by the \textit{Towerfield} by entering the port.\textsuperscript{32}
\end{quote}

In the absence of any elaborate reasons, it is perhaps fair to

\begin{quote}
a company's account by an accountant, in reliance of which the plaintiff invested a certain amount of money which he subsequently lost.
\end{quote}

\textsuperscript{30} \textit{Id.} at 435
\textsuperscript{31} \textit{Supra,} note 15 at 119. Emphasis inserted by author.
\textsuperscript{32} \textit{Id.} at 134
assume that contrary to Lord Normand’s opinion, Lord Porter was willing to treat the information in the inset plan in pari casu with a commercial advertisement. It can only be further conjectured that in Lord Porter’s view the offer originated from the harbour board, perhaps via the agency of the Admiralty.\textsuperscript{33}

In contrast, Lord Normand disagreed entirely with the proposition that the charted information constituted any offer. The uncertain effects of wind, weather, tide and unpredictable casualties are adverse to the idea that Admiralty charts are intended to constitute a standing offer carrying a warranty that ships entering the charted ports will find the same conditions as those indicated by the symbols or printed directions on the chart. The charts are subject to modifications published in notices to mariners and in official publications, such as the West Coast of England Pilot, and in later prints or editions of the charts themselves, but it is not possible for publications to keep abreast of events nor for all ships to have on arrival from a foreign port the latest publications.\textsuperscript{34}

It is quite apparent from the above passage that the material issue in Lord Normand’s opinion, was simply whether or not the charted information was an offer. The fact that the inset plan was not a product of the chartmaker’s work was extraneous to the determination of this question. In other words, he seemingly proceeded on the basic presumption that the Admiralty was the originator of all the information presented in the chart and on this premise rejected the proposition of an existing offer. However, he did not altogether disregard the implication of the harbour board in the matter of the inset plan. He characterized it as a mere representation.

There is a representation that the harbour authority is endeavouring, and will endeavour to maintain the indicated depths by dredging, and it is no more than a representation without contractual intention or effect.\textsuperscript{35}

What is not clear in the above statement is whether his Lordship was referring to the harbour board or the Admiralty as the maker of the

\textsuperscript{33} Be that as it may, it does not appear that his Lordship was thoroughly impressed with the respondent shipowners’ argument contending contractual liability on the part of the harbour board. It seems rather, that the persuasive factor was the contextual application of this proposition to another issue, namely, the construction of s. 15 (1) of the \textit{Pilotage Act}, to which this was incidental. (see \textit{Id.})

\textsuperscript{34} \textit{Supra}, note 15 at 138

\textsuperscript{35} \textit{Id.}
representation. It is perhaps fair to assume in view of the basic premise upon which he rested his conclusion regarding the existence of an offer that the reference was to the Admiralty as the chartmaker.  

Lord Oaksey’s approach was quite different again. He viewed the questions of “contract” and “warranty” as two separate issues. In essence he agreed with the Court of Appeal and Lord Porter, without stating any reasons, that a contract essentially had to be implied between the harbour board and the shipowners. However, he was unable to agree as to what terms ought to have been implied in the given circumstances. In other words, his view was that in order for a claim of breach of warranty to be successful it would have to be shown that the charted information, *i.e.* water depths, channel widths *etc.* were warranted terms of the contract. In opining that no such warranty could be implied he stated the following reasons.

... I do not think they can be held to have warranted any absolute depth in the channel in view of the amendments to the West Coast Pilot stating that the channel was maintained at 4½ ft. as far as possible by dredging, and that a less depth would be found in places.  

In the absence of further elaboration on this point, Lord Oaksey’s opinion can be further rationalized by the argument that the Admiralty as the publisher of the chart and sailing directions was not privy to the implied contract between the harbour board and the shipowners, so that any act or omission on the part of the Admiralty could not be imputed to the harbour board and characterized as a breach of warranty by the harbour board. It seems however, that this line of argument was not within his Lordship’s contemplation. He probably viewed the charted information as analogous to an advertisement. This is apparent from his statement with reference to the board that “they issued a totally misleading plan of the entrance channel.”  

The other notable aspect of Lord Oaksey’s judgment is that, although he did not find a breach of an implied warranty on the part of the harbour board, he nevertheless found them wanting in the fulfillment of their obligations in that:

36. It is interesting to note that in the final analysis Lord Normand did impose liability on the harbour board on the basis of an invitor-invitee relationship. This aspect will be dealt with later in the paper.
37. *Supra*, note 15 at 149
38. *Id.*
they did not carry out proper soundings: they did not take
proper steps to ensure that the pilots knew what dredging they
had done: they issued a totally misleading plan of the entrance
channel: they took no steps to warn the master of the
*Towerfield* of the dangers of entering the harbour without a tug
in all the circumstances;...39

The question is, were these contractual obligations which his
Lordship was referring to? If so, to whom exactly were they owed?
Surely there could not have been any contractual obligations owed
to the pilots. Then was it a term of the contract between the harbour
board and the shipowners that the pilots be kept informed of the
dredging situation? These questions involve the intricate issues of
privity and collateral warranty to which his Lordship did not address
himself. It is thus difficult to determine from his judgment the basis
on which he arrived at his conclusion on this matter.40

The law on the contractual aspect of a chartmaker's liability may
be summarized as follows. Ordinarily, a chartmaker publishes his
information without any transaction in contemplation. He therefore
does not impliedly warrant the accuracy of the charted information
for which he may incur contractual liability. On the other hand, if a
party such as a port or harbour authority causes certain information
to be published which may be deemed to be analogous to a
commercial notice or advertisement then contractual liability may
be incurred by the originator of such information in terms of breach
of an implied warranty as to the accuracy of the information, if it is
relied and acted upon and, as a result, damage suffered.

Referring back to the facts of the GOLDEN ROBIN incident,
there is no evidence that the port authorities of Dalhousie, N.B.
caused any special information to be published in the relevant chart.
Thus they can incur no contractual liability. Neither can the
Canadian Hydrographic Service be held contractually liable by
virtue of the basic rule that information published in a chart by the
chartmaker does not constitute a standing, unilateral offer. The
uniqueness of a Canadian situation is that it would be far easier to
advance an "implied warranty" or "contract" argument in
circumstances similar to the *Towerfield* case. This is because a

39. *Id.*

40. Lord Morton of Henryton stated that he did not "find it necessary to determine
whether any contract came into existence between the board and the owners and if
so, what were the terms of such contract." See *id.* at 153.

Lord Radcliffe made no mention of any contract in his judgment.
Crown as defendant in most cases and be relieved of the worries of having to show privity and the existence of a collateral warranty, or to impute the fault of one agency on to another.

2. **Liability In Tort**

2.1 *The Chartmaker's Duty of Care*

Less than two decades ago it was quite unthinkable that a chartmaker owed any duty of care to a user of his chart even if he expected the information in the chart to be relied upon. In essence, negligence in the preparation of a nautical chart amounts to a negligent mis-statement of the true state of affairs and the prevailing law in the area would be the governing law.

While the principles enunciated by Lord Atkin in the case of *Donaghue v. Stevenson*[^1] established the modern law of negligence in 1932, even as late as in 1951, the majority of the English Court of Appeal in *Candler v. Crane Christmas & Co.*, supra, refused to recognize the inclusion of negligent mis-statement within the purview of the principle of *Donaghue v. Stevenson*. Traditionally, liability for negligent mis-statement could only be incurred if there was a contractual nexus or a fiduciary relationship. One had a duty to be honest but not to be careful. Asquith L. J., in somewhat reluctant agreement, pointed out that

> In the present state of our law different rules still seem to apply to the negligent mis-statement, on the one hand, and to the negligent circulation or repair of chattels, on the other, and *Donaghue's Case* does not seem to me to have abolished these differences.[^2]

In the paragraph preceding the above statement, Asquith L. J. made specific reference to the instance of chartmaking in the following words:

> The case has been instanced by PROFESSOR WINFIELD . . . and referred to by Denning L. J., of a marine hydrographer who carelessly omits to indicate on his map the existence of a reef. The captain of the "Queen Mary," in reliance on the map and having no opportunity of checking it by reference to any other map, steers her on the unsuspected rocks, and she becomes a total loss. Is the unfortunate cartographer to be liable to her owners in negligence for some millions of pounds damages?[^3]

[^1]: [1932] A.C. 562 (H.L.)
[^2]: Supra, note 29 at 442
[^3]: Id.
From his remarks immediately following the above question it seems quite apparent that the answer ought to be in the affirmative. His reluctance to accept the view that instances of such negligent mis-statements do not fall within the purview of Donaghue’s Case was clearly evident, when, in reference to his hypothetical cartographer he went on to say

If it be said that there is no proximity between the cartographer and those for whose use his map is designed, the reply surely is that there is just as much as there was between the manufacturer of the peccant ginger beer and its ultimate consumer.44

Asquith L. J. expressed his dissatisfaction at the inadequacy of the prevailing state of the law but yielded to the force of precedent, after having failed to find a clear and firm guiding principle with respect to negligent mis-statements within the doctrine enunciated by the House of Lords in Donaghue’s Case. In his conclusion he stated in a tone of regret and incapacity,

I am not concerned with defending the existing state of the law or contending that it is strictly logical. It clearly is not — but I am merely recording what I think it is. If this relegates me to the company of “timorous souls,” I must face that consequence with such fortitude as I can command.45

Insofar as Denning L. J.’s judgment in this case is concerned, the characteristic boldness of his dissent deserves commendation. Even so, his imposition of a duty of care was only limited to certain circumstances, and chartmaking in his view was not one of them. It is clear from his dictum that when he said a marine hydrographer did not publish his work with any particular transaction in mind, he was not merely referring to transactions which were contractually binding. He was thinking of the type of situation in the Candler case itself, where A and B have no contractual relationship in that there is no flow of consideration, but B suffers losses as a result of reliance on A’s professionally made statements which A knew B was going to act upon. Absent consideration, there is no contract, but there is a transaction and there is reliance. Therefore, a duty of care is owed. Denning L. J. emphasized the point that mere reliance was not sufficient to give rise to a duty of care. He said

I can well understand that it would be going too far to make an accountant liable to any person in the land who chooses to rely

44. Id.
45. Id.
on the accounts in matters of business, for that would expose
him, in the words of CARDOZO, C.J. in Ultramares Corpns.
v. Touche (174 N.E. 444), to "... liability in an
indeterminate amount for an indeterminate time to to an
indeterminate class."\(^{46}\)

In other words, there had to be a transaction at least in terms of a
proximate relationship, and since he was of the opinion that a
marine hydrographer did not publish his work with any transaction
in mind, he owed no duty of care.

Despite the soundness of Denning's dissent, subsequently
approved and endorsed by the House of Lords in Hedley Byrne &
Co. Ltd. v. Heller & Partners Ltd.,\(^ {47}\) it seems that the
rationalization was still rather subjective when considered particu-
larly in the context of chartmaking. It is true that a chartmaker has
no transaction in mind when he publishes his charts but he knows,
or he ought to know and anticipate, that a great many navigators are
going to invest an abundance of trust and reliance on the
information contained therein, and under normal circumstances it
would be perfectly reasonable for them to do so. The requirement
for a transaction and the test of proximity as advanced by Lord
Denning therefore seems rather inappropriate. In the alternative it
can be argued that when a person purchases a chart there is a
presumption in normal circumstances that he is going to rely on the
information contained in it to navigate his vessel. A transaction can
be implied from such a presumption, insofar as the chart user is
concerned. At the chartmaker's end, a transaction can be implied by
the use of the objective test. As regards the question of proximity,
Asquith L.J.'s analogy of the ultimate consumer of the peccant
ginger beer is more than a sufficient answer.

Although the speeches of the law Lords in the Hedley Byrne case
have laid the foundation for the present law on negligent
mis-statements, there was nothing said which was specifically
relevant to the chartmaking situation or to any situation closely
resembling it. But as Lords Reid and Morris of Borth-y-Gest
pointed out in their dissenting opinion in Mutual Life & Citizen's
Assurance Co. v. Evatt,\(^ {48}\)

In Hedley Byrne their Lordships were not laying down the
rules. They were developing a principle which flows, as in all

\(^ {46}\) Id. at 435
\(^ {47}\) [1964] A.C. 465 (H.L.)
\(^ {48}\) [1971] 1 All E.R. 150 (P.C.)
branches of the tort of negligence, from giving legal effect to what ordinary reasonable men habitually do in certain circumstances. . . . The Principles there indicated must be developed from time to time to cover new cases, . . .

There have been no cases directly on point dealing with the duty of care owed by a chartmaker since the dicta of Denning and Asquith L. J. J. in the Candler case. Interestingly enough, after almost twenty years since Candler, Lord Denning said in his part dissent in Ministry of Housing and Local Government v. Sharp.

... In my opinion the duty to use due care in a statement arises, ... from the fact that the person making it knows, or ought to know, that others, being his neighbours in this regard, would act on the faith of the statement being accurate. That is enough to bring the duty into being. It is owed, of course, to the person to whom the certificate is issued and whom he knows is going to act on it. ... But it is also owed to any person whom he knows, or ought to know, will be injuriously affected by a mistake, ... This case involved a clerk in a land registry office who negligently issued a clear certificate of search, failing to note an encumbrance. The case is not on point with respect to the facts but Lord Denning’s articulation of the condition under which a duty of care arose, squarely fits the situation of the chartmaker. Notably, Lord Denning here has modified his opinion in Candler by using an objective test which is clear from the portions italicized in his statements above. As it stands now, a survey of the authorities and the direction in which the law in this area has developed would indicate that, under normal circumstances, a chartmaker owes a duty to be careful in preparing his chart. This, it is submitted, is a fair summation of the law.

49. Id. at 163-164
50. [1970] 2 Q.B. 223
51. Id. at 268-269. Emphasis inserted by author.
52. At a lecture delivered to the Canadian Hydrographic Service in March, 1969, Mr. Peter M. Troop, Asst. Deputy Attorney General of Canada (Property & Commercial Law), expressed the following view of the existing law with respect to a chartmaker’s liability for carelessness in the preparation of his chart.

... a person who, in the ordinary course of business or professional affairs, gives information or advice, orally or by way of a document, in circumstances in which a reasonable man so asked would know that he was being trusted or that his skill or judgment was being relied on, then that person accepts a legal duty to exercise such care as the circumstances require in making his reply and if he fails to exercise that care, and another person
Returning now to our GOLDEN ROBIN scenario, it may be said that where there was an actual least depth of 25 ft. on the range line, the C.H.S. (Crown) owed a duty of care to correctly portray that sounding in chart No. 4426, and its failure to do so, in that the sounding indicated in the chart was 42 ft., was a failure of that duty.

2.2 Legal Duty and Official Responsibility

The foregoing conclusion that a chartmaker has a duty to be careful presumes an undertaking by him to produce charts. There is no doubt that that is his official duty and responsibility. But is there a duty incumbent upon him owed to the user of an area of water to conduct a hydrographic survey, publish the charts and keep them updated? It is clear that *prima facie* there is no such duty. If a vessel ventures to navigate in uncharted waters, she does so at her own risk. Nevertheless the question raises a number of implications which deserve some thoughtful consideration. For instance, if pursuant to the official duty, an area of water has been surveyed and charted and the navigation aids have been installed, is there a legal duty owed to users of the waterway to maintain the same in a safely navigable condition at all times? The following discussion will deal with these questions.

2.2.1 Totally Uncharted Waters

Let us suppose that the GOLDEN ROBIN which normally uses British Admiralty charts is under orders from her charterers to proceed to Dalhousie, N.B. The master discovers that there are no B.A. nor C.H.S. charts available for that area. The Sailing Direction informs him that the approaches to the port have not been surveyed and no navigation aids have been installed. The vessel attempts to make port anyway and runs aground. Does the British Admiralty incur liability simply because the GOLDEN ROBIN normally uses B.A. charts? It would be grossly unreasonable to say that the British Admiralty owes to all users of its charts a duty to survey every waterway in the world and produce charts to that effect.\(^53\) 

\[^53\] relying thereon suffers damage, the first person will be liable for such damage.

(Mr. Troop incidentally, served as Crown Prosecutor in the *HERMES* case *supra*, and the *Cleveland-Cliffs* case, *infra.*)

53. As it is, charting of the world's oceans and waterways is achieved through mutual co-operation of the hydrographic agencies of chart producing nations. The
The Charting and Safekeeping Of Oceans and Waterways

The question of whether the Canadian government may incur any liability is a more complex one. What would be the basis on which an action, would lie? The mere fact that the grounding may have occurred in Canadian off-shore waters or even within the territorial limits is probably not a sufficient basis for pre-supposing that there is a duty incumbent on Canada to survey all its coastal waters and produce charts for the benefit of every prospective user. There are not many coastal states who are chart producers or who even possess the technology and means to carry on hydrographic activities. But then, there are few coastal states that have as stringent regulating provisions for visiting ships as Canada does. *The Charts and Publications Regulations* issued under the authority of the *Canada Shipping Act, supra*, require all vessels navigating in Canadian waters and fishing zones to use Canadian charts or their equivalent. If an equivalent is not available, obviously the use of Canadian charts would be mandatory. It is submitted that this raises a strong presumption that there are available Canadian charts covering all Canadian waters and fishing zones and consequently implies a duty incumbent on the Canadian government to produce charts if there are none available.

Let us consider another hypothetical situation where the C.H.S. is conducting hydrographic survey operations in the currently uncharted waters of Dalhousie harbour. The GOLDEN ROBIN attempts to navigate into port using hydrographic field sheets or routing recommended over V.H.F. radio by the C.H.S. survey vessel, and runs aground. Whether or not the Canadian government can be held liable under the circumstances is debatable. Assuming there are no regulatory provisions making the use of the work is co-ordinated through the International Hydrographic Bureau located at Monaco where aims and policies are formulated. It is a very efficient organization, the good work of which is acknowledged by the entire international seafaring community. Under the present system, uncharted waters around the Canadian coast would be surveyed by the C.H.S. and the charts produced from the survey data would be incorporated into charts produced by other states with the appropriate notations inserted.

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54. See *supra*, note 4 for citation.

55. In fact, in the summer of 1979, the m.t. ARCTIC TRADER was navigating in some uncharted waters of Ungava Bay in the Canadian sub-arctic, to and from the port of Fort Chimo in Northern Quebec, using hydrographic information communicated by the c.s.s. BAFFIN which was conducting a survey in the area. Fortunately no casualties occurred, but the possible legal implications which may have arisen had fortune not been so kind, aroused much interest in the mind of this writer who was serving as the Chief Officer of the BAFFIN at the time.
Canadian charts compulsory, there is no prima facie duty on the Crown to chart all waters. But it can be argued that the passing of information in the given circumstances was tantamount to the publication of a chart in that it served the same purpose. It would seem that under the *Hedley Byrne* principle liability would be incurred by the Crown for negligent mis-statement even though the information was not conveyed through a published chart. The fact that a field sheet or a radio message is not an official statement or publication is one of the determinant factors, no doubt, but not the only factor. It was information given in a professional capacity by an authoritative agency. It was expected to be relied upon and was in fact relied upon, and furthermore it was very much in the nature of a transaction since the information was given to a specific vessel who requested it. However, it is highly unlikely that information so communicated would be imparted without any express reservations in the nature of a disclaimer. That would substantially reduce the reliance factor and possibly absolve the Crown from any liability. In fact, that was precisely the ground on which the appeal in *Hedley Byrne* was dismissed by the House of Lords.

Another approach to the problem would be to consider it in terms of the "good samaritan" principle. Since there is prima facie no duty owed, the C.H.S. need not have conveyed any hydrographic information to the GOLDEN ROBIN. No liability is incurred for non-feasance where there is no duty owed. This is a well established principle in the law of torts and needs no further elaboration. But it is also an equally well established principle that when a prospective rescuer responds to a cry for help, he is liable for misfeasance if he fails to exercise due care. Under this doctrine, the Crown might incur liability if the situation is characterized as a response to a cry for help.

Another situation involving uncharted waters would be where an interested party having obtained the necessary authorization takes upon himself to survey a certain uncharted area. The chart however is published by the C.H.S. and a vessel belonging to another party happens to run aground while navigating by that chart. 56 Whether or

56. At a recent lecture delivered to the Company of Master Mariners of the Maritimes Division at Halifax, N.S., Mr. Adam Kerr, the Regional Hydrographer, Maritimes Region, referred to a request submitted by the Dome Petroleum Corp. to the C.H.S. to survey certain areas of the Beaufort Sea which would enable Dome to expand its drilling operations into those areas. Incidentally, the charting of those areas is not a top priority with the C.H.S. However, Mr. Kerr indicated that subject to the granting of proper authorization, Dome could have the survey done on its
not the Crown could be held liable under the circumstances would depend on the degree of control which the Crown exercised, if any, over the survey operation and the extent to which the Crown expressly disclaims responsibility in the chart which it publishes.\(^{57}\)

2.2.2 Waters Inadequately Charted and/or Improperly Marked

This refers to a condition where the charted information and the disposition of navigation aids are inconsistent and do not truly depict the physical reality of the state of affairs prevailing. This frequently occurs when charts are not regularly updated or navigation aids become misleading traps due to inadequate maintenance and periodic checking. The question is whether or not here is a duty, a breach of which may give rise to liability, incumbent on anyone, and if so, on whom.

Before attempting an analysis of the relevant case law in this area, it will be necessary to make some preliminary observations. First of all it must be realized that a nautical chart is a static depiction of a physical state of affairs which is inherently dynamic. It is rather paradoxical that while the physical realities of the state of affairs change along with the vagaries of nature, the chart remains a frozen replica unless changes are effected on an on-going basis. A common illustration of this is the accumulation of silt in rivers. Another is the shifting of sand bars. To prevent the navigator from being misled, either the chart must be continuously updated and navigation marks altered accordingly, or the physical reality must be made to conform to the charted information by activities such as dredging. As pointed out earlier, the respective responsibilities are frequently assigned to different branches of government.

Returning now to the question of legal duty, a case directly on point is *The Cleveland-Cliffs Steamship Co. v. The Queen.*\(^{58}\) In this case, the s.s. GRAND ISLAND ran aground in the approaches to the Port of Little Current on Manitoulin Island by way of the East Entrance Channel. The vessel’s owners and charterers filed a petition of right claiming damages for negligence in buoying and charting the channel. The action being dismissed at trial, an appeal was brought before the Supreme Court of Canada. Although the

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\(^{57}\) These will be discussed in greater detail under other relevant headings.

\(^{58}\) [1957] S.C.R. 810
Exchequer Court decision was upheld mainly on a point of fact, namely, that the trial judge’s finding that the grounding occurred outside the limits of the channel was correct, Kerwin C. J. held in addition that “there was no duty owing to the suppliants on the part of the Dominion Hydrographer to take soundings in the channel . . .”. Rand J. held that

The government administration, as disclosed by the evidence, is of a general character, unrelated directly and immediately to any particular navigational work in these waters . . .

He further remarked that “It is not contended that a claim lies based on a duty owing the Crown, and admittedly there is no such duty.”

In contrast, Noel J. of the Exchequer Court of Canada expressed a totally different view in *The HERMES, supra*, when he said

... in a situation such as the present one where aids became progressively defective over a great number of years ... the responsibility becomes that of the aids to navigation branch and its staff . . .

In his concluding remarks on this issue, he said

I should reiterate that in view of the reliance of navigators on leading lights, the department and its officers clearly had the obligation ... to check from time to time to ascertain whether it is displaced and, finally, to use due diligence to ascertain the facts with which, in order to perform their obligations, they must be acquainted.

It is clear from the above that by virtue of the official responsibilities designated to the agencies concerned, a simultaneous duty or obligation arose which was owed to navigators who relied on the physical disposition of navigation aids and the corresponding charted information. It is submitted, in view of the above judgment of Noel J. coupled with the provisions of the Charts and Publications Regulations referred to earlier, that the decision in *Cleveland-Cliffs* does not represent the existing state of the law in Canada.

It is further submitted that in addition to the duty to maintain aids and update charts correspondingly, there is also a duty to warn navigators of impeding dangers if navigation aids and charted information are in effect misleading. In *The HERMES*, Noel J. said

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59. *Id.* at 814
60. *Supra*, note 10 at 473
61. *Id.* at 475
that "it was also the obligation of the Department or its officers to warn of any misalignment of the lights . . ."," and

The negligence of the employees of the Crown here was their failure to warn of an existing danger that, in the performance of their duties they knew or ought to have known.\textsuperscript{62}

It is also interesting to note in this context that contrary to Kerwin C. J.'s opinion in the \textit{Cleveland-Cliffs} case, Lord Normand said in the \textit{TOWERFIELD} case, \textit{supra}, that there was a duty on the part of the harbour board to take soundings and that duty arose out of the duty to warn. He said

\begin{quote}

Soundings were necessary for the purpose of directing the dredgers, and for the purpose of discharging the duty of warning it was necessary that the soundings should be carefully taken so as to determine the height and extent of the obstructions.\textsuperscript{63}
\end{quote}

The two duties are therefore intertwined, the performance of which necessitates co-operation and communication between the agencies or authorities involved. Notably, in both the \textit{HERMES} and \textit{TOWERFIELD} cases, this co-operation was found lacking.

In some instances such as in the \textit{TOWERFIELD} case, there is a further duty to clear the obstruction or impediment to navigation.\textsuperscript{64} In fact this would seem to be the principal duty to be fulfilled, the duty to warn, take soundings or check navigation aids being interim measures only and depending on what is more feasible under the circumstances. In \textit{TOWERFIELD} the duty to warn was given higher priority by the Court in view of the war time situation while the duty to remove the obstructions was characterized as an "alternative obligation."

The question is, what is it that gives rise to all these duties? Is it simply the foreseeability of reliance which the mariner might place on the navigation aids and the charted information? It is submitted that the mariner is entitled to rely and it is that entitlement which gives rise to the aforementioned duties. In \textit{Grossman and Sun v. The King},\textsuperscript{65} which involved an aircraft running into a ditch due to the failure of airport personnel to give warning of a field obstruction, Taschereau J. referred to an earlier case, \textit{The King} v. 

\begin{quote}

\textsuperscript{62} \textit{Id.} at 471, 472
\textsuperscript{63} \textit{Supra}, note 15 at 139
\textsuperscript{64} This duty would also be applicable to the \textit{GOLDEN ROBIN} case, although the issue there is slightly more complicated due to the contracts and sub-contracts.
\textsuperscript{65} \textit{[1952]} 1 S.C.R. 571
\end{quote}
Hochelaga Shipping, and said

... captains who bring their ships into port are entitled to expect that the road will be in a safe condition, that there will not be any submerged object to obstruct navigation.

In the HERMES case, Noel J. invoked the above dictum of Taschereau J. and further remarked

I could add that captains are also entitled to expect that lights are placed in channels for the purpose of guiding them through the channel will do so safely...

However, the question still remains as to the basis of this entitlement. The basis is precisely that on which the TOWERFIELD case was decided by the House of Lords, i.e. the relationship of invitor and invitee. It can be argued that in the TOWERFIELD case there were special circumstances which gave rise to this relationship, in that the vessel was directed to the port of Workington by the Ministry of Transport. Such were not the circumstances in Cleveland-Cliffs. In reply to that, attention is drawn to Taschereau J.'s reference to an "implied invitation" in Grossman, where he said

... It is by virtue of the regulations, the obligation of the airport itself to warn by clearly marked signs of any obstructions on the field...

It is submitted in view of the above that an invitation must be implied as soon as an approaching vessel receives clearance to enter a controlled traffic zone or channel where her manoeuvres are subject to the direction and regulation of the port authority.

3. Standard of Care

3.1 The Reasonable Professional

The chartmaker is a professional, and the degree of care and skill which the law expects of him is that of the reasonable professional chartmaker. In most other professions, practices vary according to geographical locations and social and economic characteristics of the community. The standards of skill and competence are thus influenced by these factors. In contrast, chartmakers cater to a

67. Supra, note 65 at 602
68. Supra, note 10 at 471
69. See supra, note 15 at 121
70. Supra, note 67
global seafaring community. Thus efforts are being made to set uniform international standards. Naturally, standards vary according to national policies which are subject to economic as well as technological constraints. But by and large the practices are common and those errors which constitute the causative parameters of strandings and similar casualties are much the same. The problem facing lawyers and judges is to determine which of these errors would fall within the ambit of acceptable professional practice and which of these would constitute negligence on the part of the hydrographer or cartographer. Some familiarity with chart making practices and recognition of different types of errors would be thus invaluable.

3.2 Types of Errors
Errors which commonly occur in hydrographic and cartographic practice may be broadly divided into two categories — human and instrumental. Some errors may be a combination of both.

Some common human errors are clear cases of negligence or carelessness, such as mistakes in transferring data from the field sheets or the plotting sheets. There may be cartographical errors involving discrepancies in scale or datum. There may be errors in the initial drafting or in the printing of a chart. A common example is the inaccurate drawing of a bearing or range line. Human errors also occur in the observation of instruments such as digitally displayed readings of a mini-ranger or Hi-Fix, both of which are short range positioning devices. Where a non-digital display is being used for positioning, such as a radar p.p.i., the error may be in the interpretation of the displayed data. With respect to instruments such as echo sounders which are capable of recording data on paper, the human error may be in the interpretation of the recorded data, for instance, the use of a wrong scale for reading bathymetric profiles. All these are clear instances of errors which may be attributed to carelessness or incompetence.

Pure instrumental errors may be due to mechanical malfunction of systems which, if within the control of the hydrographer or his technician should not be excusable. On the other hand, there may be an instrumental error arising out of a physical phenomenon beyond the control of the operator and often undetectable for long periods of time. An example of this is skywave contamination of groundwave Loran-C signals caused by ionospheric refraction. But in such
instances there are available methods for the detection and rectification of such errors. If such an error does find its way into a chart, it would have to be as a result of someone’s carelessness.

Errors which occur during field work are often combinations of human and instrumental types. The data affected primarily includes the positioning of rocks or shoals and their correlation with the bathymetry and tidal phenomena. The list is by no means exhaustive.

There are other errors which may arise out of subtle imprecision but which are nevertheless within the scope of standard practice. Normally these are of no consequence to the navigator in which case there should be no question of liability. An example of this is the depiction of a transit bearing which may be inaccurate by a fraction of a degree. But there are others which are of concern to the mariner. One such example follows.

As a matter of practice, a chart of a given scale is based on a survey done in at least the same scale. A survey at 1/75,000 means that on the plotting sheet the lines of soundings are represented by lines drawn not more than one centimetre apart, which is the equivalent at that scale of 750 metres. An average echo sounder provides a sounding every 3 seconds. At an average launch speed of 5 knots this would give a sounding interval of 7.5 metres, but at a scale of 1/75,000, the lines of sounding are still 750 metres apart. Obviously the grid, though consistent with standard practice, does not constitute a toothcomb coverage of the bottom. It is quite possible that a rock pinnacle may remain undetected in an area between two sounding lines, on which a vessel may run aground.\footnote{See Oudet, \textit{infra}, note 72 at 151-52} This would be a case where standard practice was fully complied with. The law surely recognizes the fact that professionals are not infallible. It does not demand perfection but expects a reasonable standard of care.

3.3 Variance in International Practice

There have been cases of inconsistencies in charts of the same area produced by different nations. These are due to variations in the standard practices of the hydrographic services of these countries. Such variations can have far-reaching consequences for the mariner as is illustrated below.

In January 1971, the liner ANTILLES was stranded in the
vicinity of the Grenadines, between the islands of Mustique and the Pillories. An official inquiry was conducted by an United States Maritime Court which found the master blameless. However, during the course of investigations, some significant variations in depth contouring methods and presentation of details were revealed in the charts published by the British Admiralty, the French Navy and the United States Hydrographic Office, covering the Mustique Channel area.72 Apparently, the unfortunate vessel had struck a rock which lay undetected in a blank spot between two lines of sounding 500 metres apart. But this deficiency which was in accordance with recognized practice could have been offset by the method of depth contouring presented in the American chart. Had the master of the ANTILLES used the American instead of the French chart, in all probability he would have abandoned the idea of entering the channel.

The question is, what are the legal consequences of damages arising out of such variations in cartographic practice? Until methods and practices are fully standardized internationally, Courts cannot be expected to condemn the standard practices of one state by reference to those of another. Decisions will have to rest solely on whether the navigator made full intelligent use of all the information presented in the chart which he was using.73

72. See Appendix II. The material reproduced in this appendix and the facts of the stranding incident were taken from an excellent article authored by Capt. L. Oudet, a retired hydrographer of the French Navy. The article entitled “A Stranding in the West Indies” appeared in Vol. L, No. 1 Jan. 1973 issue of The Intl. Hydrographic Rev., a publication of the International Hydrographic Bureau at Monaco.

For further details on other legal aspects to the ANTILLES incident, see D. Haslam, “Over Reliance on Nautical Charts” (1976), Vol. 29, No. 2, J. of Nav. 113, some of the salient features of which are pertinent to the present discussion and have been summarized below in note 73, infra.

73. The subsequent legal developments which took place with regard to the ANTILLES incident as reported in the Haslam article, id., illustrate this point very well.

Following the official inquiry held by the French Court which found no negligence on the part of the master, a number of claimants, mainly passengers who had suffered losses as a result of the casualty, brought actions against the vessel’s owners and underwriters in the U.S. District Court of Puerto Rico. The claimants sought to recover on two grounds, namely, unseaworthiness of the vessel and negligence on the part of those in charge of the ship at the time of the grounding. The allegation of unseaworthiness was based on the inadequacy of the French charts of the area which the ship used. The master testified that company regulations required him to use French charts but that a copy of the ‘superior’ American chart was kept on the bridge for reference. It was revealed on evidence that although the French chart was fully updated in accordance with the latest French Notices to Mariners, the U.S. chart on board did not reflect a 1970 U.S.
N.T.M. notice which reported a reef extending beyond its charted position on the S.W. coast of Mustique.

Beeks J. of the U.S. District Court of Puerto Rico held

I am unable to conclude that Antilles was unseaworthy by virtue of Owner's rule that required use of French charts for navigation. Whatever subtle advantages might have been offered by the American chart were in fact available to Antilles' officers on the bridge. The use of one chart rather than the other for the actual plotting of courses when the information offered by both is available, does not render the vessel unseaworthy — neither is it negligent. There is thus no showing of unseaworthiness related to the charts carried aboard Antilles or the rules regarding the use to be made thereof.

On the question of negligent navigation, Beeks J. remarked that

a mistake in judgment in handling a vessel, viewed from the vantage point afforded by hindsight, is not to be imputed as fault. Rather, the inquiry must focus on whether, under the circumstances then existing, the decision to take Antilles through the passage north of Mustique was one as might properly have been taken by a prudent navigator charged with the highest standard of diligence and skill in the care of the safety of his passengers.

In the final analysis the Court's finding was a lack of prudence and due diligence on the part of those in charge of the vessel in that, undue reliance was placed on the accuracy of the chart used and no precautions were taken to verify the navigability of the channel, despite the fact, shown in evidence, that the master was put on notice of the potential existence of navigational hazards. Beeks J. took judicial notice of Bowditch's *American Practical Navigator* and referred to several passages dealing with the reliance which a prudent navigator ought to place on the accuracy of charts based on old surveys. He concluded by saying

The potential danger of inaccuracies in the charts was highlighted in the case by the very small margin for error indicated even by the charted soundings. The narrow passage, allowing for very limited manoeuvrability, had charted depths indicating that Antilles would at times have less than 5 metres of water between her keel and the bottom. In other words, the charts would not have to be grossly inaccurate to cause disaster; even the minor inaccuracies made likely by the age of the survey and the nature of the surrounding waters would be sufficient to put Antilles aground. Accordingly I must find that Antilles was not entitled to the luxury of implicit reliance on the accuracy of her charts.

Interestingly enough, the question of fault on the part of the chartmaker and resulting liability was not raised in issue before the American Court. Whether the French Court dealt with it is not known to this writer.

The writer is not aware of any other reported Court decisions on point. There was a case of a Soviet tanker which grounded on a shoal in Swedish waters. The finding of the official inquiry was that the highly contoured form of the chart confused the navigator and in effect led to the grounding. The case was settled out of Court. (The source of this information was an informal personal interview with Mr. Adam Kerr, the Regional Hydrographer, Maritimes Region, of the C.H.S. at the Bedford Institute of Oceanography, Dartmouth, N.S.)

It may be of further interest to note that highly sophisticated bottom scanning techniques have now been developed in the form of detection by sonic beam and the use of side scan sonars which, up to certain depths, are capable of covering virtually every square inch of the bottom, leaving no blank spots. But the presentation of all this information in a chart is restrained by several factors.
3.4 *The Reliance Factor*

As stated earlier, the navigator's reliance on the accuracy of charted information as a result of which damage may have been suffered is an essential factor in the determination of the chartmaker's liability. This reliance factor is a variable which ranges from non-reliance to excessive and undue reliance. At both extremes the liability of the chartmaker tends to be negative. In other words, if the reliance factor is either nil or unduly high then there is no liability on the part of the chartmaker. If the reliance is reasonable under the circumstances, then damages suffered as a result of such reliance will give rise to liability.

An illustration of non-reliance is where a navigator relies entirely on his pilot and ignores the chart although it may be lying on the chart table. Another instance would be where a navigator relies on information obtained through sources other than a chart or sailing direction, such as from other ships or port agents. Tidal and weather information are often obtained by masters in this manner. At the other end of the spectrum is undue reliance which may even constitute negligence on the part of the navigator. A common example is the undue reliance placed on small scale charts in which information is naturally limited. As a matter of ordinary navigational practice the largest scale available chart should always be used. In some instances warnings and cautionary notes inscribed in charts are overlooked or ignored, or attention is not paid to the year of the survey or date of publication. These are all examples of undue reliance. The fact must be appreciated that the chartmaker

Selection of soundings depends on the scale of the chart, since every piece of information printed must be reasonably clear and legible. The cartographer must still resort to standard practices in his selection of soundings. G. A. Magee has pointed out in his paper "The New-Look Admiralty Chart" (1978), 31 J. of Nav. 419 at 421, that

... despite the counterbalancing improved and less-generalized depth contouring; the trend is now to include more spot soundings. There are limits to how far we can go however, because the basic hydrography is increasingly competing for space with other information now needing to be superimposed on water areas in connection with vessel traffic management, with certain other maritime activities, with administrative and political limits, and with restrictions of various kinds over free navigation.

74. Rear Admiral D. W. Haslam, O.B.E. (Hydrographer of the Navy), "Changing the Admiralty Chart" (May 1979), 32 J. of Nav. 164 at 170. This was a paper presented at a meeting of the Solent Branch of the Institute of Navigation held, by courtesy of the Director, at the College of Nautical Studies, Warsash, on 21 Sept., 1978.
has little control over the manner in which the navigator uses or interprets his chart. It has been very aptly stated that

mariners — be they in 300,000 tonners or 30 footers — must learn to question the adequacy of a chart for their particular purpose . . . a wreck marked ‘P.A.’ may be very P.A.!

Another remark made by an officer of the U.S. Hydrographic Office is noteworthy in this regard.

We frequently observe a tendency, manifested by even the presumably critical professional user scarcely less than by the layman, to accept the publications of the Survey as “gospel truth” worthy of unquestionable acceptance for even the most precise purpose. Such a manifestation is embarrassing as it is flattering. . . . Accuracy, however, is a relative matter. That which was ample to ensure the safety of a shallow draft sailing vessel of the clipper ship era may well be inadequate to meet the exacting requirement of some other special problem of today.

In the final analysis, while non-reliance is simply a question of fact, the question of whether or not there was undue reliance placed on the charted information will have to be determined by using the “reasonable man” test, which in this case would depend on what a reasonable chartmaker would have had in contemplation when he prepared his chart and how a reasonable navigator would have interpreted and used the charted information.

3.5 Disclaimers and Warnings

There is no doubt that under the Hedley Byrne principle the insertion in the chart of a clear and express disclaimer would protect the chartmaker from any possible liability for errors and omissions. At the present time the practice of inserting specific disclaimers in charts expressly excluding legal liability is not prevalent.

The more significant question is whether warnings and cautionary notes constitute disclaimers. There are some notations such as P.A. (position approximate), P.D. (position doubtful), and E.D. (existence doubtful), which form part of the substantive information presented in the chart. They refer to specific features such as sunken wrecks. There are other more general notations cautioning the navigator about the fluctuations in the set and drift of current in a particular area or the shifting of sand bars. These cautionary notes

by their very nature signify the non-existence of any specific guaranty of reliability pertaining to the features to which they refer. But these notations do not disclaim responsibility for the use of the chart as a whole. In the event of such an issue arising in the course of a legal action, the Court would have to determine as a question of fact whether the casualty was caused by a feature which was qualified by such a cautionary note.

There are other types of warnings or cautions that refer to the use of the whole chart. These are mainly due to the chart being on a very old or incomplete survey, or the presence in the area of a special physical or environmental phenomenon such as tidal bores, silting or ice. But a casualty may be caused by an error in the chart which is solely attributable to negligence in plotting or drafting. Should the chartmaker be allowed to avail himself of the warning or cautionary note to escape liability simply because the note referred to the whole chart? It is submitted that liability should be imposed where the cause of a casualty is far removed from the reason for which the warning was inserted even though it referred to the whole chart.

4. Vicarious Liability
4.1 The Individual Employee

The general rule has been stated succinctly by Linden. "For the master to be held vicariously liable, the servant must have been in the course of his employment." In other words, an employer is liable only if the negligence occurred within the scope of the servant's employment. In the case of the chartmaker in Canada, the employer is the Crown and vicarious liability is governed by the relevant provisions of the Crown Liability Act.

76. Peter M. Troop mentioned in his lecture to the C.H.S. (see supra, note 52) that he had raised with a former Dominion Hydrographer the question of inserting notations in charts expressly disclaiming legal liability for errors and omissions. The matter was later referred to the I.H.B. where a resolution to that effect was proposed but rejected by the 1967 Conference. The general view was that such a disclaimer "would merely succeed in lowering the prestige and diminishing the authority of the Hydrographic Services without effectively covering them against accidents." It is no doubt a matter of policy. However, at the 1967 Conference a resolution was adopted which recommended the insertion of cautionary notes if the chart was compiled from incomplete or reconnaissance surveys. While the British Admiralty charts contain a considerable number of such warnings and explanatory notes, the C.H.S. does not appear to have followed the recommendation.
77. C. A. Wright & A. M. Linden, Canadian Tort Law, 6th. ed. (Toronto: Butterworth & Co. (Canada) Ltd., 1975) at 577
Section 3 (1) of this Act provides that the Crown shall be vicariously liable for the tortious acts of its servants. Section 4 (2) is in effect a qualifying provision which states that s. 3 (1) is applicable only if a valid cause of action in tort exists as against the servant of the Crown, independent of the statutory provision.

The interaction between these two provisions is perhaps best demonstrated in the exposition of the law by Rand J. in the Cleveland-Cliffs case, supra, where he said

... the conditions under which a Crown servant can be held personally liable to a third person for failure to act in the course of duty to the Crown require that there be intended to be created, as a deduction from the facts, a direct relation between the servant and the third person. The primary duty of the Crown servants is to the Crown; and the circumstances in which the servant can, at the same time, come under a duty to a third person are extremely rare.\(^7\)

Kerwin C. J. said in the same case

There was no duty owing to the appellants on the part of the Dominion Hydrographer to take soundings in the East Entrance Channel and in the circumstances of this case, I am unable to envisage any possible duty to the appellants resting upon any other servant of the Crown, the breach of which could form the basis of a cause of action against him.\(^8\)

He distinguished the Grossman case, supra, where the Supreme Court of Canada had held the Crown vicariously liable for the negligence of an employee, by saying that "there Nicholas, the airport maintenance foreman, was held to owe a duty to Grossman." Rand J. said the following with respect to the Grossman decision

The rule laid down in Grossman v. The King is, as I interpret it, this: that the servant from the nature of his specific duty, a duty immediately related to action of the third person, is

s. 3(1) The Crown is liable in tort for the damages for which, if it were a private person of full age and capacity, it would be liable (a) in respect of a tort committed by a servant of the Crown, or...

s. 4 (2) No proceedings lie against the Crown by virtue of paragraph 3 (1) (a) in respect of any act or omission of a servant unless the act or omission would apart from the provisions of this Act have given rise to a cause of action in tort against that servant or his personal representative.

79. Supra, note 58 at 814
80. Id. at 813
chargeable with knowledge that the latter, in his conduct is justifiably relying on the performance by the servant of that duty, and that the servant is chargeable with accepting the obligation toward the third person. In other words, between them a de facto relation of reliance and responsibility is contemplated.81

The Court concluded that there was no duty owed by the Dominion Hydrographer to the appellants, and consequently no vicarious liability was incurred by the Crown.

In the HERMES case, supra, however, Noel J. distinguished Cleveland-Cliffs and followed Cartwright J.'s decision in Grossman. After referring to the evidence which disclosed that those in charge of the navigation aids “were remiss in their duties” Noel J. went on to say

On this basis, it would even seem possible to hold the Crown liable vicariously under Sect. 3 (1) (a). I could, indeed, again paraphrase the dictum of Mr. Justice Taschereau in Grossman and Sun v. The King, . . . and say . . . that I also would be loath to hold, that an employee of the Crown, whose concern it is to maintain leading lights in a channel in proper and safe condition, and to indicate those lights which are not operating properly, could not, if he failed to do so, be neglectful of his duty to pilots and navigators who are invited or authorized to navigate in Canadian waterways.82

In distinguishing the Cleveland-Cliffs case, Noel J. continued as follows.

Nor would the words of Mr. Justice Rand . . . apply to the present instance in view of the justifiable reliance by navigators on the performance by the employees of the Crown of a duty to ensure that leading lights have not been displaced . . . 83

A thoughtful appraisal of the above dicta points to the following conclusions with respect to vicarious liability of the Crown:
(1) Section 3 (1) (a) of the Crown Liability Act is operative only if the requirement in s. 4 (2) is satisfied.
(2) Whether or not this requirement is satisfied depends on the nature of the employee’s official duty towards the Crown. Some duties by their very nature give rise to a direct relationship between the employee and the party alleging liability, so that a legal duty is

81. Id. at 814
82. Supra, note 10 at 474
83. Id.
owed by the employee to the party, in the course of the former’s normal official duty.

In the *Grossman* and *HERMES* cases, the Court found that the employee’s official duties were of such a nature as to give rise to a duty to the complainant. In *Cleveland-Cliffs* there was no such finding.

It is submitted that although the distinctions set out in *Cleveland-Cliffs* with respect to the *Grossman* decision is sound in principle, the rationale for the Court’s finding that the nature of the official duties of the Dominion Hydrographer did not give rise to a duty owed by him to the appellants, seems rather dubious. In contrast, the rationale for the Court’s finding in *HERMES* is far more logical.84

4.2. *Contractors*

Hydrographic surveys, dredging operations and the tending of buoys and beacons are sometimes undertaken by private parties under contracts with the respective Crown agencies. Whether the Crown incurs liability towards third parties as a result of the negligent acts or omissions of a contractor depends on how the relationship between the Crown and the contractor is characterized. If the relationship is akin to one of master and servant then the Crown would be vicariously liable to a third party for the negligence of the contractor. If on the other hand, the private party is characterized as an independent contractor then he is himself liable for his negligent acts or omissions and the Crown incurs no vicarious liability.

In *Salmond on Torts*, the author states the rule as follows.

The general rule is that although an employer is responsible for the negligence or other wrong-doing of his servant, he is not responsible for that of an agent who is not a servant but an independent contractor.85

*Winfield on Tort* says, “In principle, an employer is not responsible for the torts of his independent contractor.” The rule has been

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84. Notably the owners of the GOLDEN ROBIN have pleaded s. 3 (1) (a) of the *Crown Liability Act*. In its Defence and Counterclaim, the Crown has denied the allegations made pursuant to that section but has not raised s. 4 (2) in defence. It will be interesting to see whether the Court will follow *Cleveland-Cliffs* or *HERMES* on the issue of vicarious liability.

restated by several other learned authors and numerous authorities have been cited in their texts. 86

The problem for the Courts in a given situation is to distinguish between a servant and an independent contractor. *Salmond on Torts* says

The test is the existence of a right of control over the agent in respect of the manner in which his work is to be done. A servant is an agent who works under the supervision and direction of his employer; and an independent contractor is one who is his own master. A servant is a person engaged to obey his employer's orders from time to time; an independent contractor is a person engaged to do certain work, but to exercise his own discretion as to the mode and time of doing it . . . he is bound by his contract but not by his employer's orders. 87

However, there are certain exceptions to the general rule that no vicarious liability is incurred by the principal as a result of the negligent acts of an independent contractor. Various cases and text writers have dealt with them extensively. 88

If a party under a survey or dredging contract with the Crown is characterized as a servant, then any question with regard to vicarious liability will be governed by the relevant provisions of the *Crown Liability Act*. The contractor will be in the same position as a regular Crown employee. If on the other hand, he is characterized as an independent contractor, he will be liable for his own tortious acts against third parties unless he falls within one of the exceptions to the rule referred to above.

Of these exceptions, two seem to be relevant for the purpose of the present discussion. The first is that the principal may not escape liability for the tortious acts of an independent contractor if the work in question involves a public highway. Perhaps it is not utterly outlandish to suggest that surveying, dredging and buoying of navigational channels and fairways are indeed works involving


87. *Supra*, note 84 at 649

88. For example, see *Winfield on Tort, supra*, note 85 at 754-758. The exceptions may be summarized as follows:

A principal cannot escape legal responsibility by delegating work to an independent contractor if the work is unlawful, if it involves the violation of another's rights, if the principal himself is under statutory duty, if the work in question involves a public highway, or if the work is extra-hazardous or involves danger to others.
public highways. Especially today, with the increasing sophistication in routing systems and vessel traffic management schemes in the major harbours and rivers, the analogy is certainly not far-fetched.

The other relevant exception is that the principal cannot escape vicarious liability for the tortious acts of his independent contractor if the work in question involves "extra-hazardous activities" or "dangerous things."\(^8\) The work itself may be inherently dangerous or it may entail danger to others. It is pointed out in *Salmond on Torts* that this exception is really an extension of the rule relating to the escape of dangerous things as enunciated in *Rylands v. Fletcher*.\(^9\)

Again, in the case of extra-hazardous acts, that is, acts which, in their very nature, involve in the eyes of the law special danger to others, an obligation is imposed upon the ultimate employers to take special precautions which they cannot delegate by having the work carried out by independent contractors.\(^91\)

Dredging operations, although not inherently dangerous, can cause danger to others if performed negligently. In fact, this was exactly the case in the GOLDEN ROBIN situation. The Foundation Company of Canada was under a contract with the Crown to build a new wharf. A term of the contract was that the channel be maintained free of debris. The Foundation Company engaged other sub-contractors to keep the channel dredged, which evidently was not carried out satisfactorily and resulted in the grounding of the GOLDEN ROBIN. Of course it may be that the Crown had sufficient control over the activities of the Canada Foundation Company such that the relationship for the purposes of vicarious liability was one of master and servant. Even if the Canada Foundation Company is found by the Court to be an independent contractor, for the purposes of vicarious liability it may fall under the foregoing exceptions. It seems that in any event the Crown will be found vicariously liable under the circumstances.

**SUMMARY AND CONCLUSION**

The existing state of the law in this area does not lend itself to the formation of definitive opinions on all the issues raised in this

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89. See *Fleming and Charlesworth, supra*, note 85
90. (1868), L.R. 3 H.L. 330
91. *Supra*, note 84 at 693
The Charting and Safekeeping Of Oceans and Waterways

article. While the general legal principles are reasonably clear, it is their application to specific factual situations which raises problems. Some of these can only be considered hypothetically since the Courts have not had to deal with them as yet. However, in light of the foregoing observations and analyses, the following is perhaps a reasonable summation.

As regards the procedural aspects, firstly, the diversity of interests involved and the resulting legal complications generated by a typical stranding incident must be recognized and thoroughly appreciated. Secondly, a litigant contemplating legal action against the Crown must acquaint himself with the functional responsibilities of Crown agencies, their interactions and the administrative framework within which they operate which, needless to say, are often highly complex.

Among the substantive issues, the first one concerns the contractual aspect of the problem. The initial premise with respect to the possible liability of a chartmaker is that under normal circumstances he does not perform his task with any transaction in mind as such. However with respect to certain specific information such as channel depths or dock sill soundings, if specially published in charts or sailing directions through the instigation of a port authority or a private dock owner, the argument could be made that these are analogous to commercial notices or advertisements which are expected to be relied and acted upon. In the event of damage suffered as a result of such reliance, the originator of such “notice” may incur liability for breach of an implied warranty as to the accuracy of the information.

The remaining issues all deal with liability in tort. The first question concerns the duty of care pertaining to chartmaking. Although at one time it was quite unthinkable that a chartmaker owed any duty of care to a user of his charts, it seems relatively clear now that under the Hedley Byrne principle and subsequent cases which further developed the law on liability for careless statements, a chartmaker has a duty to be careful in the preparation of his chart, a breach of which may expose him to liability if damage is suffered as a result of reliance on the carelessly stated information.

On the question of liability relating to totally uncharted waters, the basic premise is that there is no duty on a chartmaker to survey and chart every waterway in the world. However, where Canadian regulations make the use of Canadian charts or their equivalent
compulsory in Canadian waters, it may be argued that, in the absence of equivalents, there is a strong presumption that Canadian charts are available, and if not, that there is an implied duty on the Canadian government to produce them. On the question of assistance to vessels in uncharted waters, the rule seems to be that there is no legal obligation to assist, however, liability may be incurred for misfeasance if the assistance is rendered carelessly.

Where waters are inadequately marked and charted, whether or not there is a duty owed to a party who suffers damages is debatable. There are two lines of authority in Canada, one of which is consistent with the opinion of the English House of Lords, and espouses the view that a duty arises out of an invitor-invitee relationship. This view seems far more reasonable and logical than the alternative view — that no such duty exists.

The standard of care expected of a chartmaker is that of a reasonable professional. By and large, standard practices among different chart producing nations are the same, although at least one instance of a stranding has been reported which revealed significant variances in depth contouring methods. Concerted efforts are continuously being made to achieve a higher degree of uniformity in international chartmaking practices.

It has been suggested that often casualties occur as a result of undue reliance being placed on charts by mariners. In this context the legal validity of disclaimers and warnings on charts is a contentious issue. Although express statements disclaiming legal responsibility for accuracy of charted information are legally valid, such is not the prevalent practice among chart producers. Whether a warning or cautionary note qualifies as a disclaimer depends on the degree of specificity and the bearing it has on the actual facts of a case.

Insofar as vicarious liability of an individual is concerned, in Canada it is governed by the Crown Liability Act. Here again the cases appear to be inconsistent, if not in principle, at least in terms of their respective rationalizations. As regards negligent acts committed by contractors of the Crown, the question is whether the party is characterized as a servant or an independent contractor. The degree of control by the principal is the major determinant of this question. The general rule is that no vicarious liability is incurred in respect of an independent contractor unless one of the exceptions are applicable. The exception relating to public highways may well be applied by analogy to surveying and dredging operations in
channels as well as to the installation and maintenance of navigation aids. The exception relating to dangerous things may similarly be applied in view of the hazardous navigational condition which might prevail if these operations are conducted negligently.

In conclusion it may be noted that Canadian Courts have not as yet been confronted with a case involving direct allegation of negligence on the part of the chartmaker. Hopefully, such a misfortune will not arise. Meanwhile it is hoped this article will throw some light on the legal implications which may be encountered in this area and some possible solutions to the problems.⑨²

92. The GOLDEN ROBIN case was scheduled for trial in Sept. 1980, the outcome of which was not known to the author at the time this article was submitted for publication.
His Excellency the Governor General in Council, on the recommendation of the Minister of Transport, pursuant to sections 400 and 730 of the Canada Shipping Act, is pleased hereby to revoke the Charts and Publications Regulations, made by Order in Council P.C. 1972-1703 of 27th July, 1972\(^1\), as amended\(^2\), and to make the annexed Regulations requiring ships to have on board, maintain and use appropriate charts, tide tables, lists of lights and other nautical publications in substitution therefor.

REGULATIONS REQUIRING SHIPS TO HAVE ON BOARD, MAINTAIN AND USE APPROPRIATE CHARTS, TIDE TABLES, LISTS OF LIGHTS AND OTHER NAUTICAL PUBLICATIONS

Short Title

1. These Regulations may be cited as the Charts and Publications Regulations.

Interpretation

2. In these Regulations "chart" means a nautical chart; "Information Bulletin", in respect of an area to be navigated by a ship, means the chart catalogue for that area published by the Canadian Hydrographic Service; "national authority" means the government of a country; "ship" includes every description of vessel used in navigation and not propelled by oars.

PART I

SHIPS IN CANADIAN WATERS AND FISHING ZONES

Application

3. (1) Subject to subsection (2), this Part applies to all self-propelled ships, other than ships of war, in

   (a) Canadian waters south of the sixtieth parallel of north latitude;

\(^1\)SOR/72-292, Canada Gazette Part II, Vol. 106, No. 15, August 9, 1972
\(^2\)SOR/72-533, Canada Gazette Part II, Vol. 106, No. 24, December 27, 1972
(b) Canadian waters north of the sixtieth parallel of north latitude that are not within a shipping safety control zone prescribed pursuant to the *Arctic Waters Pollution Prevention Act*; and
(c) a fishing zone of Canada prescribed pursuant to the *Territorial Sea and Fishing Zones Act*.

(2) This Part does not apply to a ship that is of less than 100 tons, gross tonnage, if the person in charge of the navigation of that ship
   (a) is informed of the location and character of charted
      (i) shipping routes,
      (ii) lights, buoys and marks, and
      (iii) navigational hazards; and
   (b) has a general knowledge of the prevailing navigational conditions in the area in which the ship is to be navigated.

*Carriage of Charts and Publications*

4. (1) Every ship shall have on board, in respect of each area to be navigated by the ship, at least the latest editions of such charts and the most recent issues of such publications as are necessary for the ship to comply with sections 5 to 7.
(2) When making a voyage described in column I of an item of the schedule, every ship shall, in addition to the charts required by subsection (1), have on board
   (a) the latest editions of the Canadian Hydrographic Service charts described in column II of that item; or
   (b) the latest editions of the charts published by any national authority that
      (i) cover the same area as,
      (ii) are at least as complete, accurate, intelligible and up-to-date as, and
      (iii) are at a scale that is at least 75 per cent of the scale of the latest editions of the charts described in column II of that item.

*Use of Charts*

5. (1) Subject to subsection (2), every ship shall, in respect of the immediate area in which the ship is located, make proper navigational use of a chart that
   (a) is published by a national authority;
   (b) covers that immediate area; and
   (c) provides a representation of the area covered by the chart that is
      (i) as complete, accurate, intelligible and up-to-date as, and
      (ii) at a scale that is at least 75 per cent of the scale of the largest scale chart described in the most recent issue of the *Information Bulletin* that is a chart of that immediate area,
   (2) Where a ship is located
      (a) more than five nautical miles from any charted feature or charted depth of water that represents a potential hazard to the ship, or
      (b) within the area covered by a chart described in the most recent issue of the *Information Bulletin* as a chart
         (i) primarily intended for use of pleasure craft, or
         (ii) primarily of an anchorage, a river or a harbour that is not entered by the ship,
      paragraph (1) (c) shall be deemed to refer to the second-largest scale chart of that immediate area as described in the most recent issue of the *Information Bulletin*, if that second-largest scale chart is at a scale of not less than 1:400,000 (5.486 nautical miles to the inch or 2.160 nautical miles to the centimetre).
Use of Other Publications

6. (1) Subject to subsections (2) and (3), every ship shall, in respect of each area to be navigated by the ship, make proper navigational use of
(a) the following Canadian Government publications:
   (i) tide and current tables,
   (ii) sailing directions,
   (iii) List of Lights, Buoys, and Fog Signals,
   (iv) where the ship is fitted with radio equipment, Radio Aids to Marine Navigation,
   (v) Code of Navigation Practices and Procedures, and
   (vi) where the ship in making a voyage during which ice may be encountered, Ice Navigation in Canadian Waters;
(b) the Information Bulletin; and
(c) the annual edition of Canadian Notices to Mariners.

(2) A publication of any national authority may be substituted for any Canadian Government publication described in paragraph (1) (a), if the publication is, in respect of information that may affect the safe navigation of the ship in the area being navigated, as complete, accurate, intelligible and up-to-date as the Canadian Government publication.

(3) No ship need use the List of Lights, Buoys and Fog Signals if the information contained in that publication that may affect the safe navigation of the ship is described on the charts used by the ship.

Maintenance

7. Every ship shall ensure that any chart or publication required by this Part to be on board the ship is, before being used in the navigation of the ship, corrected up-to-date from information that may affect the safe navigation of the ship and that is contained in a notice to mariners or a radio navigation warning.

Exception

8. Notwithstanding the provisions of this Part, a ship shall be deemed not to have contravened this Part if, before the ship navigated an area for which a chart or publication is required and after the ship was informed that it would be navigating that area, it was not possible for the ship
(a) to obtain the required chart or publication at any harbour at which the ship called;
(b) to obtain safely and legally the required chart or publication at any harbour that the ship passed at such a distance that it would not have been unreasonable for the ship to obtain the chart or publication at that harbour; . . .

Author's Note: The remainder of the Regulation is not relevant and is therefore omitted.
APPENDIX II


The following enlarged reproductions of British Admiralty, French and U.S. charts covering the Mustique Channel area demonstrate the diversity in cartographic interpretation of identical, original survey data. Notably, the French and U.S. charts were based on data collected from the original British survey. (Fig. 1).

Fig. 1 — Extract from original British survey. Approximate position of ANTILLES wreck indicated by arrow mark.
Note that the British Admiralty chart (Fig. 2) shows a continuous 5 fathom contour on both sides of the channel with the exception of the area north-east of Cheltenham, to the west of a narrow point of land.
In contrast, the French chart (Fig. 3) shows a 10 metre contour in place of the 5 fathom contour in the B.A. chart without any break in continuity. Note also that it is relatively more clear and legible, in other words, it stands up to enlargement better than the B.A. chart. However, the extent to which details may be "safely" sacrificed for the sake of clarity is a matter which warrants careful consideration.
Judgment and discretion in this regard is aptly exemplified in the U.S. chart (Fig. 4), while details regarding topography depict a rather simplistic approach, details with respect to navigational hazards whether submerged or awash have been depicted in a far more conspicuous manner than in the B.A. and French charts. To quote directly from Capt. Oudet’s article at pp. 154-55:

It seems that to some extent the Americans have incorporated information of their own; the entire area of dangers awash or barely submerged is shown by a stipple, which is particularly close along the perimeter and emphasizes its dangerous aspect. Besides, the 5 fathom contour is shown by a discontinuous pecked line which gives the impression that the dangers may extend as far as that. Above all, this contour is completely absent to the north of Mustique where the inscriptions 'Double RK. (20)' and 'Sandy Bay' take its place. The general impression is that to the north of the island the limits of the danger are ill-defined and that it may well extend as far as the middle of what is shown as a channel on the other charts.

Fig. 4 — Extract from U.S. chart No. 1640 (enlarged 4 times).