

**THE PROTECTION OF
UNDERWATER CULTURAL HERITAGE**

/

**LA PROTECTION DU PATRIMOINE
CULTUREL SUBAQUATIQUE**

Background documents I / Documents de base I

93.007

**BACKGROUND MATERIALS
ON
THE PROTECTION OF THE UNDERWATER CULTURAL HERITAGE**

/

**DOCUMENTS DE BASE
SUR
LA PROTECTION DU PATRIMOINE CULTUREL SUBAQUATIQUE**

Edited by / Sélectionnés par

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and / et
Ieng Srong



UNESCO

NAUTICAL ARCHAEOLOGY SOCIETY

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INTRODUCTION

Ces matériels ont été sélectionnés pour servir de documents de base à ceux qui sont en charge de l'examen, au niveau international, de la question de protection du patrimoine culturel subaquatique.

La première section comprend des exemples de législations nationales sur la protection du patrimoine culturel. Les exemples choisis représentent différentes approches. Certaines ont été critiquées et les plus anciennes ne reflètent pas les derniers développements sur la protection de ces ressources.

La deuxième section comprend deux accords internationaux qui ont été passés entre les Etats ayant un intérêt particulier à protéger les épaves placées sous la protection de ces accords.

La troisième et la quatrième section contiennent différents points de vues. La troisième section donne différents aperçus sur quelques fouilles. La quatrième section reflète des débats qui ont eu lieu, ces dernières années, entre chasseurs de trésors, sauveteurs et archéologues.

Nous sommes loin de pouvoir inclure l'ensemble du matériel disponible et même les différents points de vues exprimés. Les publications rassemblées ici ne le sont qu'à titre d'exemples.

L'UNESCO ne peut être tenue comme ayant souscrit aux différentes opinions publiées ici: le but est de rendre disponible un ensemble représentatif d'opinions, sous forme de documents de base, pour la réflexion sur le projet de convention sur la protection du patrimoine culturel subaquatique élaboré conjointement par l'UNESCO et la Division des affaires maritimes et du droit de mer du Bureau des affaires juridiques des Nations Unies (responsable de la mise en œuvre de la Convention des Nations Unies sur le droit de la mer de 1982).

Il n'a pas été fait de traduction de ces matériels afin de les rendre disponibles le plus vite possible. Néanmoins, nous espérons avoir donné suffisamment d'exemples en anglais et en français pour rendre ce domaine accessible à tous.

1^{er} mars 1999

INTRODUCTION

These materials have been selected as background for those currently concerned with international consideration of the protection of the underwater cultural heritage.

The first section includes some examples of national legislation for the protection of the cultural heritage. The examples chosen represent different approaches. Some have been criticized and the earliest do not represent the latest thinking on the protection of these resources.

The second section includes two international agreements which have been made between States on the subject where the States have particular concerns in the shipwrecks covered by the Agreements.

The third and fourth sections contain different points of view. The third section gives some different views of the same excavations. The fourth gives some of the discussion which has been taking place over recent years between treasure-hunters, salvors and archaeologists.

There is far too much material to be able to include it all, or even all the views which have been expressed. The papers assembled here are to be seen as examples.

UNESCO is not to be taken as espousing particular views in this discussion: the aim is to make available a cross-section of the opinions which have been published as background for those considering the current draft convention on the protection of the underwater cultural heritage co-sponsored by UNESCO and DOALOS (Division of Ocean Affairs and Law of the Sea, Legal Adviser's Office, United Nations; responsible for the implementation of the United Nations Convention on the Law of the Sea, 1982).

In order to make these materials available as soon as possible, they have not been translated, but it is hoped that sufficient examples have been given in English and French to make the issues visible to all.

1 March 1999

I- Législations nationales/ *National legislations*

Historic Shipwrecks Act 1976
(*Australie/Australia*)

The National Historic Shipwrecks Program

The National Historic Shipwrecks Program is a co-operative undertaking between the Commonwealth, the states and the Northern Territory. The program aims to encourage public enjoyment and appreciation of our underwater cultural heritage by:

- conserving and protecting historic shipwreck sites and associated material as a cultural resource of the nation; and
- promoting the compilation and dissemination of information on Australian shipwrecks.

Shipwrecks are an invaluable source of archaeological information which can help us to understand Australia's past and are a great recreational attraction for divers. They also have potential for scientific research. **People are welcome to dive on shipwreck sites, where safe, but must not disturb or damage the remains or take anything from them.**

The Commonwealth's *Historic Shipwrecks Act 1976* automatically protects all shipwrecks aged 75 years or more in Australian waters, ie. waters on the seaward side of the low water mark and above the continental shelf. More recent wrecks can also be protected by an individual declaration by the Minister. Eight wrecks have been so declared. Protected zones have also been declared around shipwrecks which are both particularly significant and especially vulnerable.

You are obliged under the Act to:

- not disturb a shipwreck site or remove any relic without a permit;
- not enter any of the 10 protected zones around historic shipwrecks without a permit;
- notify the Minister of the remains of any shipwreck you discover;
- notify the Minister of any protected shipwreck relic in your possession, custody or control;
- not damage or destroy a historic shipwreck relic, nor dispose of a historic shipwreck relic without a permit; and
- comply with any other power of the Minister or of an inspector under the Act.

Many people have neglected to report the finding of a wreck or possession of historic shipwreck relics and incur penalties.

The Government has declared an amnesty for due notifications not given prior to 1 April 1993, to enable people to meet the requirements of the Act without penalty. The amnesty commences on 1 May and concludes on 30 October 1993.

For more information, see the Public Access Guidelines which are available on application. The Act also provides for recognition of persons who discover and report a shipwreck.

The Commonwealth, the states and the Northern Territory have established a national framework for surveying, assessing, managing and protecting historic shipwrecks. Some states have programs in which public participation in certain activities is welcome. The public can also join maritime archaeological associations in each state. The Commonwealth also works with the Australian Institute for Maritime Archaeology in promoting standards of practice and the dissemination of information on shipwrecks.

The Minister has delegated certain powers, including the granting of permits, to the relevant authority in each state and the Northern Territory.

Contact for further information:

Department of the Arts and Administrative Services
GPO Box 1920
Canberra ACT 2601
Tel: 008 819 4621



HISTORIC SHIPWRECKS ACT 1976

Reprinted as at 28 February 1983

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(P.R. 31/82) (R82/96)—Cat. No. 82 1375 0—Recommended retail price \$1.20



HISTORIC SHIPWRECKS ACT 1976

An Act relating to the Protection of Certain Shipwrecks and Relics of Historic Significance

WHEREAS, by an Agreement between the Netherlands and Australia Concerning Old Dutch Shipwrecks that was signed on 6 November 1972 (being the agreement a copy of the text of which is set out in Schedule 1 to this Act), the Netherlands, as successor to the property and assets of the Dutch "Vereenigde Oostindische Compagnie", transferred to Australia all its right, title and interest in and to wrecked vessels of the Dutch "Vereenigde Oostindische Compagnie" lying on or off the coast of the State of Western Australia and in and to any articles thereof and Australia accepted that right, title and interest:

AND WHEREAS it is desirable that the Commonwealth and the States, in co-operation, should protect those wrecked vessels and articles, and the remains of, and any articles associated with, other ships of historic significance, being remains or articles that are situated in, or have been removed from, Australian waters or waters above the continental shelf of Australia:

BE IT THEREFORE ENACTED by the Queen, and the Senate and House of Representatives of the Commonwealth of Australia, as follows:

PART I—PRELIMINARY

Short title

1. This Act may be cited as the *Historic Shipwrecks Act 1976*.¹

Commencement and application of Act

2. (1) This Act shall come into operation on the day on which it receives the Royal Assent but shall not apply in relation to waters (including waters above the continental shelf) adjacent to the coast of a State until a Proclamation has been made declaring that this Act applies in relation to waters adjacent to the coast of that State.

(2) A Proclamation under sub-section (1) may be expressed to relate only to a specified part of the waters adjacent to the coast of a State and, where a

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Proclamation so expressed is made, this Act shall commence to apply in relation to that part of those waters only.

(3) Proclamations under sub-section (1) in relation to waters adjacent to the coasts of New South Wales, Queensland and Western Australia having been made, before the commencement of this sub-section, at the request or with the consent of the Governments of those States respectively, no further Proclamation under that sub-section shall be made except at the request or with the consent of the Government of the State concerned.

(4) If, after this Act has commenced to apply in relation to any waters adjacent to the coast of a State, the Government of the State notifies the Government of the Commonwealth that it desires that this Act shall cease to apply in relation to those waters or a specified part of those waters, the Governor-General shall, by Proclamation, declare that this Act shall, on a date specified in the Proclamation, cease to apply accordingly and, upon that date, this Act shall cease to apply in relation to the waters specified in the Proclamation or to or in relation to remains of ships, and articles, that are in those waters or have been removed from those waters, and section 8 of the *Acts Interpretation Act 1901* has effect as if this Act, to the extent that it so ceases to apply, had been repealed on that date by another Act.

(5) A Government of a State may, in a notification to the Government of the Commonwealth under sub-section (4), request that this Act shall continue to be applicable to and in relation to specified articles, or articles of a specified class, removed from the waters referred to in the notification and, in that event, the Proclamation under that sub-section shall provide, and have effect, accordingly.

(6) Nothing contained in, or done under, sub-section (4) affects the application of this Act to or in relation to a Dutch shipwreck or Dutch relic, and a Proclamation under that sub-section in relation to waters adjacent to Western Australia shall declare that the Proclamation does not affect the application of this Act to or in relation to any wrecked vessel or article that is a Dutch shipwreck or Dutch relic within the meaning of this Act.

(7) Where he is satisfied that arrangements made, apart from this Act, with respect to Dutch shipwrecks or Dutch relics make it appropriate for him to do so, the Governor-General may, by Proclamation, declare that this Act shall, on a date specified in the Proclamation, cease to apply to and in relation to all Dutch shipwrecks and Dutch relics, or such Dutch shipwrecks and Dutch relics as are in, or have been removed from, a specified part of the waters adjacent to Western Australia and, where such a Proclamation is made, section 8 of the *Acts Interpretation Act 1901* has effect as if this Act, to the extent that it is so declared to cease to apply, had been repealed by another Act on the date specified in the Proclamation.

(8) A Proclamation under sub-section (7) may provide that this Act shall continue to be applicable to and in relation to specified Dutch relics, or Dutch

relics of a specified class, removed from the waters to which the Proclamation relates and in that event this Act shall have effect accordingly.

(9) Sub-sections (4) and (5) have effect as if the Northern Territory were a State.

(10) Where a Proclamation is expressed to be made in accordance with a specified sub-section of this section, it shall be conclusively presumed that any request or consent of, or notification by, the Government of a State, or any other condition precedent, that is necessary or applicable under that sub-section has been duly made, given or complied with.

Interpretation

3. (1) In this Act, unless the contrary intention appears—

“Australia” includes the external Territories;

“Australia-Netherlands Agreement” means the Agreement between the Netherlands and Australia Concerning Old Dutch Shipwrecks that was signed on 6 November 1972, being the agreement a copy of the text of which is set out in Schedule 1;

“Australian waters” means the territorial sea of Australia and waters of the sea (not being waters within the limits of a State) on the landward side of the territorial sea of Australia;

“continental shelf” has the same meaning as in the *Seas and Submerged Lands Act 1973*;

“Dutch relic” means an article mentioned in Article 1 or 2 of the Australia-Netherlands Agreement;

“Dutch shipwreck” means—

- (a) a wrecked vessel mentioned in Schedule 2; or
- (b) any other wrecked vessel mentioned in Article 1 of the Australia-Netherlands Agreement (including any such vessel that is no longer lying on or off the coast of the State of Western Australia as mentioned in that Article);

“historic relic” means—

- (a) an article in respect of which a notice in force under sub-section 5 (2) (including that sub-section as having effect by virtue of sub-section 5 (3)) is applicable;
- (b) a Dutch relic; or
- (c) an article in respect of which a notice in force under sub-section 6 (2) (including that sub-section as having effect by virtue of sub-section 6 (3)) is applicable;

“historic shipwreck” means—

- (a) the remains of a ship in respect of which a notice in force under sub-section 5 (1) (including that sub-section as having effect by virtue of sub-section 5 (3)) is applicable;
- (b) a Dutch shipwreck; or

- (c) an article or articles in respect of which a notice in force under sub-section 6 (1) (including that sub-section as having effect by virtue of sub-section 6 (3)) is applicable;

“inspector” means a person appointed as an inspector under section 22 or a member of the Commonwealth Police Force or of the Police Force of a State or Territory;

“offence against this Act” includes—

- (a) an offence against the regulations;
- (b) an offence against this Act that is deemed to have been committed by virtue of section 5 of the *Crimes Act 1914*; and
- (c) an offence against section 7 or 7A of the *Crimes Act 1914* in relation to this Act;

“protected zone” means an area in respect of which a notice is in force under sub-section 7 (1) and any area by which the first-mentioned area is extended by a notice that is in force under sub-section 7 (2) and includes the airspace above such an area and any waters, sea-bed and subsoil included in such an area by virtue of sub-section 7 (3);

“Register” means the Register of Historic Shipwrecks kept under section 12;

“relevant agreement” means an agreement entered into between Australia and another country or countries in relation to the remains of a ship or ships or in relation to articles associated with a ship or ships, being remains or articles declared in the agreement to be of historic significance;

“sea” includes any waters within the ebb and flow of the tide;

“ship” includes any vessel used in navigation by water.

(2) A reference in this Act to the remains of a ship, or to an article or articles, being situated in, or having been removed from, any waters includes a reference to the remains of a ship or to an article or articles—

- (a) being situated in or forming part of, or having been removed from, as the case may be, the sea-bed, or the subsoil of the sea-bed, beneath those waters; or
- (b) being situated on or forming part of, or having been removed from, as the case may be, a reef in those waters.

(3) A thing shall not be taken not to be an article for the purposes of this Act by reason that it is attached to the remains of a ship, to a reef or to, or to the subsoil of, the sea-bed.

(4) A reference in this Act to an article associated with a ship shall be construed as a reference to an article that appears to have formed part of, to have been installed or carried on, or to have been constructed or used by a person associated with, a ship.

(5) For the purpose of this Act, and of any Proclamation under this Act (whether made before or after the commencement of this sub-section), the waters adjacent to the coast of a State or of the Northern Territory shall be deemed to comprise so much of the waters within the area the boundary of which is described under the heading referring to that State or Territory in Schedule 2 to the *Petroleum (Submerged Lands) Act 1967* as in force immediately after the commencement of Part II of the *Petroleum (Submerged Lands—Miscellaneous Amendments) Act 1981* as are within the outer limit of the continental shelf of Australia.

Act to bind Crown

4. This Act binds the Crown in right of the Commonwealth and of each State.

PART II—PROTECTION OF HISTORIC SHIPWRECKS AND RELICS

Certain shipwrecks and relics may be declared to be historic

5. (1) Where the Minister is of the opinion that the remains of a ship that are situated in Australian waters or in waters above the continental shelf of Australia are of historic significance, he may, by notice published in the *Gazette*, declare those remains to be a historic shipwreck.

(2) Where the Minister is of the opinion that a particular article that was, or particular articles that were, associated with a ship, or all articles that were associated with a particular ship, being an article that is, or articles that are, situated in Australian waters or in waters above the continental shelf of Australia, is or are of historic significance, he may, by notice published in the *Gazette*, declare the article or articles to be a historic relic or historic relics.

(3) The Minister may make a declaration under sub-section (1) or (2) in relation to any part of the remains of a ship that has, or in relation to any article or articles that has or have, been removed from Australian waters or from waters above the continental shelf of Australia in like manner as he may make a declaration under that sub-section in relation to the remains of a ship, or in relation to an article or articles, situated in those waters.

(4) Where—

(a) a declaration has been made under this section in relation to the remains of a ship or an article that were or was situated in any waters; and

(b) after the making of the declaration any part of those remains or that article is removed from those waters,

the declaration continues to apply, subject to any amendment or revocation of the declaration, in relation to that part of those remains or in relation to that article notwithstanding its removal from those waters.

Provisional declaration that shipwrecks and relics are historic

6. (1) Where it appears to the Minister that an article or articles appearing to be the remains of a ship that is or are situated in Australian waters or in waters above the continental shelf of Australia may be of historic significance, he may, by notice published in the *Gazette*, provisionally declare the article or articles to be a historic shipwreck.

(2) Where it appears to the Minister that a particular article that is, or particular articles that are, situated in Australian waters or in waters above the continental shelf of Australia—

- (a) may have been associated with a ship; and
- (b) may be of historic significance,

he may, by notice published in the *Gazette*, provisionally declare the article or articles to be a historic relic or historic relics.

(3) The Minister may make a declaration under sub-section (1) or (2) in relation to any article that has, or articles that have, been removed from Australian waters or from waters above the continental shelf of Australia in like manner as he may make a declaration under that sub-section in relation to an article or articles situated in those waters.

(4) Where—

- (a) a declaration has been made under this section in relation to an article that was situated in any waters; and
- (b) after the making of the declaration that article is removed from those waters,

the declaration continues to apply in relation to that article notwithstanding its removal from those waters.

(5) A notice under this section remains in force, unless sooner revoked, until the expiration of 12 months from the date of publication of the notice in the *Gazette*, but the revocation or expiration of a notice under this section does not prevent the publication in the *Gazette* of a further notice under this section in relation to an article or articles to which the revoked or expired notice applied.

Protected zones

7. (1) The Minister may, by notice published in the *Gazette*, declare an area (not exceeding 100 hectares) consisting of sea or partly of sea and partly of land (not including sea or land within the limits of a State) within which a historic shipwreck is, or a historic relic is or historic relics are, situated to be a protected zone.

(2) Where the Minister is of the opinion that it is necessary to do so for the purposes of protecting a historic shipwreck, a historic relic or historic relics, he may, by notice published in the *Gazette*, extend an area comprising a protected zone under sub-section (1) to include a further area consisting of sea or partly of sea and partly of land (being sea or land within the limits of a State) but so

that the total area does not exceed 100 hectares and, where an area is so extended to include a further area, the protected zone includes that further area.

(3) Where a notice declaring an area to be, or to be included in, a protected zone is in force under sub-section (1) or (2), the protected zone shall be taken to include the airspace above that area and, to the extent to which that area consists of the surface of any sea, to include the waters beneath that area, the sea-bed beneath those waters and the subsoil of that sea-bed.

(4) Where a notice under section 5 or 6 in relation to the remains of a ship or in relation to an article or articles is revoked or otherwise ceases to be in force, any notice under this section in relation to the remains or in relation to the article or articles ceases to be in force but this sub-section does not prevent the publication in the *Gazette* of a further notice under this section in relation to the remains or in relation to the article or articles if a further notice is published in the *Gazette* under section 5 or 6 in relation to the remains or in relation to the article or articles.

Further publication of notices

8. Where a notice under section 5, 6 or 7 is published in the *Gazette*, the Minister may cause a copy of the notice to be published in such newspapers, periodicals or other publications as he thinks appropriate.

Notice of location of historic shipwrecks and relics

9. (1) Where—

- (a) a person has possession, custody or control of an article; and
- (b) a notice applying in respect of the article is published in the *Gazette* under section 5 or 6,

the person shall, within 30 days after the date of publication of the notice in the *Gazette*, give the prescribed notice to the Minister in relation to the article.

(2) Where an article in respect of which a notice published in the *Gazette* under section 5 or 6 applies comes into the possession, custody or control of a person, the person shall, within 30 days after the day on which the article comes into his possession, custody or control, give the prescribed notice to the Minister in relation to the article.

(3) Where, at the commencement of this Act, a person has possession, custody or control of an article that is, or is a part of, a Dutch shipwreck or is a Dutch relic, the person shall, within 30 days after the commencement of this Act, give the prescribed notice to the Minister in relation to the article.

(4) Where, after the commencement of this Act, an article that is, or is a part of, a Dutch shipwreck or is a Dutch relic comes into the possession, custody or control of a person, the person shall, within 30 days after the day on which the article comes into his possession, custody or control, give the prescribed notice to the Minister in relation to the article.

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(5) It is a defence to a prosecution of a person for an offence against a provision of this section in relation to an article if the person proves—

- (a) in the case of an offence against sub-section (1) or (2) in relation to an article in respect of which a notice was published in the *Gazette* under section 5 or 6—that the person did not know, and had no reasonable grounds for believing, that the article was an article to which the notice related; or
- (b) in the case of an offence against sub-section (3) or (4)—that the person did not know, and had no reasonable grounds for believing, that the article was a Dutch relic or a part of a Dutch shipwreck.

(6) For the purposes of this section, the prescribed notice in relation to an article means a notice in writing describing the article and stating where the article is situated.

Penalty: \$1,000.

Power of Minister to ascertain location of historic shipwrecks and relics

10. (1) Where it appears to the Minister that—

- (a) a person may have, or may have had, possession, custody or control of an article; and
- (b) the article is or may be, or is or may be a part of, a historic shipwreck or is or may be a historic relic,

the Minister may, by notice in writing to the person, require the person, within the time specified in the notice—

- (c) to inform the Minister whether the person has, or has had, possession, custody or control of the article;
- (d) if the person has ceased to have possession, custody or control of the article, to give the Minister particulars of the circumstances in which the person ceased to have possession, custody or control of the article; and
- (e) if the person has transferred possession, custody or control of the article to another person, to give the Minister the name and address of the person to whom possession, custody or control of the article was transferred.

(2) A person to whom a notice is given by the Minister under sub-section (1) shall not—

- (a) refuse or fail to comply with the notice to the extent that the person is capable of complying with it; or
- (b) in purported compliance with the notice, knowingly furnish information that is false or misleading.

Penalty: \$1,000.

(3) A person is not excused from furnishing information in pursuance of this section on the ground that the information may tend to incriminate the person but evidence of the furnishing of the information is not admissible in evidence against the person except in proceedings for an offence against this section.

Power of Minister to give directions in relation to custody, &c., of historic shipwrecks and relics

11. (1) Where a person has possession, custody or control of an article, being, or being a part of, a historic shipwreck or being a historic relic, the Minister may, for the purpose of—

- (a) the preservation of the article; or
- (b) the exhibition of, or the provision of access to, the article,

by notice in writing, require the person to take such action in relation to the article as is specified in the notice.

(2) The action that a person may be required to take in relation to an article by a notice under sub-section (1) includes but is not limited to—

- (a) keeping the article in a particular manner or place;
- (b) removing the article to a particular place within a particular time;
- (c) doing a particular act in relation to the article within a particular time, being an act designed to assist in the preservation of the article; and
- (d) delivering the article into the custody of a particular person within a particular time.

(3) Where the Minister gives a notice to a person under sub-section (1) requiring the person to take action in relation to an article other than action referred to in paragraph (2) (d), he shall in the notice inform the person that the person may, in lieu of taking that action, deliver the article within a specified time into the custody of a person specified in the notice.

(4) A person to whom a notice is given by the Minister under sub-section (1) shall comply with the notice.

Penalty: \$2,000 or imprisonment for 2 years, or both.

(5) A civil action does not lie against a person in respect of any action taken by him in pursuance of a notice given to him by the Minister under sub-section (1).

Register of Historic Shipwrecks

12. (1) The Minister shall cause to be kept a register to be known as the Register of Historic Shipwrecks.

(2) The Minister shall cause to be entered in the Register particulars of notices in force under section 5, 6 or 7 and particulars of known Dutch shipwrecks and Dutch relics.

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(3) A person may inspect the Register and, on payment of the prescribed fee, is entitled to be furnished with a copy of, or of any part of, the Register.

Prohibition of certain action in relation to historic shipwrecks and relics

13. (1) Except in accordance with a permit, a person shall not—

- (a) damage or destroy a historic shipwreck or a historic relic;
- (b) interfere with a historic shipwreck or a historic relic;
- (c) dispose of a historic shipwreck or a historic relic; or
- (d) remove a historic shipwreck or a historic relic from Australia, from Australian waters or from waters above the continental shelf of Australia.

(2) A reference in sub-section (1) to the removal of a historic shipwreck or a historic relic from Australian waters or from waters above the continental shelf of Australia includes a reference to the removal of a historic shipwreck or a historic relic from the sea-bed, or from the subsoil of the sea-bed, beneath those waters or from a reef in those waters.

(3) A person who contravenes this section is guilty of an offence and is punishable, on conviction, by a fine not exceeding \$5,000, or imprisonment for a period not exceeding 5 years, or both.

(4) In this section, "historic shipwreck" includes a part of a historic shipwreck.

Regulations may prohibit certain activities in protected zone

14. (1) The regulations may make provision—

- (a) for and in relation to prohibiting or restricting—
 - (i) the bringing into a protected zone of equipment constructed or adapted for the purpose of diving, salvage or recovery operations, or of any explosives, instruments or tools the use of which would be likely to damage or interfere with a historic shipwreck or a historic relic situated within that protected zone;
 - (ii) the use within a protected zone of any such equipment, explosives, instruments or tools;
 - (iii) causing a ship carrying any such equipment, explosives, instruments or tools to enter, or remain within, a protected zone;
 - (iv) trawling, or diving or other underwater activity, within a protected zone; or
 - (v) the mooring or use of ships within a protected zone; and
- (b) prescribing penalties, not exceeding a fine of \$1,000 or imprisonment for 1 year, or both, for any contravention of a provision of any regulations made for the purposes of paragraph (a).

(2) The provision that may be made by regulations made for the purposes of this section for or in relation to restricting the doing of an act includes a provision prohibiting the doing of that act except in accordance with a permit.

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(3) A person may inspect the Register and, on payment of the prescribed fee, is entitled to be furnished with a copy of, or of any part of, the Register.

Prohibition of certain action in relation to historic shipwrecks and relics

13. (1) Except in accordance with a permit, a person shall not—

- (a) damage or destroy a historic shipwreck or a historic relic;
- (b) interfere with a historic shipwreck or a historic relic;
- (c) dispose of a historic shipwreck or a historic relic; or
- (d) remove a historic shipwreck or a historic relic from Australia, from Australian waters or from waters above the continental shelf of Australia.

(2) A reference in sub-section (1) to the removal of a historic shipwreck or a historic relic from Australian waters or from waters above the continental shelf of Australia includes a reference to the removal of a historic shipwreck or a historic relic from the sea-bed, or from the subsoil of the sea-bed, beneath those waters or from a reef in those waters.

(3) A person who contravenes this section is guilty of an offence and is punishable, on conviction, by a fine not exceeding \$5,000, or imprisonment for a period not exceeding 5 years, or both.

(4) In this section, "historic shipwreck" includes a part of a historic shipwreck.

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 - (ii) the use within a protected zone of any such equipment, explosives, instruments or tools;
 - (iii) causing a ship carrying any such equipment, explosives, instruments or tools to enter, or remain within, a protected zone;
 - (iv) trawling, or diving or other underwater activity, within a protected zone; or
 - (v) the mooring or use of ships within a protected zone; and
- (b) prescribing penalties, not exceeding a fine of \$1,000 or imprisonment for 1 year, or both, for any contravention of a provision of any regulations made for the purposes of paragraph (a).

(2) The provision that may be made by regulations made for the purposes of this section for or in relation to restricting the doing of an act includes a provision prohibiting the doing of that act except in accordance with a permit.

(3) Regulations made for the purposes of paragraph (1) (a) may be of general application or may make different provision in relation to different protected zones.

(4) In this section, "ship" includes a hovercraft and any similar craft.

Permits for exploration or recovery of shipwrecks and relics

15. (1) The Minister may, in his discretion, upon application by a person, grant a permit to that person authorizing that person and any other persons named or described in the permit to do an act or thing specified in the permit the doing of which would otherwise be prohibited by section 13 or by regulations made for the purposes of section 14.

(2) The Minister may, when granting a permit or at any time while a permit is in force, impose conditions in respect of the permit and may at any time revoke or vary any conditions so imposed.

(3) The conditions that may be imposed under sub-section (2) in respect of a permit authorizing the doing of an act or thing include but are not limited to—

- (a) a condition requiring the act or thing to be done in a specified manner;
- (b) a condition requiring the act or thing to be done only in accordance with the directions of a person named or described in the permit as a person empowered to give such directions; and
- (c) a condition requiring any articles obtained by the doing of an act that is authorized by the permit to be done to be held in such custody or dealt with in such manner as is specified in the permit or as is specified in directions given by a person named or described in the permit as a person empowered to give such directions.

(4) A condition imposed in respect of a permit (other than a condition contained in a permit) or a revocation or variation of a condition so imposed takes effect when notice of the condition or of the revocation or variation is served on the person to whom the permit was granted.

(5) A person shall not contravene a condition imposed in respect of a permit that has been granted to him or is otherwise applicable to him.

Penalty: \$2,000 or imprisonment for 2 years, or both.

(6) The Minister may, at any time, by notice in writing to the person to whom a permit has been granted—

- (a) revoke the permit;
- (b) suspend the permit; or
- (c) cancel the suspension of the permit.

(7) A suspension of a permit may be of indefinite duration or for a specified period.

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Defences

16. It is a defence to a prosecution of a person for an offence against section 13, for an offence against a regulation made for the purposes of section 14, or for an offence against sub-section 15 (5), if the act that constituted the offence was done for the purpose of—

- (a) saving human life;
- (b) securing the safety of a ship (including a hovercraft or any similar craft) where the ship was endangered by stress of weather or by navigational hazards; or
- (c) dealing with an emergency involving a serious threat to the environment,

or was done with any other reasonable excuse.

Discovery of shipwrecks and relics to be notified

17. (1) A person who finds, in a fixed position in Australian waters or waters above the continental shelf of Australia, the remains of a ship or of a part of a ship, or an article associated with a ship, shall, as soon as practicable, give to the Minister a notice setting out a description of the remains or of the article and a description of the place where the remains are, or the article is, situated, being a description of that place that is sufficient to enable the remains or article to be located.

(2) It is a defence to a prosecution of a person for an offence against sub-section (1) if the person proves, or proves that he had reasonable grounds for believing, that a notice setting out a description of the place where the remains are or the article is situated, being a description that is sufficient to enable the remains or article to be located, was given to the Minister by another person before it was practicable for the first-mentioned person to give such a notice.

(3) A person shall not in a notice purporting to be given to the Minister under sub-section (1) make a statement that to his knowledge is false or misleading in a material particular.

Penalty: \$1,000.

Rewards

18. (1) The Minister may—

- (a) pay a reward not exceeding the prescribed amount to the person who first notifies the Minister in accordance with section 17 of the location of any remains or article—
 - (i) a description of the location of which, being a description sufficient to enable the remains or article to be located, had not previously been published in Australia; and
 - (ii) in respect of which a declaration has, since the notification was made, been made under section 5 or which is a Dutch shipwreck or a Dutch relic;

- (b) offer and pay a reward not exceeding the prescribed amount to the person who first furnishes to the Minister a description of the location of a historic shipwreck, or of a historic relic or historic relics, specified in the offer, being a description sufficient to enable the historic shipwreck or historic relic or historic relics to be located; and
- (c) pay a reward not exceeding the prescribed amount to any person who furnishes information leading to the conviction of a person for an offence against this Act.

(2) Payments under sub-section (1) shall be made out of moneys appropriated by the Parliament for the purpose.

PART III—MISCELLANEOUS

Arrangements for State and Northern Territory authorities to perform certain functions

19. (1) The Governor-General may make arrangements with the Governor of a State or the Administrator of the Northern Territory for the performance of functions by a competent authority of the State or of the Northern Territory in relation to the protection, recovery, preservation and exhibition of historic shipwrecks and historic relics.

(2) Without prejudice to sub-section (1), the Governor-General may make arrangements with the Governor of Western Australia for the performance by The Western Australian Museum of functions in relation to the protection, recovery, preservation and exhibition of Dutch shipwrecks and Dutch relics.

Declaration as to ownership of remains of ships or relics

20. (1) Where the Minister is of the opinion that it is necessary to do so for the purpose of carrying out or giving effect to the Australia-Netherlands Agreement, he may, by notice published in the *Gazette*, declare the ownership of a specified Dutch shipwreck to be vested in a specified authority of the Commonwealth and, upon the publication of the notice, that authority becomes, by force of this sub-section, the owner of that Dutch shipwreck free of any charges or other encumbrances.

(2) Where the Minister is of the opinion that it is necessary to do so for the purpose of carrying out or giving effect to the Australia-Netherlands Agreement, he may, by notice published in the *Gazette*, declare the ownership of a specified Dutch relic to be vested in a specified authority of the Commonwealth, in the State of Western Australia, in a specified authority of that State or in the Government of the Kingdom of the Netherlands and, upon the publication of the notice, the authority of the Commonwealth, the State of Western Australia, the authority of that State or the Government of the Kingdom of the Netherlands, as the case may be, becomes, by force of this sub-section, the owner of that Dutch relic free of any charges or other encumbrances.

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(3) Where the Minister is of the opinion that it is necessary to do so for the purpose of carrying out or giving effect to this Act or any relevant agreement other than the Australia-Netherlands Agreement, he may, by notice published in the *Gazette*, declare the ownership of the remains of a specified ship, or of a specified article that was associated with a ship, or of all articles that were associated with a specified ship, to be vested in the Commonwealth, in a specified State, in a specified authority of the Commonwealth or of a State, in the Government of a specified country other than Australia or in any other specified person and, upon the publication of the notice, the Commonwealth, the State, the authority, the Government, or the other person, as the case may be, becomes, by force of this sub-section, the owner of those remains or of that article or those articles, free of any charges or other encumbrances.

(4) The publication of a notice under this section in relation to a Dutch shipwreck, the remains of a ship not being a Dutch shipwreck, a Dutch relic or any other article does not affect the application of any other provision of this Act to or in relation to that Dutch shipwreck, the remains of that ship, that Dutch relic or that other article, as the case may be.

(5) Nothing in this section affects any power of the Commonwealth otherwise than under this Act to dispose of or otherwise deal with any remains of a ship, or any articles, that are the property of the Commonwealth.

Compensation

21. (1) If the operation of this Act or the doing of any act by the Minister in pursuance of this Act results in the acquisition of property from a person, being an acquisition of property within the meaning of paragraph 51 (xxxi) of the Constitution, the Commonwealth is liable to pay to that person such compensation as is determined by agreement between the Commonwealth and that person or, in the absence of agreement, by action brought by that person against the Commonwealth in the Supreme Court of a State or Territory.

(2) In determining the compensation payable to a person by the Commonwealth under this section in respect of the acquisition of property from the person, the Court shall have regard to any amount of compensation paid or payable to the person, in respect of the acquisition, by a person other than the Commonwealth.

(3) The Supreme Courts of the States have jurisdiction, and the Supreme Courts of the Territories have jurisdiction to the extent that the Constitution permits, to hear and determine actions brought in those courts under this section.

Appointment of inspectors

22. (1) The Minister may, by writing signed by him, appoint a person to be an inspector for the purposes of this Act.

(2) The Minister shall cause to be issued to each inspector appointed under sub-section (1) an identity card in accordance with the prescribed form containing a photograph of the inspector.

(3) A person who ceases to be an inspector appointed under sub-section (1) shall forthwith return his identity card to the Minister.

Penalty for a contravention of this sub-section: \$100.

Powers of inspectors

23. (1) Where an inspector has reasonable grounds for believing that it is necessary to do so for the purpose of ascertaining whether an offence against this Act has been or is being committed or that by doing so evidence in relation to the commission of such an offence may be obtained, the inspector may, with or without persons and equipment to assist him—

- (a) go on board a ship;
- (b) require a person in charge of a ship to take steps to facilitate boarding;
- (c) open, or require a person to open, any cargo holds, compartments or containers on any ship boarded in accordance with paragraph (a) and inspect the contents of any such cargo holds, compartments or containers;
- (d) require any person found in or on any ship boarded in accordance with paragraph (a) to produce any permit in force under this Act that is in his possession; and
- (e) require a person to answer questions.

(2) Where an inspector has reason to believe that a person has failed to comply with a notice given to the person under sub-section 11(1), the inspector may make application to a Justice of the Peace for a warrant authorizing the inspector, with or without persons and equipment to assist him, for the purpose of ascertaining whether the person has failed to comply with the notice—

- (a) to enter any specified land or premises; and
- (b) to search any land or premises so entered and to break open any cupboard, drawer, desk, box, package or other receptacle, whether a fixture or not, on the land or in the premises.

(3) If, on an application under sub-section (2), the Justice of the Peace is satisfied by information on oath or affirmation that the issue of the warrant is reasonably required for the purposes of that sub-section, the Justice of the Peace may grant a warrant accordingly.

(4) A warrant under sub-section (3) shall specify a date after which the warrant ceases to have effect.

(5) A person shall not—

- (a) without reasonable excuse, fail to comply with a requirement made of him by an inspector in the exercise of a power under this section; or

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- (b) in answer to a question that he is required to answer under this section, make a statement that is false or misleading in a material particular.

Penalty: \$1,000.

(6) It is a reasonable excuse for a person to fail to answer a question that he is required to answer under this section that the answer to the question may tend to incriminate him.

(7) A person who—

- (a) without reasonable excuse, hinders or obstructs an inspector in the exercise of a power under this section; or
- (b) assaults or threatens an inspector exercising a power under this section,

is guilty of an offence and is punishable, on conviction, by a fine not exceeding \$2,000, or imprisonment for a period not exceeding 2 years, or both.

(8) In this section, “ship” includes a hovercraft and any similar craft.

Arrest without warrant

24. (1) An inspector may, without warrant, arrest a person if the inspector reasonably believes—

- (a) that the person has committed an offence against section 13 or against regulations made for the purposes of section 14; and
- (b) that proceedings against the person by summons would not be effective.

(2) Where an inspector (other than a member of a police force who is in uniform) arrests a person under sub-section (1), the inspector shall—

- (a) in the case of an inspector who is a member of a police force—produce, for inspection by the person arrested, written evidence of the fact that the inspector is a member of a police force; or
- (b) in any other case—produce his identity card for inspection by the person arrested.

(3) Where a person is arrested under sub-section (1), an inspector shall forthwith bring the person, or cause him to be brought, before a Justice of the Peace or other proper authority to be dealt with in accordance with law.

(4) Nothing in this section prevents the arrest of a person in accordance with any other law.

Seizure and forfeiture

25. (1) An inspector may seize any ship, equipment or article that he reasonably believes to have been used or otherwise involved in the commission of an offence against this Act and may retain the ship, equipment or article until the expiration of a period of 60 days after the seizure or, if a prosecution for an offence against this Act in the commission of which the ship, equipment or

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- (b) in answer to a question that he is required to answer under this section, make a statement that is false or misleading in a material particular.

Penalty: \$1,000.

(6) It is a reasonable excuse for a person to fail to answer a question that he is required to answer under this section that the answer to the question may tend to incriminate him.

(7) A person who—

- (a) without reasonable excuse, hinders or obstructs an inspector in the exercise of a power under this section; or
 (b) assaults or threatens an inspector exercising a power under this section,

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 (b) that proceedings against the person by summons would not be effective.

(2) Where an inspector (other than a member of a police force who is in uniform) arrests a person under sub-section (1), the inspector shall—

- (a) in the case of an inspector who is a member of a police force—
 produce, for inspection by the person arrested, written evidence of the fact that the inspector is a member of a police force; or
 (b) in any other case—produce his identity card for inspection by the person arrested.

(3) Where a person is arrested under sub-section (1), an inspector shall forthwith bring the person, or cause him to be brought, before a Justice of the Peace or other proper authority to be dealt with in accordance with law.

(4) Nothing in this section prevents the arrest of a person in accordance with any other law.

Seizure and forfeiture

25. (1) An inspector may seize any ship, equipment or article that he reasonably believes to have been used or otherwise involved in the commission of an offence against this Act and may retain the ship, equipment or article until the expiration of a period of 60 days after the seizure or, if a prosecution for an offence against this Act in the commission of which the ship, equipment or

article may have been used or otherwise involved is instituted within that period, until the prosecution is terminated.

(2) The Minister may authorize any ship, equipment or article seized under sub-section (1) to be released to its owner, or to the person from whose possession it was seized, either unconditionally or on such conditions as the Minister thinks fit, including conditions as to the giving of security for payment of its value if it is forfeited.

(3) Where a court convicts a person of an offence against this Act, the court may order the forfeiture to the Commonwealth of any ship, equipment or article used or otherwise involved in the commission of the offence.

(4) Any ship, equipment or article forfeited under this section may be sold or otherwise dealt with as the Minister thinks fit.

(5) A reference in this section to an article involved in the commission of an offence includes a reference to any historic shipwreck, or part of a historic shipwreck, or any historic relic, to which the offence relates.

(6) In the section, "ship" includes a hovercraft and any similar craft.

Prosecution of offences

26. (1) Subject to this section an offence against this Act may be prosecuted summarily or upon indictment but nothing in this section renders a person liable to be punished more than once for the same offence.

(2) Where the law of a State or Territory makes provision for a person who pleads guilty to a charge in proceedings for his commitment for trial on indictment to be committed to a higher court and dealt with otherwise than on indictment, a person charged in that State or Territory with an offence against this Act may be dealt with in accordance with that law.

(3) Where a person is charged with an offence against this Act in proceedings for his commitment for trial on indictment, a court of summary jurisdiction may, with the consent of the defendant and of the prosecutor and if the court is satisfied that it is proper to do so, determine the charge summarily.

(4) A person shall not be sentenced by a court of summary jurisdiction for an offence against this Act to a fine exceeding \$1,000 or imprisonment for a period exceeding 1 year.

Jurisdiction of courts

27. (1) A provision of the *Judiciary Act 1903* by which a court of a State is invested with jurisdiction with respect to offences against the laws of the Commonwealth has effect, in relation to offences against this Act not committed within any State, as if that jurisdiction were so invested without limitation as to locality.

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(2) The trial on indictment of an offence against this Act not committed within a State may be held by a court of competent jurisdiction at any place where the court may sit.

Operation of Act

28. Subject to the obligations of Australia under international law, including obligations under any agreement between Australia and another country or countries, this Act extends, according to its tenor, to foreigners and to foreign ships (including foreign hovercraft and any similar foreign craft).

Certificate by Minister to be evidence

29. In any proceeding for an offence against this Act, a certificate by the Minister stating that a place specified in the certificate is a place—

- (a) in Australian waters;
- (b) in Australian waters or waters above the continental shelf of Australia; or
- (c) in a specified protected zone,

is *prima facie* evidence of the matters stated in the certificate.

Delegation

30. (1) The Minister may, either generally or as otherwise provided by the instrument of delegation, by writing signed by him, delegate to a person any of his powers under this Act, other than this power of delegation.

(2) A power so delegated, when exercised by the delegate, shall, for the purposes of this Act, be deemed to have been exercised by the Minister.

(3) A delegation under this section does not prevent the exercise of a power by the Minister.

Notices

31. (1) Without prejudice to any other method of service permitted by law, a notice to a person by the Minister under this Act may be served on the person by being sent by post to the person at the address of the person last known to the Minister.

(2) A notice to the Minister under this Act may be given as prescribed.

(3) A notice by the Minister that has been published in the *Gazette* in pursuance of this Act may be amended or revoked by the Minister by a further notice published in the *Gazette*.

Regulations

32. The Governor-General may make regulations, not inconsistent with this Act, prescribing all matters required or permitted by this Act to be prescribed or necessary or convenient to be prescribed for carrying out or giving effect to this Act or carrying out or giving effect to the Australia-Netherlands Agreement or any other relevant agreement.

SCHEDULES

SCHEDULE 1

Section 3

AGREEMENT BETWEEN THE NETHERLANDS AND AUSTRALIA CONCERNING
OLD DUTCH SHIPWRECKS

THE UNDERSIGNED:

1. MR WIM BLOKZIJL, resident of The Hague, Head of the Inspection Division of the State Property Directorate of the Ministry of Finance, acting on behalf of the State of the Netherlands, hereinafter referred to as "the Netherlands".

2. DR LLOYD DOUGLAS THOMSON, M.V.O., Australian Ambassador to the Netherlands, acting on behalf of the Government of the Commonwealth of Australia, hereinafter referred to as "Australia":

HAVING REGARD TO THE FACT:

A. That vessels that belonged to the Dutch "VEREENIGDE OOSTINDISCHE COMPAGNIE" known as the V.O.C., hereinafter referred to as "the V.O.C.", were wrecked on or off the coast of Western Australia;

B. That the Netherlands, by virtue of article 247 of the 1798 Constitution of the Batavian Republic, is the present legal successor to the V.O.C.:

AGREE AS FOLLOWS:

Article 1: The Netherlands, as successor to the property and assets of the V.O.C., transfers all its right, title and interest in and to wrecked vessels of the V.O.C. lying on or off the coast of the State of Western Australia and in and to any articles thereof to Australia which shall accept such right, title and interest.

Article 2: For the purpose of this Agreement, the expression "articles" means any part of vessels as referred to in article 1, that have become or have been detached or removed therefrom, as well as the fittings, goods and other property, wherever situated, that were installed or carried on those vessels.

Article 3: Australia shall make no claim on the Netherlands for reimbursement of any costs incurred in searching for any of the vessels referred to in article 1 of this Agreement or in recovering any articles from those vessels.

Article 4: Australia recognizes that the Netherlands has a continuing interest, particularly for historical and other cultural purposes, in articles recovered from any of the vessels referred to in article 1 of this Agreement.

Accordingly Australia shall set up a Committee to determine the disposition and subsequent ownership of the recovered articles between the Netherlands, Australia and the State of Western Australia.

Article 5: The Committee referred to in article 4 of this Agreement shall be set up within 90 days after the entry into force of the Agreement and shall comprise two persons nominated by the Netherlands and two persons nominated by Australia. These persons shall have the scientific and cultural expertise appropriate for the discharge of their functions.

Article 6: The Committee shall determine the disposition of the recovered articles in accordance with the principles which have been agreed upon by Australia and the Netherlands and are set out in the Arrangement signed by Australia and the Netherlands and attached to this document.

Article 7: Expenditure incurred by the Committee in the performance of its work shall be shared between the two Parties represented on the Committee, the share to be borne by the Netherlands being one third and that by Australia two thirds provided that—

- (I) each Party shall bear the costs of travel by the Committee members nominated by it,
- (II) the costs of communications by a party to the Committee shall be borne by the despatching Party, and
- (III) the expenses of transportation of articles distributed in accordance with determinations of the Committee shall be borne by the recipients of the articles.

Article 8: If the members of the Committee referred to in article 4 of this Agreement cannot come to an agreement on the disposition of particular articles, Australia and the Netherlands shall appoint an independent consultant to report on the matter in issue and the report shall be referred to the Committee for re-consideration of the matter. The cost of the report shall be shared between the two Parties

SCHEDULE 1—continued

fittings such as cannon, anchors, cannon balls, etc. There are also other articles which are relatively rare, or even unique, in the deposits (e.g. articles possessed by crew members, or passengers, such as barber's instruments, navigational instruments, ornaments, etc.). Most articles are fragmentary and in need of immediate chemical conservation and stabilization in the laboratory as soon as they are recovered. This treatment cannot await distribution.

Operating Principles

Code of Operation

The Committee will operate by reviewing proposals for distribution made, from time to time, by the Director of the Western Australian Museum; it could decide that the proposed samples be increased or decreased in content in the light of the total material collected and other factors.

General aims

In its deliberations the Committee will have, as its general aim, the purpose of ensuring that representative series of statistical samples and sufficient examples of the rarer objects will be deposited in the museums of the Netherlands and Australia to convey the variety and contents of each wreck to both the public and to scholars while, at the same time, ensuring that major projects of scholarly research will not be impeded by overfragmentation of the collection. Dispersal in this way, among separate repositories will also help to ensure the permanent safety of representative material in the event of the destruction of any one repository.

Statistical samples

Most material so far recovered from the vessels are samples capable of statistical treatment.

A representative collection of the contents of each statistical sample should be made available to a museum of the Netherlands Government and a museum of the Commonwealth Government. Thus, in the case of coin, for example, both the Netherlands and Commonwealth Governments would receive as complete a series as possible representing the mintings and values contained within each of the wrecks. These will provide their museums with ample material of this class of objects for display purposes and sufficient to enable a scholar to make the initial qualitative studies which would possibly lead him to a more detailed statistical treatment of the bulk sample retained in the Western Australian Museum.

Less common or rare objects

In order to ensure that both the Netherlands and Commonwealth Governments acquire, in due course, representative collections of the less common and even unique objects, the following procedure will be adopted. Since the relationships of such objects to the whole sample cannot be known until excavation is complete, the distribution of specimens of this nature cannot be considered during the continuing process of recovery. However, at reasonable intervals (of say two or three years) it should be possible to assemble a representative sample with fair certainty that all duplicates of any rare object present in a particular excavation should have been recovered and their nature taken into consideration during the deliberations of the Committee.

THE HAGUE,

6th November, 1972

SCHEDULE 2

Section 3

DUTCH SHIPWRECKS OFF THE COAST OF WESTERN AUSTRALIA

Name by which Vessel was known	Approximate location
"Batavia"	Beacon Island, Wallabi Group, Houtmans Abrolhos
"Vergulde Draeck" or "Gilt Dragon"	Ledge Point
"Zuytdorp"	40 miles north of the mouth of the Murchison River
"Zeewyk"	Gun Island, Pelsart Group, Houtmans Abrolhos

**Regulation of the People's Republic of China Concerning
the Administration of the Work for
the Protection of the Underwater Cultural Relics 1989
(China/China)**

Regulations of the People's Republic of China Concerning the Administration of the Work for the Protection of Underwater Cultural Relics

*(Promulgated by Decree No.42 of the State Council of the
People's Republic of China on October 20, 1989 and effective as
of the date of promulgation)*

Article 1 These Regulations are formulated in accordance with the pertinent provisions of the Law of the People's Republic of China for the Protection of Cultural Relics for the purpose of strengthening the administration of the work for the protection of underwater cultural relics.

Article 2 The term "underwater cultural relics" referred to in these Regulations denotes the human cultural heritage that has historic, artistic and scientific values and that remains in the following waters:

(1) all the cultural relics of Chinese origin, or of unidentified origin, or of foreign origin that remain in the Chinese inland waters, and territorial waters;

(2) cultural relics that are of Chinese origin or of unidentified origin that remain in sea areas outside the Chinese territorial waters but under Chinese jurisdiction according to the Chinese law;

(3) cultural relics of Chinese origin that remain in sea outside the territorial waters of any foreign country but under the jurisdiction of certain country, or in the high seas. The provisions in the preceding paragraphs shall not cover objects that have remained underwater since 1911 that have nothing to do with important historical events, revolutionary movements or renowned personages.

Article 3 The ownership of the underwater cultural relics specified in Paragraphs (1) and (2) of Article 2 of these Regulations shall reside in the state and the state shall exercise jurisdiction over them; with respect to underwater cultural

relics specified in Paragraphs (3) of Article 2 of these Regulations, the state shall have the right to identify the owners of the objects.

Article 4 The State Administration for Protection of Cultural Relics shall be the competent authority in charge of the registration of underwater cultural relics, of the administration of the protection thereof, and of the work of examination and approval concerning the archaeological exploration and excavation activities with respect to underwater cultural relics.

Administrative departments for cultural relics at various levels in the localities shall be in charge of the protection of the underwater cultural relics in their respective administrative regions and shall, in conjunction with the archaeological and research institutions for cultural relics, be in charge of the work to identify and assess the value of underwater cultural relics.

With respect to underwater cultural relics in sea waters, the State Administration for Protection of Cultural Relics may designate the administration for cultural relics in the localities to be in charge of the administration of the work for the protection of underwater cultural relics.

Article 5 On the basis of the value of underwater cultural relics, the State Council and the people's governments of the provinces, autonomous regions and municipalities directly under the Central Government may in accordance with the pertinent procedures specified in the provisions in Chapter I of the Law of the People's Republic of China for the Protection of Cultural Relics, determine the underwater cultural relics protection units and underwater cultural relics reserves at the national or provincial levels and publicly announce them.

Within the limits of the underwater cultural relics protection units and underwater cultural relics reserves, any activities that may jeopardize the safety of the underwater cultural relics, such as fishing and demolitions, shall be prohibited.

Article 6 Any units or individuals that have discovered by any means underwater cultural relics specified in Paragraphs (1) and (2) of Article 2 of these Regulations shall report promptly to the State Administration for Protection of

Cultural Relics or to the Administrative departments for cultural relics in the localities and those that have been fished up shall be handed over promptly to the State Administration for Protection of Cultural Relics or to the administrative department for cultural relics in the localities to be properly dealt with.

Any units or individuals that have discovered by any means underwater cultural relics specified in Paragraph (3) of Article 2 of these Regulations shall report promptly to the State Administration for Protection of Cultural Relics or to the administrative departments for cultural relics in the localities and those that have been fished up shall be turned in promptly to the State Administration for Protection of Cultural Relics or to the administrative departments for cultural relics in the localities to be identified and assessed.

Article 7 Archaeological exploration and excavation activities with respect to underwater cultural relics shall have, as their objective, the protection of cultural relics and scientific research. Any units or individuals that intend to conduct in the waters under Chinese jurisdiction archaeological exploration or excavation activities with respect to underwater cultural relics shall apply to the State Administration for Protection of Cultural Relics and submit the relevant data. Without approval by the State Administration for Protection of Cultural Relics, no units or individuals may conduct by any means unauthorized exploration or excavation.

Foreign countries, international organizations and foreign legal persons or natural persons that are to conduct in the waters under Chinese jurisdiction archaeological exploration or excavation activities shall do so in cooperation with the Chinese side and shall submit their application therefor to the State Administration for Protection of Cultural Relics, which shall further submit it to the State Council of the People's Republic of China for special approval.

Article 8 With respect to any units or individuals that have been permitted to effect archaeological exploration or excavation activities with respect to underwater cultural relics, if the range of their activities covers water under the jurisdiction of the harbour superintendancy, the case shall be reported to the harbour superintendancy for verification and approval and the harbour superintendancy shall, upon

verification and approval, delineate the safe operation area(s) and put out a navigation notice.

Article 9 Any units or individuals that are effecting archaeological exploration or excavation activities with respect to underwater cultural relics shall, in addition to complying with these Regulations, abide by other laws and regulations of China and accept the administration by the departments concerned, shall observe rules concerning underwater archaeological activities, diving and navigation and ensure the safety of the personnel and the underwater cultural relics, shall prevent the water from environmental pollution and protect the underwater biological resources and other natural resources from damage, shall protect all the surface and underwater facilities and may not obstruct communication and transportation, fishery production, military drills and other normal surface and underwater operations and activities.

Article 10 Those who have made outstanding contributions to the protection of underwater cultural relics, if the circumstances are in conformity with those specified in the provisions in Article 29 of the Law of the People's Republic of China for the Protection of Cultural Relics, shall be commended or rewarded.

Those who, in violation of the provisions in Articles 5, 6 and 7 of these Regulations, damage underwater cultural relics, or explore, excavate or dredge up underwater cultural relics without authorization, or hide, share secretly, traffic in, illicitly sell or illicitly export underwater cultural relics, if the circumstances are found to be those specified in the provisions in Articles 30 and 31 of the Law of the People's Republic of China for the Protection of Cultural Relics, shall be given administrative sanctions or have their criminal liability investigated in accordance with the law.

With respect to those who violate the provisions in Articles 8 and 9 of these Regulations, if the violation has resulted in serious consequences, the administrative department for cultural relics shall, in conjunction with the departments concerned, order the operation to be suspended and set a deadline for correction or shall give such administrative sanctions as withdrawing the approval granted of a fine ranging from Renminbi 1,000 yuan to 10,000 yuan.

Article 11 The State Administration for Protection of

Cultural Relics shall be responsible for the interpretation of these Regulations.

Article 12 The rules for the implementation of these Regulations shall be formulated by the State Administration for Protection of Cultural Relics.

Article 13 These Regulations shall go into effect as of the date of promulgation.

Abandoned Shipwreck Act 1987
(Etats-Unis/ *United States*)

Abandoned Shipwreck Act of 1987¹⁴

AN ACT To establish the title of States in certain abandoned shipwrecks, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SEC. 1. SHORT TITLE.

This Act may be cited as the "Abandoned Shipwreck Act of 1987".

SEC. 2. FINDINGS.

The Congress finds that—

(a) States have the responsibility for management of a broad range of living and nonliving resources in State waters and submerged lands; and

(b) included in the range of resources are certain abandoned shipwrecks, which have been deserted and to which the owner has relinquished ownership rights with no retention.

SEC. 3. DEFINITIONS.

For purposes of this Act—

(a) the term "embedded" means firmly affixed in the submerged lands or in coralline formations such that the use of tools of excavation is required in order to move the bottom sediments to gain access to the shipwreck, its cargo, and any part thereof;

(b) the term "National Register" means the National Register of Historic Places maintained by the Secretary of the Interior under section 101 of the National Historic Preservation Act (16 U.S.C. 470a);

(c) the terms "public lands", "Indian lands", and "Indian tribe" have the same meaning given the terms in the Archaeological Resource Protection Act of 1979 (16 U.S.C. 470aa-470ll);

(d) the term "shipwreck" means a vessel or wreck, its cargo, and other contents;

(e) the term "State" means a State of the United States, the District of Columbia, Puerto Rico, Guam, the Virgin Islands, American Samoa, and the Northern Mariana Islands; and

(f) the term "submerged lands" means the lands—

(1) that are "lands beneath navigable waters," as defined in section 2 of the Submerged Lands Act (43 U.S.C. 1301);

(2) of Puerto Rico, as described in section 8 of the Act of March 2, 1917, as amended (48 U.S.C. 749);

(3) of Guam, the Virgin Islands and American Samoa, as described in section 1 of Public Law 93-435 (48 U.S.C. 1705); and

(4) of the Commonwealth of the Northern Mariana Islands, as described in section 801 of Public Law 94-241 (48 U.S.C. 1681).

¹⁴ The Abandoned Shipwreck Act of 1987 (43 U.S.C. 2101 et seq.), as set forth herein, consists of Public Law 100-298 (April 28, 1988).

Cultural programs
Historic
preservation
Environmental
protection

SEC. 4. RIGHTS OF ACCESS.

(a) ACCESS RIGHTS.—In order to—

(1) clarify that State waters and shipwrecks offer recreational and educational opportunities to sport divers and other interested groups, as well as irreplaceable State resources for tourism, biological sanctuaries, and historical research; and

(2) provide that reasonable access by the public to such abandoned shipwrecks be permitted by the State holding title to such shipwrecks pursuant to section 6 of this Act.

it is the declared policy of the Congress that States carry out their responsibilities under this Act to develop appropriate and consistent policies so as to—

(A) protect natural resources and habitat areas;

(B) guarantee recreational exploration of shipwreck sites; and

(C) allow for appropriate public and private sector recovery of shipwrecks consistent with the protection of historical values and environmental integrity of the shipwrecks and the sites.

(b) PARKS AND PROTECTED AREAS.—In managing the resources subject to the provisions of this Act, States are encouraged to create underwater parks or areas to provide additional protection for such resources. Funds available to States from grants from the Historic Preservation Fund shall be available, in accordance with the provisions of title I of the National Historic Preservation Act, for the study, interpretation, protection, and preservation of historic shipwrecks and properties.

Grants

SEC. 5. PREPARATION OF GUIDELINES.

(a) In order to encourage the development of underwater parks and the administrative cooperation necessary for the comprehensive management of underwater resources related to historic shipwrecks, the Secretary of the Interior, acting through the Director of the National Park Service, shall within nine months after the date of enactment of this Act prepare and publish guidelines in the Federal Register which shall seek to:

(1) maximize the enhancement of cultural resources;

(2) foster a partnership among sport divers, fishermen, archeologists, salvors, and other interests to manage shipwreck resources of the States and the United States;

(3) facilitate access and utilization by recreational interests;

(4) recognize the interests of individuals and groups engaged in shipwreck discovery and salvage.

(b) Such guidelines shall be developed after consultation with appropriate public and private sector interests (including the Secretary of Commerce, the Advisory Council on Historic Preservation, sport divers, State Historic Preservation Officers, professional dive operators, salvors, archeologists, historic preservationists, and fishermen).

(c) Such guidelines shall be available to assist States and the appropriate Federal agencies in developing legislation and regulations to carry out their responsibilities under this Act.

National parks,
monuments, etc.
Federal Register,
publication

SEC. 6. RIGHTS OF OWNERSHIP.

(a) UNITED STATES TITLE.—The United States asserts title to any abandoned shipwreck that is—

- (1) embedded in submerged lands of a State;
- (2) embedded in coralline formations protected by a State on submerged lands of a State; or
- (3) on submerged lands of a State and is included in or determined eligible for inclusion in the National Register.

Public information
Historic
preservation

(b) The public shall be given adequate notice of the location of any shipwreck to which title is asserted under this section. The Secretary of the Interior, after consultation with the appropriate State Historic Preservation Officer, shall make a written determination that an abandoned shipwreck meets the criteria for eligibility for inclusion in the National Register of Historic Places under clause (a)(3).

(c) TRANSFER OF TITLE TO STATES.—The title of the United States to any abandoned shipwreck asserted under subsection (a) of this section is transferred to the State in or on whose submerged lands the shipwreck is located.

Gifts and property
Indians

(d) EXCEPTION.—Any abandoned shipwreck in or on the public lands of the United States is the property of the United States Government. Any abandoned shipwreck in or on any Indian lands is the property of the Indian tribe owning such lands.

(e) RESERVATION OF RIGHTS.—This section does not affect any right reserved by the United States or by any State (including any right reserved with respect to Indian lands) under—

- (1) section 3, 5, or 6 of the Submerged Lands Act (43 U.S.C. 1311, 1313, and 1314); or
- (2) section 19 or 20 of the Act of March 3, 1899 (33 U.S.C. 414 and 415).

SEC. 7. RELATIONSHIP TO OTHER LAWS.

(a) LAW OF SALVAGE AND THE LAW OF FINDS.—The law of salvage and the law of finds shall not apply to abandoned shipwrecks to which section 6 of this Act applies.

(b) LAWS OF THE UNITED STATES.—This Act shall not change the laws of the United States relating to shipwrecks, other than those to which this Act applies.

(c) EFFECTIVE DATE.—This Act shall not affect any legal proceeding brought prior to the date of enactment of this Act.

Loi du 24 novembre 1961 relative à la police des épaves maritimes ;
Décret du 26 décembre 1961 fixant le régime des épaves maritimes ;
Arrêté du 4 février 1965 relatif aux épaves maritimes ;
Circulaire du 28 avril 1965 relative aux recherches archéologiques sous-marines ;
Loi du 1^{er} décembre 1989 relative aux biens culturels maritimes ;
Décret n° 91-1226 du 5 décembre 1991 pris pour l'application de la loi n° 89-874 du 1^{er} décembre 1989 relative aux biens culturels maritimes et modifiant la loi du 27 septembre 1941 portant réglementation des fouilles archéologiques.

(France/France)

LOI N° 61-1262 DU 24 NOVEMBRE 1961
relative à la police des épaves maritimes (1) (2)
(Journal officiel du 25 novembre 1961)

L'assemblée nationale et le Sénat ont adopté,
Le président de la République promulgue la loi dont la teneur suit :

Article 1^{er}

(Loi n° 82-990 du 23 novembre 1982, art. 1^{er})

En vue du sauvetage des épaves maritimes ou de la suppression des dangers qu'elles présentent, il peut être procédé :

- à la réquisition des personnes et des biens, avec attribution de compétence à l'autorité judiciaire, en ce qui concerne le contentieux du droit à indemnité ;
- à l'occupation temporaire et la traversée des propriétés privées.

Lorsque le propriétaire d'une épave est inconnu ou lorsque, dûment mis en demeure, directement ou en la personne de son représentant, il refuse ou néglige de procéder aux opérations de sauvetage, de récupération, d'enlèvement, de destruction ou à celles destinées à supprimer les dangers que présente cette épave, l'Etat peut intervenir d'office, aux frais et risques du propriétaire.

(1) Travaux préparatoires :

Assemblée nationale :

Projet de loi n° 554 :

Rapport de M. Laurelli, au nom de la commission des lois constitutionnelles (n° 957) ;

Discussion et adoption le 4 mai 1961.

Sénat :

Projet de loi, adopté par l'Assemblée nationale, n° 190 (1960-1961) ;

Rapport de M. Yvon, au nom de la commission des affaires économiques, n° 14 (1961-1962) ;

Discussion et adoption le 10 novembre 1961.

(2) *Modifiée par :*

Loi n° 80-532 du 15 juillet 1980 (*J.O.* du 16 juillet 1980) ;

Loi n° 82-990 du 23 novembre 1982 (*J.O.* du 24 novembre 1982).

Dans les cas prévus à l'alinéa précédent ou lorsque l'existence d'une épave remonte à plus de cinq ans, la déchéance des droits du propriétaire peut être prononcée par décision du ministre chargé de la marine marchande.

Une épave peut être vendue au profit de l'Etat quand le propriétaire ne l'a pas revendiquée dans les délais qui seront fixés par voie réglementaire.

Dans le cas où une épave est constituée par un navire et sa cargaison, la déchéance et la vente au profit de l'Etat prévues ci-dessus s'étendent à l'ensemble de cette épave, sans préjudice du recours du propriétaire de la cargaison contre le transporteur et, le cas échéant, contre l'affrèteur.

La créance des sauveteurs ainsi que celle des administrations qui procéderaient aux travaux de sauvetage est garantie par un privilège sur la valeur de l'épave de même rang que le privilège des frais pour la conservation de la chose.

Article 2

(Loi n° 82-990 du 23 novembre 1982, art. 1^{er})

L'administrateur des affaires maritimes et, dans les ports maritimes, les officiers de port et les officiers de port adjoints sont habilités à constater par procès-verbaux les infractions aux dispositions de la présente loi et des décrets pris pour son application. L'administrateur des affaires maritimes ne peut intervenir dans les ports militaires qu'à la demande du préfet maritime ou du commandant de la marine.

L'administrateur des affaires maritimes peut, en vue de découvrir des épaves, procéder à des visites domiciliaires et des perquisitions dans les conditions prévues au code de procédure pénale. Il peut suivre les choses enlevées dans les lieux où elles ont été transportées et les mettre sous séquestre.

Les procès-verbaux établis sont aussitôt transmis au procureur de la République.

Dans l'exercice de leurs fonctions de police judiciaire, l'administrateur des affaires maritimes, les officiers de port et les officiers de port adjoints peuvent requérir directement la force publique. Ils peuvent être requis par le procureur de la République, le juge d'instruction et les officiers de police judiciaire afin de leur prêter assistance.

Article 3

Toute personne qui aura détourné ou tenté de détourner ou recelé une épave maritime sera punie des peines prévues aux articles 401 et 460 du code pénal.

Article 4

(Abrogé par l'article 6 de la loi n° 80-532 du 15 juillet 1980)

Article 5

L'article 5 du titre IX du livre IV de l'ordonnance sur la marine d'août 1681 est abrogé.

Article 6

(Loi n° 82-990 du 23 novembre 1982, art. 1^{er})

Les dispositions de la présente loi sont applicables dans les territoires d'outre-mer et la collectivité territoriale de Mayotte.

Dans les territoires d'outre-mer où il n'existe pas d'administrateur des affaires maritimes, d'officiers de port, d'officiers de port adjoints, les pouvoirs qui leur sont dévolus à l'article 2 sont exercés par le délégué du Gouvernement de la République.

La présente loi sera exécutée comme loi de l'Etat.

Fait à Paris, le 24 novembre 1961.

C. DE GAULLE

Par le Président de la République :

Le Premier ministre,
MICHEL DEBRÉ

*Le ministre d'Etat chargé du Sahara,
des départements d'outre-mer et des territoires d'outre-mer,*
LOUIS JACQUINOT

Le ministre d'Etat chargé des affaires algériennes,
LOUIS JOXE

Le garde des sceaux, ministre de la justice,
BERNARD CHENOT

Le ministre des finances et des affaires économiques,
WILFRID BAUMGARTNER

Le ministre des travaux publics et des transports,
ROBERT BURON



DÉCRET N° 61-1547 DU 26 DÉCEMBRE 1961

fixant le régime des épaves maritimes (1)

(Journal officiel du 12 janvier 1962)

CHAPITRE II

De la découverte et du sauvetage des épaves

Article 2

(Décret n° 78-847 du 3 août 1978, art. 1^{er})

Toute personne qui découvre une épave est tenue, dans la mesure ou cela est possible, de la mettre en sûreté, et notamment de la placer hors des atteintes de la mer. Elle doit immédiatement, et au plus tard dans les quarante-huit heures de la découverte ou de l'arrivée au premier port si l'épave a été trouvée en mer, en faire la déclaration à l'administrateur des affaires maritimes ou son représentant.

(Décret n° 85-632 du 21 juin 1985, art. 1^{er}.) « Il est toutefois dérogé à l'obligation de mise en sûreté de l'épave quand des dangers sont susceptibles d'être encourus, à raison tant de l'épave elle-même que de son contenu. Dans le cas où celui-ci est identifié comme dangereux ou ne peut-être identifié, la personne qui découvre l'épave doit s'abstenir de toute manipulation et la signaler immédiatement à l'administrateur des affaires maritimes, chef de quartier, à son représentant ou à toute autre autorité administrative locale, à charge pour celle-ci d'en informer dans les plus brefs délais l'administrateur des affaires maritimes, chef de quartier. Celui-ci peut faire procéder immédiatement, aux frais du propriétaire, à toutes opérations nécessaires à son identification. »

Article 3

(Décret n° 78-847 du 3 août 1978, art. 1^{er})

Les épaves sont placées sous la protection et la sauvegarde de l'administrateur des affaires maritimes qui peut prendre toutes les mesures utiles pour la sauvegarde et veille à la conservation des objets sauvés.

Ces objets demeurent aux risques des propriétaires ; leur détérioration, altération ou déperdition ne peut donner lieu à dommages et intérêts quelle qu'en soit la cause.

(1) *Modifié par :*

Décret n° 78-847 du 3 août 1978 (J.O. du 13 août 1978) ;

Décret n° 85-632 du 21 juin 1985 (J.O. du 23 juin 1985).

L'administrateur des affaires maritimes peut requérir en vue du sauvetage moyennant indemnité toute personne physique ou morale capable d'y participer ainsi que tous les moyens de transport et tous magasins ; il peut, aux mêmes fins, donner l'ordre d'occuper ou de traverser les propriétés privées.

.....

CHAPITRE V

Des épaves présentant un intérêt archéologique, historique ou artistique

Article 23

Les épaves maritimes qui présentent un intérêt archéologique, historique ou artistique au sens de la loi du 27 septembre 1941, et dont le propriétaire est inconnu ou n'est pas susceptible d'être retrouvé, sont soumises aux dispositions suivantes.

Article 24

Les épaves mentionnées à l'article 23 appartiennent à l'Etat. Les dispositions de l'article 2 leur sont applicables.

Article 25

Lorsque l'épave est un objet isolé, l'administrateur de l'inscription maritime, en accord avec le directeur régional des antiquités, peut en remettre la propriété au sauveteur.

Si l'intérêt de l'objet le justifie, il est déposé, à la requête du ministre chargé des affaires culturelles, dans une collection publique. Dans ce cas, une indemnité est accordée au sauveteur. Cette indemnité est fixée à l'amiable ou, à défaut, à dire d'experts, selon la procédure et dans les conditions prévues par un décret.

Article 26

Lorsque l'épave, par son importance, constitue un gisement archéologique tel que navires entiers et leur cargaison, il est procédé à la récupération de l'épave soit par l'Etat, soit par un concessionnaire.

Article 27

Dans ce dernier cas, le ministre chargé de la marine marchande passe, en accord avec le ministre chargé des affaires culturelles, un contrat de concession soit par priorité avec l'inventeur de l'épave, s'il présente les capacités et garanties voulues pour le récupération, soit, à défaut, avec toute autre entreprise.

Dans le cas où l'inventeur n'obtient pas la concession ou s'il est procédé directement par l'Etat à la récupération de l'épave, l'inventeur qui a procédé à la déclaration prévue à l'article 2 a droit à une indemnité fixée à l'amiable ou à dire d'experts, selon la procédure prévue à l'article 25 ci-dessus.

Article 28

Le contrat de concession détermine en particulier les prescriptions techniques suivant lesquelles se feront les travaux de récupération.

Article 29

Les travaux sont exécutés sous la surveillance du directeur régional des antiquités ou de son représentant.

Article 30

Le concessionnaire a droit à la rémunération prévue à son contrat et qui peut être déterminée en fonction de la valeur de l'épave.

Si l'intérêt présenté par les objets récupérés ne s'y oppose pas, la part du concessionnaire peut, à sa demande, lui être attribuée en nature, par décision du ministre chargé des affaires culturelles.

CHAPITRE VI

Sanctions

Article 31

(Décret n° 85-632 du 21 juin 1985, art. 5)

Sera punie de l'amende prévue pour les contraventions de la 4^e classe, toute personne qui n'aura pas fait dans le délai prescrit la déclaration prévue à l'article 2, alinéa 1^{er}. Le contrevenant perdra alors en outre tous droits à l'indemnité de sauvetage.

Sera punie de l'amende prévue pour les contraventions de la 5^e classe toute personne qui, en méconnaissance des dispositions du troisième alinéa de l'article 3, aura refusé de se conformer aux réquisitions de l'administrateur des affaires maritimes, chef de quartier, ou à un ordre d'occuper ou de traverser une propriété privée. En cas de récidive, la peine applicable est celle de l'amende prévue pour la récidive de la 5^e classe.

.....



ARRÊTÉ DU 4 FÉVRIER 1965
relatif aux épaves maritimes
(*Journal officiel* du 13 février 1965) (1)

.....

CHAPITRE 1^{er}

(Arrêté du 9 janvier 1987, art. 1^{er})

De la découverte et du sauvetage des épaves

Article 1^{er}

Sous les réserves prévues au second alinéa de l'article 2 du décret susvisé, les épaves sur le rivage dépendant du domaine public maritime ne peuvent être déplacées que pour être mises en sûreté dans un lieu aussi proche que possible du lieu de la découverte.

Les services des affaires maritimes veillent à la conservation des épaves et prennent, de concert avec les services de la douane, les mesures de surveillance appropriées.

Article 2

(Arrêté du 9 janvier 1987, art. 1^{er})

La déclaration prévue à l'article 2 du décret susvisé peut être faite par écrit ou de vive voix. Dans ce dernier cas, la déclaration est consignée dans un procès-verbal établi par l'administration des affaires maritimes ou son représentant et signé par le déclarant.

Article 3

(Arrêté du 9 janvier 1987, art. 1^{er})

Lorsque l'épave est ramenée par un navire, elle doit faire l'objet d'une mention sur le journal de bord et, le cas échéant, être inscrite et désignée sommairement à une rubrique spéciale du manifeste.

Toute découverte d'épave susceptible de présenter un danger pour la navigation doit être immédiatement signalée à l'autorité qualifiée pour la transmission de l'information nautique, qui assurera l'acheminement de l'information par les voies habituelles. La même procédure doit être appliquée pour signaler la disparition du danger, lorsque l'épave a été déplacée, enlevée ou détruite.

Article 4

(Arrêté du 9 janvier 1987, art. 1^{er})

Il est tenu au chef-lieu du quartier des affaires maritimes un registre des épaves qui doit en particulier mentionner la nature de l'épave, le lieu où elle a été découverte et éventuellement mise en sûreté, ainsi que le nom de la personne qui l'a découverte et la date de cette découverte.

.....

(1) *Modifié par :*

Décret n° 67-431 du 26 mai 1967 (*J.O.* du 2 juin 1967) :
Arrêté du 9 janvier 1987 (*J.O.* du 31 janvier 1987).

CHAPITRE IV

Des épaves maritimes présentant un intérêt archéologique, historique ou artistique

Article 39

Sont soumises aux dispositions du présent chapitre les épaves maritimes visées à l'article 23 du décret susvisé.

Le caractère archéologique, historique ou artistique de l'épave est apprécié par le directeur régional des antiquités historiques.

Article 40

Les dispositions des articles 2, 3 et 4 du présent arrêté s'appliquent aux épaves maritimes définies à l'article précédent.

Copie de la déclaration ou du procès-verbal est adressée sans délai au directeur régional des antiquités historiques.

Article 41

Dès leur déclaration, et dans la mesure où cela est possible, les épaves archéologiques, historiques ou artistiques constituées par des objets isolés sont mises en sûreté par le sauveteur au lieu de dépôt fixé par l'administrateur (*Décret n° 67-431 du 26 mai 1967, art. 1^{er}.*) « des affaires maritimes », en accord avec le directeur régional des antiquités historiques.

Article 42

Les objets cédés en propriété en vertu du premier alinéa de l'article 25 du décret susvisé devront avoir été revêtus d'une marque distinctive indélébile apposée par la direction des antiquités historiques. Leur remise est opérée par l'administrateur (*Décret n° 67-431 du 26 mai 1967, art. 1^{er}.*) « des affaires maritimes » contre signature par le sauveteur d'un procès-verbal rappelant notamment cette marque distinctive.

Article 43

L'auteur d'une déclaration de découverte d'un gisement archéologique doit fournir dans un délai aussi bref que possible à l'administrateur (*Décret n° 67-431 du 26 mai 1967, art. 1^{er}.*) « des affaires maritimes » tous renseignements devant permettre à la direction régionale des antiquités historiques de localiser le gisement avec exactitude et de juger de son intérêt.

Pour déterminer certaines des caractéristiques de l'épave, le déclarant pourra, s'il y a lieu, être autorisé par l'administrateur de l'inscription maritime à procéder à quelques sondages sur le gisement dans les conditions qui seront fixées par le directeur régional des antiquités historiques.

Après examen du dossier par ce dernier, l'administrateur de l'inscription maritime, en accord avec lui, délivrera, le cas échéant, au déclarant une attestation de sa qualité d'inventeur du gisement archéologique.

Article 44

Les gisements archéologiques dont l'existence sous mer a été dûment constatée conformément à l'article précédent ne peuvent, avant leur récupération par l'Etat ou le concessionnaire, faire l'objet de prospection, restauration ou réparation ni être modifiés ou déplacés sans le consentement de la direction régionale des antiquités historiques, après accord de l'administrateur de l'inscription maritime.

Article 45

Toute demande de concession en vue de la récupération d'un gisement archéologique doit être adressée à l'administrateur de l'inscription maritime et être accompagnée d'une note donnant toutes références utiles sur les capacités scientifiques et techniques et les garanties financières du demandeur. Il y sera joint en outre un devis décrivant les conditions et les procédés suivant lesquels sera effectuée l'exploitation de l'épave.

Le demandeur précisera s'il sollicite pour l'exécution des travaux une subvention du ministère des affaires culturelles.

Article 46

La demande de concession est examinée conjointement par l'administrateur de l'inscription maritime et le directeur régional des antiquités historiques. Elle est transmise pour décision au ministre des affaires culturelles et au ministre chargé de la marine marchande.

Article 47

Le contrat de concession détermine en détail les modalités de la concession.

Il prévoit notamment :

- les délais d'exécution des travaux et les prescriptions techniques et scientifiques ;
- la tenue régulière d'un journal ainsi que la remise d'un rapport scientifique ;
- les conditions de rémunération du concessionnaire ; cette rémunération est, en principe, calculée en tenant compte des dépenses effectuées par le concessionnaire, du travail accompli, des risques courus et, le cas échéant, de la subvention qui a pu lui être allouée ; l'intérêt scientifique et la valeur de l'épave peuvent également être pris en considération pour le calcul de cette rémunération. Cette dernière est prise en charge par le ministère des affaires culturelles.

Le contrat spécifie en outre que le concessionnaire opère à ses risques et périls et demeure seul responsable de tout dommage qui serait causé à autrui à l'occasion de l'exécution du contrat.

Article 48

Dans le cas où la part du concessionnaire lui est attribuée en nature, les objets ainsi cédés devront être munis de la marque distinctive prévue à l'article 42 ci-dessus et ne pourront être remis par l'administrateur de l'inscription maritime que contre signature d'un procès-verbal.

CIRCULAIRE DU 28 AVRIL 1965
relative aux recherches archéologiques sous-marines
(Non parue au *Journal officiel*)

Le ministre d'Etat chargé des affaires culturelles

à

Messieurs les directeurs régionaux des antiquités.

Dans le cadre de la législation relative à la police des épaves maritimes, des dispositions particulières ont été prises concernant celles présentant un intérêt archéologique, historique ou artistique (chap. V et VI du décret et chap. IV de l'arrêté susvisés).

Principes :

1° Les épaves présentant un intérêt historique, archéologique ou artistique appartiennent à l'Etat. Il s'ensuit que leur détournement, la tentative de détournement ou leur recel relèvent des dispositions des articles 401 et 460 du code pénal, assorties de confiscations au profit des collections nationales. Toute destruction intentionnelle, mutilation ou détérioration est punissable des peines prévues à l'article 257 du code pénal.

2° Constituent des épaves maritimes :

- les bâtiments de mer abandonnés en état d'innavigabilité et leur cargaison ;
- les embarcations, machines, agrès, ancres, chaînes, engins de pêche abandonnés et les débris de navires ;
- les marchandises jetées ou tombées à la mer et généralement tous objets, y compris ceux d'origine antique, dont le propriétaire a perdu la possession et qui sont, soit échoués sur le rivage dépendant du domaine public maritime, soit trouvés flottants ou tirés du fond de la mer dans les eaux territoriales, soit trouvés flottants ou tirés du fond en haute mer et ramenés dans les eaux territoriales ou sur le domaine public maritime.

3° La déclaration des découvertes d'épaves isolées ou de gisements homogènes est obligatoire auprès de l'inscription maritime habilitée à assumer leur protection et leur sauvegarde (1).

Le directeur des antiquités, tenu informé par une copie de la déclaration, assortie de renseignements techniques et scientifiques complémentaires, se prononce sur l'intérêt archéologique de la découverte : dans l'affirmative, les dispositions particulières prévues par la réglementation sont désormais applicables.

(1) Suivant les dispositions de l'article 31 du décret du 26 décembre 1961, l'omission de déclaration donne lieu à amende et, en cas de récidive, à emprisonnement.

Modalités d'exécution

a) Objets isolés.

Dans la mesure où cela est possible, ceux-ci sont mis en sûreté par le sauveteur au lieu de dépôt fixé par l'administrateur de l'inscription maritime, en accord avec le directeur des antiquités.

A cet effet, ceux-ci voudront bien convenir des emplacements (dépôts de fouilles, centres de documentation, annexes de musées, etc.) et désigner les responsables chargés de la prise en inventaire (assistants, agents techniques, correspondants, délégués, etc.).

Toutefois, la mise en dépôt réel pouvant s'avérer délicate ou impossible, la reconnaissance d'un dépôt fictif chez l'inventeur pourra être proposée.

Appartenant à l'Etat, les objets découverts et déclarés peuvent être :

- soit affectés et conservés dans les collections publiques, et, dans ce cas, une indemnisation peut être consentie au sauveteur ;
- soit remis en propriété par l'administration maritime à l'inventeur après apposition d'une marque particulière et signature d'un procès-verbal de cession.

Les directeurs devront désigner les personnes habilitées par leurs soins à suivre cette procédure.

b) Gisements archéologiques.

La découverte d'un gisement donne lieu à délivrance d'une attestation d'inventeur, après constitution d'un dossier complet de reconnaissance accepté par le directeur des antiquités. Une simple déclaration étant insuffisante, des vérifications contrôlées seront autorisées. Au vu du dossier constitué, une attestation d'inventeur sera délivrée, à compter de laquelle toute prospection, restauration, réparation, modification et déplacement seront interdits sans l'accord de l'administrateur de l'inscription maritime et le consentement du directeur des antiquités.

La récupération d'un gisement archéologique sous-marin peut être assurée :

- par l'Etat, et dans ce cas l'inventeur a droit à une indemnité fixée à l'amiable ou à dire d'experts selon les dispositions de l'article 25 du décret susvisé ;
- par l'inventeur ou un concessionnaire autre que celui-ci (dans ce cas ses droits sont garantis comme indiqué ci-dessus) sous le contrôle de la direction régionale des antiquités et par application des dispositions des articles 45, 46, 47, 48 et 49 de l'arrêté du 4 février 1965.

Les objets découverts et ramenés à terre, lorsqu'il s'agit de l'exploitation d'un gisement, doivent obligatoirement être déposés dans un local désigné par le directeur des antiquités et indiqué à l'administration de l'inscription maritime. Ils font l'objet d'un inventaire particulier.

Dispositions transitoires

Si depuis la parution de l'arrêté du 4 février 1965, pris en application de la loi et du décret réglementant le régime des épaves, il vous appartient de veiller aux prescriptions rappelées ci-dessus, il m'apparaît

opportun de régler définitivement le sort des objets présentant un intérêt archéologique, détenus par des particuliers malgré les instructions du 12 juin 1951. Dans un délai de trois mois ne pouvant dépasser le 31 août 1965, ces découvertes devront vous être déclarées et faire l'objet d'un récépissé et d'un marquage particuliers.

Ce recensement ne remettra pas en cause l'origine et les conditions des découvertes. Une procédure amiable sera envisagée lorsqu'il s'agira de récupérer certaines pièces au profit des collections publiques. Dans les autres cas, la propriété sera définitivement confirmée aux détenteurs.

*
* *

Je vous prie de bien vouloir veiller à l'application de ces directives et me rendre compte des difficultés que pourrait présenter leur mise en œuvre.

Pour le ministre et par délégation :
Le directeur de l'administration générale,
J. AUTIN



LOI N° 89-874 DU 1^{er} DÉCEMBRE 1989
relative aux biens culturels maritimes

NOR : MCCX8800184L

(Journal officiel du 5 décembre 1989)

L'Assemblée nationale et le Sénat ont adopté,
Le Président de la République promulgue la loi dont la teneur suit :

Article 1^{er}

Constituent des biens culturels maritimes les gisements, épaves, vestiges ou généralement tout bien qui, présentant un intérêt préhistorique, archéologique ou historique, sont situés dans le domaine public maritime ou au fond de la mer dans la zone contiguë.

TITRE I^{er}

DES BIENS CULTURELS MARITIMES
SITUÉS DANS LE DOMAINE PUBLIC MARITIME

Article 2

Les biens culturels maritimes situés dans le domaine public maritime dont le propriétaire n'est pas susceptible d'être retrouvé appartiennent à l'Etat.

Ceux dont le propriétaire n'a pu être retrouvé, à l'expiration d'un délai de trois ans suivant la date à laquelle leur découverte a été rendue publique, appartiennent à l'Etat. Les conditions de cette publicité sont fixées par décret en Conseil d'Etat.

Article 3

Toute personne qui découvre un bien culturel maritime est tenue de le laisser en place et de ne pas y porter atteinte.

Elle doit, dans les quarante-huit heures de la découverte ou de l'arrivée au premier port, en faire la déclaration à l'autorité administrative.

Article 4

Quiconque a enlevé fortuitement un bien culturel maritime du domaine public maritime par suite de travaux ou de toute autre activité publique ou privée ne doit pas s'en départir. Ce bien doit être déclaré à l'autorité administrative dans le délai fixé par l'article 3 ; il doit être déposé auprès de celle-ci dans le même délai ou tenu à sa disposition.

Article 5

En cas de déclarants successifs, le bénéfice de la découverte est reconnu au premier d'entre eux.

Article 6

Toute personne qui a découvert et déclaré un bien culturel maritime dont la propriété est attribuée à l'Etat en application de l'article 2 peut bénéficier d'une récompense dont la nature ou le montant est fixé par l'autorité administrative.

Article 7

Nul ne peut procéder à des prospections à l'aide de matériels spécialisés permettant d'établir la localisation d'un bien culturel maritime, à des fouilles ou à des sondages sans en avoir, au préalable, obtenu l'autorisation administrative délivrée en fonction de la qualification du demandeur ainsi que la nature et des modalités de la recherche.

Tout déplacement d'un bien ou tout prélèvement sur celui-ci est soumis, dans les mêmes conditions, à l'obtention préalable d'une autorisation administrative.

L'autorité administrative peut également conclure des conventions tendant à la recherche, au déplacement et au prélèvement de biens culturels maritimes avec des personnes physiques agréées à cet effet.

Article 8

Les fouilles, sondages, prospections, déplacements et prélèvements doivent être exécutés sous la direction effective de celui qui a demandé et obtenu l'autorisation mentionnée à l'article 7.

Article 9

Lorsque le propriétaire d'un bien culturel maritime est connu, son accord écrit doit être obtenu avant toute intervention sur ce bien.

Article 10

Lorsque la conservation d'un bien culturel maritime est compromise, le ministre chargé de la culture peut prendre d'office, après avoir mis en demeure le propriétaire, s'il est connu, les mesures conservatoires qu'impose cette situation.

Article 11

Le ministre chargé de la culture peut, après avoir mis le propriétaire en mesure de présenter ses observations, déclarer d'utilité publique l'acquisition par l'Etat d'un bien culturel maritime situé dans le domaine public maritime. A défaut d'accord du propriétaire, l'utilité publique est déclarée par décret en Conseil d'Etat.

Le transfert de propriété est prononcé par les tribunaux judiciaires de droit commun moyennant une indemnité versée préalablement à la prise de possession. Cette indemnité doit couvrir l'intégralité du préjudice direct, matériel et certain. A défaut d'accord amiable, l'indemnité est fixée par le tribunal.

TITRE II
DES BIENS CULTURELS MARITIMES
SITUÉS DANS LA ZONE CONTIGUË

Article 12

Les articles 3, 4, 5, 7, 8 et 9 de la présente loi sont applicables aux biens culturels maritimes situés dans une zone contiguë comprise entre douze et vingt-quatre milles marins mesurés à partir des lignes de base de la mer territoriale, sous réserve d'accords de délimitation avec les Etats voisins.

Article 13

Toute personne qui a découvert et déclaré un bien culturel maritime appartenant à l'Etat et situé dans la zone contiguë pourra bénéficier d'une récompense dont le montant est fixé par l'autorité administrative.

TITRE III
DISPOSITIONS PÉNALES

Article 14

Quiconque aura enfreint les obligations de déclaration prévues aux articles 3, deuxième alinéa, et 4 de la présente loi sera puni d'une amende de 500 F à 15 000 F.

Sera puni des mêmes peines quiconque aura fait auprès de l'autorité publique une fausse déclaration quant au lieu et à la composition du gisement sur lequel l'objet déclaré a été découvert.

Article 15

Quiconque aura fait des prospections, des sondages, des prélèvements, des fouilles sur des biens culturels maritimes ou aura procédé à un déplacement de ces biens ou à un prélèvement sur ceux-ci, en infraction aux dispositions des articles 3 (1^{er} alinéa), 7 et 8 de la présente loi sera puni d'une amende de 1 000 F à 50 000 F.

Article 16

Quiconque aura sciemment aliéné ou acquis un bien culturel maritime enlevé du domaine public maritime ou du fond de la mer dans la zone contiguë en infraction aux dispositions des articles 3, 4, 7 et 8 de la présente loi sera puni d'un emprisonnement d'un mois à deux ans et d'une amende de 500 F à 30 000 F ou de l'une de ces deux peines. Le montant de l'amende pourra être porté au double du prix de la vente du bien. La juridiction pourra, en outre, ordonner la publication par voie de presse de sa décision aux frais du condamné, sans que le coût maximal de cette publication puisse excéder celui de l'amende encourue.

Article 17

Les infractions aux dispositions de la présente loi sont recherchées et constatées par les officiers et agents de police judiciaire, les agents de police judiciaire adjoints, les administrateurs des affaires maritimes, les

officiers du corps technique et administratif des affaires maritimes, les agents des douanes, les agents du ministère chargé de la culture spécialement assermentés et commissionnés à cet effet dans des conditions fixées par décret en Conseil d'Etat, les officiers et officiers mariniers commandant les bâtiments de la marine nationale, les contrôleurs des affaires maritimes, les techniciens du contrôle des établissements de pêche, les guetteurs sémaphoriques, les syndics des gens de mer et, en outre, dans les ports, les officiers de port et les officiers de port adjoints.

Article 18

Les procès-verbaux dressés par les agents verbalisateurs désignés à l'article 17 de la présente loi font foi jusqu'à preuve contraire. Ils sont transmis immédiatement au procureur de la République.

Article 19

Les infractions aux dispositions de la présente loi commises dans la mer territoriale ou dans la zone contiguë sont jugées soit par le tribunal compétent du lieu de l'infraction, soit par celui de la résidence de l'auteur de l'infraction, soit par celui du lieu d'arrestation de ce dernier, soit, à défaut, par le tribunal de grande instance de Paris.

.....

TITRE V DISPOSITIONS DIVERSES

Article 23

Les dispositions de la présente loi sont applicables dans la collectivité territoriale de Mayotte, à l'exception du titre IV.

Article 24

Un décret en Conseil d'Etat fixe les conditions d'application de la présente loi.

La présente loi sera exécutée comme loi de l'Etat.

Fait à Paris, le 1^{er} décembre 1989.

FRANÇOIS MITTERRAND

Par le Président de la République :

Le Premier ministre,
MICHEL ROCARD

*Le ministre d'Etat, ministre de l'économie,
des finances et du budget,*
PIERRE BÉRÉGOVOY

Le ministre d'Etat, ministre des affaires étrangères,
ROLAND DUMAS

Le garde des sceaux, ministre de la justice,
PIERRE ARPAILLANGE

Le ministre de la défense,
JEAN-PIERRE CHEVÈNEMENT

Le ministre de l'intérieur,
PIERRE JOXE

*Le ministre de l'équipement, du logement,
des transports et de la mer,*
MICHEL DELEBARRE

*Le ministre de la culture, de la communication,
des grands travaux et du Bicentenaire,*
JACK LANG

*Le ministre des départements et territoires d'outre-mer,
porte-parole du Gouvernement,*
LOUIS LE PENSEC

*Le ministre délégué auprès du ministre d'Etat,
ministre de l'économie, des finances et du budget,
chargé du budget,*
MICHEL CHARASSE

*Le ministre délégué auprès du ministre de l'équipement,
du logement, des transports et de la mer,
chargé de la mer,*
JACQUES MELLICK



(1) Travaux préparatoires : loi n°89-874.

Assemblée nationale :

Projet de loi n°535 ;

Rapport de M. Roland Beix, au nom de la commission des affaires culturelles, n°616 ;

Discussion et adoption le 27 avril 1989.

Sénat :

Projet de loi, adopté par l'Assemblée nationale, n°274 (1988-1989) ;

Rapport de M. Jacques Bérard, au nom de la commission des affaires culturelles, n°467 (1988-1989) ;

Discussion et adoption le 19 octobre 1989.

Assemblée nationale :

Projet de loi, modifié par le Sénat, n°949 ;

Rapport de M. Roland Beix, au nom de la commission des affaires culturelles, n°1014 ;

Discussion et adoption le 23 novembre 1989.

**Décret n° 91-1226 du 5 décembre 1991 pris pour l'application de
la loi n° 89-874 du 1^{er} décembre 1989 relative aux biens culturels maritimes
et modifiant la loi du 27 septembre 1941 portant réglementation des fouilles archéologiques.**

Le Premier ministre,

Sur le rapport du ministre d'Etat, ministre de l'économie, des finances et du budget, du garde des sceaux, ministre de la justice, du ministre de la défense, du ministre de la culture et de la communication, porte-parole du Gouvernement, du ministre de l'équipement, du logement, des transports et de l'espace et du ministre délégué au budget,

Vu la loi n° 63-1178 du 28 novembre 1963 relative au domaine public maritime, modifiée par la loi n° 86-2 du 3 janvier 1986 relative à l'aménagement, la protection et la mise en valeur du littoral;

Vu la loi n° 89-874 du 1^{er} décembre 1989 relative aux biens culturels maritimes et modifiant la loi du 27 septembre 1941 portant réglementation des fouilles archéologiques ;

Vu le décret n° 61-1547 du 26 décembre 1961 fixant le régime des épaves maritimes, modifié en dernier lieu par le décret n° 85-632 du 21 juin 1985 ;

Vu le décret n° 78-272 du 9 mars 1978 relatif à l'organisation des actions de l'Etat en mer ;

Vu le décret n° 79-413 du 25 mai 1979 relatif à l'organisation des actions de l'Etat en mer au large des départements et territoires d'outre-mer et de la collectivité territoriale de Mayotte ;

Vu le décret n° 81-428 du 28 avril 1981 pris pour l'application de la loi n° 80-532 du 15 juillet 1980 relative à la protection des collections publiques contre les actes de malveillance ;

Vu le décret n° 85-64 du 17 janvier 1985 relatif au Conseil supérieur de la recherche archéologique, modifié par le décret n° 85-771 du 24 juillet 1985 relatif à la commission supérieure des monuments historiques ;

Le Conseil d'Etat (section de l'intérieur) entendu,

Décète :

TITRE I

DES DECOUVERTES ET ENLEVEMENTS FORTUITS DE BIENS CULTURELS MARITIMES

Art. 1^{er}. -

L'autorité administrative mentionnée aux articles 3 et 4 de la loi du 1^{er} décembre 1989 susvisée est l'administrateur des affaires maritimes, chef du quartier ou du service des affaires maritimes le plus proche du lieu de la découverte ou du premier port d'arrivée.

Art. 2. -

La déclaration de découverte d'un bien culturel maritime prévue à l'article 3 de la loi du 1^{er} décembre 1989 susvisée indique le lieu de la découverte et la nature de ce bien.

La déclaration d'enlèvement fortuit d'un bien culturel maritime, prévue à l'article 4 de la loi du 1^{er} décembre 1989 précitée, indique le lieu et les autres circonstances de l'enlèvement.

Art. 3. -

Le service des affaires maritimes adresse les déclarations prévues aux articles 3 et 4 de la loi du 1^{er} décembre 1989 précitée au ministre chargé de la culture. Celui-ci procède à l'identification du bien culturel maritime.

Art. 4. -

Le montant de la récompense prévu aux articles 6 et 13 de la loi du 1^{er} décembre 1989 est fixé par le ministre chargé de la culture, après avis du Conseil supérieur de la recherche archéologique, en fonction de l'intérêt du bien, dans la limite de plafonds définis par arrêté conjoint des ministres chargés du budget et de la culture. Lorsque la récompense prévue à l'article 6 de la loi du 1^{er} décembre 1989 susvisée est attribuée en nature, la valeur est fixée selon la même procédure.

TITRE II

DES MESURES DE PUBLICITE PRISES POUR L'APPLICATION DE L'ARTICLE 2 DE LA LOI DU 1^{er} DECEMBRE 1989

Art. 5. -

La publicité prévue au deuxième alinéa de l'article 2 de la loi du 1^{er} décembre 1989 précitée est assurée par le ministre chargé de la culture.

Cette publicité porte sur la description du bien et dans la mesure du possible sur l'identification de celui qui en était le propriétaire lorsqu'il en a perdu la possession. Elle est faite, dans un délai de six mois suivant l'identification du bien culturel maritime, par publication dans le Journal officiel de la République française et un quotidien à diffusion nationale.

Le délai prévu au deuxième alinéa de l'article 2 de la loi du 1^{er} décembre 1989 précitée court à compter de la dernière des publications mentionnées à l'alinéa 2 ci-dessus.

TITRE III

DE LA RECHERCHE ARCHEOLOGIQUE SOUS-MARINE

Art. 6. -

Lorsque le préfet maritime ou le délégué du Gouvernement désigné par le décret du 25 mai 1979 susvisé prend, en vertu de ses pouvoirs de police administrative générale, des mesures d'interdiction ou de restriction de la circulation et du mouillage des navires, de travaux sous-marins et de plongée sous-marine sur un site contenant des biens culturels maritimes, il en informe le ministre chargé de la culture.

L'autorité compétente, précitée peut prendre les mesures définies à l'alinéa précédent à la demande du ministre chargé de la culture.

Art. 7. -

Les demandes d'autorisations prévues à l'article 7 de la loi du 1^{er} décembre 1989 précitée précisent l'identité, les compétences et l'expérience de l'auteur de la demande, la composition de l'équipe de recherche, la localisation, l'objectif scientifique, les moyens matériels et le mode de financement prévus ainsi que la durée approximative des travaux à entreprendre.

Le ministre chargé de la culture, après duquel ces demandes sont introduites, recueille l'avis du préfet maritime ou du délégué du Gouvernement désigné par le décret du 25 mai 1979 précité.

Les autorisations de fouille et de déplacement des biens culturels maritimes sont délivrées par le ministre chargé de la culture, après avis du Conseil supérieur de la recherche archéologique. L'autorisation fixe les prescriptions suivant lesquelles les travaux doivent être conduits.

Le ministre chargé de la culture peut également :

a) Autoriser les sondages et les prospections exécutées à l'aide de matériels spécialisés permettant d'établir la localisation des biens culturels maritimes ;

b) Autoriser les prélèvements et déplacements urgents de biens culturels maritimes.

Les autorisations prévues au a ci-dessus sont valables un mois à compter du début des opérations.

Art. 8. -

Les décisions de faire exécuter des fouilles sous la responsabilité de l'Etat et les décisions de conclure, au nom de l'Etat, les conventions mentionnées à l'alinéa 3 de l'article 7 de la loi du 1^{er} décembre 1989 précitée sont prises par le ministre chargé de la culture, après avis du Conseil supérieur de la recherche archéologique.

Le ministre chargé de la culture peut également décider de faire procéder à l'exécution de fouilles de sauvetage urgentes.

Art. 9. -

Le titulaire de l'autorisation, le bénéficiaire de la décision ainsi que les parties à la convention doivent présenter, à toute demande des autorités compétentes, une copie de ces documents.

Art. 10. -

Les travaux autorisés en vertu de l'article 7 de la loi du 1^{er} décembre 1989 précitée sont exécutés sous le contrôle du ministre chargé de la culture. Ils font l'objet d'un rapport d'opération comportant notamment l'inventaire des objets découverts.

Art. 11. -

Par arrêté motivé pris sur avis conforme du Conseil supérieur de la recherche archéologique, le ministre chargé de la culture prononce le retrait de l'autorisation accordée en vertu de l'article 7 ;

1° En cas d'inobservation grave ou répétée des prescriptions imposées pour l'exécution des recherches, la déclaration ou la conservation des découvertes ;

2° Lorsque l'importance des découvertes justifie que l'Etat poursuive lui-même l'exécution des travaux ou demande le transfert de propriété des biens culturels maritimes à son profit.

Lorsque le retrait a pour motif l'inobservation grave ou répétée des prescriptions imposées pour l'exécution des recherches, il est procédé par une mise en demeure assortie d'un délai.

Art. 12. -

Le ministre chargé de la culture transmet au préfet maritime ou au délégué du Gouvernement désigné par le décret du 25 mai 1979 précité les décisions prises en vertu de l'article 11. Ces autorités en informent les représentants des administrations exerçant des missions en mer.

Art. 13. -

Lorsque le retrait de l'autorisation est motivé par l'inobservation grave ou répétée des prescriptions imposées, l'auteur des travaux ne peut prétendre à aucune indemnité.

Toutefois, il a droit au remboursement du prix des travaux et installations qui seront utilisés par l'Etat pour la continuation des fouilles.

Lorsque l'autorisation est retirée pour permettre à l'Etat de poursuivre les fouilles, l'auteur des travaux a droit au remboursement, sur production de pièces justificatives, des dépenses directement engagées pour l'exécution des travaux qu'il a entrepris. Il peut également demander le bénéfice d'une indemnité spéciale dont les modalités de versement sont fixées par arrêté des ministres chargés de la culture et du budget après avis du Conseil supérieur de la recherche archéologique.

Les demandes de remboursement ou d'indemnité mentionnées aux premier et deuxième alinéas du présent article doivent être introduites dans le délai de trois mois suivant la notification du retrait, auprès du ministre chargé de la culture.

Art. 14. -

Lorsqu'il a été fait application de l'article 9 de la loi du 1^{er} décembre 1989 précitée, toute autorisation est caduque de plein droit à compter du jour où le propriétaire d'un bien culturel maritime a notifié à l'autorité compétente le retrait de son accord écrit donné pour l'intervention sur ce bien.

Art. 15. -

Les pouvoirs attribués au ministre chargé de la culture par l'article 10 de la loi du 1^{er} décembre 1989 précitée s'exercent, sauf urgence, après avis du Conseil supérieur de la recherche archéologique.

Art. 16. -

La mesure de déclaration d'utilité publique mentionnée à l'article 11 de la loi du 1^{er} décembre 1989 précitée est prise après consultation du Conseil supérieur de la recherche archéologique par le ministre chargé de la culture.

Le ministre notifie au propriétaire du bien culturel maritime, par lettre recommandée avec demande d'avis de réception, son intention d'acquérir le bien ainsi que le montant de son offre.

A défaut d'accord du propriétaire dans le délai de trois mois, l'utilité publique est déclarée par décret en Conseil d'Etat.

A peine de caducité du décret dans les trois mois de sa publication, le tribunal de grande instance dans le ressort duquel est situé le bien culturel maritime ou, dans les collectivités territoriales de Mayotte et Saint-Pierre-et-Miquelon, le tribunal de première instance, doit être saisi par le ministre chargé de la culture pour prononcer le transfert de propriété au profit de l'Etat.

TITRE IV

DISPOSITIONS RELATIVES A LA PROCEDURE PENALE

Art. 17. -

Pour rechercher ou constater les infractions en application de l'article 17 de la loi du 1^{er} décembre 1989 précitée, les agents du ministère chargé de la culture sont spécialement assermentés et commissionnés dans les conditions prévues par le décret du 28 avril 1981 susvisé.

Art. 18. -

L'agent qui établit un procès-verbal d'infraction à la loi du 1^{er} décembre 1989 précitée en informe sans délai le ministre chargé de la culture.

TITRE V

DISPOSITIONS FINALES

Art. 19. -

Le régime douanier des épaves s'applique aux biens culturels maritimes. Toutefois, ceux importés par l'Etat font l'objet d'une déclaration en douane particulière dont les conditions d'établissement et de dépôt sont fixées par le directeur général des douanes et de droits indirects, dans la collectivité territoriale de Mayotte par le représentant du Gouvernement et dans la collectivité territoriale de Saint-Pierre-et-Miquelon par le président du conseil général.

Art. 20. - I. -

Au 5° du premier alinéa de l'article 1^{er} du décret du 26 décembre 1961 susvisé, les mots : "y compris ceux d'origine antique" sont remplacés par les mots : "à l'exception des biens culturels maritimes".

II. - Le chapitre V et l'article 32 du même décret sont abrogés.

Art. 21. -

Le présent décret est applicable dans la collectivité territoriale de Mayotte.

Art. 22. -

Le ministre d'Etat, ministre de l'économie, des finances et du budget, le garde des sceaux, ministre de la justice, le ministre de la défense, le ministre de l'intérieur, le ministre de la culture et de la communication, porte-parole du Gouvernement, le ministre de l'équipement, du logement, des transports et de l'espace, le ministre des départements et territoires d'outre-mer, le ministre délégué au budget et le secrétaire d'Etat à la mer sont chargés, chacun en ce qui le concerne, de l'exécution du présent décret, qui sera publié au Journal officiel de la République française.

Fait à Paris, le 5 décembre 1991.

Décret-loi n°164 du 27 juin 1997

(Portugal/Portugal)

MINISTERE DE LA CULTURE

Décret-loi n° 164 du 27 juin 1997

Le présent décret-loi est destiné à harmoniser la législation relative à l'activité archéologique en milieu subaquatique avec celle en vigueur pour cette activité en milieu terrestre. Cette harmonisation est d'autant plus nécessaire que la gestion de l'activité archéologique nationale est devenue autonome avec la création, par le décret-loi n° 117 du 14 mai 1997, de l'Institut portugais d'archéologie.

La législation régissant à ce jour le domaine spécifique de l'archéologie sous-marine, énoncée dans le décret-loi n° 289 du 21 août 1993 mis à jour par le décret-loi n° 85 du 30 mars 1994 et dans l'Arrêté ministériel n° 568 du 16 juin 1995, s'écartait des dispositions applicables à l'archéologie terrestre quant aux critères méthodologiques de base et à la tutelle de l'Etat. Elle consacrait clairement, d'autre part, l'exploitation commerciale de l'activité archéologique en milieu subaquatique, au détriment du contexte scientifique du patrimoine culturel concerné.

Ce nouveau texte de loi met fin à la concession de l'exploitation commerciale du patrimoine culturel subaquatique. Toute l'activité archéologique menée en milieu subaquatique sera poursuivie sous réserve d'être maintenue dans un cadre strictement scientifique ; les pratiques destructives ou les explorations susceptibles d'endommager des biens culturels subaquatiques ainsi que les zones environnantes sont interdites. Les droits des découvreurs occasionnels sont nonobstant garantis, afin de concilier les prérogatives du citoyen et la nécessité de préserver la mémoire historique et l'information scientifique que les biens découverts peuvent apporter à l'archéologie portugaise.

En conséquence, ayant entendu les organes administratifs des Régions autonomes des Açores et de Madère,

Conformément au régime juridique établi par la loi n° 13 du 6 juillet 1985 et aux termes de l'article 201, alinéa 1-c) de la Constitution, le Gouvernement décrète :

CHAPITRE PREMIER **Dispositions générales**

Article premier **Patrimoine culturel subaquatique**

1 - Le patrimoine culturel subaquatique comprend tous les biens meubles ou immeubles avec leur zone environnante, témoignant d'une présence humaine et possédant une valeur historique, artistique ou scientifique, entièrement ou en partie situés en milieu subaquatique, immergé ou humide :

- a) dans la mer territoriale, sur ses lits et ses marges ;
- b) dans les cours d'eaux, sur leur lit et leurs rives ;
- c) dans les lacs, étangs et lagunes, sur leur lit et leurs rives ;
- d) sur les quais et dans les fossés, sur leur fond et leurs talus ;
- e) dans les eaux soumises à l'influence des marées des cours d'eaux, lacs et lagunes, de leur lit et de leurs rives ;
- f) dans les marais ;
- g) dans les eaux souterraines ;
- h) dans les eaux des puits et réservoirs,
- i) dans les zones périodiquement inondées ou actuellement ensablées, sur leur lit et leurs marges, dès lors que les travaux archéologiques concernent des biens ou des vestiges d'ordre nautique.

2 - Appartiennent également au patrimoine culturel subaquatique tous les biens jetés ou se trouvant dans le sous-sol des eaux ou zones visées à l'alinéa 1 ci-dessus.

3 - Les biens visés au présent article sont considérés aux fins de la loi n° 13 du 6 juillet 1985 comme des biens archéologiques.

4 - Entrent également dans le patrimoine culturel subaquatique les sites archéologiques subaquatiques situés dans des zones submergées abritant des biens culturels qui, de par leur nature ou leur intérêt global, doivent y rester.

Article 2 Propriété de l'Etat

1 - Les biens visés à l'article premier ci-dessus et n'ayant pas de propriétaire connu sont la propriété de l'Etat.

2 - Sont assimilés à des biens sans propriétaire connu ceux que leur propriétaire n'a pas repris dans le délai de cinq ans à compter de la date à laquelle il les a perdus, les a abandonnés ou s'en est séparé d'une quelconque façon.

Article 3 Inventaire

Les biens visés à l'article premier et considérés comme ayant une valeur culturelle font l'objet d'un inventaire homologué par le ministre de la Culture sur proposition de l'Institut portugais d'archéologie (IPA) si leur haut intérêt historique, artistique ou scientifique appelle une protection particulière, conformément aux dispositions de la loi n° 13 du 6 juillet 1985.

Article 4 Procédure d'inventaire

1 - La découverte ou l'acquisition de biens donne lieu à l'ouverture d'une procédure d'inventaire en vue de leur classification.

2 - La procédure d'inventaire de biens découverts ou recueillis lors de travaux archéologiques subaquatiques est ouverte :

- a) aux périodes préalablement fixées par l'IPA ;
- b) à la fin des travaux archéologiques subaquatiques.

3 - L'inventoriage de biens fortuitement découverts débute à la réception par l'IPA de la déclaration de découverte.

4 - L'inventoriage de sites archéologiques est soumis à l'avis des instances compétentes en matière de pêche et de transports maritimes.

5 - Durant la procédure d'inventaire, les biens découverts ou recueillis ainsi que les sites archéologiques ne peuvent être, selon le cas, aliénés, transformés ni exportés.

6 - La décision d'homologation des biens inventoriés établit les limites de la zone et les mesures à prendre pour la sauvegarde du site archéologique subaquatique.

Article 5 Délai d'inventaire

La procédure d'inventaire doit avoir lieu dans un délai de 60 jours. Ce délai pourra dans des circonstances exceptionnelles être prorogé d'une durée égale sur décision du ministre de la Culture.

Article 6 Biens inventoriés

L'aliénation, la transformation ou l'exportation de biens inventoriés hors des conditions prévues pour les biens classés par la loi n° 13 du 6 juillet 1985 sont interdites sous peine de nullité des actes effectués.

CHAPITRE II Travaux archéologiques subaquatiques

Article 7 Travaux archéologiques subaquatiques

1 - Sont considérés comme travaux archéologiques subaquatiques tous ceux qui visent exclusivement à l'étude, à la sauvegarde et à la mise en valeur des biens du patrimoine culturel subaquatique, faisant appel aux méthodes consacrées par l'archéologie, comprenant ou non des fouilles et des opérations susceptibles de perturber l'équilibre entre ces biens et entre ceux-ci et leur environnement et qui, par leur caractère programmé, dépassent l'examen purement visuel et le simple enregistrement à fins documentaires, à l'exclusion de ceux visés à l'article suivant.

2 - Il n'est possible de recueillir des biens du patrimoine culturel subaquatique que dans le cadre de travaux archéologiques subaquatiques dûment autorisés par l'IPA.

3 - Il appartient au ministre de la Culture, sur proposition de l'IPA, de fixer les conditions du dépôt définitif ou temporaire des biens meubles recueillis dans le cadre de travaux archéologiques subaquatiques.

4 - Les biens recueillis dans le cadre de travaux archéologiques subaquatiques ne peuvent être acquis par usucapion.

Article 8 Utilisation d'appareils de détection rapprochée ou à distance

1 - L'utilisation d'appareils de détection rapprochée ou à distance tels que détecteurs de métaux, magnétomètres, résistivimètres, sonars à balayage latéral et à sismique de réflexion et pénétration, aux fins de détection de biens archéologiques, est soumise à l'autorisation de l'IPA et fera l'objet d'une requête dûment fondée précisant les spécialistes et les organismes intervenants.

2 - Sans préjudice des dispositions de l'alinéa ci-dessus, l'utilisation de détecteurs de métaux est interdite sur le territoire de tous les sites présentant une valeur archéologique subaquatique reconnue et figurant sur l'inventaire et les listes de l'IPA, ainsi que sur les parties émergées en permanence, temporairement ou de façon intermittente des zones du domaine public maritime.

Article 9 Autorisations

1 - La réalisation de travaux archéologiques est subordonnée à l'obtention d'une autorisation.

2 - L'autorisation de travaux archéologiques est du ressort du ministre de la Culture, sur proposition de l'IPA et après avis des organes consultatifs compétents ; sans préjudice des conditions fixées à l'article 10 ci-après, il sera fait application des dispositions de l'Arrêté ministériel n° 269 du 12 mai 1978, modifié par l'Arrêté n° 195 du 24 avril 1979.

3 - L'autorisation de travaux susvisée ne dispense pas de l'obtention des autres autorisations légalement exigibles et ne remplace pas ces autorisations.

Article 10 Conditions applicables aux travaux archéologiques subaquatiques

- 1 - Il est interdit de procéder à des travaux archéologiques subaquatiques sur :
- a) les réserves naturelles ;
 - b) les zones militaires temporaires ou permanentes ;
 - c) les zones de pêche délimitées ;
 - d) les zones de passage de câbles de télécommunications et d'alimentation électrique, les oléoducs, les gazoducs et les égouts ;
 - e) les zones d'exploitation de gisements pétrolifères ou autres ;

- f) les bâtiments militaires coulés pendant la seconde Guerre mondiale ;
- g) les navires coulés contenant des explosifs, des produits pétroliers ou d'autres substances susceptibles de mettre en danger l'équilibre écologique ;
- h) les couloirs de navigation matérialisant la séparation du trafic, ou dès lors que la sécurité de la navigation ou l'exploitation commerciale des ports sont en jeu.

2 - Sur proposition de l'IPA et si ces travaux s'avèrent indispensables à la sauvegarde de biens d'intérêt culturel, la réalisation de travaux archéologiques subaquatiques pourra être autorisée dans les cas énumérés à l'alinéa ci-dessus par décision conjointe du ministre de la Culture et du membre du gouvernement compétent dans le domaine en cause, après avis des organes consultatifs intéressés.

Article 11 Mesures de prévention

L'IPA veillera à l'adoption par les autorités compétentes, sur les zones de travaux archéologiques subaquatiques, des mesures de prévention adaptées, en particulier en matière de navigation et de pêche, pour la poursuite des activités archéologiques et la sauvegarde des biens découverts ou dont on suppose l'existence.

CHAPITRE III Découvertes fortuites

Article 12 Découverte fortuite

1 - Quiconque découvre ou localise fortuitement l'un des biens visés à l'article premier doit le communiquer aux autorités douanières ou maritimes compétentes sur le lieu de la découverte, aux autorités policières ou bien directement à l'IPA, dans le délai de quarante-huit heures.

2 - Les autorités visées à l'alinéa ci-dessus disposent de vingt-quatre heures pour donner connaissance de la communication à l'IPA, ou de quarante-huit heures si elles ne peuvent le faire directement.

3 - Sauf motif dûment justifié, le défaut de communication de la découverte dans le délai fixé à l'alinéa 1 entraîne la perte des droits du découvreur, sans préjudice de la responsabilité légale, civile et pénale engagée.

4 - Si la découverte est communiquée directement à l'IPA, ce dernier en informera les autorités localement compétentes dans le délai de vingt-quatre heures.

Article 13 Déclaration de découverte fortuite

1 - L'autorité auprès de laquelle a été communiquée la découverte ou la localisation de biens est tenue de délivrer une déclaration de découverte fortuite.

2 - La déclaration de découverte doit en préciser la nature et les caractéristiques, le lieu, l'heure et le jour, et identifier le découvreur.

3 - L'autorité qui a délivré la déclaration conserve le bien découvert ou, en cas d'impossibilité, en fait assurer la garde dans des conditions garantissant sa sécurité.

4 - Une copie de la déclaration ainsi que le récépissé de dépôt du bien découvert doivent obligatoirement être remis au découvreur.

5 - L'autorité ayant délivré la déclaration doit en adresser immédiatement une copie à l'IPA et aux autorités douanières, ainsi qu'aux autorités maritimes compétentes sur le lieu de la découverte.

Article 14 Inventoriage des découvertes fortuites

1 - L'IPA fixe le lieu de dépôt provisoire des biens inventoriés aux termes des articles 3 et suivants.

2 - L'IPA notifie l'inscription à l'inventaire de ces biens au découvreur et aux autorités compétentes sur le lieu de la découverte.

3 - Si l'IPA ne se prononce pas sur la valeur culturelle des biens ou si le ministre de la Culture n'homologue pas la procédure d'inventaire, l'IPA notifiera le fait aux autorités compétentes sur le lieu de la découverte.

Article 15

Découvertes fortuites sur des ouvrages neufs

1 - Si, lors de travaux de toute nature, notamment de dragage, terrassement, dessablage, prospection de gisements pétrolifères ou autres, sont découverts ou localisés des biens visés par l'article premier, le découvreur ou le maître de l'ouvrage doivent respectivement proposer à l'IPA la suspension des travaux et les interrompre sur le champ, ainsi que communiquer la découverte conformément à l'article 12.

2 - Les travaux seront suspendus jusqu'à ce que l'IPA donne l'autorisation de les poursuivre.

3 - L'IPA dispose d'un délai de 10 jours à compter de la réception de la déclaration de découverte fortuite pour se prononcer sur la poursuite des travaux.

4 - Si le découvreur ou le maître de l'ouvrage ne suspendent pas les travaux ou es poursuivent sans autorisation expresse de l'IPA, ce dernier pourra engager une procédure administrative.

CHAPITRE IV

Rémunérations

Article 16

Droits du découvreur

La découverte fortuite ouvre droit pour le découvreur à une rémunération calculée sur la valeur attribuée aux biens conformément aux articles 17, 18, 19 et 20.

Article 17

Rémunération des découvertes fortuites

1 - Le découvreur a droit au versement de la moitié de la valeur de la découverte fortuite inventoriée aux termes de l'article 3.

2 - Dans le cas d'un ensemble de découvertes correspondant à un contexte archéologique cohérent et délimité, dont l'intérêt culturel soit confirmé par les services compétents de l'IPA, le découvreur recevra un montant basé sur la valeur attribuée à la découverte, conformément au barème approuvé par arrêté conjoint des ministres des Finances et de la Culture.

Article 18

Estimation

1 - L'IPA déterminera la valeur de la découverte fortuite ou des biens recueillis dans les 30 jours suivant leur inventaire.

2 - Si l'estimation présente des difficultés particulières, le ministre de la Culture peut prolonger jusqu'à 90 jours le délai prévu à l'alinéa ci-dessus.

3 - L'IPA communiquera au découvreur dans un délai de 10 jours la valeur attribuée à la découverte fortuite.

Article 19

Différends relatifs à l'estimation

S'il n'accepte pas l'estimation établie pour les biens inventoriés, le découvreur peut dans les 10 jours suivant la notification de cette estimation demander à l'IPA que soit constituée une commission arbitrale.

Article 20 Commission arbitrale

1 - La commission arbitrale sera composée de trois membres de valeur scientifique reconnue, dont un désigné par l'IPA et un par le découvreur ; le troisième arbitre présidera la commission et sera choisi d'un commun accord par les deux premiers.

2 - Le découvreur indiquera le nom de son arbitre dans la requête adressée à l'IPA conformément à l'article ci-dessus, l'IPA ayant ensuite 10 jours pour désigner le sien.

3 - Faute d'accord sur le choix de l'arbitre président la commission, il sera fait application des dispositions de la loi n° 31 du 29 août 1986.

CHAPITRE V Contrôle et sanctions

Article 21 Contrôle

1 - L'application des dispositions du présent décret-loi est placée sous le contrôle de l'IPA.

2 - Dans l'exercice de cette prérogative, l'IPA pourra solliciter la collaboration d'autres organismes ayant compétence en matière de contrôle dans le domaine d'application du présent décret-loi.

Article 22 Infractions

1 - Sans préjudice des autres sanctions applicables, constituent des infractions, passibles des amendes indiquées :

- a) de 400 000\$ à 750 000\$ et de 5 000 000\$ à 9 000 000\$, la contravention aux alinéas 4 et 5 de l'article 4 par une personne physique ou morale respectivement ;
- b) de 30 000\$ à 750 000\$ et de 1 500 000\$ à 9 000 000\$, la contravention aux dispositions de l'article 8 et à celles de l'article 12, alinéas 1 et 2, par une personne physique ou morale respectivement ;
- c) de 400 000\$ à 750 000\$ et de 5 000 000\$ à 9 000 000\$, la contravention aux dispositions de l'article 9, alinéa 1, de l'article 10, alinéa 1 et de l'article 15, alinéas 1 et 2, par une personne physique ou morale respectivement.

2 - La tentative d'infraction est passible de sanction dans les cas visés à l'alinéa ci-dessus, en a) et c).

3 - La négligence est passible de sanction dans les cas visés à l'alinéa 1, b) et c) ; le montant minimal et maximal de l'amende applicable est alors égal à la moitié du montant minimal et maximal indiqué audit alinéa.

Article 23 Pêche industrielle

1 - Sur les périmètres de travaux archéologiques subaquatiques dûment délimités et signalés et sous réserve que soient garanties les mesures de prévention visées à l'article 11, constitue une infraction, passible d'une amende de 400 000\$ à 750 000\$ et de 5 000 000\$ à 9 000 000\$, l'exercice de la pêche industrielle durant la réalisation de tels travaux par une personne physique ou morale respectivement.

2 - La tentative d'infraction est passible de sanction.

3 - La négligence est passible de sanction, le montant minimal et maximal de l'amende applicable étant égal à la moitié du montant minimal et maximal indiqué à l'alinéa 1.

Article 24 Sanctions accessoires

1 - Dans les cas d'infraction prévus aux articles ci-dessus, les sanctions accessoires suivantes pourront être appliquées aux termes de la législation générale :

- a) perte des embarcations, matériels ou équipements utilisés pour commettre l'infraction ;
- b) interdiction d'exercer l'activité liée à l'infraction commise.

2 - En cas de condamnation ferme à la perte des biens en faveur de l'Etat, il appartient au ministre de la Culture de décider de leur affectation.

Article 25 Application des sanctions

1 - La procédure de sanction pour infraction est instruite par l'IPA ou l'Inspection générale des affaires culturelles.

2 - Le directeur de l'IPA procède à l'application des amendes et des sanctions accessoires.

Article 26 Produit des amendes

Le produit des amendes prévues par le présent décret-loi sera réparti comme suit :

- a) 60% à l'Etat ;
- b) 20% à l'IPA,
- c) 20% à l'organisme instructeur.

CHAPITRE VI Clause finale

Article 27 Disposition révoque

Les décrets-lois n^{os} 289 du 21 août 1993 et 85 du 30 mars 1994, ainsi que l'Arrêté ministériel n° 568 du 16 juin 1995, sont abrogés.

Vu et approuvé en Conseil des ministres le 23 avril 1997. *António Manuel de Oliveira Guterres – Mário Fernando de Campos Pinto – Artur Aurélio Teixeira Rodrigues Consolado – António Manuel de Carvalho Ferreira Vitorino – António Luciano Pacheco de Sousa Franco – Alberto Bernardes Costa – Adriano Lopes Gomes Pimpao – José Eduardo Vera Cruz Jardim – Elisa Maria da Costa Guimaraes Ferreira – Manuel Maria Ferreira Carrilho.*

Promulgué le 6 juin 1997.

Le président de la République, JORGE SAMPAIO.

Contresigné le 11 juin 1997.

Le Premier ministre, *António Manuel de Oliveira Guterres.*

Protection of Wrecks Act 1973

(Royaume uni/*United Kingdom*)



Protection of Wrecks Act 1973

CHAPTER 33

ARRANGEMENT OF SECTIONS

Section

1. Protection of sites of historic wrecks.
2. Prohibition on approaching dangerous wrecks.
3. Supplementary provisions.
4. Citation.

ELIZABETH II



Protection of Wrecks Act 1973

1973 CHAPTER 33

An Act to secure the protection of wrecks in territorial waters and the sites of such wrecks, from interference by unauthorised persons; and for connected purposes.

[18th July 1973]

BE IT ENACTED by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1.—(1) If the Secretary of State is satisfied with respect to any site in United Kingdom waters that—

(a) it is, or may prove to be, the site of a vessel lying wrecked on or in the sea bed; and

(b) on account of the historical, archaeological or artistic importance of the vessel, or of any objects contained or formerly contained in it which may be lying on the sea bed in or near the wreck, the site ought to be protected from unauthorised interference,

he may by order designate an area round the site as a restricted area.

(2) An order under this section shall identify the site where the vessel lies or formerly lay, or is supposed to lie or have lain, and—

(a) the restricted area shall be all within such distance of the site (so identified) as is specified in the order, but excluding any area above high water mark of ordinary spring tides; and

(b) the distance specified for the purposes of paragraph (a) above shall be whatever the Secretary of State thinks appropriate to ensure protection for the wreck.

Protection of
sites of
historic
wrecks.

(3) Subject to section 3(3) below, a person commits an offence if, in a restricted area, he does any of the following things otherwise than under the authority of a licence granted by the Secretary of State—

- (a) he tampers with, damages or removes any part of a vessel lying wrecked on or in the sea bed, or any object formerly contained in such a vessel; or
- (b) he carries out diving or salvage operations directed to the exploration of any wreck or to removing objects from it or from the sea bed, or uses equipment constructed or adapted for any purpose of diving or salvage operations; or
- (c) he deposits, so as to fall and lie abandoned on the sea bed, anything which, if it were to fall on the site of a wreck (whether it so falls or not), would wholly or partly obliterate the site or obstruct access to it, or damage any part of the wreck;

and also commits an offence if he causes or permits any of those things to be done by others in a restricted area, otherwise than under the authority of such a licence.

(4) Before making an order under this section, the Secretary of State shall consult with such persons as he considers appropriate having regard to the purposes of the order; but this consultation may be dispensed with if he is satisfied that the case is one in which an order should be made as a matter of immediate urgency.

(5) A licence granted by the Secretary of State for the purposes of subsection (3) above shall be in writing and—

- (a) the Secretary of State shall in respect of a restricted area grant licences only to persons who appear to him either—
 - (i) to be competent, and properly equipped, to carry out salvage operations in a manner appropriate to the historical, archaeological or artistic importance of any wreck which may be lying in the area and of any objects contained or formerly contained in a wreck, or
 - (ii) to have any other legitimate reason for doing in the area that which can only be done under the authority of a licence;
- (b) a licence may be granted subject to conditions or restrictions, and may be varied or revoked by the Secretary of State at any time after giving not less than one week's notice to the licensee; and
- (c) anything done contrary to any condition or restriction of a licence shall be treated for purposes of subsection (3) above as done otherwise than under the authority of the licence.

(6) Where a person is authorised, by a licence of the Secretary of State granted under this section, to carry out diving or salvage operations, it is an offence for any other person to obstruct him, or cause or permit him to be obstructed, in doing anything which is authorised by the licence, subject however to section 3(3) below.

2.—(1) If the Secretary of State is satisfied with respect to a vessel lying wrecked in United Kingdom waters that—

- (a) because of anything contained in it, the vessel is in a condition which makes it a potential danger to life or property; and
- (b) on that account it ought to be protected from unauthorised interference,

Prohibition on approaching dangerous wrecks.

he may by order designate an area round the vessel as a prohibited area.

(2) An order under this section shall identify the vessel and the place where it is lying and—

- (a) the prohibited area shall be all within such distance of the vessel as is specified by the order, excluding any area above high water mark of ordinary spring tides; and
- (b) the distance specified for the purposes of paragraph (a) above shall be whatever the Secretary of State thinks appropriate to ensure that unauthorised persons are kept away from the vessel.

(3) Subject to section 3(3) below, a person commits an offence if, without authority in writing granted by the Secretary of State, he enters a prohibited area, whether on the surface or under water.

3.—(1) In this Act—

“United Kingdom waters” means any part of the sea within the seaward limits of United Kingdom territorial waters and includes any part of a river within the ebb and flow of ordinary spring tides;

Supplementary provisions.

“the sea” includes any estuary or arm of the sea; and references to the sea bed include any area submerged at high water of ordinary spring tides.

(2) An order under section 1 or section 2 above shall be made by statutory instrument subject to annulment in pursuance of a resolution of either House of Parliament and may be varied or revoked by a subsequent order under the section; and the Secretary of State shall revoke any such order if—

- (a) in the case of an order under section 1 designating a restricted area, he is of opinion that there is not, or is no longer, any wreck in the area which requires protection under this Act;

(b) in the case of an order under section 2 designating a prohibited area, he is satisfied that the vessel is no longer in a condition which makes it a potential danger to life or property.

(3) Nothing is to be regarded as constituting an offence under this Act where it is done by a person—

(a) in the course of any action taken by him for the sole purpose of dealing with an emergency of any description; or

(b) in exercising, or seeing to the exercise of, functions conferred by or under an enactment (local or other) on him or a body for which he acts; or

(c) out of necessity due to stress of weather or navigational hazards.

(4) A person guilty of an offence under section 1 or section 2 above shall be liable on summary conviction to a fine of not more than £400, or on conviction on indictment to a fine; and proceedings for such an offence may be taken, and the offence may for all incidental purposes be treated as having been committed, at any place in the United Kingdom where he is for the time being.

Citation.

4. This Act may be cited as the Protection of Wrecks Act 1973.

Loi n°89-21 du 22 février 1989, relative aux épaves maritimes ;

**Loi n°94-35 du 24 février 1994, relative au code du
patrimoine archéologique, historique et
des arts traditionnels (extrait).**

(Tunisie / Tunisia)

**Loi n° 89-21 du 22 février 1989
relative aux épaves maritimes**

Au nom du Peuple,

La chambre des députés ayant adopté,

Le Président de la République promulgue la loi dont la teneur suit :

Article premier. - Sont désignés sous le nom d'épaves maritimes tous les objets sans maîtrise y compris les objets de caractère archéologique ou historique qui sont :

- échoués ou rejetés par la mer sur les grèves et les rivages ;
- tirés du fond de la mer dans les eaux intérieures, la mer territoriale ou la zone contiguë en dehors de l'industrie de la pêche ;
- trouvés flottants dans les eaux intérieures ou la mer territoriale ;
- trouvés flottants dans la zone économique exclusive ou tirés de cette même zone mais au-delà de la zone contiguë et ramenés à la mer territoriale, aux eaux intérieures ou aux rivages.

Sont notamment classés comme épaves maritimes :

- 1) Les navires quel que soit leur état de navigabilité, les engins flottants, les plates-formes de forage, qui sont abandonnés par leur équipage et qui ne sont ni gardés ni surveillés ainsi que leurs cargaisons et leurs approvisionnements ;
- 2) Les aéronefs abandonnés en état d'innavigabilité ;
- 3) Les embarcations en dérive, machines, agrès, ancres, chaînes, engins de pêche abandonnés et débris des navires et des aéronefs ;
- 4) Les marchandises jetées ou tombées à la mer.

Ne sont pas considérés au sens de la présente loi comme épaves maritimes les produits de la pêche extraits ou capturés, les matériaux et les minéraux puisés et extrait par l'industrie.

Art.2. - Toute personne qui découvre des épaves maritimes est tenue dans la mesure du possible de les mettre en sûreté et notamment de les placer hors d'atteinte de la mer. Elle doit immédiatement et au plus tard dans les 48 heures de la découvertes ou de l'arrivée au premier port si les épaves ont été trouvés en mer, en faire la remise ou la déclaration aux autorités compétentes de la Marine Marchande implantées dans la région ou à défaut à toute autorité administrative locale, à

charge pour celle-ci d'informer, dans les plus bref délais, le responsable local ou régional relevant de la Marine Marchande.

Cette déclaration peut être faite par écrit ou verbalement, elle est consignée dans un registre côté et paraphé tenu par l'autorité compétente de la Marine Marchande.

L'autorité administrative locale à laquelle la remise a été faite par le sauveteur des épaves doit délivrer à ce dernier un récépissé détaillé des épaves reçues.

Les autorités compétentes de la Marine Marchande doivent dans tous les cas aviser la direction générale des douanes de la découverte des épaves, de leur consistance, de leur emplacement ou du lieu où elles sont déposées ainsi que du numéro de leur inscription au registre précité.

Art.3.- Les autorités compétentes de la Marine Marchande ou à défaut la capitainerie du port en charge de la sauvegarde et de la conservation des épaves maritimes dans les ports et rades. En dehors des ports et rades, la sauvegarde des épaves en mer est dévolue aux autorités chargées de la surveillance côtière.

Les épaves maritimes demeurent aux risques des propriétaires, leur détérioration, altération ou déperdition, ne peut donner lieu à dommage et intérêts, quelle qu'en soit la cause.

Art.4.- Il ne peut être procédé, durant les opérations de sauvetage des épaves maritimes ou de la suppression des dangers qu'elles présentent :

- à l'occasion temporaire et la traversée des propriétés privées avoisinants ;
- à la réquisition des personnes et des biens.

Art.5.- La découverte, la mise en vente ou la concession des épaves maritimes sont publiées au Journal Officielle de la République tunisienne.

L'avis de publication doit permettre la reconnaissance et l'identification des épaves maritimes ainsi que le jour, le lieu et les circonstances de leur découverte.

Art.6.- Les propriétaires des épaves maritimes ou leurs représentants sont tenus en vue de leur sauvegarde ou de la suppression des dangers qu'elles représentent de procéder aux opérations de récupération, d'enlèvement ou de destruction de ces épaves.

Les destructions des épaves maritimes est soumise à l'autorisation préalable des autorités compétentes de la Marine Marchande.

Le propriétaire des épaves maritimes assume la pleine responsabilité de tout dommage causé lors des opérations précitées.

Lorsque les épaves maritimes présentent un danger grave et imminent, le propriétaire est tenu de procéder, sans délai, aux opérations prévues au premier alinéa du présent article. En cas de carence, et après mise en demeure, les autorités compétentes de la Marine Marchande accomplissent d'office ces opérations aux frais et risques du propriétaire.

Au cas où, le propriétaire de l'épave maritime est inconnu, les autorités compétentes de la Marine Marchande peuvent entreprendre des opérations sans délai.

Lorsque l'existence des épaves maritimes remonte à plus de cinq ans, à compter de la date de la publication de leur découverte au *Journal Officielle de la République tunisienne*, leur propriétaire, ayants-droit ou ayants-cause sont déchus de leurs droits sur ces épaves maritimes.

Art.7.- Les épaves maritimes peuvent être réclamée par leur propriétaire ou ayants-droit auprès des autorités compétentes de la Marine Marchande sous réserve de présenter les pièces justificatives probantes.

Elles ne peuvent être restituées qu'après remboursement notamment des frais engagés pour leur conservation et la publication de leur découverte.

Ce remboursement doit être effectué dans un délai de trois mois à compter de la date de l'autorisation de restitution ; passé ce délai les épaves maritimes seront en vente ou concédées dans les conditions prévues par la présente loi et ses textes d'application.

Faute par le propriétaire de retirer les épaves maritimes dans un délai de trois mois à compter de la date de remboursement des frais précités, les autorités compétentes de la Marine Marchande peuvent également procéder à leur vente ou concession.

Art.8.- A l'exclusion des objets de caractère archéologiques ou historique, les épaves maritimes peuvent être vendues au profit de l'Etat quand le propriétaire ne les a pas revendiquées dans un délai de quatre mois à compter de la date de la notification des leur récupération, adressée à lui ou à son représentant et le cas échéant au consul de l'Etat concerné. Lorsque le propriétaire est inconnu, cette vente peut avoir lieu également dans un délai de 4 mois à partir de la date de publication de l'avis de vente au *Journal Officielle de la République tunisienne*.

Art.9.- Dans le cas où les épaves maritimes sont constituées par une navire et sa cargaison, la d'échéance et la vente

prévues par la présente loi aux articles précédents s'étendant à l'ensemble de ces épaves maritimes sans préjudices du recours du propriétaire de cargaison contre le transporteur et le cas échéant contre l'affrêteur.

Lorsque les épaves maritimes se présentent sous forme de conteneurs, les opérations prévues par les dispositions de l'article 6 de la présente loi sont effectuées sous le contrôle des autorités compétentes de la Marine Marchande.

Art.10.- La créance de tout sauveteur des épaves maritimes y compris celle de l'administration, est garantie par un privilège sur la valeur des épaves maritimes de même rang que le privilège de frais engagés pour la conservation de la chose prévue par la législation en vigueur.

Art.11.- Le sauveteur des épaves maritimes a au sens de l'article 2 de la présente loi, droit à une prime d'un montant maximum égal au tiers de la valeur des objets trouvés à l'exception des épaves à caractère archéologique ou historique qui demeurent régies par les dispositions de la loi n°86-35 du 9 mai 1986 relative à la protection des biens archéologiques, des monuments historiques et des sites naturels et urbains.

Art.12.- Par dérogation aux dispositions de l'article 11 de la présente loi, le sauveteur des épaves maritimes appartenant à l'Etat, aux collectivités et aux entreprises publiques n'a droit qu'à une rémunération forfaitaire déterminée par les autorités compétentes de la Marine Marchande.

Art.13.- Il est opéré, sur le prix de la vente des épaves maritimes la déduction des droits et taxes dûs, de la prime due au sauveteur, des frais d'extraction de récupération ou de destruction en particulier ceux qui ont été engagés par les autorités administratives, des frais de gestion et de vente ainsi que la réparation de tout dommage causé aux tiers.

Le produit net de la vente doit être versé à la caisse de dépôt et de consignation. Il ne peut être réclamé par le propriétaire des épaves maritimes non déchu de ses droits ou par des ayants-droits.

Dans le cas de déchéance, le dit produit net de la vente est versé immédiatement au trésor.

Art.14.- Lorsque les épaves maritimes ne sont pas vendues, les autorités compétentes de la Marine Marchande peuvent les concéder après paiement des droits et taxes dûs moyennant contrat à condition que les propriétaires ait renoncé à ses droits ou en ait été déchu. Le sauveteur des épaves maritimes bénéficie de la priorité pour obtenir cette concession.

Le concessionnaire est tenu de respecter les clauses d'un cahier des charges telles déterminées par les autorités compétentes de la Marine Marchande.

Art.15.- Il n'est en rien dérogé au régime douanier en ce qui concerne les épaves maritimes.

Art.16.- Toutes personnes qui fait échouer délibérément un navire dans les espaces maritimes relevant de la souveraineté ou de la juridiction tunisienne et s'abstient de procéder à sa récupération dans des délais raisonnables est puni d'un emprisonnement pouvant atteindre six mois et d'une amende de 1.000 à 10.000 dinars sans préjudice des frais engagés par l'administration agissant d'office.

Art.17.- Quiconque omet de faire la déclaration prévue par l'article 2 de la présente loi perd ses droits tels que prévus aux articles 11 et 14 de la présente loi et sera puni d'une amende de 20 à 50 dinars.

Toute appropriation et recel des épaves maritimes est passible des peines prévues pour vol et recel par le code pénal. En outre, la confiscation est prononcée au profit des autorités archéologiques si les épaves maritimes objet du vol et du recel sont des objets de caractère archéologique ou historique.

Art.18.- Les infractions aux dispositions de l'article 4 de la présente loi sont passibles d'une amende de 50 à 100 dinars.

En cas de récidive, une peine d'emprisonnement d'un à 15 jours est en outre prononcée.

Art.19.- Sont chargés de rechercher et de constater, par procès verbal des infractions à la présente loi :

- Les officiers de la police judiciaire visée aux paragraphes 1, 2, 3, et 4 de l'article 10 du code de procédure pénale.
- les agents visés aux paragraphes 1 : b, c, d, et f et 2 : a, b, c de l'article 69 du code de la police administrative et de la navigation maritime.
- les agents régis par la loi sus-visée n° 86-35 du 9 mai 1986.

Art.20.- Le procès-verbal dressé pour toute infraction à la présente loi est transmis aux autorités compétentes de la Marine Marchande qui peuvent prendre les mesures administratives jugées utiles, et transmettre le cas échéant l'affaire à la juridiction compétente.

En outre une copie du procès-verbal est transmise à la direction générale des douanes.

Art.21.- Les dispositions d'application de la présente loi seront fixées par décret.

Art.22.- Sont abrogées toute disposition antérieures contraires à la présente loi et notamment le décret du 3 mai 1904 relatifs aux épaves maritimes.

La présente loi sera publiée au *Journal Officielle de la République tunisienne* et exécutée comme loi de l'Etat.

Tunis, le 22 février 1989.

ZINE EL ABIDINE BEN ALI

Loi n°94-35 du 24 février 1994, relative au code du
patrimoine archéologique, historique et
des arts traditionnels (extrait)

Titre VI. Fouilles et découvertes

Chapitre I
fouilles et découvertes terrestres
[articles 60 à 72...]

Chapitre II
Les découvertes maritimes

- article 73. les biens archéologiques meubles ou immeubles découverts dans les eaux intérieures ou les eaux territoriales sont considérés propriété de l'Etat.

- article 74. Outre les dispositions de la loi n°89-21 du Février 1989 relative aux épaves maritimes, tout auteur d'une découverte de biens archéologiques maritimes est tenu de les laisser en place, de ne leur causer aucun dommage, de n'y apporter aucune altération et d'en déclarer immédiatement l'existence aux services compétents du ministère chargé du patrimoine ou aux autorités territoriales les plus proches afin qu'elles en informent à leur tour les services concernés et ce dans un délai ne dépassant pas 5 jours à compter de la date de leur découverte.

Quiconque aura de manière fortuite prélevé de la mer un bien archéologique est tenu d'en informer dans les mêmes délais les autorités portuaires les plus proches et de le leur remettre afin qu'à leur tour elles le délivrent aux services compétents du ministère chargé du patrimoine. A cet effet il est dressé un procès verbal dont une copie sera remise à l'auteur de la découverte.

L'auteur d'une découverte a droit à une récompense fixée conformément aux dispositions prévues à l'alinéa 2 de l'article 60 du présent code.

- article 75. Toute investigation ayant pour but la découverte de biens archéologiques et historiques maritimes est interdite sauf autorisation délivrée par le ministre chargé du patrimoine.

L'autorisation fixera les conditions d'exécution des opérations de recherche conformément aux dispositions du présent code.

- Article 76. En cas de danger menaçant les biens archéologiques maritimes, les services compétents peuvent prendre toutes les mesures préventives et urgentes qu'ils jugent nécessaires.

[Fin des extraits
du texte de loi]

II- Accords/Agreements

**Agreement between the Netherlands and Australia
Concerning Old Dutch Shipwrecks**

1972

The text of the Agreement will be found in the schedule to the Historic Shipwrecks Act (pages 24-25). The following text explains how the Agreement is implemented.

**ARRANGEMENT SETTING OUT THE GUIDING PRINCIPLES
FOR THE COMMITTEE TO DETERMINE THE DISPOSITION
OF MATERIAL FROM THE SHIPWRECKS
OF DUTCH EAST INDIA COMPANY VESSELS
OFF THE COAST OF WESTERN AUSTRALIA**

THE COMMITTEE

Responsibility

The Committee's responsibility will embrace all material recovered from the wrecks—whether recovered before or after the coming into operation of the Western Australian Museum Act in December 1964 which contains provisions for vesting in the Museum title to the wrecks of the *Batavia*, the *Gilt Dragon*, the *Zuytdorp* and *Zeewyk*.

Conduct of Business

The Committee is small enough to meet if occasion demands but most of its work could be done by correspondence.

General Principles

Representative collections

The cost of recovery (including treatment) is likely to exceed by far the intrinsic or antiquarian sale-value of material recovered. The Government of Western Australia is spending considerable sums on this work (\$92,000 in the last financial year) and estimates that the total cost will be \$2,000,000 or more. Although a division would not be warranted by consideration of cash value alone, the historic, educational, scientific and international considerations are such as to make the deposition of representative collections in the museums of the Netherlands and Australia most desirable. The remainder of the material would be held in the Western Australian Museum.

Considerations governing the partition of archaeological collections

In modern archaeological practice sites are no longer regarded merely as a source of important individual items, but rather as a body of material whose collective value far outweighs the importance of the individual pieces and in which the relationship of the individual objects within the sample are a major part of its historical value. Accordingly, the sharing of material from an archaeological site is best regarded as the accommodation in several localities of a corporate entity rather than its division into parts.

If the decision is made that the contents of an archaeological site are to be apportioned between two or more institutions, the first principle to be observed is that the total assemblage should be capable of reassembly to allow further statistical and scholarly analysis. It follows, therefore, that unnecessary splitting of a sample of closely similar objects capable of statistical

treatment should be avoided and, where samples are accommodated in more than one institution, those institutions should contract not to disperse them further and, moreover, to agree to allow samples to be brought together for analysis and study as required. The second principle is that where unique or rare objects, themselves, form a meaningful assemblage within the whole, this assemblage should not be split or, if split, perfect replicas be made to complete the assemblage. As in the case of the division of statistical samples an agreement should be made between the recipients to reconstitute the original assemblage if it is required for scholarly research.

Treatment of material recovered

The contents of the ancient shipwrecks of the Dutch East India Company include abundant statistical samples such as coin, bricks, objects of pottery, elephant tusks, and so on. There are also many articles which are less abundant but which are duplicated many times over. Many of these are ship fittings such as cannon, anchors, cannon balls, etc. There are also other articles which are relatively rare, or even unique, in the deposits (e.g. articles possessed by crew members, or passengers, such as barber's instruments, navigational instruments, ornaments, etc.). Most articles are fragmentary and in need of immediate chemical conservation and stabilization in the laboratory as soon as they are recovered. This treatment cannot await distribution.

Operating Principles

Code of Operation

The Committee will operate by reviewing proposals for distribution made, from time to time, by the Director of the Western Australian Museum; it could decide that the proposed samples be increased or decreased in content in the light of the total material collected and other factors.

General aims

In its deliberations the Committee will have, as its general aim, the purpose of ensuring that representative series of statistical samples and sufficient examples of the rarer objects will be deposited in the museums of the Netherlands and Australia to convey the variety and contents of each wreck to both the public and to scholars while, at the same time, ensuring that major projects of scholarly research will not be impeded by over fragmentation of the collection. Dispersal in this way, among separate repositories will also help to ensure the permanent safety of representative material in the event of the destruction of any one repository.

Statistical samples

Most material so far recovered from the vessels are samples capable of statistical treatment.

A representative collection of the contents of each statistical sample should be made available to a museum of the Netherlands Government and a museum of the Commonwealth Government. Thus, in the case of coin, for example, both the Netherlands and Commonwealth Governments would receive as complete a series as possible representing the mintings and values contained within each of the wrecks. These will provide their museums with ample material of this class of objects for display purposes and sufficient to enable a scholar to make the initial qualitative studies which would possibly lead him to a more detailed statistical treatment of the bulk sample retained in the Western Australian Museum.

Less common or rare objects

In order to ensure that both the Netherlands and Commonwealth Governments acquire, in due course, representative collections of the less common and even unique objects, the following procedure will be adopted. Since the relationships of such objects to the whole sample cannot be known until excavation is complete, the distribution of specimens of this nature cannot be considered during the continuing process of recovery. However, at reasonable intervals (of say two or three years) it should be possible to assemble a representative sample with fair certainty that all duplicates of any rare object present in a particular excavation should have been recovered and their nature taken into consideration during the deliberations of the Committee.

THE HAGUE,
6th November, 1972

**Agreement between the Republic of Estonia,
the Republic of Finland and
the Kingdom of Sweden
regarding the M /S ESTONIA**

1996

**AGREEMENT BETWEEN THE REPUBLIC OF ESTONIA,
THE REPUBLIC OF FINLAND AND THE KINGDOM OF SWEDEN REGARDING
THE *M/S ESTONIA***

THE REPUBLIC OF ESTONIA , THE REPUBLIC OF FINLAND AND THE KINGDOM OF SWEDEN REGARDING THE *M/S ESTONIA*, hereinafter referred to as the Contracting Parties,

RECALLING the disaster on the night of 28 September 1994 when the *M/S ESTONIA* sank in the Baltic Sea on her way from Tallinn to Stockholm,

WISHING TO protect the *M/S ESTONIA*, as a final place of rest for victims of the disaster, from any disturbing activities,

URGING the public and all other States to afford appropriate respect to the site of the *M/S ESTONIA* for all time,

HAVE AGREED AS FOLLOWS:

ARTICLE 1

The wreck of the *M/S ESTONIA* and the surrounding area, as defined in Article 2, shall be regarded as a final place of rest for victims of the disaster, and as such shall be afforded appropriate respect.

ARTICLE 2

The area constituting the final place of rest shall for the purpose of this Agreement be delimited by straight lines from point No. 1 through points No. 2, 3, 4 and back to point No. 1 :

Point No. 1 (Upper Left) 59°23, 500'N, 21°40, 000'E

Point No. 2 (Upper Right) 59°23, 500'N, 21°42, 000'E

Point No. 3 (Lower Right) 59°22, 500'N, 21°42, 000'E

Point No. 4 (Lower Left) 59°22, 500'N, 21°40, 000'E

all positions defined by geographical coordinates in World Geodetic System 1984 (WGS 84).

ARTICLE 3

The Contracting Parties hereby agree that the *M/S ESTONIA* shall not be raised.

ARTICLE 4

1. The Contracting Parties undertake to institute legislation, in accordance with their national procedures, aiming at the criminalization of any activities disturbing the peace of the final place of rest, in particular any diving or other activities with the purpose of recovering victims or property from the wreck or the sea-bed.
2. The Contracting Parties undertake to make it possible to punish the commission of an offence, established in accordance with paragraph 1 of this Article, by imprisonment.
3. Notwithstanding the above provisions, a Contracting Party may take measures to cover the wreck or to prevent pollution of the marine environment from the wreck.

ARTICLE 5

Each Contracting Party undertakes to submit information to another Contracting Party on pending or on-going activities having been criminalized in conformity with Article 4 and involving a vessel flying the flag of that Contracting Party.

ARTICLE 6

This Agreement shall enter into force thirty days after the date when the Contracting Parties have notified the other Contracting Parties in writing that the necessary constitutional procedure for its entry into force have been completed.

Done at Tallinn on 23 February 1995 in three originals, each in the English language.

**PROTOCOL ADDITIONAL TO THE AGREEMENT BETWEEN THE
THE REPUBLIC OF ESTONIA, THE REPUBLIC OF FINLAND AND
THE KINGDOM OF SWEDEN REGARDING THE *M/S ESTONIA***

THE GOVERNMENT OF THE KINGDOM OF SWEDEN , THE GOVERNMENT OF THE
REPUBLIC OF ESTONIA AND THE GOVERNMENT OF THE REPUBLIC OF FINLAND

BEEING PARTIES to the Agreement on the protection of the wreck of the *M/S ESTONIA*,
signed at Tallinn on 23 February 1995,

WISHING to further strengthen the protection of the wreck, as a final place of rest for the
victims of the disaster, from any disturbing activities,

HAVE AGREED AS FOLLOWS :

ARTICLE 1

All States, wishing to do so, may accede to the Agreement between the Republic of Estonia,
the Republic of Finland and the Kingdom of Sweden on the protection of the wreck of *the M/S
ESTONIA*, signed at Tallinn on 23 February 1995.

ARTICLE 2

Each State acceding to the Agreement shall deposit its instrument of accession with the
Government of Sweden.

ARTICLE 3

The Agreement shall enter into force for a State acceding to the Agreement on the date of the
deposition the instrument of accession with the depositary.

Done at Stockholm on 23 April 1996

III- Les fouilles / Excavations :
points de vue / *points of view*

The Nanking Cargo
by M. Hatcher and A. Thorncroft

/

The Second Destruction of the *Geldermalsen*
Review by George L. Miller

These two articles concern the excavation of the *Geldermalsen*, a ship of the Dutch East India Company which sank in 1752.

The first text is a description of the salvage operations on the *Geldermalse*. Approximately 4,050 words (pp 16-17, 26, 30, 38, 43, 46, 49, 50, 53-56, 75-76, 79-80, 86, 129, 140, 161-164, 172) from *THE NANKING CARGO*: Michael Hatcher with Max de Rham, written by Anthony Thorncroft (Hamish Hamilton, 1987) copyright © 1987 by Michael Hatcher, Max de Rham, and Anthony Thorncroft

The second is by an archaeologist, reflecting on the excavation and sale of the contents of the wreck. Reprinted from *The American Neptune*, Vol. XLVII 1987, pp.275-281 by kind permission of The American Neptune Peabody Essex Museum, Salem, Massachusetts and the reviewer.

The Nanking Cargo

by M. Hatcher and A. Thorncroft

When Hatch had led his flotilla out of Singapore harbour in early March he had high hopes of the "Big One". He had been salvaging on the Admiral Stellingwerf Reef for years, mainly bringing up tin. Then he had found the junk, which had yielded Chinese seventeenth-century Ming porcelain which sold at Christie's Amsterdam auction house for almost two million pounds. This time, thanks to the decision to join him of Max de Rham, with his years of experience – as well as his sophisticated detection equipment – Hatch was confident that they would sweep the Reef, and the adjacent ocean, clean.

After almost twenty hours' sailing the ships reached the Reef. It is in international waters but irritatingly close to Bintan, an island that is now part of Indonesia. It gets its name from a Dutch ship which had hit the Reef in the nineteenth century, but its roll call of victims stretches up to modern times: in the early 1970's a two hundred thousand ton bulk carrier loaded with iron ore had come to grief there. The dangerous section is not much more than two hundred yards long where, at both ends, the Reef rises almost to the surface. You can stand on the two pinnacles, gazing out to sea as far as your eyes can travel before a wave knocks you off. It is these peaks, some five feet below the surface, which have claimed the lives of so many vessels and so many men.

For most of the next six weeks, until the weather started to close in, diving conditions were excellent, and the wreck was clearly visible to the divers. Very little of the ship remained, only about three metres of the hull, but it could be measured easily and came out at thirty-six metres long and around ten metres wide. It was a big vessel, and the size of the anchor and of the cannon – found at all angles, some lying on the sand, some sticking upright – suggested that it was an important one. Quickly the *Costay Nile* was brought to cover the spot, and a line tied down to the anchor. Hatch gave the crew a lecture on security: there were to be no letters home. Already his operations on the Reef had attracted gangs of Australian rivals.

Although archaeological data was not uppermost in Hatch's mind, he set about the investigation of the vessel with some method. First, it was delineated and measured, a trench five feet deep being dug round it with the help of the airlift, a machine like a vast vacuum cleaner which sucked out the sand and the accumulated debris of the sea bed.

The airlift was not without its problems. It gave one diver a nasty fright when it became clogged with matter, which cut off the gushing water which acts as the driving force, filling the vacuum with air and forcing the airlift to the surface with the diver holding on for dear life. But in the main the airlift and the stinger were the most useful tools for the underwater labourers. Within a few days what was left of the wreck was revealed. Much of the wood which had not disappeared completely was riddled with the calcium left by worms, and it was impossible to tell the bow from the stern. But, in the first stroke of luck to help Hatch, the vessel had sunk upright. It was a perfect wreck to excavate.

With the ship delineated, the next task was to provide some markers for the divers. Conditions on the sea bed can vary greatly, not only in terms of visibility but also in the actual geography of the place. A change in the currents can transform the lie of the land, and it could take many minutes of precious time for a diver to re-locate himself on each descent. The cannons, however, proved useful markers and they were each individually tagged. They were the essential signposts for the salvage. But before anything could be recovered another trench had to be dug, this time round the hull, the most likely spot for profitable finds.

As the divers, wearing full gear in these cool and dangerous depths, close to the limit of practical easy salvaging, set about their preparations, they could not avoid seeing that they had had struck it rich. There were plates, bowls, tea pots, mugs in profusion, all packed tight with sand and debris. Hatch quickly realized that he needed more equipment, more divers, another barge. He returned to Singapore, taking with him some of the porcelain. James Spencer, a Christie's Chinese ceramics expert, was summoned to identify the finds. He immediately recognized them as eighteenth-century porcelain.

The pairs dived twice a day, the first shift starting at seven in the morning and operations ending at six-thirty, just before sun-set. The first dive would last fifty minutes, the second less than forty. After every dive it was straight into the decompression chamber where a tedious half hour was spent adjusting to the differences in pressure under water and on the surface. On one or two occasions divers showed signs of getting the bends, the feared cramps caused by the nitrogen absorbed while under water being released from the body too rapidly.

From the start Hatch and his team were amazed at the enormity of their find. The first loose pieces of porcelain that they discovered came from chests that had been smashed open by the falling cannon. But most of the chests were firmly intact. Indeed they had to be prised open. The first revealed tea bowls and saucers packed very tightly in some brown glutinous substance. It did not take long for the divers to realize that this was, appropriately enough, tea. As they later learned, tea was the most valuable commodity, and the eighteenth-century merchants had thrown in the porcelain, not as ballast exactly, but very much as run-of-the-mill back-up.

The chests were packed tightly up against each other in what turned out to be the bow of the wreck. Crate after crate contained tea bowls and saucers. In fact the divers became fed up with unloading such a monotonous cargo. But their spirits rose when they discovered a chest full of beer mugs: here was something they could identify with. Then they realized that packed inside the mugs were yet more bowls and saucers.

For the divers much of the salvaging was arduous and boring. There was the cumbersome and lengthy business of dressing each other in full professional divers' gear. Then each would step on to a stage which would be slowly lowered into the water. Within a minute or so they would be jumping out on to their temporary work surface. Some days they toiled under the glare of arc lights; occasionally the weather was so bad they could not work at all.

Their main tool was the airlift, which blew away the sand and coral and marine detritus and exposed the crates and the loose porcelain. One diver would operate this while the other would carry the porcelain by the armful to the lift, a one-metre-square steel box, which was lowered after the divers and which held six plastic rubbish baskets, with drainage holes. The finds were placed in these buckets and when they were full the signal was given to the surface to haul up the box. To try and liven up this exhausting work the divers competed to see which pair could pack up the most porcelain in one fifty-minute stint. The record was twelve baskets full of dinner plates, seven hundred pieces in all.

There was no break during the long days. As soon as one pair of divers surfaced another pair took their place down under. The quantity of porcelain to salvage was outside anyone's imagination. It was far and away the biggest find of its kind, well exceeding the amount of eighteenth-century Chinese porcelain that would be offered to the market through the world's auction houses over many years.

The miracle was that the cargo had remained virtually intact. This was thanks to the tea as much as to the slow sinking of the vessel. The tea held the porcelain firm in its glutinous grip. But if it ensured its survival, it also made conditions very hard for the divers. It rose up from the chests clouding their visibility; its thick clogging smell made breathing difficult. It was everywhere, a dark, pungent slime. It was like searching in a tea pot, especially when the weather was stormy and currents whirled around the divers.

But at least no time had to be wasted on the sea bed searching for the porcelain: it stretched all around them. Sometimes, when the airlift had pumped away all the debris, they discovered a chest that had been hit by a falling cannon, breaking every single plate or bowl with an identical crack. All the shards were ignored as were most slightly broken objects. There were more than enough in perfect condition. So up they came, the tea bowls and saucers, the soup plates and butter tubs, the jugs and tureens, virtually all made of blue and white porcelain and covered with the familiar Chinese scenes, of fishermen and pagodas, pine trees and peonies. It became tedious as well as exhausting.

After the hull had yielded up its cargo of mainly tea bowls and saucers another trench was dug down from the stern to the centre of the wreck. The divers were anxious to get to the cabin area. They were rewarded with the discovery of much better quality porcelain, the private goods of the officers, which in the eighteenth century could be expected to fetch high prices through individual sales, as well as some presents for loved ones. Here were found figures of Immortals and ladies, an intriguing seated boy and a glazed parrot, and much more.

By this time they were working hurriedly, hardly examining the chocolate cups and queer-shaped bowls which were later to divide the experts – were they chamber pots for children or vomit cups? As the weather deteriorated so did the working conditions. Sometimes the divers could hardly move for the discarded material which was crowding the space and shifting with the currents. As the porcelain was loaded into the buckets on the box, tens, and tens, and tens, of thousands of pieces, the divers began to think they had done enough. There were also disappointments: a crate could be laboriously opened to be full only of congealed tea.

By June 22, Hatch, too, was talking about leaving. There were more and more days on which diving was impossible and the wreck seemed to have yielded up all its excessive bounty, once the divers had turned over the cabin area. Early on, they had learned to be very careful as they washed the porcelain on the barge. Out of mugs and jars could tumble jewels and small statues and glasses. It was agreed that nothing should be held back: everything was to be auctioned. If a diver was fond of a particular object he had found, he could bid for it later. Only the cracked pieces could be retained. In the event most of the divers now have small, but select, collections from the wreck.

While Hatch arranged the departure from the site, it was agreed that there should be a meticulous exploration of the area outside the hull. A trench was dug on the off-chance that objects might have fallen over the sides of the ship during its death throes. Soon the collapsed cookhouse, the brick wall which Hatch and Max had found on that first exploratory dive over a month previously, was reached.

Then the magic words which were to transform Hatch's expedition into the stuff of dreams – "Gold. I found gold."

Dorian had stuffed as many of the bars as he could find into his diving suit. As he unzipped it, they fell out before his excited mates, seventeen small ingots in all.

The gold was the perfect icing on the cake. It proved to be Chinese gold of an hitherto unknown shape, and individual ingots were eventually to sell for over £50,000, well in excess of their bullion value of nearer £2,000. The romance of its discovery, and its unique shape, made it desirable to collectors.

While marketing of the porcelain would be enough to make Hatch his second – or, with the money he had got from salvaging tin, his third – fortune, coming across the gold would ensure that the discovery of the wreck would fire the imagination of the man in the street rather than just the collector of Chinese works of art. It would make Hatch famous.

The next six days were an anticlimax. Little of any value was found and diving conditions were becoming treacherous. But the gold kept the spirits high. It also seemed to make an identification of the wreck that much easier. There was no conclusive evidence yet and Hatch was still maintaining absolute secrecy about his find, but already most of the pieces in the jigsaw had fitted into place.

It had been a very successful expedition which would pay for its cost many times over.

Soon after his fleet arrived back in Singapore, porcelain bowls and dishes, obviously from the wreck, started to be offered at a local antique shop: over a hundred items were found to be missing and Hatch points the finger at his casual labour.

This was not quite the end of the expedition to hunt the Admiral Stellingwerf Reef. While a container ship steamed slowly to Europe with its cargo of 1,400 large cartons packed with porcelain from the wreck, which would take six people more than a month to unpack, clean and store, Dr Jorg, a historian at Groningen University, came up with the original inventory of a Dutch East Indiaman. It was called the *Geldermalsen*. But if it was this ship which had sunk in the area there should have been more gold on the sea bed, and, in all, 240,000 pieces of porcelain, as against the 170,000 that Hatch's team had recovered.

More to the point, if the wreck could be conclusively proved to be the *Geldermalsen*, the planned sale would go that much better: it really would be the identifiable past come to life again. Christie's, the auctioneers chosen by Hatch to organize the sale, were becoming racked with doubt as to whether there could possibly be enough buyers for such a vast, such an unprecedented quantity of Chinese porcelain. It had already given the find a name, the "Nanking Cargo," an expert's in-joke: in the eighteenth century such a cargo of porcelain would be advertized in European cities as coming from Nanking, even though specialists now know it was made further inland in China. Also Nanking had a reassuring oriental sound without being too specific about the actual origin of the porcelain.

The junk carrying the Ming was discovered in a hundred and thirty feet of water on the Admiral Stellingwerf Reef about a mile from where, a year later, Hatch would make his second, financially more momentous, find. One of the pieces of Mike's porcelain, from the twenty-five thousand or so pieces recovered, carried the date 1643, which confirms the views of the experts that the junk must have sunk around 1645. It was almost certainly a porcelain junk, carrying its merchandise between the Chinese communities of South-East Asia, perhaps from China to Batavia in Java.

Experts are confident that the ship was Asian rather than European, although it had international connections and - was, perhaps, even carrying European passengers - a couple of muskets were found, but in too derelict a condition to sell. Among other items recovered with the porcelain were a flat iron, pill boxes, a censer, an ink stone and a gong - all resolutely Chinese - but two pieces of pewter made in Holland - a salt and a jug.

The sales of the Ming split both the commercial and the academic worlds of Chinese works of art. Some of the dealers were suspicious about the lack of information about the exact location of the wreck and how the cargo had been recovered. They were also critical about Christie's original hesitancy about the true size and importance of the find (although the salesroom was kept in the dark, too, about the quantity) and were not impressed about the quality of the items: many of the dishes were thick, and had been warped in their original firing.

On the other hand they were out-gunned by the small group of dealers who appreciated the opportunity of acquiring vast quantities of blue and white at comparatively low prices. It enabled modern interior decorators to plan rooms in the grand tradition of masses and masses of blue and white porcelain, providing a magnificent backdrop. It would be possible once again to create the porcelain interiors that graced Dutch royal palaces and Hampton Court in London in the late seventeenth century.

Christie's heaved a huge sigh of relief after the final Ming sale. It had got rid of a huge quantity of mainly mediocre seventeenth-century blue and white, often with cracks and unappealing matt surface. It had done so by playing up the dramatic origin of the porcelain, and creating a provenance.

The Nanking cargo would not have been possible without the finding of the junk. Hatch used the money he made to reward his crew and to finance the larger expedition in 1985. Divers pressed him for jobs; Max de Rham was sufficiently convinced to throw in his lot with Hatch and to lend his surveying skills to the venture. Hatch took on board the lesson that buyers need to be convinced of the genuine provenance of finds and he made certain that a member of the crew in 1985 was the photographer John Bremmer, who was most fortuitously on hand to film the actual discovery of the *Geldermalsen*. There could be no doubts about the genuineness of this salvage and Bremmer's video did much to sell the story of the Nanking cargo to the world.

Hatch was still reluctant to give too much away about the actual site he was working. To his way of thinking, anyone with any intelligence should be able to work it out for themselves: it was hardly a tucked-away corner.

There had been some low-key murmurings in academic circles that the junk should have been more slowly and systematically excavated, with as much attention paid to its archaeological significance as to the value of its cargo at auction. But while one lesson was learned from the junk (the need for discoveries to be captured on film to re-assure buyers) another (that attention should be paid to the historical importance of any find) was ignored. Given the short salvaging season in the South China Sea, Hatch believes that the painstaking scholarly approach is impracticable. It forces costs up too high and encourages human predators.

By matching the *Geldermalsen* manifest with what Hatcher was bringing up from the Reef, Dr Jorg was able to advise on the salvaging. It was at his urging that a second, speedy, dive was undertaken to look for the ship's bell and the bronze cannon. The final pieces of the jigsaw had been found. The very fact that the porcelain lacked items listed on the manifest while including other pieces has told historians much of the day-to-day trading problems, over long distances and with unreliable communications, in the mid-eighteenth century.

Dr Jorg cannot hide his irritation that a more meticulous archaeological search was not made. He was grateful for the discovery of a candlestick and one is listed among the cabin goods. But was it a candlestick used by Captain Morel and Richard Bagge as they mulled over their evening brandy? If its exact location on the sea bed had been passed on more information about social life on board a merchantman would have been collated.

If the actual trawl for crews' possessions has proved disappointing – the odd wine jug, an unusual porcelain figure – the recovery of the bronze cannons and the ship's bell, the latter generously given by Hatcher and de Rham to a Dutch museum, has produced some solid objects for research. It was the finding of the gold which created the greatest sensation, and sparked off the publicity bonanza which was so vital to the success of the sale. Hatcher was very lucky here. Dutch East Indiamen carried gold on the return to Europe for just twenty-five years after 1735 and only two "lost" ships had gold on board – the *Enkhuizen* and the *Geldermalsen*. There should have been 147 ingots in all. Perhaps some are still at the bottom of the ocean; perhaps some were concealed by the survivors. Even so the 126 pieces of finest Chinese gold, of a type never seen in modern times, provided the romantic basis on which to construct the Hatcher legend.

The gold caught the headlines and the popular imagination; the porcelain ensured that the *Geldermalsen* will go down as one of the turning points in marine salvaging. It is inconceivable that such a vast quantity of Chinese porcelain will ever again be recovered from the past. By the nature of things, when ships go down their cargoes are shaken to bits; if they survive, the sea carries out its destructive tasks. Thanks to the tea which solidified into a thick protective layer over the porcelain (and proved a terrible hazard to the divers as it was disturbed), here was an almost complete haul of Chinese export porcelain which, thanks to Dr Jorg, could be dated very precisely. It has proved a research bonanza for the historian and the ceramics expert.

What had set the seal on the success of the auction was the confirmation that the ship discovered *was* the *Geldermalsen*. The information had been held back to create a second burst of publicity in March. All the evidence from the cargo had pointed to it being this vessel, lost in 1752, but not until the ship's bell was recovered, along with two bronze cannon (one later bought by Max de Rham) in a special second dive in early 1986 was Dr Christiaan Jorg of Groningen, the expert on Dutch trade with the Indies, able to go ahead and publish a book on the whole adventure, which made a timely arrival just before the auction to confer historical respectability on the salvage operation.

Dr Jorg's book told the dramatic story of the loss of the *Geldermalsen* pieced together from the evidence of the survivors. What had been a volume of mid-eighteenth century porcelain lost at sea for centuries was now a tale flushed out with real characters.

But although he is at the very peak of his profession, the most famous salvage expert in the world, his success has brought him problems. He is now, thanks to his high profile, a marked man. He has to battle on two fronts in particular – with Governments and with the academic establishment. Hatch's way of doing things – his "up and at 'em" approach to life – inevitably risks confrontation with authority.

For example, the very perfection of his find when he came across the *Geldermalsen* has brought him much criticism from historians and scholars.

On his next major operation Hatch is open to the suggestion that a marine archaeologist accompanies him. Hatch is not averse to fame and rather likes the idea of a permanent record of his achievements. He compares his contribution to knowledge – by getting up and doing it – with that of the academics, theorizing from the safety of their studies. And he thinks he achieves more.

Hatch has to take the academics seriously because they have the ear of Governments and could make his job impossible. There are moves afoot in many countries to make all discovered wrecks the property of the State, protected areas until historians have the time and the money to explore them. This is the case in Australia where treasure hunting has almost disappeared. If you find a wreck you can earn a small reward from reporting its location but excavation is undertaken by historians, such as Jeremy Green, director of the Museum of Marine Archaeology in Freemantle. He says, "There is nothing more tragic than seeing sites which have been smashed up and ships' timbers broken and destroyed." Five East Indiamen suffered summary rape by wreck pirates in Western Australia before the State stepped in in 1970 to protect them.

It is only in recent years, thanks to the new diving equipment, that wrecks have become available to a new generation of commercial divers. When salvagers made their living from recovering the cargo of Second World War ships, and other recent victims of the sea, it hardly mattered if they dynamited the vessels to bits: indeed, that was the basic approach. Suddenly the growing interest in archaeology

confronts head-on the initiatives of men like Hatch in the exploration of the past.

Archaeologists are turning increasingly to the sea for new and important finds. Water can preserve organic remains, like food, clothes and wood, better than they would survive on land, and an intact wreck is a much more interesting time-capsule of the past than any built-over archaeological site, except perhaps an unexcavated tomb. But the expense and time it takes to excavate a wreck in the academic way was revealed in the *Mary Rose* venture, the recovery of a Tudor warship from Portsmouth harbour, which took many years and many millions.

There is a real conflict of interest. Without men like Hatch there would be few new discoveries – university departments do not have the guts, funds or time to mount many highly speculative expeditions. But Hatch can only work in a free market. If Draconian laws take away the liberty of the salvagers to venture where they will, illegal activities and much personal rancour follow. Mediterranean countries forbid collecting from the sea bed, with the result that few important treasures surface, and a great deal of illicit trading in small and insignificant items persists. And there are many frustrated divers.

The academic moves slowly, carefully, methodically, with a programme over many seasons. Hatch has to recover as much as possible as quickly as possible, preferably in one season, before rivals infringe on the site, and costs escalate out of the control of even very wealthy individuals and into the realms of red-tape-bound institutions and governments. He cannot spend time marking down the location of every single object on a wreck, in three dimensions. On the "G" he did a rough archaeological survey, and John Bremmer's pictures provided useful data. But photographs also played into the hands of Hatch's critics. One shot shows a diver prising open a chest, while a plank disappears into the deep. On the plank are Chinese characters. Historians would dearly like to know the exact text of that inscription.

The only solution is compromise. If the public had to choose, it would probably side with the freebooting attitude of Hatch and his like – the explorers, the risk-takers, the creators, the achievers. But the educated minority point to the two million visitors who go to see the re-salvaged *Mary Rose*, and say that once-in-a-life-time opportunities for historical knowledge are being sacrificed for a quick financial return.

Hatch would like to work with the academic establishment. He co-operated fully with Dr Christiaan Jorg, the leading Dutch historian on the trade with the Far East in the seventeenth and eighteenth centuries, to mutual benefit. Jorg's research, based on Hatch's finds, proved conclusively that the wreck was the *Geldermalsen*. This provided a great deal of new information about the actual trade in the

mid-eighteenth century between the Netherlands and the orient – and also increased the publicity and the value of Hatch's and Max's find. It was a fair exchange. Hatch and his partners are always generous in gifts to museums, notably those in Singapore and the Netherlands, who have displays of porcelain from his wrecks, as well as more monumental objects, such as the bell from the "G."

Obviously, from an historian's point of view, the activities of some of the more brash salvagers are almost criminal. Valuable evidence is wantonly destroyed, the perfect discovery of the intact past is thoughtlessly trampled upon. Wrecks are turned over to see if they contain valuables and then abandoned. But co-operating with academics is too frustrating and too expensive to appeal to many search companies. Inevitably Governments are stepping in to decide the conflict between the pursuit of knowledge on the one hand, and on the other the infringement of personal liberties and the risk of no more worthwhile discoveries.

Hatch and Max are proud of the way they "dived" the "G." They used non-destructive techniques. The tea and the sand were removed by airlift; the porcelain was recovered almost in its entirety; no part of the remains of the hull were destroyed. No explosives were used. An archaeological dig of the *Geldermalsen* would still be worthwhile.

The US Government has recently passed legislation covering its Outer Continental Shelf, under which oil companies, when prospecting there, have to spend a percentage of their total investment budget on an archaeological site survey so that their operations are not destroying any antiquities.

Hatch has undeniably been lucky in finding two valuable wrecks. The ships that disappeared far out at sea are undetectable with current equipment, and undivable, too. Most wrecks are close to shore and well known to professional salvagers. But many will be lost for ever under the sea bed, or be smashed to pieces, or be already looted. Few professional salvagers make a worthwhile living, and most of the speculative companies set up to plumb the seas have proved a very bad investment: many have gone bankrupt. You can be the most skilled, the most brave, the most tenacious, the best briefed diver in the world, but without luck you will have a hard, disappointing career. You also have to be able to negotiate with fickle, nervous, and sometimes venal third world Governments.

The Second Destruction of the *Geldermalsen*

Review by George L. Miller

GEORGE L. MILLER

The Second Destruction of the *Geldermalsen*

ABSTRACT

This review of C. J. A. Jörg's book on the Chinese porcelain from the Dutch East India Company ship *Geldermalsen*, which sank in 1752, addresses some broader questions involved in the destruction of shipwreck sites for commercial profit. These questions grew out of the issue of what relationship scholars should have with those who destroy sites and acquire objects from them. The first part of the article is a review of Jörg's book, followed by a commentary on the problems that collecting from looted sites raise.

Review

Christiaan J. A. Jörg. *The Geldermalsen History and Porcelain* (Groningen, Netherlands: Kemper Publisher, 1986). Cloth, 124 pages, 106 illustrations (86 in full color), bibliography, notes, 5 appendices, £25.00.

Christiaan Jörg's book on the history of and porcelain from the 1752 Dutch East India wreck *Geldermalsen* is amazing because it was put together in less than three months. Despite the limited amount of time, Jörg produced a credible study of this collection with excellent documentation of the wreck. In the spring of 1985, this wreck was mined for its valuables by English salvager, Capt. Michael Hatcher, who then shipped them to Christie's Amsterdam (Dyson 1986). Christie's cleaned and catalogued the collection for their auction in April 1986, just over one year after it was plucked from the wreck. Their catalogue for the sale was published in December 1985 (Christie's 1985).

In his Introduction, Jörg states that he was brought in to examine the porcelain by Christie's

in December 1985 indicating that his research was an afterthought. Indeed, Christie's auction catalogue had no information on the identity of the wreck. In other words, Jörg had from December until the auction in April to study the collection. His Introduction is dated February 1986, suggesting that he wanted to have it published in time for the auction.

Despite the short time that he had to work with this collection of over 150,000 Chinese porcelain vessels, Jörg accomplished two important objectives. One, he clearly documented the wreck as being the *Geldermalsen*. Two, he produced a minimal record of the porcelain assemblage before it was dispersed around the world by Christie's and thus lost to future scholars as a collection.

Christiaan Jörg's accomplishment of the seemingly impossible was aided by his expertise in the Dutch trade with China, and the fortuitous existence and previously organized relevant documents. He is a recognized authority on the Dutch East India Company porcelain trade and is the author of a thesis titled *Porcelain and the Dutch China Trade*. In addition to his knowledge of the subject, he was given access to historian Peter Diebels' research notes on the *Geldermalsen* (Jörg 1986:6-7). Jörg uses this information to provide a lucid overview of the mechanics of the Dutch East India Company's involvement in the China trade.

From this background, Jörg focuses on the history of the *Geldermalsen* including purchase orders for 1751, and its wreck caused by navigational error. The ship's paper, including purchase orders, and 32 crew members survived the sinking. When those survivors reached Batavia, the company held an extensive inquiry to determine why the gold had not been saved. There was strong suspicion that the survivors had hidden the gold after the wreck. Jörg used these records very effectively to describe the wreck and explain the workings of the Dutch East India Company.

The rest of the book concentrates on those artifacts that Hatcher chose to pull from the wreck. In Jörg's words, "We can distinguish three categories—objects belonging to the ship's inventory, gold, and the collection of porcelain" (Jörg 1986:

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51). Jörg makes comments throughout the book that mildly rebuke Hatcher for the destruction and skewing of information. Consider, for example, this passage from page 7:

Besides, the underwater archives which are only just beginning to be discovered by man [*sic*], are very fragile and unique, and should be handled with utmost care. Future generations should also be able to profit from the information which is becoming available at present, and which can never be replaced.

In this case most of the shards have remained at the bottom of the sea, while they might have told us even more about the variety of the assortment. The finds have not been registered systematically either, so that we cannot be sure whether, for instance, such a copper candlestick was part of the inventory of the cabin. Even the smallest detail can be of great value in a historical study (Jörg 1986:7).

Jörg's absence of anger does not make his criticism any less damning. Open criticism of Hatcher may not have been possible under the condition of his access to the ceramics. However, he left enough of a trail to show that he deplores the destruction that Hatcher wrought and that his first concern was to record the collection before the diaspora.

Using the original packing lists and purchase orders for 1750 and 1751, Jörg reconstructed the selection process for what became the *Geldermalsen's* cargo. By comparing the cargo list with the numbers of vessels Hatcher recovered, he is able to show the proportion recovered of the different types of vessels. In some cases a very high percentage was recovered. In others, a lower percentage was retrieved, such as cups and saucers—32,500 were not recovered, which was about half of what was listed in the inventory. Along with information from the ship's inventory, there are excellent photographs, most in color, of the porcelain.

In summation, Jörg has provided a good documentation of the wreck of the *Geldermalsen* under conditions of extreme time constraints. Without his efforts, an extremely important wreck would have gone undocumented and the information completely lost to future scholars. This book will be an important one for anyone dealing with 18th-century Chinese export porcelain.

Commentary

Some archaeologists and nautical scholars will not have anything to do with looted materials and with those who destroy archaeological resources. An argument in favor of that position is that documentation and identification adds to the monetary value of the objects and thus encourages further looting. In this instance, however, the information on the *Geldermalsen* cargo would have been irretrievably lost had Jörg not recorded what he did in the short time available to him. Fortunately Jörg's research did not become part of the Christie's auction catalogue, and it is difficult to assess to what extent his book may have contributed to the extremely high prices the porcelain brought.

Given the quality of documentation related to the wreck and the excellent photographs in the book, Jörg has done a service in preserving some information from the *Geldermalsen* before its cargo was scattered to the winds. While the author disapproves of working with those who destroy sites and providing documentation for their artifacts which will increase their monetary value, one can appreciate Jörg's implicit position in rescuing the information. This issue leads to broader questions about wrecks and those who destroy such resources either by stripping the artifacts from them or making it profitable by marketing or purchasing objects from such operations.

First, look at Capt. Michael Hatcher and his history of destruction of underwater sites. Hatcher makes no claims to being an archaeologist. He is an English sea captain living in Singapore, who has salvaged cargos, such as tin and scrap metal, from World War II wrecks (Dyson 1986:111). *Geldermalsen* is the second historical wreck that he has scavenged. The first was a Chinese junk, which sank around 1640, from which he extracted 23,000 pieces of Chinese porcelain. According to Jörg, he donated over 50 vessels from that wreck to the Groningen Museum in the Netherlands and the rest was sold by Christie's of Amsterdam where the prices exceeded everyone's expectations and brought in over \$2 million.

Clearly, Captain Hatcher had stumbled onto a good thing. He is like one of the bears of Yellow-

stone National Park. Once they find the easy living that the dumpsters can provide, they give up scavenging or in this case salvage work. *Geldermalsen* is the bear's second wreck. In a *Reader's Digest* article, John Dyson states that after sale of the porcelain from the 1640 wreck:

Hatcher now decided that he would search only for historic shipwrecks. He invested his riches in a long-range working yacht, the *Restless M*, in which he could live on the job. He collected old maps and sent students hunting for details on wrecks through the archives of the Dutch East India Company (Dyson 1986:113).

Hatcher claims to have been looking for the *Geldermalsen* and that he resailed its last voyage before returning to the reef where the Chinese junk had been found, to look for other wrecks (Dyson 1986:113). It is not clear, however, whether or not Hatcher knew the wreck he found was the *Geldermalsen*. There would be good reasons not to know the name of the wreck, which will be discussed later.

Preservation on the wreck was excellent. A video film distributed by Christie's clearly shows divers reaching into crates of porcelain and removing the vessels. Some crates are also visible in some of the illustrations in Jörg's book. Some of the most damning comments on Hatcher's "excavation" techniques, or lack of them, comes from his own descriptions. When speaking of the speed of his retrieval operations, he indicated that "it was a race to get what they could before being interrupted by weather, rivals, pirates, or some government" (Dyson 1986:114). In Dyson's *Reader's Digest* article the scene is described:

Using a big nozzle, chief diver Mohammed "Hash" Hashim sucked away thick debris and opened the lid of a crumbled crate. There sat row upon row of tiny blue-on-white teacups, shiny-bright (Dyson 1986:114).

As Jörg pointed out, "It is a pity that Hatcher has paid little attention to a detailed registration of his finds." The least competent of archaeologists would have recorded which porcelain vessels came from which crates. No attempt was made to save the crates let alone keep track of their contents. This is in sharp contrast to excavation of a 14th-century Chinese junk by the South Korean govern-

ment in 1976 which also contained an intact cargo of Chinese porcelain. Crates from that site had been stabilized and preserved. They are illustrated in an article in *National Geographic* (Kim and Keith 1979:236-237).

Some archaeologists might argue that *Geldermalsen* would never have been excavated by professional archaeologists because of the logistics involved. However, any wreck that produced \$16 million at an auction could have been funded for legitimate excavation. The Korean government excavations clearly show that underwater archaeology can be done in that part of the world.

The last comment on Hatcher is that he recorded almost nothing about the ship and provided almost no conservation for the artifacts. After removal from the wreck, the "goodies" were packed into 1,400 large cartons and carried by a container ship to Amsterdam where it took six people a month to unpack and "clean" the 150,000 Chinese porcelain vessels (Dyson 1986:115).

Hatcher's strip-mining operation had nothing to do with archaeology other than it destroyed a significant site. He clearly understood the importance of this wreck. David S. Howard, an English expert on Chinese porcelain, gave a lecture on the *Geldermalsen* porcelain at the Colonial Williamsburg Antiques Forum in February 1987. There he explained Captain Hatcher's reasons why this wreck was so important and so well preserved. They were: (1) the wreck resulted from striking a reef, after which the ship drifted about 5 mi. and sank; thus, it was not broken up on the reef; (2) this occurred in calm weather, thus the ship remained intact; (3) there was a soft bottom into which the wreck settled; (4) the tons of tea above the ceramics settled in around them and provided a protective cocoon for the porcelain thus keeping them in superb condition; and (5) this remarkably well preserved wreck is accompanied by excellent records from the 32 survivors as well as the ship's paper which have survived in Dutch Archives. According to Howard, Hatcher doubts that he would ever in a thousand years of searching be able to find a wreck meeting all these conditions.

Hatcher's exploitation of shipwrecks for personal gain could not have been done without as-

sistance. The second player, and perhaps the major force in the destruction of the *Geldermalsen* was Christie's of Amsterdam. Hatcher is only responding to opportunities that Christie's and other auction houses provide. The third player is those who purchase objects ripped from archaeological contexts. Without accomplices, he could not exist. *Auction News from Christie's* for April 1987 had an article titled "Shipwreck Sales at Christie's Amsterdam" which opens with the following sentence: "Over the years, Christie's Amsterdam has established itself as the most significant venue in the world for disposal at public auction of artifacts and cargos recovered from sunken vessels." Then the article goes on to describe the sale of objects from four different 17th- and 18th-century wrecks auctioned by Christie's Amsterdam (Christie's 1986). Such auction houses are the link between scavengers and the market. Attention needs to be focused on their role in the destruction of the world's archaeological resources.

Prior to the auctioning of the *Geldermalsen* porcelains, there was speculation about the impact that 150,000 pieces of mid-18th-century porcelain would have on the market. Some felt that the very quantity of the vessels would depress prices. The following comments from the antique dealers Ralph M. Chait and David S. Howard appeared in the *New York Times* in March 1986:

"The real charm of these objects lies in their provenance," Mr. Howard said. "Porcelain is not at all rare, rather it was standard everyday dinnerware made for the comfortable middle-class families of Europe." Mr. Chait calls the porcelain 'hotel crockery.' "Once you separate the wonderful romance of the discovery from the actual objects," he said, "you'll see that the pieces are nothing but a decorator's delight. It is the sheer volume that is overwhelming" (Vogel 1986).

Christie's promoted their auction under the name "The Nanking Cargo" and actively sought out an expanded elite clientele including embassies, department stores, restaurants, and interior decorators. Truly they had found the consumable past. A great archaeological assemblage was broken up before a detailed study could be made of it, to supply interior decorators with objects for yuppie's condos. Bloomingdale's, recognized as the

arbiter of trendiness, purchased over 3,000 pieces of "The Nanking Cargo" and advertised that "it's a rare opportunity to bring museum quality artifacts into your home. Look for the Nanking Cargo Shop, starting today on the second floor" (Bloomingdale's 1986).

Christie's succeeded in enlarging the market beyond traditional collectors and museums. "The Nanking Cargo" had been expected to bring in \$4.5 million (Vogel 1986). By dint of promotion alone they unloaded the largest assemblage to become available since the days of the Dutch East India Company for a cool \$16 million. Many pieces brought from 10 to 15 times the estimated value in the Christie's catalogue (Austin 1986).

The high auction prices are perhaps the worst news that has come out of this whole sad affair. These inflated prices amount to a large bounty on any shipwrecks containing Chinese porcelain which will lead to a wholesale destruction of such wrecks. While Hatcher was the scavenger of the *Geldermalsen*, Christie's was the *agent provocateur* that made the salvaging possible and profitable. Their sale of the 23,000 vessels from the 1640s Chinese junk helped Hatcher decide "that he would only search for historic wrecks." With his cut from that sale, Hatcher was able to purchase a long-range working yacht and equip it with a \$250,000 proton magnetometer for finding wrecks of which *Geldermalsen* was the first (Dyson 1986:113). Those who are concerned about the protection of shipwrecks would do well to direct attention, blame, and the harsh glare of publicity on auction houses such as Christie's of Amsterdam whose aggressive search for new sources of salable antiquities results in the destruction of archaeological sites.

Christie's and Hatcher's interest in the *Geldermalsen* was limited to what could be sold for a profit. Their auction catalogue is filled with color plates of the gold, porcelain, and those few other artifacts that Hatcher bothered to bring up. One of the most ironic lines in their catalogue is about Captain Hatcher which reads, "The Nanking Cargo is the result of exhaustive professionalism, which is the hallmark of Captain Hatcher and his team" (Christie's 1986). As they did not name the profession involved, perhaps they are right; how-

ever, they certainly were not talking about archaeology.

There are some aspects of Christie's involvement in this sale that raise interesting questions. Nowhere in their discussion of the wreck do they let on that they know its name or that it was a Dutch East India Company wreck. Given Hatcher's account in the *Reader's Digest*, it is difficult to believe that Christie's would not at least have considered the *Geldermalsen* as a probable candidate. None of the artifacts listed in the auction catalogue provides direct evidence that the ship belonged to the Dutch East India Company. However, a supplement to the catalogue adds two bronze cannons with Dutch East India markings to the auction. This supplement also has an illustration of the ship's bell which is dated 1747. Given this evidence, it would be reasonable to surmise that Christie's at least knew that the ship was a Dutch East India Company wreck.

Considering Christie's self-touted expertise in wrecks, it would not be unreasonable to surmise that they knew more but chose not to reveal their knowledge out of legal concerns. There may have been good reasons to be ignorant of the ship's identity. In 1798 the Dutch East India Company went bankrupt and all of its assets and liabilities were assumed by the Batavian Republic which became the Kingdom of the Netherlands in 1813. This government maintains a claim on all Dutch East India wrecks. For example, Dutch government claims to the *Amsterdam*, a Dutch East India wreck from 1748 on the coast of England, were recognized when that wreck was excavated in 1969 by Peter Marsden (1975:233-234).

Nowhere in the Christie's catalogue is there a mention of the name of the wreck or any claims that others may have to it. It is difficult to believe that Christiaan Jörg's research into the identification of the wreck was not known by Christie's by the time of the auction. Even their publication *Auction News from Christie's* for April of 1986 does not identify the wreck by name or mention its relationship with the Dutch East India Company. Given that Jörg's research was completed in February, it is inconceivable that they did not know that the cargo was from the *Geldermalsen*.

Beyond the claims of the Dutch government to the wreck is the issue of the wreck's location. Again there is no information in Christie's catalogue as to where the *Geldermalsen* was found. Was it in international waters or not? If it was not, who else may have a claim on the wreck? Hatcher apparently was aware of this possibility. His comment in *Reader's Digest* that "it was a race to get what they could before being interrupted by weather, rivals, pirates, or some government" clearly suggests that he was aware of probable claims from Indonesia (Dyson 1986:114).

There is currently a lawsuit by the Indonesian government concerning excavation of the *Geldermalsen*. If it turns out that the wreck was in Indonesian waters, then the wreck was illegally excavated, and the title of ownership of the artifacts will be clouded by claims of the Indonesian and Dutch governments. Customers normally expect a respected old auction house like Christie's to be very careful to make sure that they pass on a clear title to objects sold in their auction house.

In 1970 the United Nations adopted the UNESCO Convention on the means of prohibiting and preventing the illicit import, export, and transfer of ownership of cultural property. Many countries around the world have adopted this convention. Destruction of the *Geldermalsen* site and the complete disregard of archaeological and preservation principles are to be deplored on ethical and moral grounds. Besides, it may have been illegal by the terms of the UNESCO Convention of Cultural Property. If it turns out that laws were broken, then the artifacts could be subject to recovery and repatriation to Indonesia.

The third party to this destruction of the *Geldermalsen* is of course those museums, collectors, and others who purchased the artifacts. As was pointed out above, the size of this collection could have depressed the market for Chinese porcelain. Christie's knew this, so they hyped the sale to a wider universe of purchasers far beyond the circle of traditional porcelain collectors. Yuppies, interior decorators, and, indeed, most collectors do not have a great deal of consciousness concerning preservation principles. When they see an old, well-regarded firm like Christie's selling Chinese por-

celain from a 230-year-old wreck and are presented the story of Captain Hatcher's finds, they do not think twice about possible ethical or legal problems.

Almost nothing has been done to educate the public to the fact that the sale of archaeological artifacts contributes directly to the destruction of sites. Laws and regulations related to the excavation of sites, particularly of shipwrecks, is presented in the news media as the government trying to come in for a free piece of the pie. Looters are pictured as David versus Goliath with the government as the bad giant. One of the problems in educating the public is that the agencies which should be performing this task are some of the museums that most eagerly participated in the auctions and they show almost no concern for the sites being destroyed.

It is not uncommon for museum curators trained in an art history tradition to have little or no appreciation for preservation ethics. They commonly deal with intrinsic values of individual objects rather than with extrinsic relationships that can be extracted from an assemblage of artifacts. These curators need to wise up to the consequences of their purchasing artifacts from destroyed sites.

Fortunately, great strides are being made in terms of establishing codes of ethics for museum behavior in acquisition of objects, in recognition of the relationship between site destruction and the marketplace, and in recognition of the cultural property of other countries. This is directly an outgrowth of the UNESCO Convention.

In November of 1986, the International Council of Museums (ICOM) adopted its *Code of Professional Ethics*. Item 3.2 of that code, titled "Acquisition of Illicit Material," reviews the problems involved in importing objects with dubious titles. It stresses the importance of having clear title to ownership as well as avoiding objects that have been illegally imported. The discussion concludes with a paragraph related to the ethics of acquiring excavated material:

So far as excavated material is concerned, in addition to the safeguards set out above, the museum should not acquire by purchase objects in any case where the governing body or responsible officer has reasonable cause to believe that their recovery involved the recent damage of ancient monuments or archaeological sites, or involved a failure to disclose the

finds to the owner or occupier of the land, or to the proper legal or governmental authorities (ICOM 1986: article 3.2).

This statement deals with the spirit of compliance and calls unequivocally for attention to the circumstances under which the objects were recovered. If there is any doubt about the role that museums should play in this area, section 3.3 states flatly in "Field Study and Collecting" that:

Museums should assume a position of leadership in the effort to halt the continuing degradation of the world's natural history, archaeological, ethnographic, and artistic resources. Each museum should develop policies that allow it to conduct its activities within appropriate national and international laws and treaty obligations, and with a reasonable certainty that its approach is consistent with the spirit and intent of both national and international efforts to protect and enhance the cultural heritage (ICOM 1986: article 3.3).

Archaeologists of course have been keenly aware of the problem for a long time because of the nature of their work and familiarity with the areas being plundered. Calvin Cummings (1983) presented a paper titled "A Matter of Ethics" at the Council for Underwater Archaeology meetings in 1983 which extracted positions taken by eight of the main archaeological societies in America. They all took positions against the selling of artifacts from sites for profit or to enhance personal collections. In addition to these general positions and ethical canons set out by various archaeological societies, there was a resolution relating specifically to destruction of the *Geldermalsen* that was published in the International Congress of Maritime Museums in October of 1986. It reads:

Recently the firms of Christie's held a highly publicized auction of the cargo of the wreck of the Dutch East India-man *GELDERMALSEN*, whose cargo of Chinese export porcelain was the largest ever found. Since a number of museums purchased items from this collection, despite its poorly conducted excavation, it is felt worthwhile to bring to ICCM members attention the following resolution:

"Members of the underwater archaeology group attending the PACT symposium at Louvain-la-Neuve, 17-19 April 1986, unanimously deplore the way the *GELDERMALSEN* was excavated.

Such an archaeologically very important find as the *GELDERMALSEN* should have been excavated in a scientific way. Correlation of the rather well-documented information from the available archives and the excavation information

is of utmost importance. This means registration to find places within the wreck, details on the ship structure, environmental information, etc. Without such scientific standards, no excavation should take place in order not to lose the information which is very important for a historical point of view.

In fact, the cargo of the *GELDERMALSEN* has been looted without concern for context and its commercial sale will entirely destroy the wreck.

Thus, both the ship and cargo will be entirely lost to science. It is necessary to have international legislative regulations to prevent disasters like the looting to the *GELDERMALSEN*. Louvain-la-Neuve, 19 April 1986" (ICMM 1986).

Considering all the support given the guidelines from the UNESCO Convention of Cultural Property, it is difficult to understand how museum curators can justify their purchase of the porcelains from the *Geldermalsen*. Some museums, such as the Rijks Museum of the Netherlands, boycotted the sale. Unfortunately, their ethical and moral position was ignored by other institutions.

When curators from otherwise respectable institutions purchase objects from such auctions, they help others to justify their own participation in such sales. They shirk their moral responsibility to, as ICOM states, "assume a position of leadership in the effort to halt the continuing degradation of the world's . . . archaeological, ethnographic, and historical" resources (ICOM 1986).

Awhile back on National Public Radio, there was a news item about some free-wheeling entrepreneurs who had purchased a number of Picasso paintings. They cut the paintings into 2-in. squares and offered them for sale. The objective they piously claimed was to enable more people to own a Picasso. Clearly they were destroying art to pander to the status-seeking ambitions of people with little understanding of the subject. People are making it profitable to destroy sites when they purchase artifacts such as the *Geldermalsen* porcelains. There is not much difference between the looter and his or her accomplices in auction houses, museums, and department stores.

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This review and commentary came about because of the purchase of some Chinese porcelain from

the *Geldermalsen* by the Département of Collections of Colonial Williamsburg. I felt it was necessary to speak out concerning the destruction of an important archaeological site and to make an attempt at educating people concerning the ethical and legal questions related to such acquisitions.

My area of research is ceramics, and I do not have a background in maritime history or underwater archaeology. This article would have been difficult to write without the invaluable assistance and information provided by colleagues in underwater archaeology. Paul Johnston, formerly of the Peabody Museum, Salem, Massachusetts, provided assistance and pointed out several sources to me. I would also like to thank George Bass of the Institute of Nautical Archaeology and Dick Sweet of the Snow Squall project for information on and suggestions related to underwater archaeology.

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Les archéologues aux pieds palmés

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LES ARCHEOLOGUES AUX PIEDS PALMÉS

Marc-André Bernier et Robert Grenier

Histoire d'une fouille archéologique d'un baleinier basque du 16e siècle échoué au Labrador

Red Bay est un petit village sur les berges d'une baie du Labrador qui porte le même nom. Ce port naturel est un des meilleurs havres de toute la côte du Labrador. Au 16e siècle, les baleiniers basques passaient plusieurs mois chaque année dans cette région. Certaines années, plus de 10 navires s'y trouvaient en même temps. C'était alors le plus important site de chasse à la baleine du monde. Aujourd'hui, le village compte environ 200 habitants qui vivent surtout de la pêche.

L'épave en question a été découverte grâce aux recherches dans les archives basques en Espagne. Le témoignage judiciaire de l'époque mentionnait un navire échoué au Labrador, dans le port de Red Bay. Le bateau était ancré dans la baie lorsqu'une violente tempête brisa ses amarres et le précipita sur la côte.

Le plan du site

Au dessus de l'épave à fouiller, on a installé de longues tiges en métal qui divisent le site en 148 carrés de deux mètres de côté. Chaque carré sur le site correspond à un carré sur le plan du site. L'archéologue reproduit ce qu'il trouve dans son carré de fouille sur sa feuille de papier imperméable pour ensuite reporter son dessin sur le plan général. Ce système de carré, appelé carroyage, est la clé d'une fouille archéologique. Sur un site terrestre, on utilise souvent des ficelles, mais sous l'eau un carroyage rigide s'impose. Ce système permet de reproduire l'épave sur le plan avec une grande précision.

Le carroyage permet également de classer les objets trouvés lors de la fouille. En effet, chaque carré reçoit un code différent, par exemple 10P. Tous les objets découverts dans ce carré portent un code commençant par 10P. Par la suite, il est facile de savoir d'où provient un objet. Toutes les pièces de bois de l'épave ont été numérotées afin de bien les identifier. On doit s'assurer que chaque morceau de l'épave apparaît sur les dessins faits par l'équipe de plongeurs.

L'archéologue étudie les civilisations passées à travers les objets parvenus jusqu'à nous : outils, habitations, armes, navires, etc. A partir de ces objets, il tente de se représenter la façon dont nos ancêtres vivaient.

Lors d'une fouille, l'archéologue se doit d'enregistrer, tel un détective, tous les indices qu'il rencontre. Plus tard, en laboratoire, il aura ainsi toutes les informations nécessaires pour reconstituer les événements survenus sur un site. L'enregistrement des données - sous forme de plans, de dessins, d'observations, de photographies et de bandes vidéo - est la clé du succès d'une fouille archéologique.

L'outil principal de l'archéologue sous-marin est la suceuse à l'air, une sorte d'aspirateur géant. La suceuse aspire les sédiments qui couvrent l'épave et les jette au loin. Elle permet de dégager facilement de grandes quantités de sable sans qu'on ait à le transporter manuellement.

Les secrets de la conservation

Un sablier a été trouvé par l'équipe : c'est vraiment une découverte inouïe. Les quatre tiges du cadre sont intactes, comme si elles avaient été fabriquées hier. Qu'un objet si délicat se soit conservé quatre siècles émerveille les archéologues!

Des circonstances exceptionnelles ont préservé un objet qui aurait autrement disparu. Si les archéologues n'arrivent pas à conserver ce sablier, ainsi que tous les autres objets découverts dans cette fouille, leur mission sera un échec. La responsabilité qui incombe aux archéologues est grande!

Après 400 ans sous l'eau, un objet ne peut pas être simplement remonté à la surface. Il a passé ces quatre siècles dans un environnement bien précis; si on l'en retire brusquement, il va subir des dommages irréparables. C'est pourquoi, lors d'une fouille archéologique sous-marine, une équipe s'occupe de la conservation des objets.

Dès la deuxième année de la fouille, un laboratoire de terrain complet est installé dans un des petits entrepôts de Red Bay. Au plus gros de la fouille, l'équipe du laboratoire comprend cinq spécialistes en conservation. Tous les objets trouvés sur le site passent entre leurs mains. La première étape de leur travail consiste à nettoyer les objets. La majorité des artefacts sont ensuite emballés soigneusement et envoyés à Ottawa, dans des laboratoires plus sophistiqués. Là, ils sont traités pour empêcher leur dégradation.

Une fois dégagé, un objet doit être reporté sur le plan, puis photographié, avant d'être remonté - à la surface. Pour ce faire, l'archéologue va placer le fragile objet dans une petite boîte préparée à cet effet. Cette boîte offre la protection nécessaire afin d'éviter que l'objet ne soit abîmé. Une fois à la surface, il se retrouvera entre les mains expertes des restaurateurs.

Une riche moisson

Au fil des ans, des milliers d'objets et de fragments d'objets ont été découverts dans l'épave basque de Red Bay. Le plus abondant est certes la barrique: plus de 125, complètes ou partielles, ont été retrouvées. Cela s'explique aisément: le navire servait au transport de barriques d'huile de baleine vers l'Europe. C'était en quelque sorte un pétrolier de l'époque! Les barriques, la plupart en chêne, étaient fabriquées au Pays basque mais assemblées au Labrador afin d'économiser l'espace pendant la traversée.

Parmi les autres découvertes importantes, il y a les instruments de navigation: un sablier, une boussole et un astrolabe. Le sablier servait au calcul de la vitesse du navire. La boussole permettait au pilote de connaître sa direction. Enfin, l'astrolabe donnait la latitude. Cet objet, l'une de plus belles trouvailles de l'équipe, provient d'une autre épave découverte

dans la baie. Bien qu'il soit un peu abîmé, il n'en demeure pas moins très bien préservé si on considère qu'il a séjourné plus de 400 ans sous l'eau.

Les archéologues ont aussi récupéré une foule d'objets qui nous renseignent sur la vie quotidienne à bord du vaisseau:

De nombreux souliers en cuir appartenant aux marins. Des récipients en céramique, dont quelques-uns pratiquement intacts. Certains servaient à la cuisson, d'autres à l'entreposage des victuailles. Leur forme varie selon l'usage auquel ils étaient destinés.

Plusieurs poulies qui permettaient de manipuler les lourdes voiles du navire. À partir de ces poulies, il a été possible de reconstruire le gréement du navire.

Un des aspects passionnants du métier d'archéologue, c'est que l'on ne sait jamais ce que l'on va découvrir. En témoignent ces os de rat trouvés dans un panier d'osier rempli d'ossements de poissons. Le rongeur était probablement en plein milieu de son repas lorsque le navire a sombré. Il n'a pas eu le temps de prendre ses pattes à son cou!

Aucun ossement humain n'a été retrouvé, ce qui laisse croire que tous les marins ont survécu à l'accident.

L'enregistrement des données

Lors d'une fouille, l'archéologue doit exécuter deux types de dessins: d'abord le plan, et ensuite la coupe stratigraphique. De quoi s'agit-il? Comparons notre épave à un gâteau à plusieurs étages. Le plan correspond à une vue du dessus du gâteau. Coupons maintenant le gâteau en deux: on voit apparaître les nombreux étages. Il en va de même pour un site archéologique. Chaque étage est une couche stratigraphique qu'on dessine avec soin. L'ensemble des étages porte le nom de coupe stratigraphique.

Pourquoi tant de dessins? Parce que la fouille archéologique est une activité destructrice. En fouillant ce navire, nous détruisons une partie des informations qui s'y trouvent. Impossible de recommencer une fouille! C'est pourquoi nous devons recueillir, dans les moindres détails, toutes les informations possibles. Nous dessinons donc le plan et, la coupe stratigraphique de chacun des 148 carrés de fouille.

Une photo enregistre des détails qui peuvent échapper à l'œil de l'archéologue. Plus de 22 000 photos ont été prises pendant la campagne de Red Bay. Photographier sous l'eau est un art. En plus d'être un excellent plongeur (pas facile de demeurer immobile quand on flotte entre deux eaux), il faut posséder une technique irréprochable, car la faible luminosité impose l'utilisation de films très sensibles, et parfois même d'un flash.

Fouiller un site archéologique, c'est comme lire un livre dont les pages disparaissent à mesure qu'on les tourne. À moins de tout enregistrer minutieusement, l'«histoire» est perdue à tout jamais!

Travailler dans l'eau glaciale

Le travail d'archéologue en chef du chantier comporte plusieurs tâches. Organiser et superviser le travail d'une équipe d'une trentaine de personnes, bien sûr. Mais surtout, bien comprendre le site que fouille l'équipe. Pour cela, il doit se familiariser avec tous les éléments de l'épave.

Le milieu aquatique, et surtout cette côte du Labrador, est un environnement inhospitalier, voire hostile! Impossible d'y oeuvrer sans une gamme d'équipements spécialisés.

Chaque plongeur transporte sur son dos deux bouteilles d'air comprimé. Très lourdes sur la terre ferme, elles se révèlent plutôt légères sous l'eau. L'autonomie de plongée varie selon les individus: personne ne respire au même rythme! Sur le site de Red Bay, un plongeur demeure en moyenne deux heures sous l'eau. À moins qu'il doive remonter à cause du froid.

La température de l'eau s'avère en effet un obstacle de taille. Elle atteint rarement 7°C et descend parfois à... -2°C! Le sel et les courants abaissent le point de congélation de l'eau. Vêtus de combinaisons de plongée ordinaires, un plongeur ne peut guère travailler plus de 30 minutes.

C'est pourquoi, les archéologues portent des combinaisons à eau chaude. Ainsi protégé, un plongeur peut demeurer sous l'eau aussi longtemps que sa réserve d'air l'y autorise. Une plongeuse de l'équipe a même à son actif quatre plongées de deux heures dans la même journée!

Autre outil adapté au milieu aquatique: le papier imperméable. Semblable à du papier ciré, il permet d'écrire et de dessiner sous l'eau avec un crayon à mine ordinaire.

La remontée de l'épave

« La voici! » Lorsque retentit ce cri, tous les regards se tournent vers le côté gauche de la barge de travail. Une forme allongée, de couleur sombre, perce la surface et s'élève dans les airs, suspendue au bout d'un câble. Pour la première fois depuis plus de 400 ans, la quille du navire basque voit la lumière du jour. L'opérateur de la grue la fait pivoter habilement, avant de la déposer sur le pont. Tous les membres de l'équipe se précipitent afin d'en observer les détails.

Ces derniers jours, les habitants de Red Bay ont souvent demandé à l'équipe pourquoi le navire n'est pas remonté en une seule pièce pour l'exposer dans un musée. C'est que l'épave est trop écrasée pour permettre une telle manoeuvre: elle gît complètement aplatie sur le fond. Mais même si l'épave avait pu supporter la remontée, il n'est pas certain que l'on aurait procédé ainsi. Car conserver une épave entière coûte une somme astronomique. Il faut traiter le bois afin qu'il ne se déforme pas en séchant. À titre d'exemple, le coût de restauration d'un navire suédois, le Wasa, est estimé à quelques dizaines de millions de dollars! Nous ne disposons pas d'une telle fortune.

Et notre objectif est différent. Certes, nous souhaitons présenter ce baleinier basque dans un musée: mais nous désirons avant tout découvrir comment il a été construit, et

comprendre son fonctionnement. Les archéologues ont la conviction qu'il leur apprendra beaucoup de choses sur les navires de son époque. Or, la meilleure façon de comprendre comment un bateau a été construit, c'est de le démanteler.

Les plongeurs démontent donc le baleinier, pièce par pièce, comme un gigantesque meccano. La plupart des pièces - environ 3000 - sont remontées à la surface à l'aide d'une grue. Des spécialistes les dessinent dans leurs moindres détails. Elles sont ensuite remises à l'eau, dans une grande fosse aménagée au fond de la baie.

Plus tard, un maquettiste utilisera les dessins pour recréer chaque pièce de bois, mais en dix fois plus petit que la pièce originale. Nous allons ainsi obtenir une reproduction exacte du navire: une maquette à l'échelle de 1 / 10, rigoureusement précise et fidèle à l'original, que nous pourrons étudier dans le confort de notre laboratoire.

Un navire de transport

Avant la fouille de Red Bay, peu d'épaves du 16^e siècle avaient été découvertes. C'étaient surtout des navires de guerre, armés pour le combat, qui nous donnaient une fausse image des bateaux de l'époque. L'épave basque de Red Bay nous révèle un autre type d'embarcation : un navire de commerce, un bateau de tous les jours. Le navire possédait trois mâts. Le grand mât, au centre, portait une grande voile carrée, tout comme le mât de misaine, situé à l'avant. Sur le mât d'artimon, on hissait une voile triangulaire .

Le mât de beaupré, qui s'avancit sur la proue du navire, pouvait aussi recevoir une voile carrée. Mais parce qu'il n'était pas vertical, le mât de beaupré n'était pas considéré comme un véritable mât. C'est pourquoi ce navire était classé comme un « trois mâts ».

Ce navire découvert à Red Bay mesurait 24,5 m de longueur, 7,6 m de largeur (au pont supérieur) et 10,4 de hauteur, de la quille au sommet du château arrière. Il était en chêne, le bois préféré des charpentiers navals de l'époque à cause de sa robustesse et de sa résistance au pourrissement. Plus de dix ans après la fin des fouilles, l'identité du navire demeure un mystère ! C'est que plusieurs naufrages sont survenus dans cette baie (trois épaves ont été retrouvées) et que les documents d'archives font état de plus d'un bateau perdu. A ce jour, l'hypothèse la plus probable veut que le navire fouillé à Red Bay soit le San Juan, qui a fait naufrage en 1565. Une reproduction d'une partie de ce navire est exposée au Musée des civilisations, à Ottawa.

Avec plus de 14000 heures de plongée, la fouille de Red Bay constitue l'une des plus ambitieuses aventures d'archéologie subaquatique jamais réalisées. Au-delà des heures passées sous l'eau, l'apport de Red Bay réside surtout dans la qualité de l'enregistrement des données archéologiques. La précision et le détail de ces enregistrements ont été poussés à des niveaux encore jamais atteints. Plus de dix ans après la fin des travaux sur le terrain, la fouille de Red Bay est encore citée comme un modèle du genre.

**The Ethics of Collaboration :
Archaeologists and the *Whydah* Project**

by Ricardo J. Elia

This article describes the history of archaeological involvement in the salvage project and discusses the issue of collaboration from the perspective of the archaeologists who work for the treasure hunters and those in public agencies who regulate them.

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The Ethics of Collaboration: Archaeologists and the *Whydah* Project

ABSTRACT

The ethical dimensions of archaeological collaboration with treasure hunters are explored through a study of the *Whydah* salvage project. The *Whydah*, a pirate ship that sank off Cape Cod in 1717, has been the object of commercial salvage since 1982, which has resulted in intense ethical and legal controversy among treasure hunters, archaeologists, and public officials. The article describes the history of archaeological involvement in the salvage project and discusses the issue of collaboration from the perspective of the archaeologists who work for the treasure hunters and those in public agencies who regulate them. The ethical problems of archaeological collaboration are discussed in light of ethical standards of modern archaeology. The effects of archaeological collaboration in the *Whydah* project are assessed and the growing acceptance of commercial salvors in the management of underwater cultural resources is demonstrated with reference to recent projects in Boston Harbor.

Introduction

Since 1982, the commercial salvage of the 18th-century pirate ship *Whydah* has provoked controversy among those who are concerned about the ethical ramifications of archaeologists collaborating with treasure hunters. As the first major commercial salvage project involving the direct participation of professional archaeologists—both those engaged in the actual salvage and those in state and federal agencies who participate in the regulatory process—the *Whydah* project is likely to set important precedents, and possibly even serve as a model, for future commercial salvage projects involving historic shipwrecks.

The archaeologists who have worked for the *Whydah* treasure hunters include a past president of the Society for Historical Archaeology (SHA),

two active members of the Society of Professional Archaeologists (SOPA), and one current member of the Advisory Council on Underwater Archaeology. The salvage project has received permits from the Massachusetts Board of Underwater Archaeological Resources (MBUAR) and the U.S. Army Corps of Engineers and is operating under a Memorandum of Agreement whose signatories include the Corps of Engineers, the Massachusetts State Historic Preservation Office, and the Advisory Council on Historic Preservation.

Although a few opinions concerning the ethics of collaboration in the *Whydah* project have been published (e.g., Riess 1988; Roberts 1989; Wiseman 1989:442–443; Beaudry 1990; Bradley 1990; Elia 1990), most of the discussion has taken place behind the scenes, in board meetings of archaeological societies and committees engaged in evaluating professional papers. Professional attitudes are exemplified by the change in the status of the *Whydah* project at the annual Society for Historical Archaeology/Conference on Underwater Archaeology (SHA/CUA) meetings. In 1985, a paper was presented on the archaeological work (Riess et al. 1986) and in 1987, the *Whydah* project was featured in a symposium (Roberts 1987); in 1989, however, and each year since, papers based on research from the *Whydah* project have been rejected by the conference juries as being in violation of the SHA's ethical standards.

The *Whydah* project is an important instance of the ethics of archaeological collaboration with commercial treasure hunters and merits a full and open discussion. Is archaeological participation a necessary compromise, an imperfect but real-world solution that will ensure that archaeologists maintain at least some measure of control over salvage projects, even if the salable artifacts are eventually dispersed among the highest bidders? Or does archaeological collaboration lend a specious legitimacy to commercial salvage, one that increases the commercial value of recovered artifacts and contributes to the eventual destruction of data when artifacts are sold off? Are archaeologists striking a Faustian bargain by collaborating with treasure hunters, and in the process losing their souls?

Archaeological Involvement in the *Whydah* Project

The *Whydah* project began in late 1982 when treasure hunter Barry Clifford announced his intention of discovering and salvaging the wreck of the famous pirate ship that broke up in a storm and sank off Cape Cod in 1717. In the 10 years since, the *Whydah* salvage has involved continuous litigation; intensive, often acrimonious, involvement by regulatory agencies; a veritable "musical chairs" of collaborating archaeologists; and considerable attention from the popular media.

The site itself consists of an artifact debris field located 1,500 ft. off Marconi Beach in Wellfleet, Massachusetts. The artifacts lie in 20–30 ft. of water and beneath 16 or more ft. of shifting sand (Hamilton et al. 1990:2). When Barry Clifford sought title to the wreck in federal Admiralty Court in November 1982, the Commonwealth of Massachusetts claimed title to the site by virtue of its 1973 underwater archaeology law, which established a Board of Underwater Archaeological Resources (MBUAR) to oversee the survey and excavation of underwater sites (Massachusetts Underwater Archaeology Law 1973). Clifford initially refused to apply for a Board permit but later did so under protest pending the outcome of the litigation, which continued from 1982 to 1988, at which time the Massachusetts Supreme Judicial Court ruled in favor of the treasure salvors. This ruling effectively removed the site from the state's control (and also eliminated the salvors' requirement to pay 25 percent of the recovered value of the wreck to the state).

In 1983, testing at the site involved the removal of large amounts of sediment by prop-wash deflection, a technique that constituted dredging without a permit in the eyes of the Corps of Engineers. As a consequence of the Corps' investigation of this activity, the site was determined to be eligible for the National Register of Historic Places in 1985. A Memorandum of Agreement (MOA) was signed by the U.S. Army Corps of Engineers, the Advisory Council on Historic Preservation, and the Massachusetts Historical Commission. The MOA allowed excavation at the site but imposed condi-

tions relating to the research design, performance standards, and coordination among parties. The MOA also stipulated that all analysis of recovered materials had to be completed before any artifacts were "sold or otherwise transferred to other parties" (Advisory Council on Historic Preservation 1985:3). Since 1985, the project has continued subject to the terms of the MOA.

Archaeological survey and testing of the *Whydah* site took place between 1983 and 1987. During this period, 23 test units totaling 2,784 sq. ft. were excavated and 71,107 artifacts and concretions were recovered. The 1988 and 1989 seasons were devoted to data recovery operations. In 1988, an additional 4,192 sq. ft. were excavated and 20,851 artifacts and concretions were recovered. The 1989 season involved the excavation of an additional 1,408 sq. ft. (Hamilton et al. 1990:66, 79–84).

For the first several years, the *Whydah* project was financed by private investments through Clifford's two marine salvage firms: Maritime Underwater Surveys, Inc., and Maritime Explorations, Inc. In 1987, a limited partnership called the *Whydah* Partners was established to conduct the project; the general partner is *Whydah* Management Company, Inc. In a 1987 private offering by EF Hutton & Company, Inc., the *Whydah* Partners sold shares in the venture, raising approximately \$6 million. That same year, the Joint Venture made an agreement with Sotheby's for the identification, valuation, and sale of the *Whydah* artifacts.

In the earliest phase of the project, Barry Clifford hired as a consultant not a professional archaeologist, but a professional treasure hunter—Mel Fisher of Treasure Salvors, Inc. Fisher's involvement in the project seems to have been minimal, although there may be some dispute concerning Fisher's share of the profits that may yet lead to litigation.

The first archaeologist chosen by Clifford was R. Duncan Matthewson, who was rejected by the MBUAR because of his prior association with Mel Fisher. Clifford next hired Edwin Dethlefsen as a consultant. Dethlefsen, then president of the SHA, was criticized by some of his archaeological col-

leagues and resigned in May 1983, not from the *Whydah* project but from the presidency of the SHA, complaining that the Society was becoming a "politically-activistic priesthood" (Dethlefsen 1983). Subsequently, Dethlefsen found that he had little actual control over the *Whydah* project, so he literally jumped ship, resigning from that endeavor in September 1983 (Dodson 1984:156-157).

The next year, Clifford's firm contracted with the Maritime Archaeological and Historical Research Institute (MAHRI). The professional team furnished by MAHRI for the 1984 testing season included Warren Riess as project archaeologist, SOPA member Michael Roberts as project manager, and Betty Seifert as project conservator. At the CUA annual meeting in January 1985, Riess and other MAHRI archaeologists presented a paper with the optimistic title: "The 'Whidah' Investigation: Satisfying Both Archaeological and Salvage Interests" (Riess et al. 1986:96-97). Once again, however, a dispute arose, this time over control of the project, funding, and excavation strategy, and led to MAHRI's withdrawal in 1985 (and to a lawsuit). At the next CUA meeting, in 1986, Riess publicly reversed his earlier position, organizing a symposium on "Ethics in Nautical Archaeology" (Ruppe et al. 1988) and speaking on the fundamental incompatibility between professional archaeology and treasure hunting. His concluding advice was, "You should not get involved, except to voice your objection" (Riess 1988:136).

Meanwhile, back at the wreck, Michael Roberts, who formerly worked on the MAHRI team, continued on as project manager, via a consultancy to Clifford's salvage firm. Roberts produced the report on the 1986 field season (Roberts et al. 1987) and chaired a symposium on the *Whydah* project at the 1987 annual meeting of the SHA/CUA in Savannah (Roberts 1987). He continued as project manager until mid-1987, when he left the project, according to the 1987 annual report, "due to disagreements with MEI [the salvage firm] concerning report production performance and deadlines" (Hamilton et al. 1988:7).

The current principal investigator for the *Whydah* project, Christopher Hamilton (a SOPA mem-

ber), was hired by Clifford's firm in June 1987. Hamilton produced the final report on the 1984-1987 testing phase (Hamilton et al. 1988), as well as the reports of the 1988 and 1989 excavation seasons (Hamilton et al. 1989, 1990).

Other participants in the *Whydah* affair include Robert Cembrola, project archaeologist in 1984-1985; J. Robert Reedy, Jr., project archaeologist since 1986; Betty Seifert, who worked on the project as conservation consultant in 1984-1986; Sheila Charles, who was collections manager for the 1986 season; and David Muncher, the project's conservator and laboratory supervisor since 1988.

The Collaborators' Perspective

The justifications for participating in commercial salvage projects are well known. A typical defense of collaboration, culled from a selection of quotes from various archaeologists involved in the *Whydah* project, would form the following pastiche:

I do not personally approve of or support the commercially-based excavation of archaeological sites . . . [but] our laws, in general, do not prohibit such activity. . . . Whether we like them or not, commercially based archaeological ventures are a fact; the question is how to deal with them (Bradley 1989:42-43).

All archaeological work on the *Whydah* project is being performed in accordance with the [Section] 106 process. . . . Furthermore, material from the *Whydah* is being recovered in a setting controlled by a professional archaeologist and professional conservation personnel (Roberts 1989:1).

As long as we control the whole investigation process, and have the right and duty to study the whole collection, we can glean most of the information from the site (Riess et al. 1986:97).

The primary motive of archaeology is to gather information about archaeological sites and . . . the ownership of artifacts is a secondary consideration (Hamilton 1990b:5).

The current principal investigator of the *Whydah* project argues that archaeological involvement with commercial underwater salvage projects is a developing branch of cultural resource management (CRM) (Hamilton 1990a:8-9; 1990b:4ff.). The archaeologist who participates in these

projects is simply helping to fulfill "the need to meet CRM regulations and guidelines as promulgated by the several review agencies" (Hamilton 1990b:4). In his view, the fact that private property laws give ownership of the artifacts to the treasure salvors should have no effect on the necessary presence of archaeologists in order to comply with CRM requirements. Worrying about ethical questions in this case is a waste of time, a non-issue (Hamilton 1990a:9).

Hamilton's equation of commercial salvage archaeology with CRM archaeology is as superficial as it is untenable. Surely there is a difference between a project concerned with an archaeological site that is threatened as an accidental consequence of a proposed development project and one that targets a historic shipwreck for commercial exploitation solely because it may contain objects of intrinsic value. The treasure hunter can hardly be equated with the developer who wants to build a house on top of what is, fortuitously, an archaeological site. Commercial salvage projects, in fact, violate one of the major principles that have gained broad acceptance in the past 20 years of CRM archaeology—namely, the conservation ethic, which treats archaeological sites as non-renewable resources that should be preserved whenever possible and only excavated if they are threatened (e.g., Lipe 1974; SOPA 1976; International Council on Monuments and Sites [ICOMOS] 1990). In most commercial shipwreck projects—the *Whydah* project included—there is no real threat to the site except from the salvage activities themselves.

An even more serious objection to Hamilton's linking commercial salvage with CRM archaeology is the relationship between the collaborating archaeologists and the treasure salvors. For, unlike most archaeologists working for clients on CRM projects, Hamilton and the other archaeological personnel working on the *Whydah* project are not independent archaeological consultants; they are, in fact, employees of the company that is conducting the salvage. Nor do they have complete control over all aspects of the archaeology, as an independent consultant would; for example, decisions about how much of the site will be excavated are

controlled, ultimately, by financial considerations dictated by the general partner.

Also, the *Whydah* archaeologists have regularly engaged in activities that are directly related to publicity, promotion, and fund-raising. Recently, the current principal investigator has also been acting as the joint venture's advance person, promoting the idea of and soliciting support for a *Whydah* "themed attraction" as a way of keeping the collection together. The attraction would include a working conservation laboratory, museum, "pirate tavern," souvenir shop, and full-scale replica of the *Whydah* (Hamilton 1990b:5, 7–9). This promotion has, however, been rather misleading: the impression is given that the entire *Whydah* collection will be permanently curated when, in fact, no such guarantee has been made, and there is considerable evidence for believing that at least a part of the assemblage will be sold. And the practical consequence of promoting the "attraction" has been a cessation of reductions of concretions in the laboratory and the lay-off of laboratory personnel.

As for ethical scruples, Hamilton invokes as his philosophical authority not Immanuel Kant, or John Stuart Mill, but Noah Webster—more precisely, *Webster's New World Dictionary of the American Language*, whose definition of ethics Hamilton cites as "the system of morals of a particular person, religion, group, etc." (Hamilton 1990b:13). In other words, according to Hamilton, ethics is whatever any group decides it should be:

Given that a project is legal, it is clearly ethical for business to make profits. . . . Like it or not, it is similarly ethical for treasure salvagers to salvage treasure; that is what they've done for many more years than archaeology has been a field of study and, I might add, with continued enthusiastic public support. It is also clear that it is ethical for archaeologists to meet the needs of the public by executing data recovery plans approved by regulatory agencies (Hamilton 1990b: 13).

By this absurd exercise in logic, it is ethical for robbers to rob and for murderers to murder. But by the same logic, it is ethical for professional archaeologists to establish their own ethical standards; the SHA did so in 1985 when it censured the commercial excavation of archaeological sites.

The Archaeological Regulators

Some of the state and federal agency archaeologists who have been involved in the *Whydah* project as part of the regulatory process also share the viewpoint that commercial salvage archaeology must be treated as part of the existing framework of CRM compliance. This perspective is perhaps natural given the constraints faced by most agency archaeologists: it is, after all, their charge to work within existing laws and regulations, which do allow some control over archaeological procedures and standards on commercial salvage projects, but these legal strictures generally do not prohibit commercial salvage or the ownership of artifacts. Many states, including Massachusetts, actively encourage the commercial recovery of shipwrecks, and award a substantial percentage of the value of recovered finds (up to 90%) to the salvor (Giesecke 1989:36).

Thus, working within the existing CRM compliance framework, regulatory archaeologists tend to promote the granting of permits to commercial ventures as a way of exercising control and ensuring that some archaeological procedures are followed. James Bradley, a member of MBUAR from 1982 to 1990, has argued the advantages of this position. According to Bradley (1989:43), the best advice is "to make the power of the law work for us by permitting these commercial ventures and holding them to high standards rather than looking for ways to deny and exclude them." Bradley also asserts that the archaeology on the *Whydah* project has been done well, and even makes the extraordinary claim—one that the *Whydah* Joint Venture itself has never made—that no artifacts from the salvage are planned to be sold (Bradley 1990:22).

But compliance archaeology is not necessarily good archaeology, just as what is legal is not necessarily ethical, and some regulatory archaeologists seem to have become advocates of treasure hunting instead of regulatory enforcers (cf. Beaudry 1990; Elia 1990). There can be no doubt that an aura of legitimacy accrues to commercial salvage projects by virtue of their holding permits and being in compliance with various state and federal permit regulations. The treasure hunters,

even though they are forced against their will into complying with archaeological regulations, soon learn to take credit for doing all the archaeology that has been imposed upon them. And by treating commercial salvage projects as compliance archaeology, the regulatory agencies need only concern themselves with ensuring that the salvors meet the required level of compliance, however minimal. This in turn contributes to a general acquiescence in the status quo, and no effort is made to change existing laws in order to prohibit exploitative commercial salvage projects.

Bradley (1989:43) even claims that "what is most important is control of the process." But the process is clearly flawed with respect to commercial salvage; Bradley of all people should realize this after spending more than six years trying to regulate the *Whydah* project as a member of the state's underwater board, only to have the board's jurisdiction and control eliminated after years of litigation.

The defense of commercial shipwreck archaeology as CRM or compliance archaeology runs aground on several shoals. Commercial salvage excavations are *not* the same as development projects that accidentally affect archaeological sites, even though both may result in the destruction of cultural resources. CRM projects are generally evaluated within the framework of the conservation ethic; avoidance of threatened archaeological sites, rather than excavation, is generally the preferred approach. And archaeological collaborators are *not* independent consultants; they work *for* the treasure hunters, not *with* them, and the distinction is more than a grammatical nicety.

It is true, however, that commercial salvage archaeology does share a few points of similarity with CRM archaeology. Unfortunately, these similarities include some of the more negative aspects of the CRM field, including the tendency of some CRM archaeologists to play both ends against the middle—i.e., to act as the go-between for the developers/salvors on the one hand and the regulatory agencies on the other, telling each what they want to hear; and, also, the proclivity of practically everyone involved in the process to gloss over mistakes and, publicly, at least, make the compliance

process appear to be completely successful. As Warren Riess (1988:136) remarked, after his experience with the *Whydah* project: "The state bureaucracy and the salvors will say that the cooperative effort is working even though it is not."

In terms of the *Whydah* project, one must await the completion of the project before making a final assessment of how well the archaeology was done. The work conducted to date, however, raises some disturbing questions. For example, in 1984, before MAHRI became involved in the project, a sizable portion of the center of the site was exposed through prop-wash blasting. This area covered approximately 2,700 sq. ft. (Roberts and Riess 1985: Fig. 1), or an amount roughly equal to the total area excavated (2,784 sq. ft.) during the 1984–1987 testing phase (Hamilton et al. 1990:66). The prop-washing exposed 18–20 cannon, a block, a deadeye, and numerous coins; in all, more than 3,700 unprovenienced artifacts were recovered (Roberts and Riess 1985:6; Hamilton et al. 1990:66). Yet nowhere in the annual reports is there an adequate accounting of this work or an assessment of the likely disturbance to the site; the 1985 annual report glosses over the issue, describing the large-scale exposure as accidental and the disturbance as minimal (Roberts and Riess 1985:6).

Professional Ethics and Treasure Hunting

Is collaboration with treasure hunters consistent with ethical standards of modern professional archaeology?

The development of ethical standards in archaeology is a relatively recent phenomenon, and one that mirrors both the increasing professionalization of the field and the fact that cultural resource management has become an important element of public policy. Among the ethical principles that have achieved general acceptance among archaeologists, three are directly relevant to the issue of participation in commercial underwater salvage projects.

First is the so-called "conservation ethic," which has already been mentioned. Under the conservation ethic, archaeologists act as stewards of

the archaeological resource base on behalf of the public. This responsibility includes avoiding exaggeration or misleading statements about, or taking actions that will result in harm to, the resource base.

Second is the explicit rejection of commerciality in archaeology and, specifically, of the buying and selling of artifacts for financial gain. This position was expressed in the by-laws of the Society for American Archaeology (SAA) as early as 1935 (SAA 1935:148) and continues to be an important standard of that and other groups, including the SHA, the Council of American Maritime Museums, and the International Congress of Maritime Museums (Johnston 1989).

A third standard, the logical consequence of the finite nature of the resource base and the inevitable loss of data resulting from the selling of artifacts, is the requirement that all recovered artifacts and project documentation be permanently curated (SAA 1961:137; SOPA 1976).

If artifacts are sold, the standard of permanent curation is obviously not being met. Those who support collaboration with treasure hunters often argue that they are more interested in data than objects. But objects *are* data. It is curious that those who object to the SHA/CUA ban on *Whydah* papers as censorship and an obstruction of the dissemination of scientific knowledge (e.g., Roberts 1989; Cohn 1989) do not seem to be bothered by the real loss of data that is occasioned when an artifact assemblage is auctioned. Is not scientific knowledge, after all, predicated on the requirement that research results can be replicated by other researchers? How can the analysis of the *Whydah* assemblage be verified, and how can additional analyses be conducted in the future (cf. Bass 1990), if the artifacts are sold?

With regard to the second ethical standard—the prohibition against commerciality in archaeology—it is evident that, despite the personal convictions of the collaborators, the mere fact of their participation in commercial salvage projects serves to promote those projects in very tangible ways. Given the present system of compliance archaeology, in many states a salvage project cannot take place without a professional archaeologist; therefore the archaeol-

ogist is making the project possible. If one adds to that the aura of respectability, professionalism, and official approval that accrues to the commercial project by virtue of its association with professional archaeologists, the conclusion is inescapable that collaborating archaeologists contribute to the commerciality of archaeology.

The fact that commercial salvage archaeology is absolutely inimical to the conservation ethic has already been discussed. The only way that collaborating archaeologists can claim that their involvement in commercial salvage enterprises protects the resource is by narrowly restricting their concerns to the specific site. Thus one constantly hears arguments like, "we must get whatever information we can;" "some information is better than none;" and "if we didn't get involved, the site would be looted." Such remarks, of course are a tacit admission that the salvors have no interest in the site other than commercial. Commercially-motivated excavations of non-threatened sites like the *Whydah* exploit, rather than conserve, the resource base, and no amount of sophistry can rationalize the selling of artifacts as conservation of the resource base.

Because the archaeologists who work for treasure hunters fail to live up to several of the most fundamental ethical principles of modern archaeology, how can anyone, especially those in public agencies, talk about ensuring "high standards of archaeology"? They may be referring to high standards of fieldwork and recording, although it remains to be seen on projects like the *Whydah* how high these standards in fact are. They cannot, however, speak about ensuring *high* archaeological standards, only *partial* archaeological standards, for without the core principles of the conservation ethic, permanent curation, and avoidance of commerciality, one is only talking about techniques, not the standards of a profession.

One of the essential elements of any profession is the notion of professional responsibility (Wildesen 1984:8-11) and for archaeology perhaps the most eloquent articulation of these responsibilities is the Code of Ethics of SOPA. Here the archaeologist's professional responsibilities are divided among three categories: those owed to the

public (i.e., the resource), to colleagues, and to employers and clients (SOPA 1976).

The participation of several SOPA members on the *Whydah* project is especially intriguing. Whether right or wrong, their involvement extends SOPA's ethical imprimatur to the question of collaboration with treasure hunters. Yet the project appears to violate several of SOPA's ethical codes and standards. For example, 1.1.1(b) of the Code requires that archaeologists "actively support conservation of the archaeological resource base;" as has been noted, the *Whydah* site, like most targets of commercial salvagers, was not in any imminent danger but was selected for excavation solely for its treasure. Another apparent violation is number 5 of the Standards of Research Performance, which requires that "specimens and research records resulting from a project must be deposited at an institution with permanent curatorial facilities."

Implicit in the collaborating archaeologists' justification of their actions is their refusal to accept any responsibility for the motives and actions of their employer, the treasure hunter. A collaborating archaeologist might argue that, technically, these standards are being violated by the project sponsor, not the archaeologist. But this claim ignores another important element of the SOPA Code—that an archaeologist's professional responsibility cannot be isolated from the larger project of which he or she is a part. This is explicitly stated in 3.3.2(e) of the Code: "An archaeologist shall not recommend or participate in any research which does not comply with the requirements of the Standards of Research Performance" and in 3.3.1(a) of the Code: "An archaeologist shall refuse to comply with any request or demand of an employer or client which conflicts with the Code and Standards." Thus by acquiescing in the commercial motive of a salvage project, the collaborating archaeologist is shirking professional responsibilities.

While several SOPA standards clearly are at odds with the idea of archaeologists collaborating with underwater treasure hunters, SOPA does not explicitly prohibit such activity. In contrast, the Code of Conduct of the Institute of Field Archaeologists

(IFA), established in England in 1983, does address this issue. IFA's code, which was adopted in 1985 and amended in 1988, was modelled in large part on the SOPA Code and Standards, and contains four major principles with several rules for each principle. Principle 2 espouses the archaeologist's "responsibility for the conservation of the archaeological heritage" (IFA 1988:3).

The IFA Code of Conduct includes a series of notes on various rules. A note on Rule 1.6, which includes the statement that "an archaeologist shall not engage in, and shall seek to discourage, illicit or unethical dealings in antiquities," is particularly relevant:

Archaeologists working on the foreshore and underwater may at times find themselves in difficulty regarding their association with commercial salvors and others engaged in exploiting the underwater cultural heritage. The underlying principles are (1) conserving the seabed heritage, (2) using it economically and in such a way that reliable information may be acquired, (3) dissemination of the results, and (4) professional permanent curation of the total site archive (IFA 1988:5-6).

The note goes on to say that archaeologists should "not knowingly permit their names or services to be used in a manner which may promote the recovery of archaeological material unless the primary objective of their work is to preserve the scientific integrity of the total site archive in a permanent professionally curated and publicly accessible collection." Moreover, archaeologists working on underwater sites should "not enter into any contract or agreement whereby archaeological or curatorial standards may be compromised in deference to commercial interests" (IFA 1988:6).

As is clear from the above, IFA has made explicit what SOPA only implies: "Professional permanent curation of the total site archive" is a fundamental principle of dealing with underwater salvors, and archaeologists should not enter into agreements if permanent curation is not guaranteed.

The Consequences of Collaboration

What are the effects of collaboration? Will it not lead the average person, who probably is not aware

of the conservation ethic, to believe that treasure hunting is not only acceptable but must be a good thing? After all, why would so many archaeologists be involved? And will collaboration not result in further assaults on the archaeological resource base?

It is difficult to assess the effects of the *Whydah* project on the remaining resource base, but it is likely that it has stimulated interest in shipwreck salvage. It is interesting to note that between 1976 and 1982—the year Clifford received a permit from the state underwater board for the *Whydah*—fewer than 20 permits had been given for underwater projects in Massachusetts; between 1983 and 1990, over 65 permits were awarded (Victor Mastone 1990, pers. comm.). Certainly the project has generated a remarkable amount of publicity in the print and electronic media, and two popular books have so far appeared (Dethlefsen 1984; Vanderbilt 1986). The print media's coverage of the project includes 131 articles in the *Cape Cod Times*, 30 in the *Boston Globe*, 9 in the *New York Times*, and some 15 magazine features in publications like *People*, *Yankee*, *Time*, *Parade*, and *Boston Magazine*.

The national media reportage, which was sporadic but reached a wide audience, tended to focus on the more sensational aspects of the project. *People* magazine, for example, with a 1983 circulation of 2,600,000, carried a feature story with the headline "Barry Clifford's zany crew—including JFK Jr.—prove that way down deep, they're gold-diggers" (Ryan 1983:26). While most of the articles identify Clifford as a "treasure hunter" or "marine salvager," others use more colorful epithets, especially in the early years of the project. Thus Clifford is described as "a handsome, swash-buckling, 20th-century buccaneer" (Fee 1983:1), "the Cape Cod underwater salvage swashbuckler" (Ghioto 1984:17), and an "adventurer" (*Boston Globe* 1985). Clifford reached a new level of respectability in late 1988, when the *New York Times* (1988) referred to him as a "salvage entrepreneur."

Almost without exception, the print reporting has uncritically accepted the salvors' optimistic, if not inflated, estimates of the value of the treasure.

These estimates, of course, heighten popular interest in the project and serve to attract investors. The first estimate for the *Whydah*—"400 bags of gold and silver"—appeared in print in early December 1982 (Fee 1982a:1). A few days later, the figure was "\$80 to \$200 million" (Fee 1982b:1). This value was repeated in every story until July 1984, when the treasure was described as "probably worth \$400 million" (Holmes 1984:1); this new figure, whatever its origins, was first announced by a sympathetic member of the MBUAR. From mid-1984 until the present, virtually every article in the local, regional, and national media has repeated the \$400 million estimate.

The publicity surrounding the *Whydah* treasure reached a peak in a cover story in *Parade* magazine (White 1985:6-9). The cover shows a picture of Clifford against a background of silver and gold coins; the headline reads, "The man who discovered a \$400 million pirate treasure," as if that much loot had already been recovered; in 1985, it should be noted, the circulation of *Parade* magazine was over 25,000,000. This article was one result of a national media campaign orchestrated by a New York public relations firm; can there be any doubt that the article played a role in the creation of the joint venture and the eventual infusion of \$6 million into the project?

One certain consequence of the *Whydah* project, at least in Massachusetts, has been that commercial marine salvors are now respectably entering the mainstream of underwater archaeology, at least as far as public agencies are concerned. Two examples of this disturbing trend will suffice. On 27 October 1987, both of Boston's daily newspapers carried front-page stories reporting Barry Clifford's claim to have rediscovered the exact spot of the Boston Tea Party, and his intention to apply to the MBUAR for a permit to survey a segment of Boston Harbor with the eventual goal of salvaging tea chests. The site of the Tea Party incident—Griffin's Wharf—was never lost; it is, however, now several hundred feet inland as a result of landfilling since the 18th century. When this fact was pointed out at the underwater board meeting, Clifford quietly reapplied for a permit to survey a reduced area, now focusing on the waters off Long Wharf.

The targeted resource now was to be three scuttled ships and a quantity of military material dumped off the wharf by the British when they evacuated Boston in March 1776. In Clifford's permit application, a list of ships and supplies abandoned by the British was quoted to show what the salvors expected to find (Clifford 1988: Attachment C). Two sources were cited for the quoted list: a recent popular book (Birnbaum 1986:366-368) and an antiquarian history (Frothingham 1849:406-407). The original list is from a report of the Deputy Quartermaster-General of the Continental Army and contained an inventory of ships, supplies, and armaments that had *already been secured* by the Army (Frazer 1844 [1776]).

This documentation was presented to the MBUAR, which requires "demonstrable proof" of the presence of a resource before it can issue a reconnaissance survey permit (MBUAR 1985). When faced with a clear choice between historical evidence and pseudo-history, the Board, with one exception—the state archaeologist—still voted to grant a permit to Clifford's group. The vote confirmed the painfully obvious fact that the state underwater board, a body that includes representatives from the diving community as well as bureaucrats who are not archaeologists, is simply not competent to judge matters requiring archaeological expertise.

The second example shows that the legitimization of treasure hunters in Massachusetts is now nearly complete, thanks largely to the efforts of collaborating archaeologists. In late 1990, Clifford's marine salvage firm was awarded a public contract to conduct a CRM project—an underwater archaeological evaluation of a portion of Boston Harbor that will be disturbed as part of a multi-billion dollar cleanup of the harbor. With Christopher Hamilton serving as principal investigator, the salvage firm employed commercial divers to identify and evaluate possible archaeological resources within the affected area. Public money is thus being paid to a marine salvage company in order to conduct an archaeological investigation that is required by federal preservation law. The unfortunate irony is that the salvage firm might discover underwater sites and, after the state agency avoids the sites in its construction (which is

its stated intention), under state law there would be nothing to prevent the salvors from filing a permit to salvage the sites. Thus, federal preservation law and public funds can be used to give a private salvage firm an inside track to the commercial salvage of underwater archaeological resources.

Conclusion

Somehow it always seems to come down to money. The commercial value of some shipwrecks motivates treasure hunters and keeps underwater archaeological resources apart from other cultural resources in terms of treatment under the law, in public policy, and in the popular mind. And it is no coincidence that the most vocal advocates of collaborating with treasure hunters are those who themselves are currently receiving, or have received, substantial financial compensation from commercial salvage projects. There is also the fallacy—often used in the justification of commercial salvage projects—that only private-sector funding is used on such projects. In fact, public money is regularly being spent on these projects—in the form of the salaries and expenses of agency archaeologists and other public officials who must regulate them, and in the court system, which handles the incessant stream of litigation that seems to be a natural adjunct of commercial salvage projects.

Archaeologists must not lose sight of the fact that commercial treasure hunting is one of the last vestiges of an outmoded and outdated approach to the treatment of cultural resources. One can point to numerous examples in the past where a people's cultural patrimony was uprooted and carried off for the sake of its commercial, artistic, or historical value. In many cases this was accomplished through means that, at the time, were sanctioned by the force of law. One thinks of Lord Elgin's wholesale removal of the Parthenon Marbles in Athens on the basis of his *firman* from the Turkish government in Constantinople, or the removal of the Benin bronzes as spoils of war by the British in 1897 (Greenfield 1989:145–148).

Today, in this later and, one hopes, more enlightened age, notions about cultural patrimony

have greatly matured. The international preservation movement has developed a much keener awareness about the importance of preserving cultural resources for the benefit of all people. This maturity is exemplified, most recently, by the unanimous adoption of a *Charter for the Protection and Management of the Archaeological Heritage* by the 59 national committees of the International Council on Monuments and Sites (ICOMOS 1990). The *Charter* fully espouses the conservation ethic as its guiding philosophy. To be sure, the profit motive still exists, as the flourishing international trade in illicit antiquities testifies, but, for the most part, the commercial exploitation of archaeological sites is an illegal and clandestine activity. When viewed from the perspective of the great strides that have been made in the preservation field over the past 20 years, commercial salvage projects like the *Whydah* are an outrageous and unacceptable anomaly.

The passage of the Abandoned Shipwreck Act in 1988 removed historic shipwrecks on state land from the jurisdiction of federal admiralty courts, which have traditionally treated shipwreck salvage as an economic, not an archaeological issue. Although the passage of the new law was a victory for preservation, it is only half the battle; now the states must manage their underwater cultural resources, and many are still doing so with regressive laws that encourage commercial salvage.

By actively participating in, or even acquiescing in, commercial salvage projects, archaeologists contribute to the exploitation of the resource base and the conversion of cultural patrimony into private gain. In so doing, they are abandoning the hard-won achievements of the past two decades and forsaking the ethical foundations of their young profession. Archaeologists study a finite and dwindling resource base whose preservation lies largely, though not solely, in their hands. If archaeologists do not speak for, and accept the responsibility for, these resources, can one expect anyone else to?

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The *Unicorn* wreck

by Fredrik Søreide and Marek E. Jasinski

This article reports on the results of underwater archaeologist investigations of an 18th-century Russian ship, using remotely-controlled equipment.

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The *Unicorn* wreck, central Norway—underwater archaeological investigations of an 18th-century Russian pink, using remotely-controlled equipment



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Introduction

In the late 1980s the Norwegian oil company Statoil, started to explore the oil and gas reservoirs on Haltenbanken in the Norwegian Sea. As a result of finding the Heidrun oil and gas fields, Statoil and Conoco planned to build a new gas pipeline from the offshore continental shelf to the shore. After having completed several seasons of sonar and topographical seabed surveys, a potential pipeline route, expected to be the route of fewest physical obstacles and lowest cost was selected. This route crosses over a rugged seabed with water depths of over 300 m and has a total length of about 250 km.

During the initial surveys through the coastal approaches, at Ramsøy Fjord, between the islands of Smøla and Hitra (Fig. 1), it became clear that the route ran close to a small bay where a Russian ship was wrecked in the 18th century. Cannon and other objects had been found in the bay earlier, but the hull had never been discovered. The cannon are situated in shallow water from 3 to 26 m deep. At 32 m, the seabed falls quickly to a depth of approximately 250 m, and then becomes flat and sandy. Here, parts of the ship's hull could be situated on the seabed

and potentially be destroyed by the pipeline.

The Institute of Archaeology, therefore, claimed that according to Norwegian law, investigations had to be carried out to establish whether the pipeline might damage cultural heritage on the seabed. Statoil had not previously experienced such considerations on its other pipeline projects further south in the North Sea, and at first attempted to disclaim responsibility for marine archaeology, but later decided to cooperate and include the extra costs in the project (Hovland *et al.*, 1998). Thus a marine archaeological survey was financed by Statoil in 1994 and carried out jointly by the Institute of Archaeology and the Department of Marine Systems Design at the Norwegian University of Science and Technology.

This project was also the result of a deliberate attempt by the Norwegian University of Science and Technology to focus on technology and marine archaeology. The Institute of Archaeology and the Department of Marine Systems Design have cooperated since 1993 to use and develop remotely-controlled equipment and to develop a methodology for the use of such equipment in marine archaeology

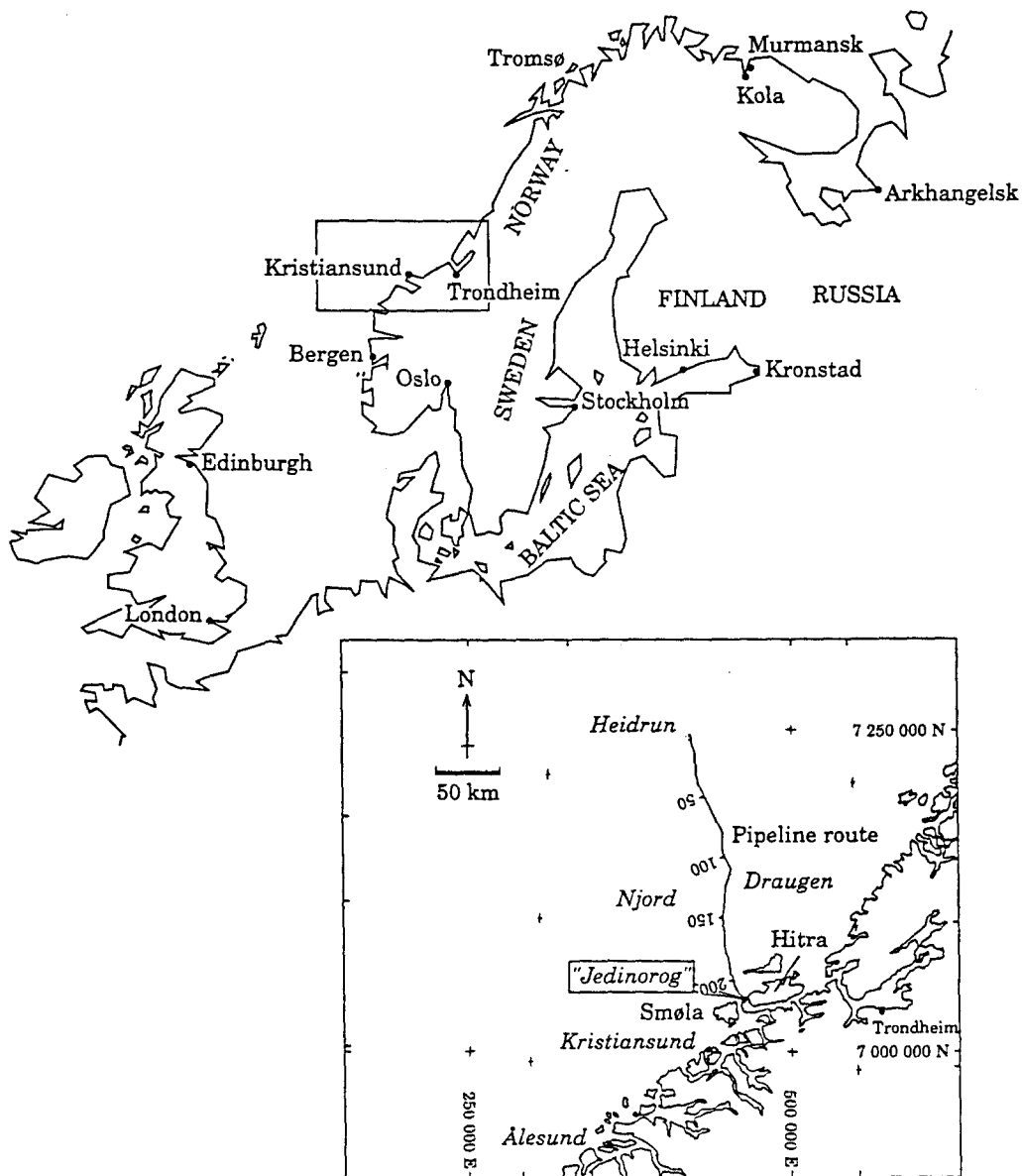


Figure 1. Site location and places mentioned in the text.

(Kristiansen, 1993). The project described here, and which was completed in 1997, is the largest project which has been undertaken so far. The project had two major goals:

1. To investigate the shallow part of the site containing parts of the ship's cargo and cannon.
2. To find and document the remaining parts of the hull and cargo, believed to

be situated at depths of 250–280 m, and to establish whether or not the pipeline could damage parts of the wreck.

Due to the considerable depth, the size of the area which had to be investigated and the difficult topographical and weather conditions in this part of Norway, the project conducted by the authors raised several technical and methodological questions. The project had to employ

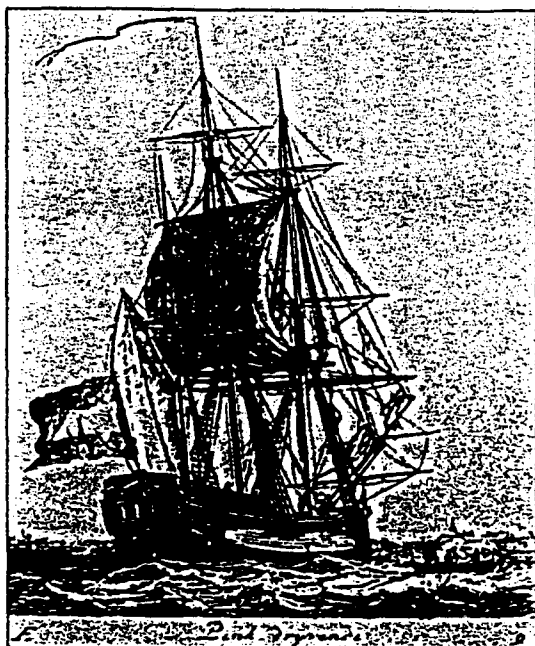


Figure 2. A pink, similar to *Jedinorog*. (Source: Museum of Natural History and Archaeology, Trondheim)

technology which had not been used on underwater archaeological sites in Norway before. This article reports on the results of these investigations with an emphasis on methodology.

Historical background

The Russian pink called *Jedinorog* or *Unicorn*, was built in 1758/59 at the Solombalskaya shipyard in Arkhangelsk. The ship was a naval transport, approximately 130 feet (39 m) long, 31.6 feet (9.6 m) wide with a keel-deck height of 12.6 feet (3.8 m). The ship was carrying 22 cannon for defence. Ships of the pink type were built on the order of Tsar Peter the Great from 1715. In Arkhangelsk, the first pink was built in 1741 and the last, of a series of four, in 1782. *Jedinorog* belonged to the third series. In total, 28 of these vessels were built at this shipyard.

On only its second journey, the ship (Fig. 2) was on its way from the Kronstad

Navy base near St Petersburg to the shipyard in Arkhangelsk loaded with an unknown number of cannon, lead, anchors and other commodities, to be used to fit out new ships. At this period of time, Krönstad and Arkhangelsk were the two most important harbours in north-west Russia. All traffic between these two harbours had to go along the Norwegian coastline (Fig. 1).

On 16 October 1760, the ship had reached Smøla Island in the middle of Norway when a storm arose. Two days later the three masts had all broken and the ship was drifting in the dangerous waters of the Ramsøy Fjord out of control. On the following night, the ship ran ashore at Sæbu Island and broke up (Fig. 3). The ship was crushed against the rocks and most of the cargo fell into the sea. No one seems to have survived the wrecking, apart from 12 sailors who had been put ashore at Smøla Island on 16 October (Jasinski, 1994).

The story of the shipwreck was kept alive by the inhabitants of the Sæbu, Hitra and Smøla islands, but over the years some elements were added and some removed until the identity of the wreck could not be certain, and it became difficult to differentiate between the truth and added elements. After more than 200 years, the story was on the point of being forgotten.

In 1970 a local historian, Arne Stene, presented a story, published in a local newspaper (Thanem, 1970), saying that the ship which had been wrecked on Sæbu Island (the grounding site is called the Russian Neck), was a Russian ship called *Voronov* and that this wrecking had taken place in 1730. His story was based on years of research into local traditions. The ship was supposedly on its way from Arkhangelsk to England with 700 Russian emigrants when surprised by a storm and wrecked on the rocks of Sæbu Island. Most of the emigrants drowned, but some survived only to be killed by local people.

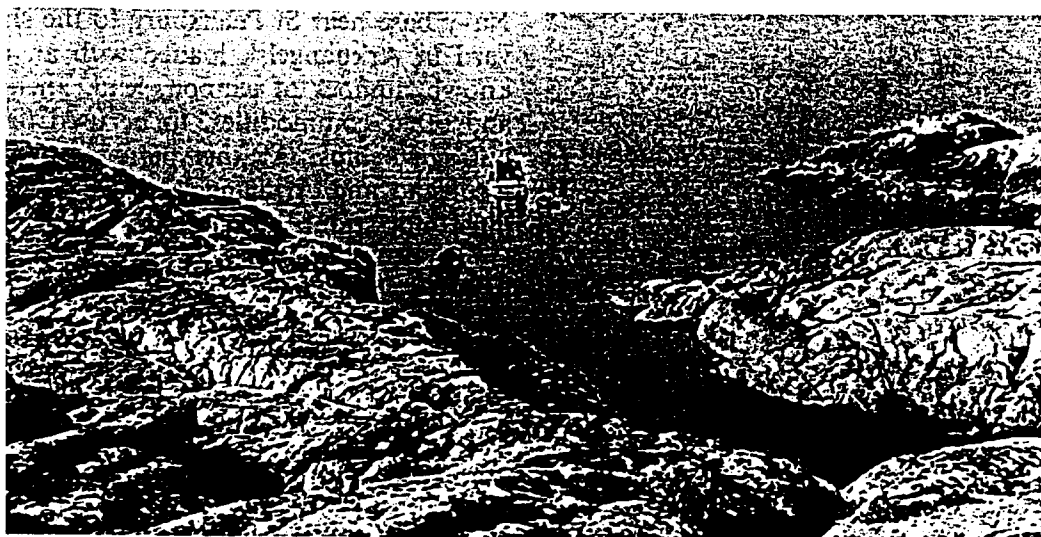


Figure 3. The grounding site on Sæbu Island. (Photo: M. E. Jasinski)

However, one woman was said to have survived and later to have become the ancestress of a well-known local family.

The name of the alleged ship and the year of the event in this story were probably inspired by a cannon found on the beach after the wrecking. On this cannon there was an inscription saying 'Voronez 1730'. In addition over 100 cannon were recovered from the shallow part of the site in 1877 by a salvage company from Trondheim. These cannon had the inscriptions Voronez 1716 and Olonets 1715, depicting the place and date of their production rather than the name of the ship. The cannon recovered in 1877 were later sold to two British companies, Rath & Raundrap and Bailey & Leetham, according to sources in the State Archive in Trondheim.

After the publication of this article, Stene received information from the Naval Museum in St Petersburg saying that there was no record of a Russian shipwreck in 1730 in their archives. However, a Russian transport vessel, named *Jedinorog* and piloted by Vasilij Bulgakov, had been wrecked in that area in 1760. Stene decided that this had to be another shipwreck and

published a new article in 1971 arguing that the ship must be the Russian vessel *Voronov*.

In 1974 Eilert Bjørkvik published a new article (Bjørkvik, 1974). He had analysed all the traditional stories and compared these with the written sources found in official Norwegian archives. According to the official archives, a Russian ship had run ashore on Sæbu Island on the night of 18 October 1760. This was reported by a local called Henrik Dons to the bailiff, calling for the bailiff to come to the area, because some Russian sailors who had been set ashore on Smøla Island some days before the shipwreck had come to his house and taken away (unlawfully according to him) all the goods he had salvaged from the wreck. Dons also mentions that when he travelled to the island on 19 October he found several dead bodies which were later buried, and a woman who was alive when she was found, but who died a few hours later. The surviving Russian sailors also gave a statement saying that they were put ashore on Smøla Island on 16 October to repair a barge, and otherwise confirmed the events described above. From this Bjørkvik concluded that

there could be no doubt that it was *Jedinorog* which had been wrecked on Sæbu Island in 1760.

It is interesting to note the differences between the written sources and the local tradition. The differences are mainly: different year of the wrecking; different identity of the ship and mission; and differences concerning the woman who supposedly survived the wrecking. Also, according to local tradition, several Russian sailors survived only to be killed by the local people. There is no mention of this in the Norwegian sources. In these sources, the Russians are rather said to have threatened the local inhabitants of the islands.

With the introduction of scuba diving, a few objects were recovered from the grounding site in the 1960–1970s by amateur divers and archaeologists, but the site was more or less left untouched until the project described here was initiated in 1994. As a part of the assessment Dr Oleg V. Ovsyannikov of the Russian Academy of Science searched in the Central Archive of the Russian Navy in St Petersburg and located not only the written statements concerning the shipwreck, but also the original lines drawings (Fig. 4).

The main parts of the Russian statements are identical to the Norwegian sources. There are, however, some small, interesting differences in the declarations given at the Russian inquiry into the loss of the ship (Jasinski, 1994). When the twelve sailors who had been put ashore on Smøla Island to repair the barge noticed that their ship had lost its three masts and later disappeared, they had waited for better weather and then rowed out to find the ship. On the other side of the fjord they had discovered wreckage. Two dead Russians were lying on the beach, bound together. Other members of the crew were found later; some were missing a foot or an arm and some even their head. The next day the sailors

returned to the site only to find people collecting goods from the wreck. When protesting against this, the sailors were threatened and nearly killed. In the end, the twelve sailors had to stay on Smøla for another eight months until they could be transported to Denmark and then back home on another Russian vessel.

Marine archaeological investigations in shallow water

The marine archaeological investigations in shallow water were carried out for a number of reasons. Even though the historical sources seemed to lead to the conclusion that this was the wreck-site of the Russian pink *Jedinorog* which sank in 1760, it was important to confirm this through site investigation. By examining the wreck-site it was believed that recovered artefacts would be able to confirm the identity of the ship. The goal was to make a systematic and thorough documentation of the site. Even after several years of diving activity on the site, not to mention the salvage operation of 1877, a remarkably large number of objects were still lying on the seabed. Unfortunately, artefacts have been taken illegally by sport divers who frequent the site and in 1991 even a cannon was raised.

The work on the site was initiated in the summer of 1994 and continued on the shallow part in the summers of 1995 and 1996. In order to document the site thoroughly, diving archaeologists planned and measured all artefacts on the seabed. In addition, they were photographed, video filmed and drawn before being raised to the surface. This work resulted in a site plan (Fig. 5a & b).

Altogether 17 cannon were found and documented (Fig. 6). Inscriptions on the cannon confirm that this was a Russian vessel. The most common finds apart from the cannon were pieces of *Guaiacum* wood (*Guaiacum officinale*) carried as cargo and

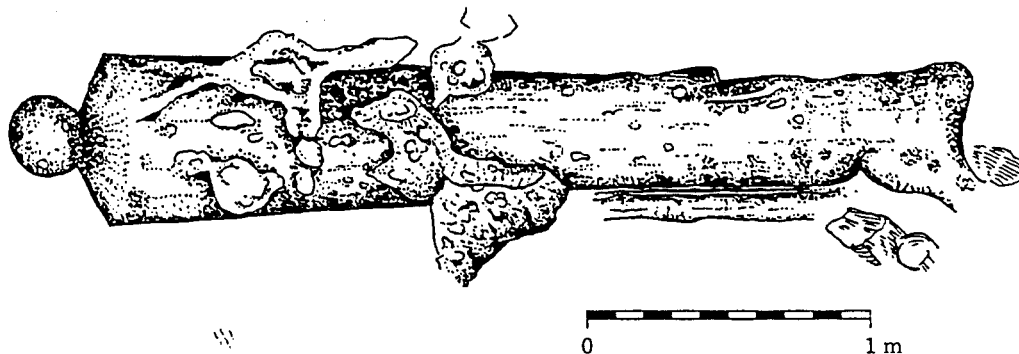


Figure 6. One of the cannon from the *Jedinorog* site before conservation. (Drawing: S. Carpenter)

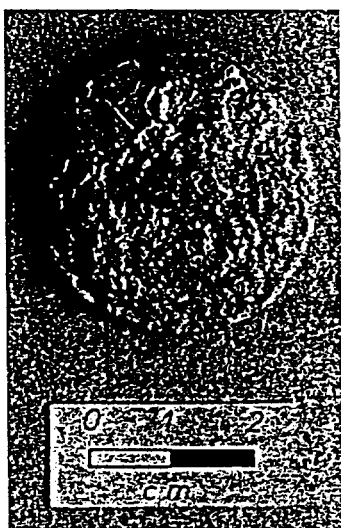


Figure 7. A Russian 5 kopeck coin from 1757 found on the grounding site. This side shows St George—'he who comes with victory'. Obverse shows the initials of tsarina Elisavieta Petrovna. (Photo: J. Fastner)

considerable amounts of lead. The wood was a very useful commodity, especially for ship equipment such as tackles. The lead had several applications, mainly as supports on wooden gun carriages. In addition, artefacts such as gun flints, coins (Fig. 7), glass and two ship weights were also found and documented. One of the ship weights has an inscription showing the city weapon of Moscow and the year 1756. Several of the coins were minted after

1730. This proves that the ship could not be *Voronov*. In 1995 and 1996 a trial trench was excavated near 2F1 on the plan in Fig. 5b. This revealed a fairly thick cultural layer. Among the objects recovered were several gun flints and fragments of porcelain, glass, iron and wood.

This first systematic marine archaeological investigation of the site has together with written sources from Norwegian and Russian archives, proved beyond doubt that the ship is *Jedinorog*.

Underwater measurements

In order to draw the plans in Fig. 5a & b, the divers used conventional tape measurements. In addition, two systems based on acoustic techniques were field tested and used to measure the same area. A Simrad HPR 300P underwater positioning system was tested. This system consists of a transducer mounted on the research vessel or near the surface, a transponder on the bottom which is being tracked and a processor. The system is typically used to position remotely operated vehicles (ROVs).

An acoustic signal is sent between the transponder and the transducer. Given that we know the speed of sound in water, the distance between the two can be measured. In addition, the transducer has

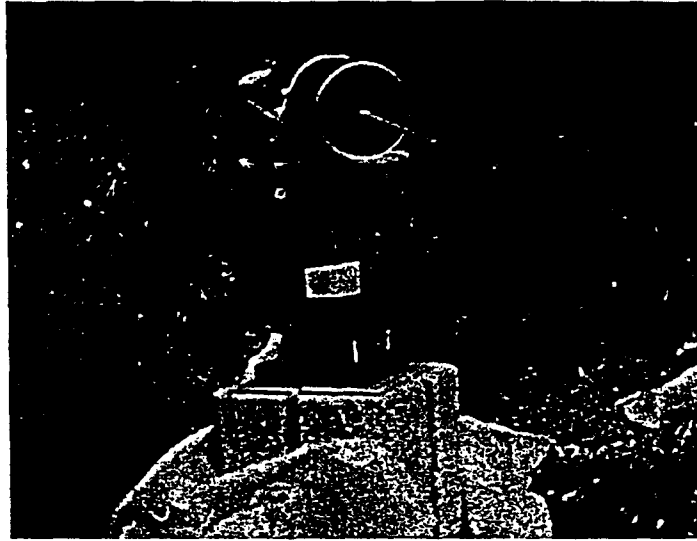


Figure 8. Sporange 4PT subsea measurement system mounted on one of the base stations. (Photo: P. Nymoen)

a number of sensors which all receive the same signal with a small phase difference. It is therefore possible to calculate the angle of the sound beam. This results in a (x,y,z) coordinate of the transponder's position relative to the transducer (which has a known position). The accuracy is typically 2% of the slant range between the transponder and the transducer.

The area was measured by divers who swam around with the transponder on the bottom, and positioned this on points which were to be included in the plan, including terrain formations, cannon and other objects. The system was very time efficient, about thirty measurements were made on a standard 30-minute dive. The accuracy may, however, not be good enough for all projects. Based on several control measurements, it was found that an accuracy of better than 40 cm was achieved, good enough for a rough plan, but not for fine details. However, a fairly good plan similar to the one in Fig. 5b could be drawn using only five dives.

The second system tested to measure the site was a professional subsea measurement system developed by Seatex for accu-

rate measurements in the oil industry. The system, Sporange 4PT, is also based on acoustics. It can be compared to a total station used on land. It consists of a combined laser/acoustic unit, a pan and tilt unit and a processor (Fig. 8). In addition, one or more base stations with known coordinates must be placed on the seabed. The system is mounted on top of these stations. By using the pan and tilt unit, the laser/acoustic unit can be turned in all directions. The laser beam is used as a pointing device, the unit is turned until the laser points directly at the point which is being measured. Having adjusted the system correctly, an acoustic device then measures the distance between the unit and the point indicated by the laser beam. Knowing the pan and tilt angles it is then relatively easy to calculate the position of the point, measured as a (x,y,z) coordinate, relative to the base station. If the same point is measured from more than one base station, the accuracy will improve.

In order to use the system it is necessary to have a camera or diver on the seabed, so that the laser beam can be pointed in the

right direction. The pan and tilt unit is turned by an operator on the surface until the laser beam points exactly towards the point which is being measured. To achieve this the operator either needs to see the beam through a camera or receive directions from a diver using a communication system (Orcatron scuba phone). Both methods were used. The diver was equipped with a small metal plate. This doubled as a reflector for the acoustic signal, and a target. When the laser dot became visible on the plate, a measurement was taken. Slant range measurements were very accurate, on control falling within ± 2 cm. However, when distances between two such points were calculated (for instance the length of a cannon) the accuracy fell by between 10–50 cm. It therefore seemed that the pan and tilt measurements were insufficiently accurate. In addition, the operation of the system was slow and the maximum number of measurements obtained on a 40-minute dive was only seven.

Despite this, the Sporange system has an obvious potential for future underwater archaeological measurements. It can, for instance, be suggested that a modified system be developed where the acoustic unit on top of the pan and tilt unit automatically follows a transponder carried around by the diver. This would substantially increase the speed of taking a measurement. In addition, earlier tests in the North Sea have shown that, with improved pan and tilt measurements, the stated total accuracy of ± 2 cm may be achieved.

There can be no doubt that in such measuring systems utilizing new technology lies the future for underwater archaeological investigations. Several systems (including SHARPS and other underwater positioning systems) have already been field tested for marine archaeology. It is already possible to make acceptable documentation with such equipment, but

several problems, such as accuracy (it is very difficult to achieve better than 10 cm accuracy), ease of operation and cost, remain to be solved before such equipment can become the standard method.

Marine archaeological investigations in deep water

The main purpose of the marine archaeological investigations was to locate and document the parts of *Jedinorog* which could potentially be destroyed by the pipeline. It was believed that after a period of time, the remaining parts of the ship and cargo had sunk and fallen off the steep underwater cliff starting at approximately 32 m deep. As this cliff does not level out until approximately 250–280 m deep it was believed that large wreck parts would be found on the flat, sandy sea bottom, not far from the pipeline track, their positions being dependent on the effect of the current on their descent to the sea bottom.

When Statoil was made aware of this, a side-scan sonar survey was conducted in the area to locate possible wreck parts. This survey revealed four anomalies on the sea bottom (Fig. 9). At such depths it was obviously impossible to use divers, and it was decided to use a remotely operated vehicle (ROV). The University owned a small observation ROV, a Sprint 101, equipped with a video camera and a Simrad 971/900 scanning sonar, which can also be used to locate objects from the wreck. It was used in the summer of 1994 to examine the area around anomalies nos. 1 and 2. However, only small wreck fragments, such as wood and lead, were found in these areas.

Both the side-scan sonar and the scanning sonar use acoustic signals to create an image of the seabed and objects lying on it, that is, possible targets for the investigation. The seabed in the areas surrounding the four anomalies is flat and sandy. In these areas it is therefore relatively easy to locate objects lying on top of the seabed



Figure 9. Side-scan sonar image of the area. Note the four anomalies. (Source: Statoil)

with a sonar. When an object is located by the scanning sonar, the ROV can be flown to this position, and the object can be studied using the video cameras that are mounted on it. The most frequently located objects were, however, not wreck parts, but smaller stones and piles of seaweed. Closer to the underwater cliff the terrain turns stony with small areas, galleries and crevices, filled with sand. In these areas, and in the cliff side itself, it is very difficult to use a sonar as it is almost impossible to separate wreck parts from the surrounding rocks. In these areas only a visual search is possible using the video cameras.

A new survey was carried out in 1995. This concentrated on examining the area around the third anomaly, but again only fragments of the wreck were found (some

wood and lead). A Hyball observation ROV (Fig. 10) equipped with a video camera, stills camera, a one function manipulator arm and a Simrad scanning sonar was used. In addition the Simrad HPR 300P underwater positioning system was used to position the ROV relative to the research vessel. The research vessel was positioned with differential GPS. The complete system is shown in Fig. 11.

Before the 1995 season a computer software program called VETIS (Vehicle Tracking and Information System) was developed. This keeps track of the research vessel and the ROV, and displays their positions in real time on digital maps. This made it very simple for the ROV pilot to navigate, and supported the team with an overview of the areas already investigated and the areas not yet covered. In addition,



Figure 10. Hyball remotely operated vehicle. (Photo: F. Søreide)

the system can be used to log information, such as position, text, pictures, and video images, about objects found. All of this information is stored in a database and can be replayed in the computer later and linked to the video from the investigations through time references. Thus, the VETIS database now contains information about areas searched for wreck parts, parts found and where found (including positions, text, pictures and identification numbers), making it an excellent form of documentation supported by the video recordings (Søreide *et al.*, 1996; 1997).

Because nothing had been found which could account for the large anomalies, a new side-scan sonar survey was carried out in the autumn of 1995 to confirm the first, and to better establish the position of the anomalies. This sonar survey could not confirm the existence of the four larger anomalies. Instead it indicated a large number of smaller targets scattered all over the bottom, with some of these close to the anomalies from the previous sonar survey.

In 1996, a SeaOwl 507 observation ROV was used to investigate the area around

anomaly no. 4. This ROV examined the area from shallow water (20 m) above anomaly no. 4 and down to the anomaly at 260 m. The area around anomaly no. 3 was also investigated again as were some new anomalies in areas not examined before. However, this survey also failed to discover large wreck parts. The Hyball ROV was used to survey an area from the shallow grounding site down to about 80 m. This area revealed a number of artefacts (wood, lead, iron) in 50–80 m of water.

Due to the large amount of sedimentation in the area, and even possible landslide from the underwater cliff, it was believed likely that wreck parts could be buried beneath the sediments. An investigation with sub-bottom profiling equipment was therefore carried out using TOPAS, a high performance seabed and sub-seabed inspection system with a unique scanning parametric sonar and electronically controlled beam which collects detailed 3-D or vertical (2-D) topographic and seismic profiling data. The system can be used to generate a real-time display of the seabed and

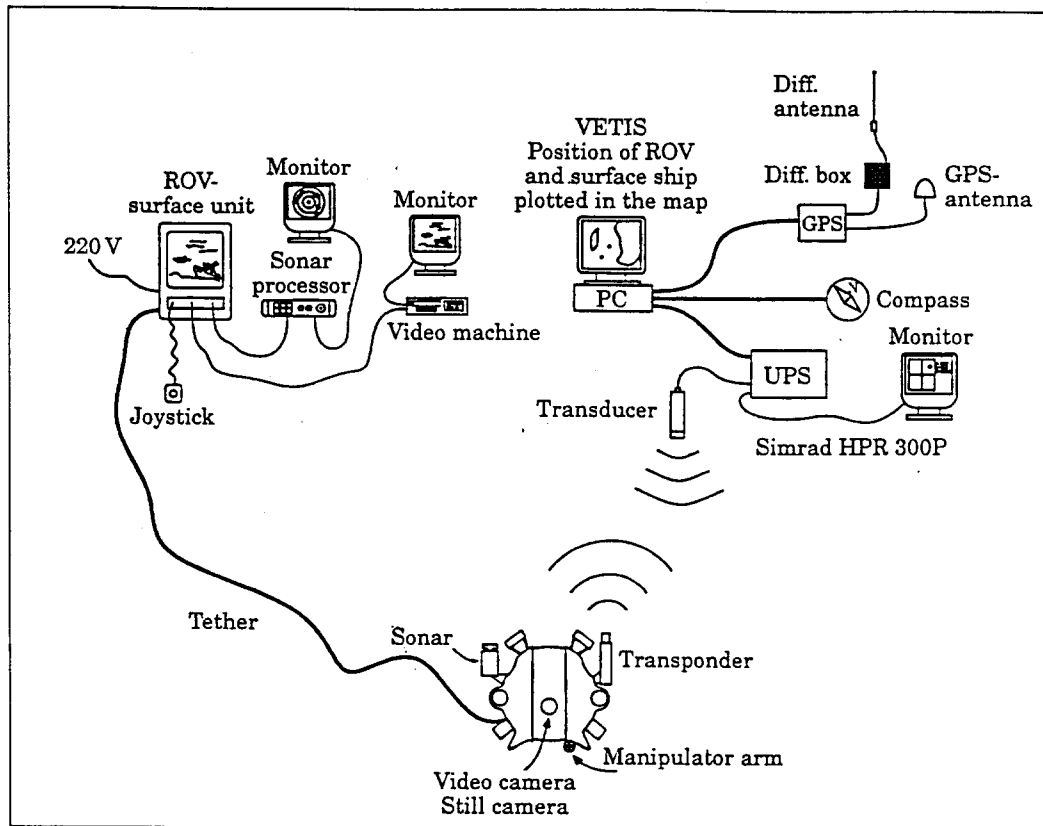


Figure 11. The complete system used to investigate the deep part in 1995–96. (Drawing: F. Søreide)

underlying structure and thus detect wreck parts partly covered by sediments (Søreide & Jasinski, 1997). At this location the system identified 29 possible wreck positions on or just beneath the seabed. In the areas with stone, or stone covered by only a small layer of sediment, the system could obviously not penetrate the sediments, and was unable to locate anything. The system can be compared with CHIRP which has been used by other archaeological institutions. TOPAS has the advantage of a scanning beam which permits much quicker data collection, equal or better vertical resolution and better horizontal resolution.

In addition to the TOPAS investigation, a magnetometer survey was also conducted, but due to a high and varying metal content in the cliff side, this survey was inconclusive. Finally, seven sediment

samples were taken with a grabber at predefined positions on the seabed, and analysed for metal content, including iron and lead. The seven areas analysed were considered to be the most promising for finding wreck parts. Compared with a neutral sample and most of the other samples, two of the samples had a lead content which was twice as large. These samples were positioned around anomalies 1 and 2 in Fig. 9.

Based on the results from the previous years and the results of the side-scan sonar, TOPAS, magnetometer and bottom sample surveys, a number of promising positions were selected and investigated in June 1997. A SOLO work-class ROV (Fig. 12) installed on board the offshore diving vessel *Seaway Commander*, owned by Stolt Comex Seaway (Fig. 13), was used

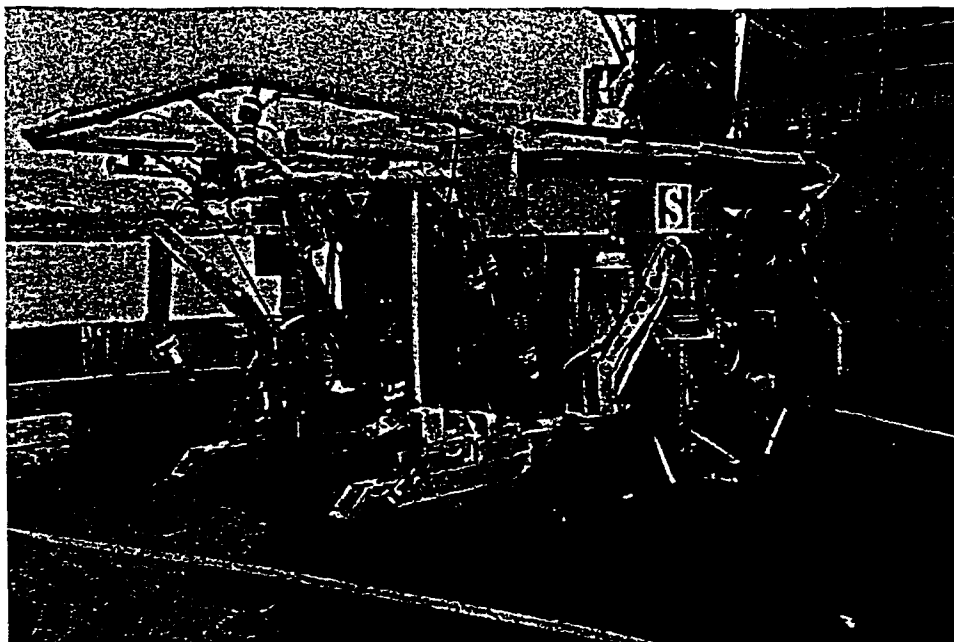


Figure 12. SOLO work-class ROV. (Photo: F. Søreide)



Figure 13. The operations room on board *Seaway Commander*. Underwater archaeology with ROV is very different from conventional diver based operations. (Photo: F. Søreide)

in these investigations. The ROV first investigated the targets already identified as the most promising. It identified them

as either stone or piles of seaweed/garbage, and larger wreck parts were not found.



Figure 14. Image shows an approximately 80 cm long log of wood at a depth of 88 m. The wood was identified on recovery as *Guaiacum officinale*, and was one of several such logs found. The logs were carried as cargo. (Photo: SCS)

A grid survey was then carried out. The ROV searched systematically along pre-defined lines along the seabed, using both a scanning sonar and a side-scan sonar. A few wreck parts were discovered during this survey, including some objects from previous seasons. The side-scan sonar data was analysed, and targets on this were thereafter investigated by flying the ROV to these targets. All objects on the seabed (typically stones, piles of seaweed, garbage, and parts from the wreck) having a height of more than 20–30 cm were located and examined. All objects found were registered with a description and positioned using Stolt Comex Seaway in-house software package. Only a few smaller wreck fragments were found. Based on this survey and the work from previous seasons it was concluded that there were no larger wreck parts on the deep part of the site, close to the pipeline.

It was then decided to investigate the steep bottom from the deep area and up to the shallow grounding site. A number of

gridlines were drawn up, but as some parts of the cliff are very steep, making it impossible for wreck parts to lodge, while in other areas there are galleries and crevices where it would be fairly likely that wreck parts could lodge, it was decided to try to follow the natural paths which wreck parts would have followed on their descent down the cliff. Some of the gridlines contained no material from the wreck. However, along one line, a depression connecting the shallow part to the deep part, the ROV found a large number of artefacts, such as wood from the ship and the cargo (Fig. 14), lead and iron objects. When this area was later investigated more thoroughly, it was discovered that several other, previously unnoticed, smaller and larger artefacts were deposited in this depression. Some were partly buried beneath sediments, some had been mostly hidden by small rocks while others were lying in the open. The artefacts found in 1996 with the Hyball ROV in 50–80 m of water were located in the same area.

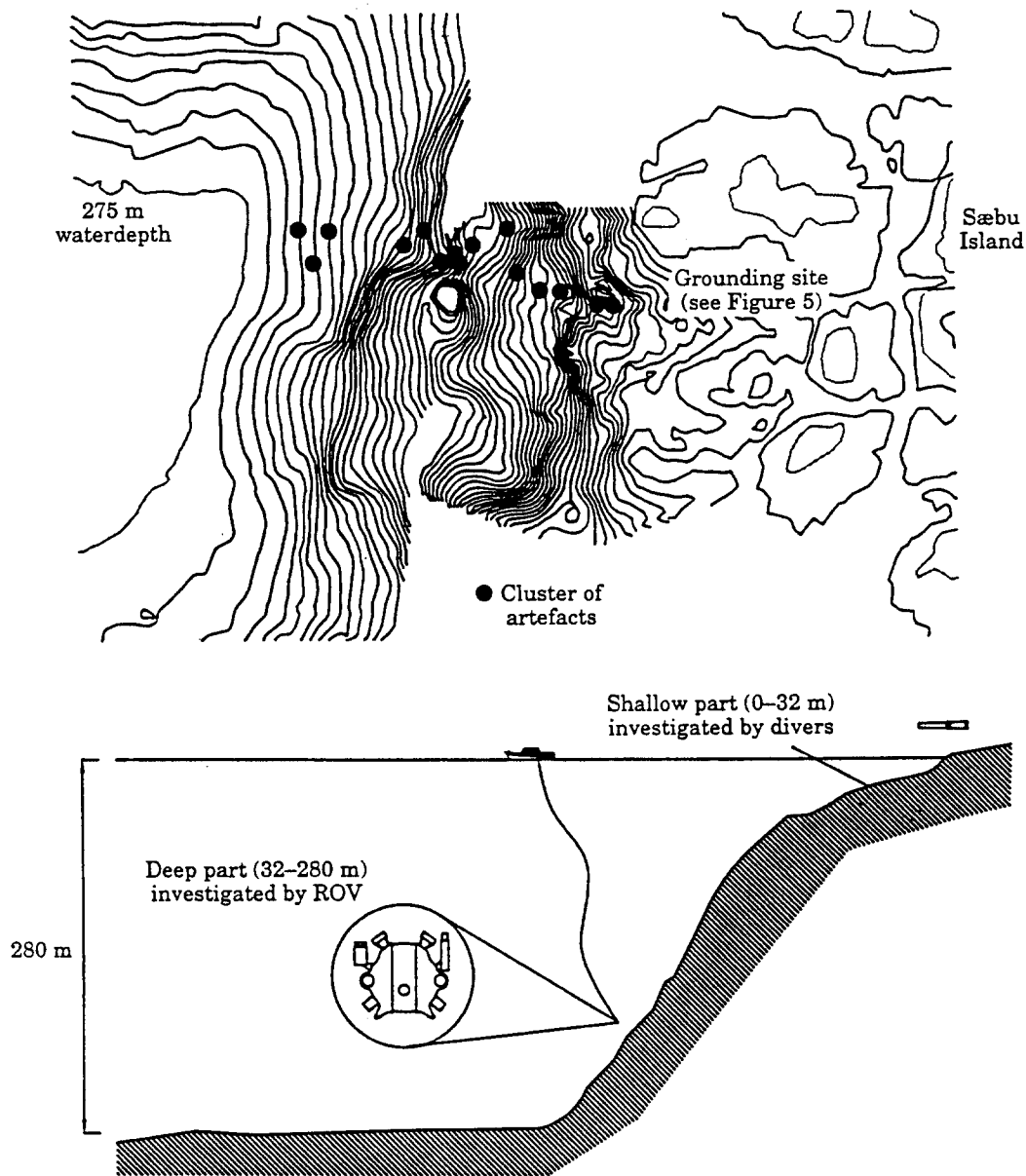


Figure 15. The search area and objects found during investigations.

In Fig. 15, parts of the search area and artefacts located during the investigation are shown.

Prior to this survey, the ROV had been equipped with a subsea excavation system. This was used to excavate an area at a depth of 257 m where several objects were deposited in the same place, some of which were nearly buried in the sediments. The

system used was a Tritech Zip Pump which is an integrated eductor-based system designed to pump mud, sand or gravel. There are no moving parts on the dredging side of the system as the power is derived from a stream of high velocity fluid creating a low pressure region behind the suction nozzle. This prevents archaeological objects from being destroyed by the

system. During excavation, the sediments were not collected, only moved a few metres away from the excavation area. It would, however, have been possible to use collector tanks. The flow could also be reversed and used to blow away sediments. Both methods were used, but due to quick blockage, the sediments were mainly blown away. This work revealed that the area was hiding more objects buried beneath the sediments. By using a 7-function Schilling manipulator arm, several artefacts were brought to the surface from this and other areas, the largest being a 75 kg piece of Guaiacum wood similar to the one in Fig. 14. All objects were documented with video and stills photography (PhotoSea 2000 stereo camera).

To conclude, these investigations have shown what happened to *Jedinorog*. The ship hit the rocky shore and broke up. Parts of the ship and cargo were deposited on the bottom. Other parts of the wreck fell off the underwater cliff. These parts followed one particular route down the cliff side, and material from the wreck was deposited all the way down the cliff side to a depth of 257 m. Over the years the larger wreck parts have disintegrated into a large number of smaller fragments. It is also likely that most of the hull has been eaten by woodworm. Some parts have been hidden among the rocks and even buried by sediments and possible landslides. The parts in shallow water which were not either very heavy or stuck in crevices were probably also washed over the edge in bad weather and form part of the material found in deeper water. Some ballast stones were also identified during the survey, at a depth of 40 m. The ship did not need much ballast as it carried a very heavy cargo. Some small fragments were scattered onto the flat, sandy bottom 260–280 m down, but there are no large parts of the wreck deeper than 257 m. In this area, the bottom is filled with sand and has started

to level out. There are no wreck parts close to the pipeline route.

This project also shows that difficult Norwegian underwater topography presents additional problems when searching for cultural remains on the seabed. The steep and rocky underwater terrain makes it difficult to use sub-bottom profiling and sonar equipment. The terrain makes it impossible to distinguish between cultural remains and the surrounding rocks. It also constitutes problems for magnetometer surveys due to a high and varying metal content, making it difficult to detect peaks caused by cultural remains. Such terrain therefore restricts all but visual search, although the method tried, of analysing the metal content in bottom samples, showed that the lead content had a marked increase in areas with wreck parts compared with other areas.

Conclusion

The marine archaeological investigations of the *Jedinorog* site are now concluded. This was the first systematic investigation of the site and the first investigation of the deep part of the wreck-site. The latter is by far the largest deep water marine archaeological project that has been carried out in Norway, examining almost 10 square km of seabed for wreck parts from the ship. It is the first time that an ROV has been used systematically to both search for, and document, a wreck. Previous investigations with ROVs in Norway, except for one other project in Trondheim harbour where an 18th-century Danish-Norwegian shipwreck was documented and partly excavated by remotely controlled equipment (Søreide, in prep.), have been small, low budget and of a more sporadic character (Jasinski *et al.*, 1995).

The work which lasted three years has achieved a number of goals: it is now proved beyond doubt that the wreck is the Russian pink *Jedinorog*. Based on marine archaeological investigations of the site

and written material from archives in Norway and Russia, events prior to and after the wrecking have been reconstructed and new knowledge about the ship itself has been gained. It has also been established that the ship broke up and that parts of the cargo were deposited in shallow water. Much material can still be found in fairly thick bottom layers, especially in crevices and other natural deposits. All objects lying on the seabed have been documented and some recovered. The results of the archaeological analysis of the recovered material will be the subject of a separate publication.

The rest of the ship and the cargo fell off the underwater cliff and followed one particular route down the cliff side. Material from the wreck was deposited all the way

down the cliff side to a depth of 280 m. There are, however, no large wreck parts on the deep, flat part of the seabed below the grounding site, and no parts close to the pipeline. Most importantly therefore, this investigation established that the oil company could lay the pipeline assured that it would not damage the wreck on the seabed. Finally the project has contributed significantly towards a deep water marine archaeological methodology in Norway.

Acknowledgements

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For further information about maritime archaeology in Trondheim see www-pages at: <http://www.ntnu.no/vmuseet/fakark/marin/engelsk/>

L'épave *Dramont C*

par Jean-Pierre Joncheray

Cet article retrace les campagnes de sondage et de fouilles de l'épave romaine dite *Dramont C* datant de la fin du second siècle ou au début du premier siècle avant Jésus-Christ.

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L'ÉPAVE DRAMONT C

par Jean-Pierre JONCHERAY
Plans de Christopher BRANDON

L'épave romaine dite Dramont C, commune de Saint-Raphaël, département du Var, a été déclarée en 1958 par Georges Delonca.

Ces pages concernent la campagne de sondage du 18 août au 15 septembre 1989, selon autorisation n° 25/89 du 26 juillet 1989, et la campagne de fouilles de l'année 1990, étalée sur les mois de mai, juin, septembre et octobre, selon autorisation n° 2216, du 22 juin 1990.

Ce gisement n'avait auparavant jamais été l'objet de fouilles, et son existence même, en tant qu'épave homogène, n'était pas prouvée. Cette incertitude détermina la décision de fouille.

Pas moins de 48 plongeurs ont participé à ces fouilles. Au prorata du nombre de plongées, que soient plus particulièrement remerciés ici, pour leur collaboration : Anne Lopez, Jean Toulet, Jean-Marie Petitot, Sabine et Philippe Riccardi, Pascal Gaillard, Jean-Paul Meslet, Annie Mesguich, Michel Lachaize, Éric Pessarelli, Daniel Vincent.

SITUATION DE L'ÉPAVE

Le gisement se trouve à 150 m dans le sud, légèrement est, de la tour de l'île d'Or, au cap Dramont, ou Drammont, par 40 à 41 m de profondeur. Le naufrage a eu lieu sensiblement à mi-chemin entre deux écueils, celui dit des basses de l'île d'Or, à l'ouest, et celui de la pointe de l'Esquine de l'Ay, à l'est. Le premier est indiqué sur les cartes hydrographiques comme émergeant, et le second apparaît à 1,80 m de profondeur. Ces profondeurs sont faibles, et on peut, en réalité, rajouter 1 m.

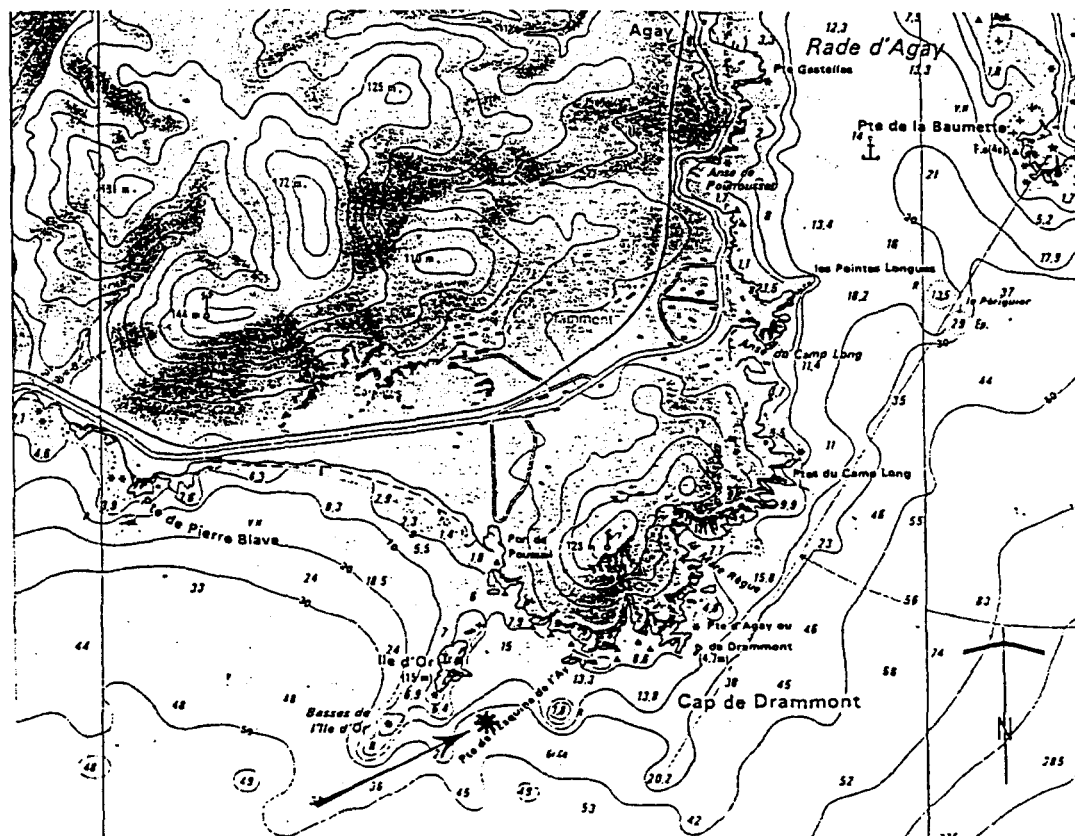
Que le navire ait touché un de ces deux secs ne fait aucun doute ; mais, lequel ? Le danger ouest est le plus connu, il a causé la perte, semble-t-il, de toutes les épaves gisant alentour (Dramont A, B, D, E, F, G, H, I). Celui de l'est est plus profond, et on conçoit mal qu'une petite embarcation telle que celle du Dramont C ait pu l'effleurer. Cependant, on admet plus aisément qu'un navire à chargement italien (amphores Dressel 1B et Lamboglia 2) ait coulé à l'ouest d'un récif, ce qui correspond à son itinéraire logique, cap vers l'ouest, avec vent arrière. Mais Dramont C venait-il d'Italie ?

Les mouillages d'attente ne manquent pas, non loin de là : rade d'Agay à l'est, abritée de tous les vents, et anse du Poussaï à l'ouest, abritée du vent d'est. On peut éventuellement envisager que le navire a coulé en quittant un abri, l'équipage ayant mal évalué l'état de la mer.



DRAMONT C 1989/90





Situation de l'épave.

DESCRIPTION DE L'ÉPAVE

Lors de sa découverte

A l'origine, moins d'une dizaine de cols d'amphores dépassait de la surface du sédiment. Aucun relief ne signalait le site, en voie de disparition par recouvrement. Les amphores semblaient verticales, sans inclinaison particulière. Les cols furent très vite brisés, et le gisement, déjà très ensablé, fut recouvert par le sédiment.

En 1989, en début de campagne

Le site ne se signalait par aucun indice, aucun vestige. En effet, sur un sédiment plat, constitué de sable légèrement vaseux, en pente vers le sud-est, rien n'était visible. Les critères

Marron : coque; ocre : pierre; noir : résine; brun : liège; vert : petite céramique; jaune : Dressel 1; rouge : Lamboglia 2; bleu : plomb; gris : fer; jaune foncé : tegulae; blanc : lest.

L'ÉPAVE DRAMONT C

qui influencèrent le choix de l'emplacement du premier sondage furent très minces : une dépression du sol de l'ordre du décimètre, et une consistance peut-être un peu plus molle du substrat, plus riche en débris de posidonies. En réalité, le respect d'excellents amers, pris en 1966, détermina ce choix. Au 15 août 1989, le site se présentait comme une surface plane, peuplée d'oursins (*Spatangus purpureus*), de plumes de mer (*Pennatula phosphorea*), avec un vieux pneu, une roche, semblait-il étrangère, et des débris d'algues. Il n'y avait pas le moindre morceau de poterie.

A l'issue des fouilles

Les observations de 1989 et de 1990 sont rassemblées sur le plan d'ensemble où figurent tous les objets découverts ces deux années. En 1989, une dizaine de mètres carrés seulement fut dégagée dans le cadre du sondage. 4 m² du site furent creusés jusqu'à la coque, avec beaucoup de difficultés, car le bois ne fut découvert qu'à plus de 1 m de profondeur, et les parois de l'excavation s'affaissaient sans cesse, recouvrant le chantier. Le sable vaseux était riche en « pralines », avec très peu de débris d'amphores. Le sondage semble avoir intéressé l'extrémité sud-est du navire. En effet, l'inclinaison des amphores ne laisse pas de doute : celles-ci occupent l'extrémité de la gerbe que l'on observe classiquement dans beaucoup de gisements non bouleversés. L'orientation de la coque, sensiblement nord-sud, et son interruption, laissent penser que l'on se trouve à une de ses extrémités.

L'inclinaison de chaque amphore, de chaque panse, fut bien observée : les corps, presque verticaux au centre, sont plus inclinés puis presque horizontaux vers le sud, où ils recouvrent des amphores entières, gisant à l'horizontale, dont une inhabituelle Lamboglia 2. Un énorme bloc de résine de pin, pesant une trentaine de kilos, englobait au moins 3 amphores, qu'il liait à la coque, sur laquelle il reposait. A cet emplacement, le site ne semblait pas bouleversé du tout. Quelques fragments d'objets en cuivre furent recueillis. Les vestiges de coque appartiennent sans aucun doute à un rebord de carène, affaissé sous le poids des amphores. Jusqu'à 7 membrures ont été repérées, et une allonge au moins était coincée sous le bloc de résine.

Le navire est orienté nord, nord-ouest, sud, sud-est. Le sondage a mis à jour 6 éléments de meules et quelques objets particuliers : jarre, olpés et *olla*e, amphore Lamboglia 2. On peut penser que les meules occupaient une position centrale dans le gisement, ce qui permettrait d'envisager, par un jeu de symétrie, une coque s'étendant sur 8 m de long par 4 m de large, et une épave de 10 m sur 6 m au maximum.

La faible densité en corps d'amphores nous a frappé : 2 éléments par m², avec des plages vides. Peut-on expliquer ce phénomène par l'enlèvement incontrôlé des amphores dans les années 60 : les corps restants présentent des cassures fraîches, résultant de l'arrachement des cols.

En 1990, deux zones intéressantes furent dégagées, entre lesquelles on ne découvrit rien d'autre que de la résine de pin et du chargement métallique, au sud-est, d'une part, et au nord-ouest, d'autre part.

Au sud-est, les 6 amphores, ou restes d'amphores dégagés n'étaient que la continuation d'un amas assez important déjà repéré l'an passé. On constate que les amphores étaient pratiquement à l'horizontale, ce qui correspond bien à une lisière de cargaison. Toutes les amphores étaient de type Dressel 1B.

Au nord-ouest, par contre, une plus grande variété d'objets fut découverte :

— des amphores : 17 amphores, panses ou pointes inclinées vers le sud-ouest, matérialisant la limite du gisement. Une seule amphore de type Lamboglia II, en F3, tronquée, verticale, se trouvait sous l'emplacement d'une amphore de même type découverte l'an passé. Les autres amphores étaient toutes des Dressel 1B. A noter l'état de fragmentation extrême de ces vases : aucun n'était intact, tous étaient fendillés, sinon en miettes. Les panses étaient pratiquement toutes brisées, à la fois au niveau du quillon et au niveau de l'attache du col.

— une meule, ou plutôt un *catillus*, privé de sa *meta*, de petite taille par rapport aux *catilli* découverts en 1989. Cet élément de meule était posé sur une amphore brisée.

— des fragments de *tegulae*, d'assez grande taille, parfois reconstituables. Il est peu probable qu'il s'agisse de lest, car le lest était homogène, constitué de galets ronds, et nettement plus au nord.

— des pierres plates, épaisses de 5 à 6 cm, en calcaire. On peut associer leur présence à celle des fragments de liège. Dans ce cas, elles pourraient avoir servi, comme nous le verrons plus loin, de surface de travail pour la taille de ceux-ci.

— des plaques et des bouchons de liège. Côte à côte, des bouchons finis, prêts à l'utilisation (au moins 12), des disques à peine ébauchés, encore anguleux (au moins 6), et des plaques non entamées (au moins 2), évoquent une petite aire de fabrication de ces opercules, plutôt qu'une réserve.

— de la céramique commune, assez abondante pour que l'on hésite à l'assimiler à de la simple vaisselle de bord : *ollae*, plat, coupe campanienne, *pelvis*, soudé par concrétionnement à une ancre en fer, plat et coupe à bec, petite amphorette incomplète.

A ces différents objets découverts plus ou moins profondément, il faut ajouter un chargement de lingots de fer, et de résine. Le chargement métallique se trouvait vers l'arrière du navire, entourant une cavité carrée dont seule l'empreinte subsiste, et que l'on serait tenté d'assimiler à un puits de pompe juste au-dessus de la quille. Les lingots de fer, de section quadrangulaire, qui seront décrits plus loin, étaient calés par des branches de vigne (*Vitis vinifera*, L.). Au-dessus et sur les bords de ces lingots, une masse importante de résine s'étalait, sans la moindre trace de récipients, trop abondante pour ne provenir que du bris d'une ou deux amphores.

A signaler aussi, à l'étrave du navire, une longue barre de fer percée par un anneau, décrite plus loin.

Vue d'ensemble du mode de chargement

En rassemblant les acquis des deux campagnes de fouilles, il est possible de dégager une vue d'ensemble de la cargaison, telle qu'elle fut disposée il y a deux millénaires. Les plans et schémas joints peuvent faciliter les explications.

Le navire est orienté nord, nord-ouest, sud, sud-est. La petite cargaison d'amphores s'est étalée en gerbe penchée vers le sud, l'est et l'ouest, ce qui correspond, d'une part à la légère pente du fond marin vers le sud, et, d'autre part, à la présence d'un obstacle possible au nord, paroi ou élément de chargement. De gros vides s'observent entre les groupes d'amphores

—————
Vue d'ensemble : zones d'occupation du navire.

penchées de part et d'autre ; il s'agit presque certainement des zones où ces récipients étaient verticaux. Émergeant ainsi du sédiment, ils disparurent les premiers, du fait des prélèvements incontrôlés qui accompagnèrent la découverte du gisement. Un calcul approximatif, fondé sur le chiffre de 9 amphores au m², en partant du principe que le chargement était à l'origine continu, et que les amphores n'étaient que sur une couche, nous donne une cargaison de 120 amphores. Cela cadre bien avec les estimations « à vue de nez » des premiers explorateurs du lieu. Cette charge n'est pas incompatible avec le tonnage du navire, que nous verrons plus loin, même s'il ne faut pas négliger le poids des ferrailles, de la résine, des meules, des ancres, du lest.

Les amphores de type Lamboglia II étaient disséminées, et en petit nombre, au sein des Dressel 1B. L'une d'elles était déversée vers le sud-est, deux autres gisaient au nord-ouest, l'une à côté de l'autre, dans une zone complexe, contenant *tegulae*, pierres plates, meules, liège, et petits objets.

Vers le nord, c'est-à-dire vers l'avant, trois couples *catillus-meta* occupaient le fond du navire, à la limite du chargement ; encore un peu plus vers l'avant, un lest important, estimé à plusieurs centaines de kilogrammes, s'étendait jusqu'aux ancres. Il était constitué de galets de calcaire gris, de quelques roches en calcaire clair, de rares fragments de *tegulae* érodés.

Au sud, dans la zone centrale-arrière de l'épave, soigneusement répartis de part et d'autre d'une cavité aux bords perpendiculaires, très nets, des lingots de fer, de section quadrangulaire, étaient disposés dans les fonds du navire. Il semble que les amphores les recouvraient, car on a retrouvé la trace de quillons dans le concrétionnement. A priori, ce fer, métal difficile à obtenir à l'époque, constituait une partie du chargement. On peut éventuellement aussi penser à des gueuses, qui auraient lesté les fonds au même titre que les galets. Peut-être même, les deux hypothèses devenant complémentaires, le chargement servait de lest temporaire.

Autour des lingots, de la résine, à l'origine probablement en sacs ou en vrac, s'est ensuite étalée vers les lisières du chargement.

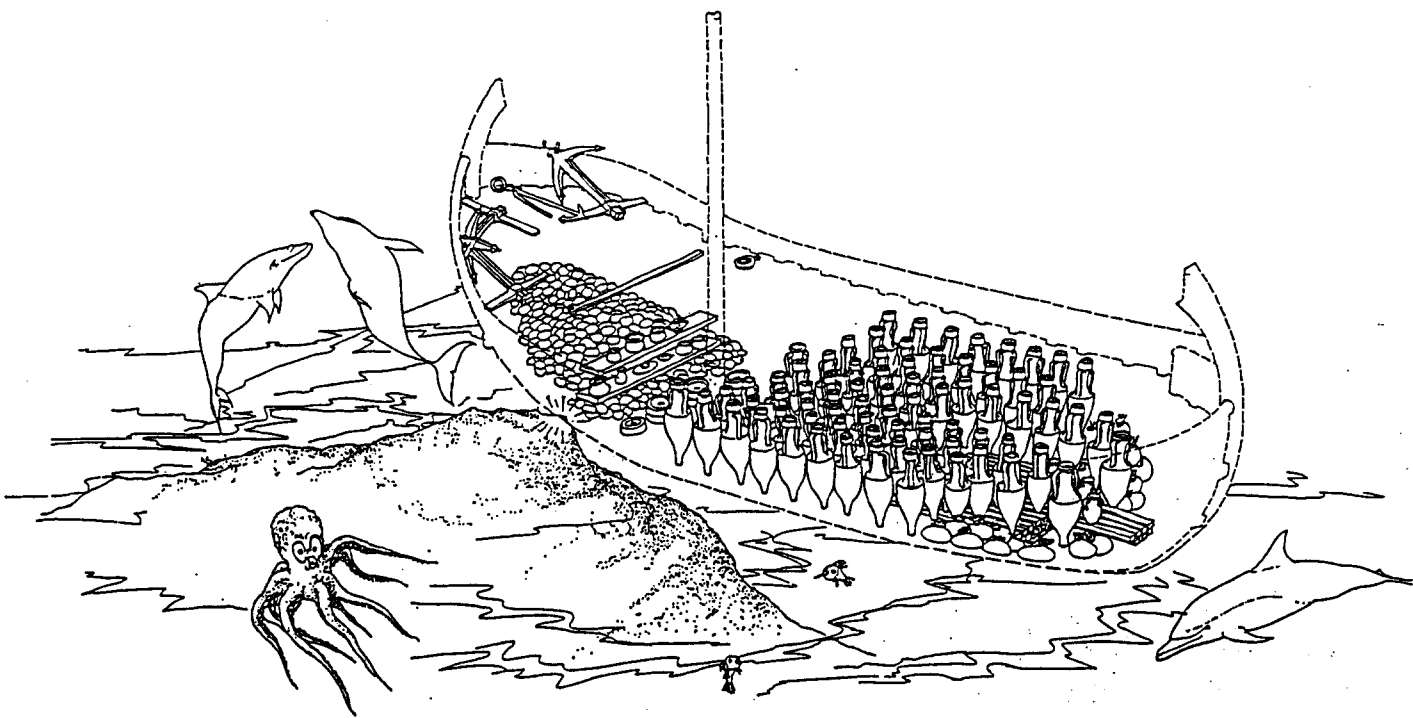
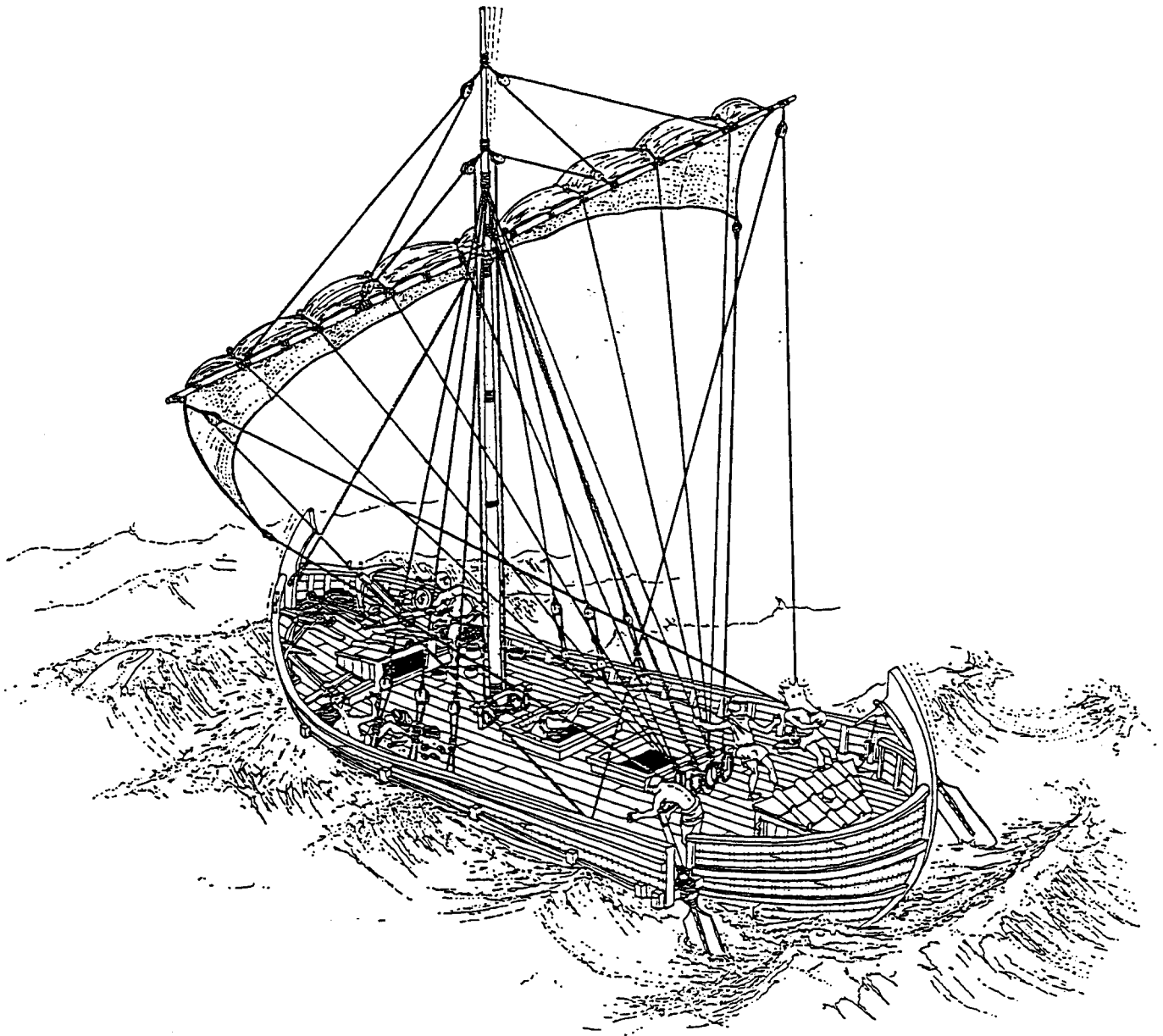
A l'extrême sud du gisement, l'épave s'enfonce encore davantage dans la vase, qui la recouvre de plus de 1,50 m. On peut penser que les vestiges subsistent sur un mètre ou deux, bien que la position nettement horizontale des amphores, par ailleurs très concrétionnées, soit l'indice de la limite du tumulus. Nous verrons d'ailleurs plus loin qu'en cet endroit, un début de pincement de la carène peut être l'amorce de l'étambot.

ÉTUDE DE LA COQUE

Une carène absolument classique, et, somme toute, sans intérêt particulier, a été dégagée sur 6 m de longueur, mais guère plus de 1,60 m de largeur. A l'intérieur de cette modeste surface, la quille, 7 planches de bordé, à tribord, et 28 couples ou emplacements de membrures ont pu être mis à jour.

L'état des bois était déplorable.

Comment peut être imaginé le chargement du navire lorsqu'il heurte l'écueil.



L'ÉPAVE DRAMONT C

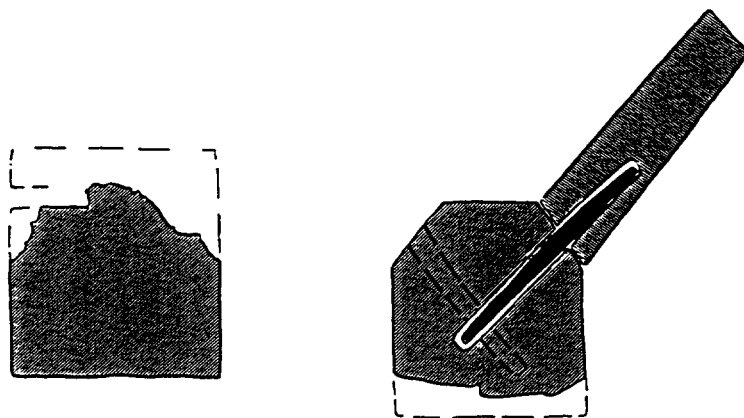
Si l'extrémité avant du navire fut atteinte, au nord, nord-ouest, sous 40 cm de sable, on ne put continuer le dégagement de la partie sud, sud-est de la coque, enfoncée sous 1,50 m d'un sédiment meuble, mélange de sable, de posidonies mortes et de « pralines ».

On peut rattacher au navire lui-même quatre ancres, au moins, dont trois en bois à jas de plomb, et une en fer, à jas mobile, un plomb de sonde et un plomb de pêche, une barre de fer d'usage indéterminé, le tout concentré à l'étrave.

La quille

La quille, en chêne vert (*Quercus ilex*, L) (1) est large de 100 mm au niveau de la membrure 120, de 110 mm au niveau de la membrure 106. Sa section est donc rectangulaire, presque carrée, car la hauteur est de 110 mm à 120 mm, selon l'exactitude des mesures. On observe, au moins vers l'extrémité, un chanfrein, sur lequel s'appuie le galbord. Le chanfrein est nettement moins marqué vers le centre du navire, et, nulle part, n'a été remarquée de râblure.

Une liaison classique, par languettes chevillées dans des mortaises, assure l'assemblage entre la quille et le premier ais de bordé, ou galbord.



Deux sections de quille, au niveau de M106 et M120 (échelle 1:4).

La membrure

28 couples ou emplacements de varangues ou de membrures, ont été dénombrés sur 5,65 m de longueur, ce qui donne un espacement entre couples de 210 mm en moyenne. Cependant, il semble que la maille soit légèrement plus serrée vers l'étambot, sous le vaigrage, là où la membrure doit supporter le poids des barres de fer.

Rapidement, voici la description de la succession de ces couples, de l'étambot vers l'étrave, avec une numérotation arbitraire :

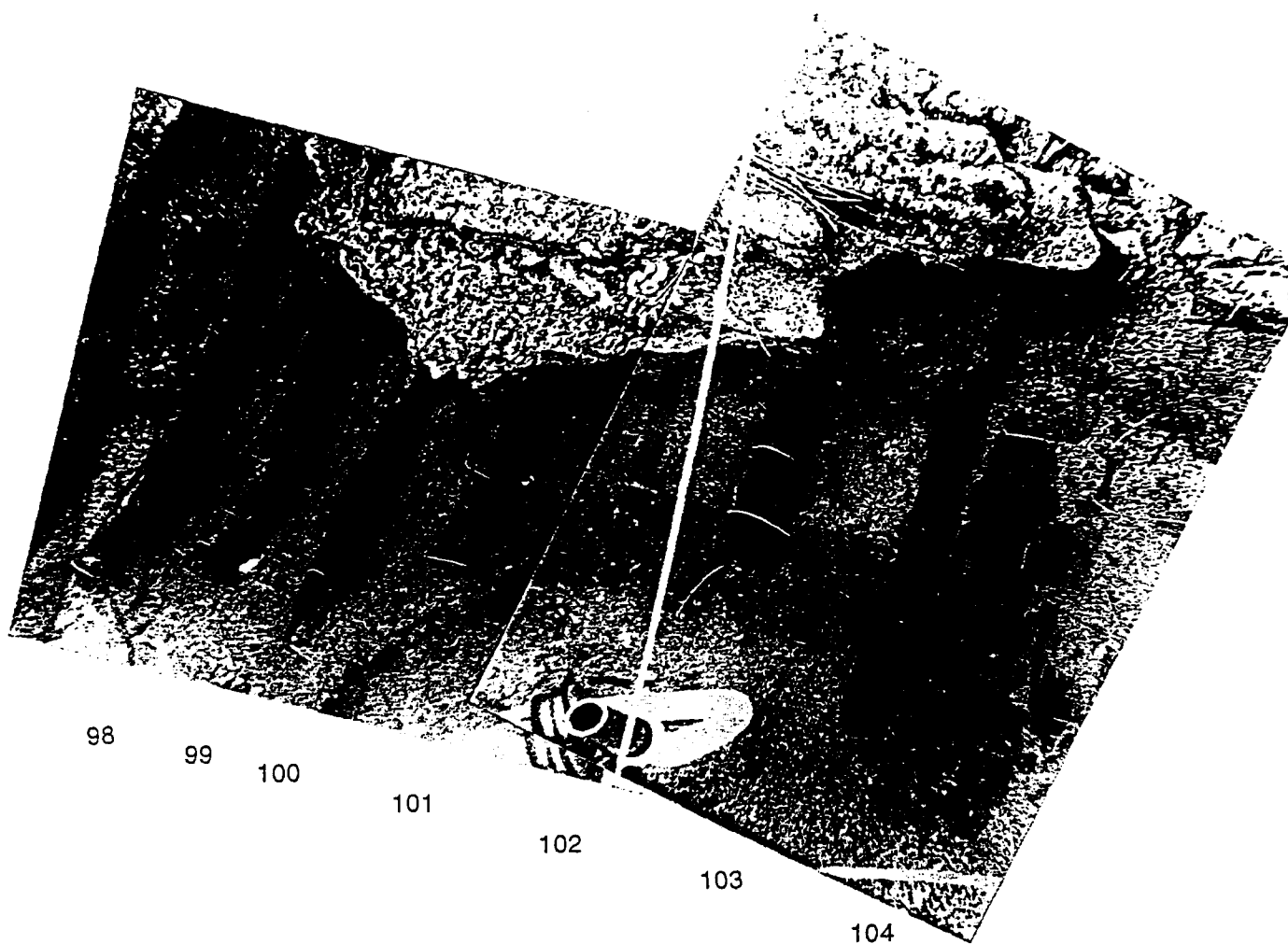
(1) Identifications botaniques effectuées par A. Plu, du laboratoire d'Ethnobiologie et de Biogéographie du Muséum d'Histoire Naturelle.

L'ÉPAVE DRAMONT C

— 96 : non prise en compte dans le plan, pièce de chêne à feuilles caduques (*Quercus sp.*).

— 97 : non prise en compte dans le plan, pièce de pin d'Alep (*Pinus halepensis*, Mill.). La nature végétale de cette pièce fait plutôt penser à un renfort de varangue.

— 98 : enfouie sous une gangue rigide de métal, supportant un vaigrage, cette membrure, ou allonge, est conservée sur 90 cm au moins. A cet emplacement, les deux galbords formaient un angle de 100° , indice d'un pincement de la carène, amorce de l'étambot. La mesure de cet angle de 100° nous donne un renseignement important, car, en comparaison, à l'étrave, la même valeur correspond exactement au niveau du cinquième couple avant la fin de la quille, à environ 1 m de l'extrémité. Comme la courbure de l'étambot ne doit pas trop différer de celle de l'étrave, ou être légèrement plus forte, on peut raisonnablement envisager que le couple 98 est le symétrique, par rapport au maître-bau, du couple 121. Comme toutes les membrures de cette zone, excepté le couple 97, cette pièce de bois est en chêne à feuilles caduques (*Quercus sp.*).



Aspects de la coque là où elle est relativement mieux conservée, sous le bloc concrétionnaire de lingots de fer.
Un fragment de vaigrage subsiste. Observer un raccord en sifflet.

←
Les membrures, de la proue vers la poupe.

— 99 : pièce de bois en chêne à feuilles caduques (*Quercus sp.*), reconnue sur 50 cm à peine, s'enfonçant ensuite dans la masse métallique. Épaisseur 85 mm, hauteur inconnue.

— 100 : pièce de bois en chêne à feuilles caduques (*Quercus sp.*), reconnue sur 40 cm, assez forte, puisque large de 90 mm, de hauteur inconnue.

— 101 : pièce de bois en chêne à feuilles caduques (*Quercus sp.*), reconnue sur 70 cm sous le bloc de lingots de fer. On observe, pour la première fois, une face supérieure plane et horizontale, destinée à supporter un vaigrage. Il est cependant possible que d'autres couples, vers l'étambot, présentent la même caractéristique. L'extrémité est bien conservée, et un fort vaigrage recouvre le tout. Les chevilles de liaison au bordé n'ont pas toutes été observées, mais, si deux d'entre elles traversent entièrement la varangue en son extrémité, les autres occupent des trous borgnes, et au moins quatre d'entre elles sont renforcées par des clous en fer de section carrée. Large de 60 mm à son extrémité, de 76 mm au voisinage de la quille, cette pièce est haute de 150 mm en son milieu.

— 102 : petit fragment de membrure en chêne vert (*Quercus ilex*, L.), épais de 68 mm, haut de 70 mm, avec quatre chevilles renforcées par des clous. Le vaigrage, nettement plus haut, n'est pas en contact avec cette membrure.

— 103 : varangue à rapprocher de 101, en chêne à feuilles caduques (*Quercus sp.*), massive, épaisse de 80 à 84 mm, haute de 150 mm dans le voisinage de la quille. Un vaigrage en bon état, imprégné avec le temps par des oxydes métalliques, la recouvre, apparemment sans cloutage. Là encore, il y a au moins une cheville de liaison avec le bordé, renforcée par un clou en fer, au niveau du galbord. La face supérieure de cette varangue est horizontale et rectiligne.

— 104 : couple formé de deux membrures symétriques par rapport à l'axe de la quille, de fort échantillonnage. La membrure tribord, mieux dégagée du bloc de concrétions, est assez massive, large de 75 à 80 mm, mais surtout assez haute : 125 mm à 20 cm de l'axe de la quille. La face supérieure, à peine chanfreinée, est plane et horizontale.

Ainsi, au moins trois couples renforcés (101, 103, 104) ont une face supérieure plane et horizontale. D'autres, probablement, doivent présenter la même caractéristique (99 et en deçà, 105, 106). Il semble donc qu'ait été aménagé en cet endroit, tiers ou quart arrière, un plancher solide, plat, spacieux, destiné à supporter une lourde contrainte pondérale. Un vaigrage longitudinal, bien conservé à cet emplacement, alors que l'on ne l'observe nulle part ailleurs, confirme cette hypothèse.

— 105 : trace de 55 cm de long sur le bordé.

— 106 : trace de 55 cm de long sur le bordé.

— 107 : demi-varangue de 64 mm d'épaisseur, conservée sur 56 cm.

— 108 : membrure conservée sur 82 cm, épaisse de 72 mm.

— 109 : varangue fragmentaire, sur 115 cm.

— 110 : membrure fragmentaire, mal conservée sur 75 cm, de 58 mm d'épaisseur et de 70 mm environ de hauteur.

— 111 : varangue très mal conservée (avec allonge?), sur 140 cm.

— 112 : membrure très mal conservée sur 135 cm.

— 113 : varangue brisée, visible sur 120 cm.

— 114 : deux membrures sur 130 cm.

— 115 : varangue noyée dans les pierres de lest, conservée sur 65 cm.

L'ÉPAVE DRAMONT C

- 116 : fragments de membrures.
- 117 : varangue déplacée, non mesurée.
- 118 : membrure tribord assez bien conservée, bien qu'écrasée, sur 100 cm. Hauteur 70 mm, largeur 65 mm.
- 119 : varangue déplacée, mais dont les fragments ont été récupérés. Épaisseur 62 mm, hauteur au voisinage de la quille 180 mm. Le trou d'anguiller est anguleux, et les galbords se présentent sous un angle de 105°.
- 120 : fragment de membrure, conservé sur 42 cm.
- 121 : grosse varangue en chêne à feuilles caduques (*Quercus sp.*), brisée à l'origine en deux fragments dont l'un s'est couché sur le sable. Angle de la carène : 100°. Cette pièce, conservée sur 65 cm, est épaisse de 60 à 65 mm, haute de 180 mm dans l'axe de la quille. L'anguiller est largé et arrondi.
- 122 : couple, difficile à étudier sous une masse de fer concrétionné.
- 123 : varangue en chêne vert (*Quercus ilex*, L.), à anguiller arrondi, chanfreinée, conservée sur 55 cm, épaisseur 57 à 60 mm, hauteur 150 mm au niveau de la quille, angle de la carène 85°.
- 124 : deux membrures formant un couple écrasé et aplati, conservé sur 58 cm, en chêne vert (*Quercus ilex*, L.). Épaisseur 60 mm, hauteur 58 mm.
- 125 : dernière varangue reconnue (il n'y en a plus au delà), conservée sur 55 cm, large de 75 mm, altérée sur sa face supérieure. Cette varangue présente un chevillage en biais. L'angle de la carène est de 65°, et l'anguiller est anguleux.

La disparité de l'échantillonnage (épaisseurs de 58 à 90 mm), les différences dans les profils des anguillers, et, nous le verrons plus loin, un manque de soin dans le mortaisage des ais, sont l'indice d'une construction hâtive. Autre remarque : nous n'avons jamais trouvé le moindre fragment d'écorce, ni de copeaux, alors que certaines varangues, par exemple, laissaient apparaître la surface du bois. Cela peut indiquer que le navire était assez vieux.

Le bordé, son mortaisage

Non dessiné ici, il ne présente aucune particularité marquante. L'essence utilisée est le pin d'Alep (*Pinus halepensis* Mill.). Le galbord est, comme sur d'autres épaves (Miladou), taillé : si le can au contact de la quille a 32 à 37 mm d'épaisseur, celui au contact du ribord ne mesure plus que 26 mm. De même, le ribord est épais, d'un côté, de 26 mm, de l'autre de 23 à 24 mm. Les autres planches ont 24 mm d'épaisseur environ. Les mortaises creusées dans la tranche des virures ont 50 à 65 mm de longueur, pour une épaisseur de 5 à 7 mm. Elles sont extrêmement mal taillées, sans aucun soin, et les languettes qui y logent, elles-mêmes de finition grossière, peuvent tout aussi bien y avoir été introduites de force que s'y retrouver très au large, avec un espacement de l'ordre de 15 mm ! Ces languettes sont en chêne vert (*Quercus ilex*, L.).

Le chevillage

Les chevilles fixant les tenons dans les mortaises sont en chêne vert (*Quercus ilex*, L.), et leur diamètre est de 5 à 8 mm. Les chevilles fixant le bordé aux membrures sont en sapin (*Abies pectinata*, D.C.), et leur diamètre est de 14 à 16 mm. Certaines sont renforcées par un clou en fer, de section carrée.



Cheville de membrure ; tenon.

Le vaigrage

Observé uniquement entre les couples 97 et 104, il est constitué de planches parallèles à la quille. Il n'y a donc pas, comme cela fut observé au cap Gros, à la Chrétienne C, à la Madrague de Giens, une différenciation entre vaigrage central, formé de payols, et vaigrage latéral, formé de virures ininterrompues. Ici, une simple plate-forme de faibles dimensions (2 m x 3 m) constitue un vaigrage « central-arrière ». L'épaisseur est de 20 mm environ, sans cloutage apparent, mais la proximité des concrétions métalliques rend difficile la compréhension du mode de fixation. Lors du dernier voyage, des branchages de vigne recouvraient le vaigrage.

LES ANCRES ET LES APPARAUX

A notre connaissance, ce bâtiment, avec ses 12 à 13 m de longueur présumée, est le seul de son époque à posséder autant d'ancres : quatre au total, dont trois en bois à jas de plomb. Il est peu probable, dans ce cas, que les marins aient eu le temps de jeter un mouillage avant le naufrage.

L'ancre n° 1 (bois et plomb)

Situé à peu près dans l'axe de la quille, aligné nord-sud, ouverture de la boîte à la verticale, le jas contenait quelques fragments de chêne vert (*Quercus ilex*, L.). Il mesurait 1090 mm de long, et ses pattes étaient tordues, déviées toutes les deux dans le même sens. Les dimensions de la boîte étaient de 142 x 185 x 130 mm, et le tenon intérieur était de section carrée.

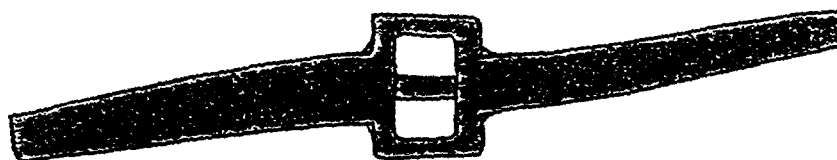
L'ÉPAVE DRAMONT C

L'ancre n° 2 (bois et plomb)

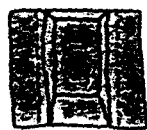
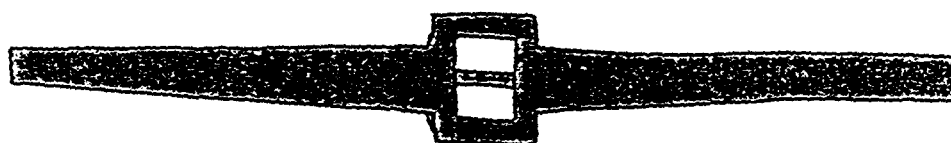
Situé à bâbord, à 45° par rapport à l'axe de la quille, ouverture de la boîte à l'horizontale, avec un fragment important de verge, en chêne vert (*Quercus ilex*, L.), à l'intérieur, le jas touchait presque le précédent. Il mesurait 1224 mm de long, avait un aspect assez grêle, et ses pattes étaient rectilignes. Les dimensions de la boîte étaient de 135 x 166 x 125 mm, et le tenon central était de section rectangulaire.



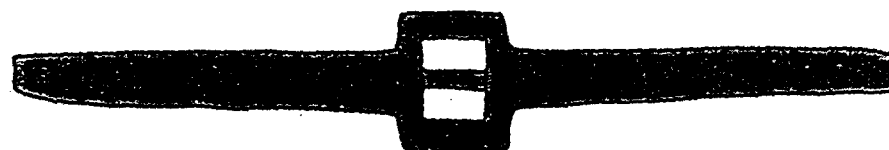
N° 1



N° 2



N° 3



Les trois jas d'ancre en plomb (échelle 1:10).

L'ÉPAVE DRAMONT C

L'ancre n° 3 (bois et plomb)

Situé à tribord, pratiquement parallèle au précédent, ouverture de la boîte à l'horizontale, le jas était collé contre l'ancre en fer. Une portion assez importante de la verge, en chêne vert (*Quercus ilex*, L.), dépassait, vers le sud-ouest, de ce jas orienté lui-même sud-est, nord-ouest. Il s'agissait de la partie haute de l'ancre, percée d'un orifice destiné au passage de la corde. Cet orifice, de 115 × 38 mm, sans aucun renfort métallique, était à 245 mm du jas. On ne put dessiner l'extrémité de la verge, ni le reste de l'ancre, détruits par les tarets.

L'ancre n° 4 (fer)

Une fort belle ancre, entière, concrétionnée contre un pelvis, complétait la collection de mouillages de ce bateau. Elle gisait à tribord, verge orientée à 45° par rapport à la quille, diamant vers l'étambot, organeau vers l'étrave. De l'ancre, il ne subsiste qu'une gangue concrétionnaire informe, représentée ci-joint. Sur ses boursouflures étaient soudées des pierres de lest, l'extrémité du jas d'ancre n° 3, et un pelvis. On peut cependant reconstituer approximativement sa forme, avec quelques sections indiquées sur le schéma, et présumer de la présence d'un organeau et d'un jas mobile. Pour obtenir le relevé complet de l'ancre, il faudrait découper cette énorme concrétion. On peut rapprocher cette pièce des trois ancres découvertes sur Dramont D (1).

La barre de fer

Si l'ancre précédente ne fut pas tronçonnée, la pièce métallique, située dans l'axe de la quille, se brisa d'elle-même en plusieurs morceaux, et de cette énorme concrétion d'une cinquantaine de kilogrammes sortit le moule, en creux, d'une longue barre de fer, de 1210 mm de longueur, de section variable, en général rectangulaire, de 24 × 48 mm en moyenne. Cette barre s'interrompait, à une extrémité, par une face plane légèrement taillée en biseau, tandis que son autre extrémité était percée d'un orifice de 10 à 15 mm de diamètre, dans laquelle passait un petit anneau de section carrée, de 85 mm de diamètre.

Cette barre, placée très à l'avant de l'épave, était-elle un levier, une partie indéterminée d'une ancre, un accessoire de manœuvre, tel un cabestan ?

Le plomb de sonde

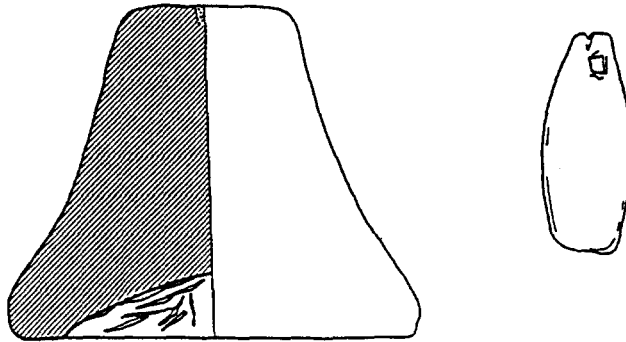
Un plomb de sonde fut découvert à l'avant, sur bâbord, à proximité de la barre de fer, et des jas d'ancre n° 1 et 2. En forme de cloche, il présentait un creux inférieur, caractéristique, profond de 16 mm, à la paroi grossièrement tailladée, dont le but était de fixer la poix, ou simplement de retenir le sédiment. Il ne possédait ni anneau, ni orifice supérieur, mais une trace de fer rouillé indique qu'il devait y avoir un système de suspension, disparu depuis.

Le plomb de pêche

Pratiquement contenu dans la boîte du jas n° 3, ce plomb est traversé par un orifice de section nettement quadrangulaire.

(1) Dessin de trois de ces ancres dans les *Cahiers d'archéologie subaquatique*, IV, 1975, p. 15.

L'ÉPAVE DRAMONT C



Plomb de sonde, plomb de pêche (échelle 1:2).

Le lest

Rassemblé sur l'avant du navire, en assez grosse quantité, absent au centre et sur l'arrière, le lest, estimé à 500 kg, était constitué principalement de galets de calcaire bleuté, avec quelques échantillons de calcaire blanc, plus anguleux. Plutôt vers l'arrière de cet amas, quelques fragments de *tegulae*, très corrodés : lest aussi, ou protection inhérente au navire ?

Le lest s'étendait sur 6 m² au moins.

Vue d'ensemble sur le navire

Deux années de présence sur cette épave nous ont fait vivre avec ce navire, et certains indices, venant préciser mesures et observations, nous donnent une bonne idée de ce que pouvait être un petit caboteur à cette époque.

A priori, celui-ci fut assez hâtivement construit : échantillonnage disparate des varangues, mortaises mal taillées. En outre, il n'était plus très jeune le jour du naufrage, car aucune trace d'écorce, ni de copeaux de bois frais ne subsistait sur les membrures, ou dans les interstices.

Sa longueur ne devait pas dépasser 12 à 14 m : la carène a été dégagée sur seulement 6,50 m, et, d'après nos calculs, les vestiges ne devaient pas s'étendre sur plus de 7,50 m. En outre, l'échantillonnage de la quille et des membrures est légèrement plus faible que celui du seul navire de comparaison que nous connaissions (mais que nous connaissons bien), celui du Miladou, à Port-Cros, dont la longueur est estimée à 15 m.

A un chargement de base estimé à 120 amphores (6 tonnes), s'ajoute un lest de 500 kg, une masse de fer de 500 kg, des meules et des ancres pour 500 kg, soit 7,5 tonnes environ. Cela est un bon chargement pour un caboteur de cette taille.

Nous avons particulièrement insisté sur la localisation des aires de vie, de travail, de stockage, de loisir, sur ce petit bateau. Ces possibilités sont illustrées sur les dessins joints. La répartition du matériel « lourd », plus présent, fut mieux appréhendée, évidemment, que l'emplacement et l'usage des petits objets, toujours plus difficiles à replacer dans leur contexte d'origine.

Une remarque : à notre connaissance, aucun navire de cette époque et de cette taille n'a transporté autant d'ancres, avec autant de jas en plomb.

LE MATÉRIEL ARCHÉOLOGIQUE

Les amphores

Cargaison classique pour une épave du début du 1^{er} siècle avant J.C. : des amphores, avec une intéressante association entre une majorité de Dressel 1B et quelques exemplaires de Lamboglia 2. Ont été observés 7 amphores entières ou reconstituables, et plus de 17 panses ou quillons du premier type, ainsi que 2 amphores entières et 2 fragments du second type, soit une proportion de 6 pour 1. En l'état actuel des recherches, aucune amphore de type Dressel 1C n'a été découverte.

A ce chargement principal s'ajoutaient des meules, 4 *catilli* et 3 *metae*, et un nombre appréciable de petits objets, olpés, jarre, *ollae*, *pelvis*, coupes, objets en cuivre, dont on peut douter qu'ils fassent partie de la vaisselle de bord.

L'amphore romaine classique

Il s'agit là du type le plus répandu, que l'on trouve, en particulier, au Miladou, à Port-Cros (1). Les 5 exemplaires entiers remontés, et deux autres reconstitués, sont assez différents de forme et de taille. Ils ont en commun une panse en ogive, parfois plus massive, parfois plus fuselée, une épaule bien marquée, un long col cylindrique, parfois cylindro-conique, une lèvre large, parfois verticale, parfois inclinée. La hauteur est très variable, de 1020 à 1170 mm, et le diamètre à l'embouchure varie entre 172 et 204 mm. Le petit nombre d'exemplaires ne permet pas d'établir des statistiques.

La pâte est très souvent mal cuite, et se délite, en particulier au niveau du col. On peut observer, sur les exemplaires bien conservés, un liant homogène, avec de nombreux points blancs, et, souvent, des fragments noirs allant jusqu'à 1 mm. Voici quelques teintes observées (2) :

Exemplaire	Surface	Cassure
89-7	Brun-olive foncé (H72)	
89-8	Rouge faible (E22)	Rouge faible (E22)
89-9	Gris-rouge (E21)	
89-17		Jaune-rouge (D56)
89-19	Jaune-rouge (D46)	Rouge faible (F22)
Fragment	Gris-rouge foncé (E41)	Jaune-rouge (D36)
90-1	Rouge pâle (D23)	Rouge pâle (D23)
90-2	Brun-rouge (E52)	Rouge (F18)
90-3	Rouge pâle (D23)	Rouge faible (E23)
90-4	Brun (E72)	Brun-gris (E62)
90-5	Brun-rouge (F42)	Rouge foncé (H34)
90-6	Rose (C26)	Rouge (E28)
90-7	Brun très pâle (C54)	Brun-rouge clair (C44)

Ainsi, si les cassures sont vives, dans les rouges ou les jaune-rouge, les surfaces sont nettement plus ternes, et plus sombres, avec certaines teintes caractéristiques, brun-olive, ou

(1) M. Dumontier et J.P. Joncheray, *L'épave romaine du Miladou*, dans *Cahiers d'archéologie subaquatique*, X, 1991, p. 109.

(2) A. Cailleux et J. Taylor, *Code expolaire*, Paris, 1963.

gris foncé, témoins d'une altération. Parfois, un engobe rosâtre, ou brun clair, cache le ton habituel de la pâte.

Les parois internes des amphores étaient enduites de résine.

L'amphore Lamboglia 2

Dit, par tradition, « amphore à huile », ce type a une forme bien caractéristique, plus pansue et moins haute que pour le type précédent. La lèvre, droite ou inclinée, est sur un col tronconique, évasé vers le bas. L'épaule est nette, et la panse, très large, atteint 385 mm de diamètre. Le quillon, plein, est très effilé, et se termine, sur le seul exemplaire intact, par un bouton aplati. Les anses sont de section arrondie, massives. La pâte est jaune pâle (C82) sur un exemplaire, brun-olive (F74) sur l'autre.

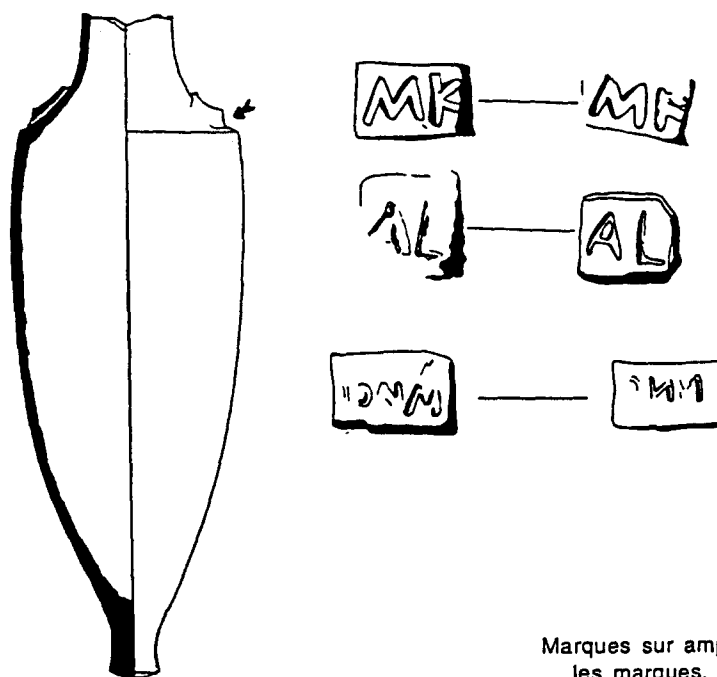
Contenu des amphores

Aucune amphore n'était bouchée, et aucune trace de pouzzolane ne fut discernée. Deux panses au moins contenaient des squelettes de petits poissons, ce qui est surprenant dans des amphores considérées comme vinaïres.

Marques sur amphores

Sur trois corps d'amphores de type Dressel 1B, deux estampilles symétriques, bien visibles, étaient imprimées à la base des anses : AL sur l'exemplaire 89-8, MK sur l'exemplaire 89-18, et .CNM ou .ONM ou .DNM sur l'exemplaire 90-5.

La proportion d'une amphore marquée sur 10 se retrouve au Miladou (v. *infra*).



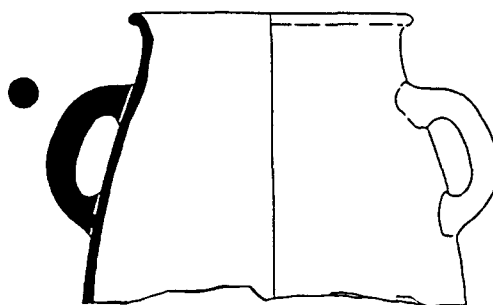
Marques sur amphores (échelle 1:2 pour les marques, 1:10 pour l'amphore).

Les jarres

Deux exemplaires au moins existaient sur le gisement. La jarre 89-1 était intacte. Sa hauteur était de 472 mm. Une lèvre moulurée, une panse arrondie de 382 mm de diamètre, un fond plat au profil compliqué, de 155 mm de diamètre, et de petites anses nervurées la caractérisent. La pâte était olive pâle (E83). Sur le second exemplaire, réduit à trois petits fragments retenus dans le bloc de résine, on observe une grosse marque circulaire à la base de l'anse. Cette cavité pourrait être la trace d'un effort du potier, pour consolider la soudure entre l'anse et la panse.

L'amphorette

Un petit vase fermé, incomplet du fond, présente deux anses de section ronde, rattachées à la panse, et une petite lèvre en bourrelet. La pâte est particulièrement grise, voire noire, tant en surface (J100) qu'à la cassure (J32).



Échelle 1:4.

Les olpés

Deux pièces intactes, et de facture soignée, furent découvertes à plus d'un mètre l'une de l'autre. Le premier exemplaire a une collerette évasée marquée par un bandeau. Le col est tronconique, évasé vers le bas. L'épaule est carénée, et le socle, sur piédouche, est très légèrement concave. L'anse est de section réniforme. La hauteur est de 278 mm, le diamètre de 232 mm. Le second présente un col plus cylindrique, sans bandeau. La forme générale et les dimensions sont identiques. Le socle est plat. L'anse a une nervure centrale. Sur la panse, un enfoncement accidentel a été fait avant cuisson. La pâte est jaune-olive (D76), avec de nombreux points noirs.

Les ollae

4 exemplaires diffèrent par leur taille, mais ni par leur forme, ni par leur décor. Le n° 3, p. 39, haut de 159 mm, large de 169 mm, présente un col évasé, et une panse au décor particulier d'incisions obliques et de stries. La partie haute de la panse, lisse, a un profil concave, et la partie basse, peignée, un profil convexe. Entre les deux, une carène présente

des petites incisions obliques d'une dizaine de mm. La pâte est gris-foncé (J10) en surface, brun-rouge clair (D32) en profondeur. Le n° 4, p. 39, est identique, mais il mesure 215 mm de haut, et 218 mm de diamètre.

Le n° 5, p. 39, haut de 114 mm, large de 141 mm, est identique. La pâte est brun-gris très foncé (J41) en surface, gris foncé (H41) à la cassure.

L'*olla* n° 6, p. 39, fragmentaire, est différente. La panse est franchement globulaire, sans épaule marquée, sans décor. Elle est haute de 107 mm et large de 127 mm. La pâte est brun foncé (H41) en surface, gris foncé (H10) à la cassure.

L'*olla* n° 7, p. 39, est particulière : la panse est tronconique dans sa partie inférieure, globulaire dans sa partie haute. La lèvre est en bandeau. Haute de 169 mm et large de 147 mm, elle a une pâte gris-foncé (J10) en surface, brun-gris très foncé (J41) à la cassure.

La coupe campanienne

Une très belle coupe intacte, évasée, sur piédouche, est représentée ci-contre. Son engobe est brun foncé (H41) sur la périphérie, mais rouge (E26) au centre et à l'intérieur du vase (différences de cuisson). La pâte est brun vif (E68) sous l'engobe, et nettement brun-gris (E62) à la cassure. Il n'y a ni marque, ni décor. Haute de 89 mm, cette coupe est large de 213 mm.

Les plats ou assiettes

Deux plats sont semblables : socle très large, sur piédouche, rebord décoré de deux incisions, intérieur décoré de cercles selon les dessins joints. La pâte est gris très foncé (J10) en surface, gris foncé à la cassure (F10), avec un engobe, ou une pellicule superficielle de même couleur, qui se détache facilement. Les diamètres mesurés sont de 198 et 204 mm, pour des hauteurs respectives de 48 et 46 mm.

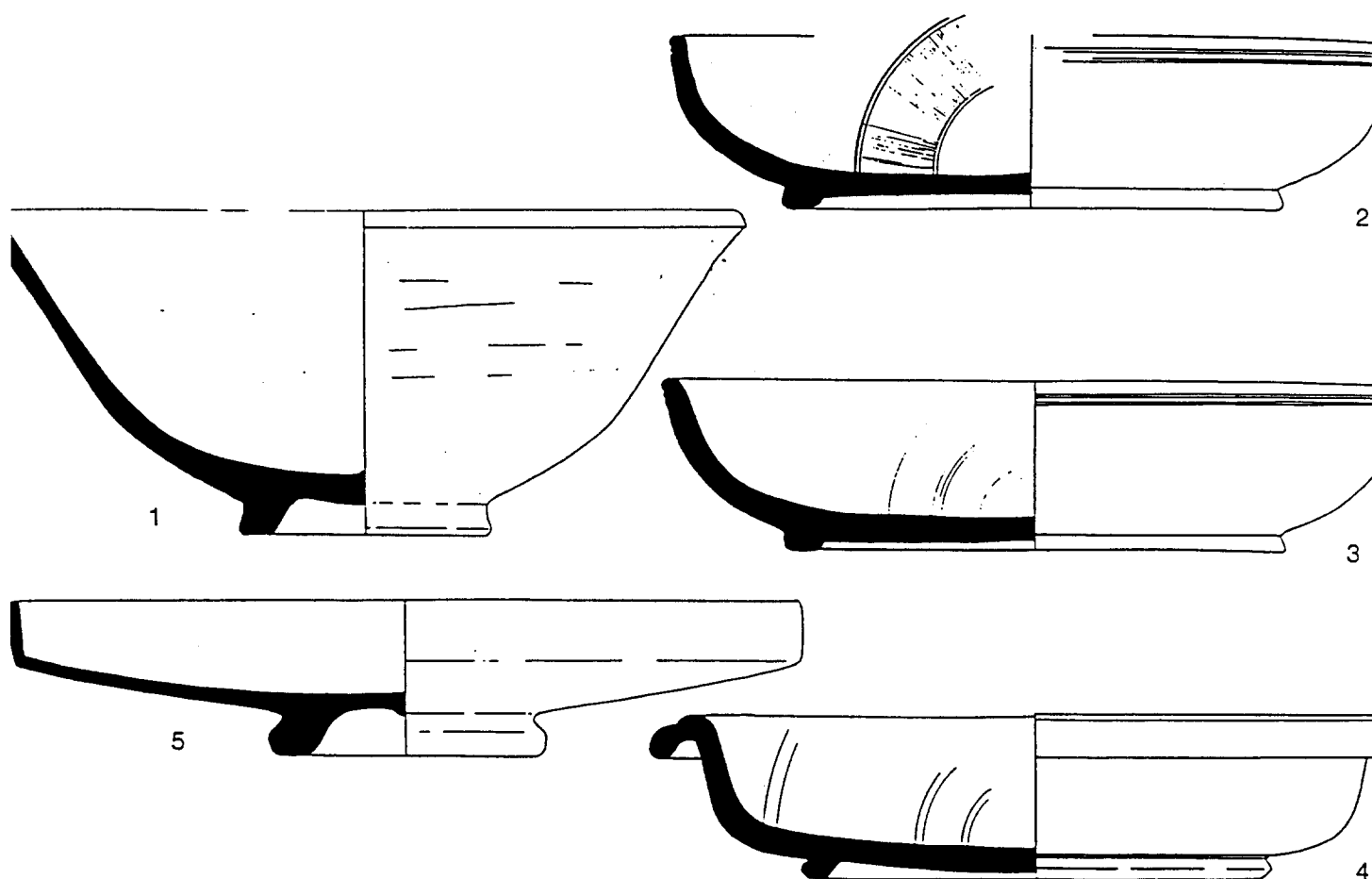
Une assiette à bord évasé et lèvre rabattue vers l'extérieur, au profil particulier, présente aussi un large socle sur piédouche, et un décor interne de cercles concentriques. Sa pâte est grise (E10) en surface, gris foncé (F10) à la cassure. Cette assiette recouvrait, et, en quelque sorte, obturait la coupe à bec tubulaire évoquée plus loin. Elle mesure 211 mm de diamètre, pour une hauteur de 46 mm.

Un plat caréné, entier, présente un socle sur piédouche assez étroit (77 mm de diamètre), un fond pratiquement plat, et presque horizontal, et un rebord caréné, vertical, de 18 mm de hauteur, sans lèvre marquée. La pâte, mal cuite, est gris foncé (F10), autant en surface qu'à la cassure. Haut de 43 mm, ce plat mesure 219 mm de diamètre.

La coupe à bec tubulaire

Ce vase particulier, de belle finition, intact, fut découvert à l'étrave, dans la zone des ancrs. Il s'agit d'une coupe (?) ou d'une écuelle (?) à fond large, plat, sans piédouche, bords

L'ÉPAVE DRAMONT C



1 : coupe campanienne ; 2 et 3 : plats à socle large ; 4 : assiette à lèvre rabattue ; 5 : plat caréné (échelle 1:2).

arrondis, lèvre rabattue vers l'intérieur. Deux petites oreilles, de part et d'autre, et un bec tubulaire évasé lui sont rattachés en son plus grand diamètre. La pâte est brun-gris très foncé (J41) en surface, brun-rouge (F42) à la cassure. La surface externe du vase est peignée en oblique. Il mesure 80 mm de hauteur, pour un diamètre de 232 mm.

Le pelvis

Un très beau et grand *pelvis*, entier, était soudé par le concrétionnement à l'ancre en fer. Il s'agit d'un bassin de 370 mm de diamètre, haut de 79 mm, au socle plat, orné, en son plus grand diamètre, de deux oreilles, et du bec verseur habituel. La surface interne est rugueuse. La pâte, jaune-rouge (D36) en surface, est rouge foncé (H16) à la cassure, bien cuite. Ce *pelvis*, découvert non loin du vase précédent, pouvait peut-être se trouver en cours d'utilisation juste avant le naufrage.

Les tegulae

Bien qu'aucune tuile n'ait pu être reconstituée, il semble que quelques-unes d'entre elles aient vraiment eu un rôle de recouvrement, sans servir simplement de lest. En effet, de très nombreux gros fragments, qui se raccordent, ont été dégagés, et certains d'entre eux, représentés sur le plan, étaient au-dessus des amphores, et des meules. Un cliché, ci-joint, montre la reconstitution partielle d'une *tegula*. Il y avait aussi des *imbrices*, non représentées ici.

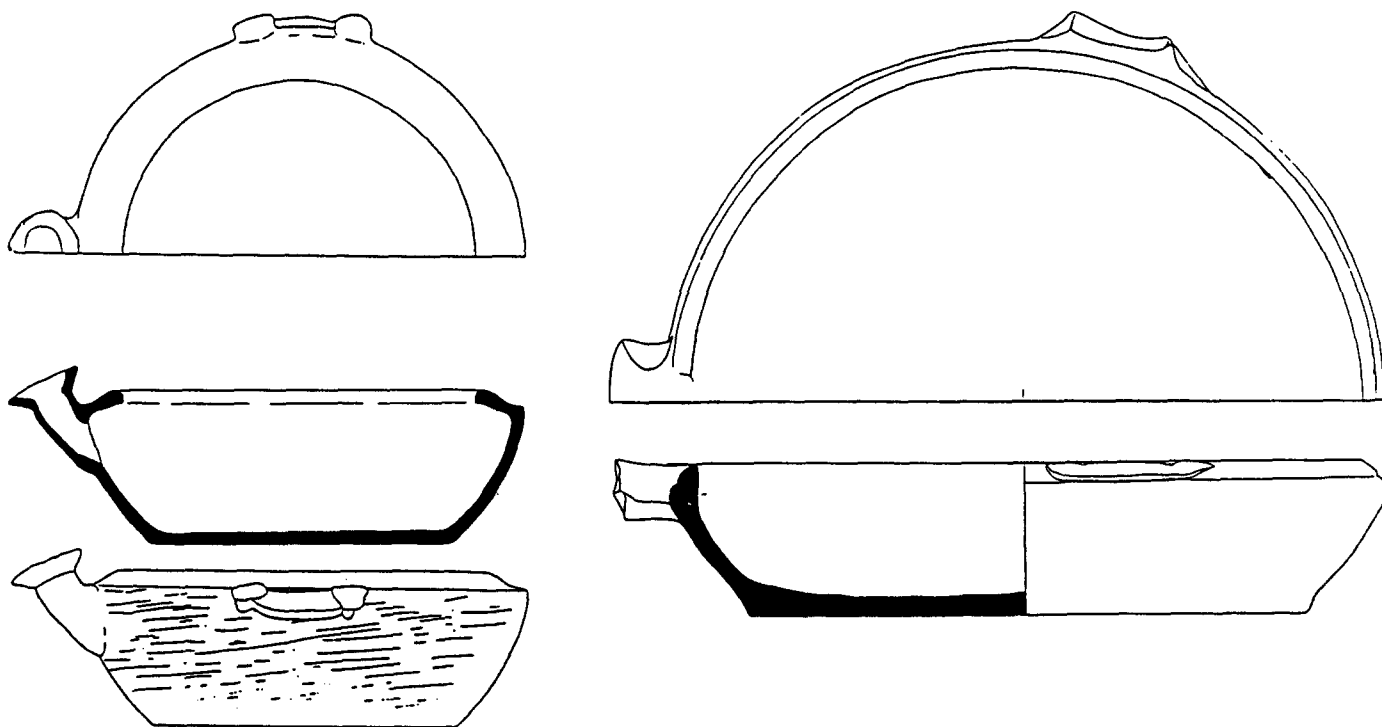
Les objets en cuivre

Deux objets, à l'état de fragments, ont été découverts non loin du bloc de résine, en C4. Ils sont représentés et photographiés ci-contre, à l'échelle. L'un, de profil fermé, pourrait être une fiole, avec ou sans anses. L'autre, mieux conservé, de profil ouvert, est une coupe évasée de 200 mm de diamètre, à rebord déversé, et à socle sur piédouche, décoré de 3 cercles internes en relief.

Une très belle anse, représentée ci-joint, semblant avoir appartenu à un vase globulaire, dont elle reprend le galbe, est percée en sa partie supérieure d'un orifice, dans lequel devait passer l'axe d'un opercule, disparu depuis. Elle mesure 168 mm de hauteur.

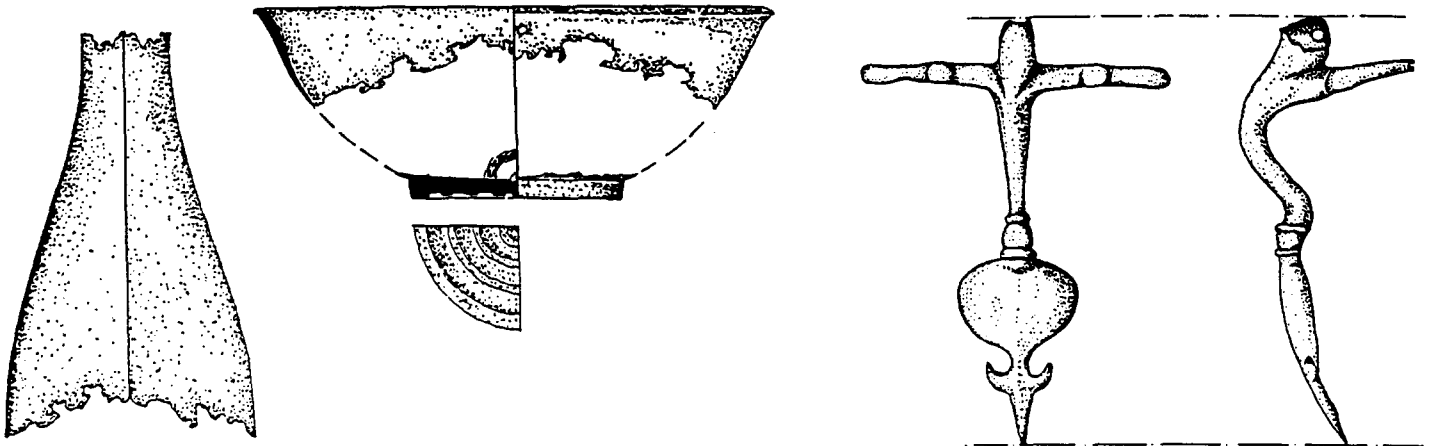
Des fragments de cuivre à arête rectiligne, sortes de rebords de caissette ou de coffret, décorés de fleurs stylisées sont ici photographiés.

Les lingots de fer



Coupe à bec, *pelvis* (échelle 1:4).

L'ÉPAVE DRAMONT C



Objets en cuivre (échelle 1:3).

Partie intégrante du chargement du navire, soigneusement rangées en fond de cale sur un tapis de branches de vigne, de nombreuses barres de fer de section quadrangulaire demeureraient en place, soudées les unes aux autres en une énorme concrétion (90-22). Leur longueur est inconnue, mais certaines dépassaient le mètre. Leur section est variable, avec une épaisseur de 30 à 35 mm, et une largeur de 35 à 48 mm sur les échantillons remontés. Leur imbrication dans le sédiment en rendait impossible le comptage, et leur nombre peut approximativement être estimé à une cinquantaine.

Le burin en fer

La gangue concrétionnaire d'un outil en fer a pu être sciée, et la cavité, moulée, a livré l'empreinte d'un burin entier de 277 mm de long.

Les meules

6 éléments de meules ont été remontés en 1989 et un seul en 1990. Il y a 4 *catilli* et 3 *metae*. La roche constitutive est une sorte de brèche vacuolaire grisâtre.

Le catillus-type

L'un d'entre eux est dessiné ci-joint, et toutes les dimensions des 3 exemplaires seront indiquées plus bas. On remarque que cette meule est très épaisse, et très lourde. En outre, alors que l'abondance de matériau aurait pu le permettre, elle n'est pas percée du trou latéral habituellement utilisé pour sertir une poignée de préhension. Une simple cavité en queue d'a-

Légende figure page 44 – 1 : Olpé. 2 : Olpé et jarre *in situ*. 3 : Coupe campanienne. 4 à 7 : *Ollae*. 8-9 : Assiette à bord évasé. 10-11 : Plat à rebord vertical. 12 : Coupe à bec. 13 : *Pelvis* 14 : *Tegula*.

L'ÉPAVE DRAMONT C

ronde est creusée sur le bord supérieur. L'entonnoir supérieur, et la concavité inférieure ne présentent aucune particularité exceptionnelle.

La meta-type

Tout aussi lourde, elle se distingue par l'absence, ou la faible dimension du trou borgne qui perce habituellement la face supérieure, convexe.

CATILLUS	1	2	3
Diamètre maximum	375 mm	385 mm	375 mm
Hauteur maxima	172 mm	180 mm	180 mm
Diamètre du réceptacle	360 mm	340 mm	345 mm
Concavité inférieure	61 mm	51 mm	60 mm
Concavité supérieure	45 mm	50 mm	45 mm
Diamètre orifice central (en haut)	65 mm	53 mm	55 mm
Diamètre orifice central (en bas)	75 mm	71 mm	75 mm
Poids	37 kg	38 kg	34,5 kg
META	1	2	3
Diamètre maximum	390 mm	390 mm	380 mm
Hauteur au plus grand diamètre	118 mm	110 mm	115 mm
Diamètre de la base	280 mm	300 mm	300 mm
Hauteur maxima	173 mm	170 mm	164 mm
Concavité de la base	10 mm	10 mm	0
Trou borgne	non	oui	oui
Diamètre du trou		32 mm	15 mm
Profondeur du trou		20 mm	10 mm
Poids	32 kg	27 kg	31,5 kg

Le catillus supplémentaire

Cet élément de meule est le septième découvert sur l'épave. Alors que les six premiers se présentaient par paires, celui-ci ne possède pas sa *meta*. A-t-elle disparu lors du naufrage, ou fut-elle chapardée plus récemment ?

Quoi qu'il en soit, ce *catillus* est totalement différent des autres : nettement plus petit (diamètre 356 mm contre 375 à 385 mm, hauteur 140 mm contre 172 à 180 mm), avec un

Objets en pierre : 1 – Dalle ; 2 – Lest ; 3 – Ensemble de meule.

Objets en cuivre : 4-5, et détail 6.

Objets en fer : 7 – Burin ; 8-9 – Lingots.

trou central bien plus grand, il possède l'orifice latéral destiné à sertir une poignée de pré-hension, alors que les autres *catilli* ne présentaient que des incisions superficielles en forme de queue d'aronde.

Enfin, il faut rappeler que ce *catillus* était *sur* les amphores, alors que les six autres éléments de meules étaient bien rangés, à plat, sous le chargement d'amphores, à même la coque. On peut donc conclure, malgré l'absence de *meta*, qu'une meule était sur le pont, ou en coursive, et qu'elle était utilisée par les marins.

Les pierres plates

Là encore, il ne s'agit pas de pierres de lest. Des fragments de dalles en calcaire clair gisaient sur bâbord avant, juste au dessous d'une collection de plaques et de bouchons de liège plus ou moins finis. Certaines pierres sont rayées, et elles peuvent être identifiées à des surfaces de travail, destinées à la découpe des lièges, et aussi, pourquoi pas, à celle de vivres. A contrario, le seul os, indice de nourriture, est très éloigné de ces dalles.

La résine

Une cargaison abondante de résine de pin (plusieurs centaines de litres) occupait l'arrière du navire. Aucune trace de récipient ne fut décelée. La résine s'était répandue dans les fonds du navire, autour des amphores et des lingots de fer.

Il faut dire que les gros chargements de résine de pin n'ont pas manqué dans les fouilles de notre équipe. Déjà, en 1971, Dramont F., du Bas-Empire, contenait une centaine d'amphores, toutes remplies de résine. En 1976, ce fut le tumulus de sacs de résine de la Chrétienne I, sur plusieurs mètres carrés. Enfin, en 1988, l'épave Nord-Levant était constituée d'amphores gréco-italiques encore pleines de résine ! Il y aurait du travail à faire sur ces transports importants, témoin d'un commerce mal connu.

L'os

Un fragment d'humérus de porc (1) fut découvert à proximité des lingots de fer, à l'arrière. Sa présence doit être en relation avec celle des bois calcinés décrits ci-après.

Les bois calcinés

Tous découverts en arrière des lingots de fer, des fragments de bûches calcinées et de charbon étaient rassemblés sur une faible surface. L'analyse de deux fragments de ces bois, un peu moins carbonisés, a conclu à la présence de pin d'Alep (*Pinus halepensis*, Mill.) dans les deux cas. Cela ressemble bien à un petit foyer de cuisine.

(1) Identification de F. Poplin, Laboratoire de Zoologie, Mammifères et oiseaux, Museum d'Histoire Naturelle.

L'ÉPAVE DRAMONT C



Découvertes diverses : bois calciné, os de porc et brindilles de vigne.

CONCLUSION

A la fin du second siècle, ou au début du premier siècle avant Jésus-Christ, un petit caboteur romain, de 12 à 14 m de long, de construction classique, assez âgé, se dirigeait vers l'ouest, au large de la baie d'Agay. Ses cales étaient bien pleines : 120 amphores de type Dressel 1B, à l'exception de quelques Lamboglia II, soigneusement rangées au milieu du navire, un stock important de barres de fer, isolé du vaigrage par des branches de vigne, plutôt vers l'arrière, des blocs de résine de pin, emballés on ne sait trop comment aujourd'hui. Le complément pondéral consistait en trois meules complètes, à même le bordé, et en un lest important, de l'ordre de 500 kg, de galets calcaires. Plus difficile à déterminer serait la destination des nombreux petits objets présents à bord, *ollae*, olpés, jarres, assiettes, coupes, *pelvis*, objets en cuivre, trop nombreux pour ne constituer qu'une vaisselle de bord.

Sur le pont, la vie s'écoulait : un marin devait façonner des opercules d'amphores, un autre pouvait utiliser meule, *pelvis* et vases divers pour préparer un mets quelconque. Un petit feu était entretenu à la poupe du navire, pour la cuisine. A l'avant, non pas une ou deux, mais quatre ancres différentes, dont trois en bois à jas de plomb. Cette abondance de mouillage est étrange, et on peut penser que certaines ancres pouvaient être destinées à un négoce ultérieur.

Ayant déjà évité le danger connu de nos jours sous le nom d'écueil de la Chrétienne, mais serrant trop la côte, soit par contrainte du fait du vent d'est, soit pour se protéger du mistral, le bâtiment heurta alors une autre roche à fleur d'eau. Était-ce le « sec de l'île d'Or », au sud-ouest de l'île de ce nom, ou l'autre « sec », qui culmine au sud-est de la même île, juste au-dessous de l'actuel sémaphore ?

**IV- Divers textes et articles de presse sur
le patrimoine culturel subaquatique/
*Various texts and press articles on
the underwater cultural heritage:***

Les défis de l'archéologie subaquatique

par Marc-André Bernier et Robert Grenier

Cet article raconte les fouilles d'un baleinier basque datant du XVI^e siècle, mais donne également un aperçu sur les dangers de pillage qui pèsent sur le patrimoine culturel subaquatique.

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LES DÉFIS DE L'ARCHÉOLOGIE SUBAQUATIQUE

Rien n'est vraiment simple sous l'eau. Températures souvent glaciales, difficulté à enregistrer les données, état de conservation des épaves plutôt variable... les archéologues subaquatiques se doivent d'être inventifs! Et ils le sont, car ils doivent en plus protéger les épaves contre les chasseurs de trésors et certains plongeurs insouciants, et mettre en valeur les sites. Que de défis!

Marc-André Bernier et Robert Grenier travaillent tous les deux à Paris, Canada, le premier comme

archéologue subaquatique, le second comme chef de service archéologique.

MARC-ANDRÉ BERNIER
ROBERT GRENIER

L'ARCHÉOLOGIE SUBAQUATIQUE (OU SOUS-MARINE) EST UNE DE CES DISCIPLINES QUI FRAPPENT L'IMAGINAIRE DES GENS: plonger dans des mers inexplorées à la recherche d'épaves mystérieuses pour découvrir les secrets qu'elles ont engloutis avec elles! Et avec tout l'engouement actuel autour du *Titanic*, voilà vraiment une profession à la mode. Qui ne rêve pas de descendre visiter la plus célèbre des épaves ou d'autres semblables! Or, pour ceux et celles qui exercent ce métier, le travail quotidien correspond à des réalités beaucoup plus terre à terre.

Les archéologues subaquatiques font face chaque jour à une multitude de défis qui s'amplifient et se complexifient sans cesse. Il y a déjà le seul défi technique de l'étude ou de la fouille des sites d'épaves; chaque site,

méthodique, le carroyage (système de carrés facilitant la prise de mesures), fut utilisé. Par ailleurs, plusieurs considèrent la recherche autour d'une épave datant de 1200 av. Jésus-Christ au cap Gelidonya, en 1960, comme la première véritable fouille archéologique sous-marine: jusque-là, les archéologues n'étaient jamais descendus sous l'eau afin de prendre part directement aux travaux de fouille.

Le Canada fut l'un des premiers pays au monde à faire un geste pour la gestion des épaves comme ressources culturelles. En 1961, Parcs Canada réclama la propriété des grands navires de guerre français coulés dans le port de Louisbourg, en Nouvelle-Écosse, dans le but de les protéger. Les premiers travaux sous-marins canadiens de nature archéologique furent effectués la même année

par Erik Hanson et Sherman Bleakney, de l'Université Acadia, qui procédèrent à la prospection d'une partie du port de Louisbourg. Puis, en 1966, à Mallorytown en Ontario, Walter Zacharchuck mena des travaux de fouille sur une canonnière de la

étant unique, nécessite que la recherche soit taillée sur mesure. Le défi lié à la conservation du site est pour sa part de plus en plus grand. Tout d'abord, comme la fouille est en elle-même une activité destructrice, il faut savoir bien enregistrer le contexte dans lequel est trouvé un objet si l'on veut être en mesure de comprendre les différentes significations qu'il revêt. La protection de l'ensemble des épaves en général à titre de ressources culturelles est une préoccupation omniprésente. La mise au point de nouvelles technologies pour la recherche des épaves, le développement même du sport de la plongée sous-marine et la possibilité récente pour les non-plongeurs de visiter les sites sous-marins (on peut descendre voir le *Titanic* moyennant quelque 30 000 dollars US) accentuent de façon accélérée la pression sur ces ressources fragiles que sont les épaves. N'oublions pas un dernier défi, celui de la mise en valeur de ces produits malgré les restrictions budgétaires.

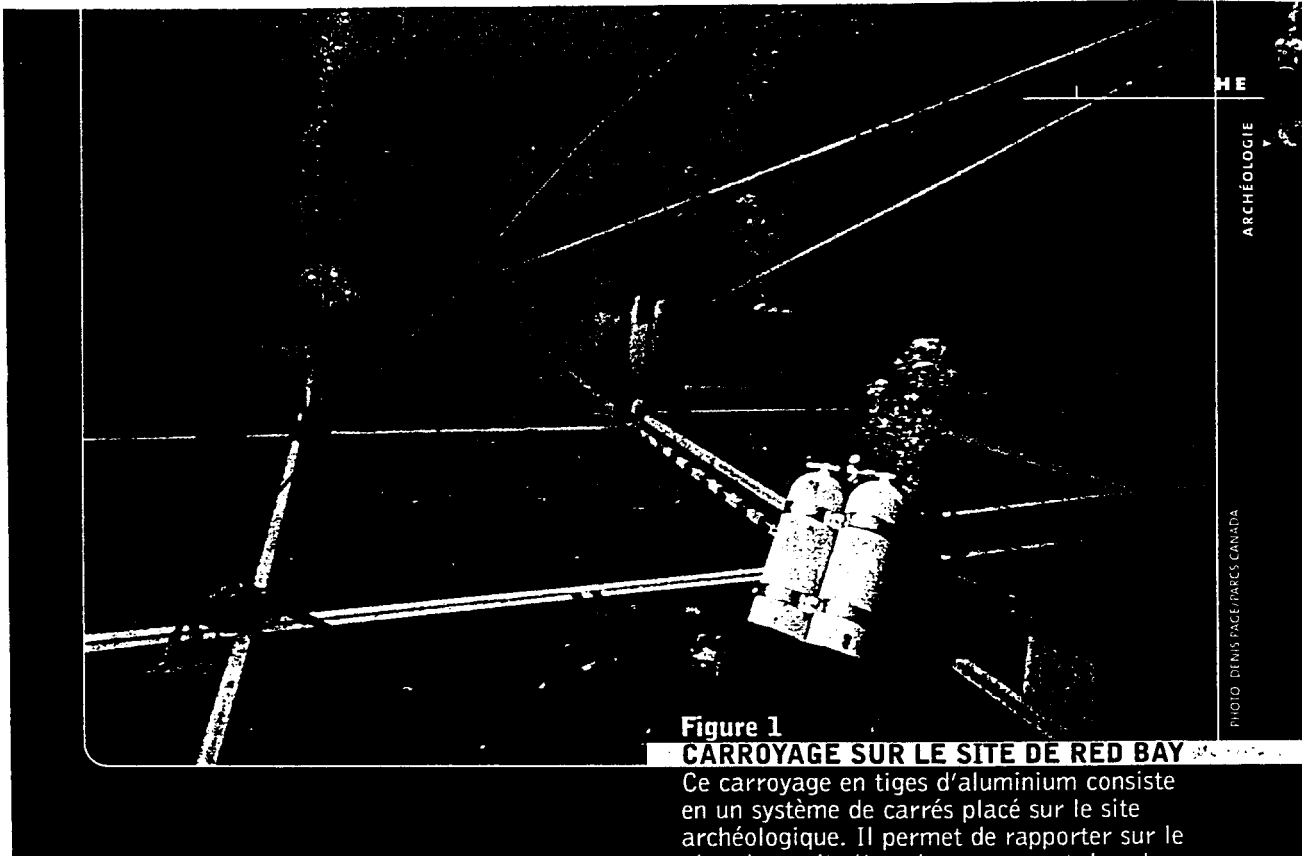
Devant cette complexité évidente de la tâche — développement technique, conservation, protection, mise en valeur des vestiges subaquatiques —, les archéologues sont loin d'être désemparés. En effet, ils sont riches d'expériences et d'expertises cumulées depuis plus de 45 ans, soit depuis l'invention du scaphandre autonome par Cousteau et Gagnan en 1943. Cousteau dirigea lui-même les premiers travaux de fouille au début des années 1950 sur l'épave romaine du *Grand Congloué* près de Marseille. Ce n'est toutefois qu'en 1958, en Italie, qu'un système d'enregistrement plus

guerre de 1812. L'équipe d'archéologie subaquatique de Parcs Canada était née! La fouille de l'épave du *Machault*, une frégate française sabordée par son équipage en 1760 dans la baie des Chaleurs, constitua aussi une étape déterminante pour Parcs Canada. À la suite de cette fouille d'envergure, qui s'étala de 1969 à 1972, l'équipe d'archéologues canadiens put acquérir un bagage de connaissances et une crédibilité qui en font encore aujourd'hui un des intervenants majeurs sur le plan international, pour ce qui est tant de la recherche que de la mise en valeur et de la protection. La fouille de galions basques à Red Bay, au Labrador, de 1978 à 1985, ne fit que confirmer ce rôle: l'équipe est actuellement en mesure de réagir et d'interagir avec une efficacité certaine dans les dossiers de ce domaine en pleine effervescence.

UNE FOUILLE LABORATOIRE

La fouille de navires basques du XVI^e siècle à Red Bay, la plus importante jamais effectuée sous l'eau au Canada, fut sans aucun doute déterminante pour l'archéologie subaquatique canadienne. Elle tire son intérêt non seulement du fait que ce sujet d'étude se révéla la plus vieille collection d'épaves en eaux canadiennes, mais aussi, et peut-être surtout, du fait qu'elle a servi de laboratoire de développement pour la discipline. C'est là, en effet, l'une des fouilles modèles. La nature des vestiges répartis entre 8 et 13 m de profondeur et les conditions particulières de l'environnement du site, ont entraîné le déploiement de tout un monde d'ingéniosité et d'innova-

LE CANADA FUT L'UN DES PREMIERS PAYS AU MONDE À FAIRE UN GESTE POUR LA GESTION DES ÉPAVES COMME RESSOURCES CULTURELLES.



ARCHÉOLOGIE

PHOTO DENIS FAGE/PARCS CANADA

Figure 1
CARROYAGE SUR LE SITE DE RED BAY

Ce carroyage en tiges d'aluminium consiste en un système de carrés placé sur le site archéologique. Il permet de rapporter sur le plan de ce site l'emplacement exact dans les trois dimensions de chaque objet trouvé. Près de 3 000 pièces de la structure du navire, dont environ 600 encore assemblées, furent ainsi relevées avec précision.

tions et ce, dans toutes les branches du travail archéologique: collecte des données, méthodes d'analyse, conservation, protection et mise en valeur.

Cette découverte était de taille: des épaves, trois en tout, de galions venus du pays basque pour se livrer à la très lucrative pêche à la baleine et de quatre embarcations plus petites, dont deux *chalupas* utilisées pour la chasse elle-même. Une véritable page d'histoire, qui valait en soi d'entreprendre des recherches approfondies pour fouiller le passé. L'épave du baleinier, la mieux préservée, et celles des deux chalupas furent donc fouillées entièrement. Les eaux glacées du Labrador et, comme on le constatera plus tard, les conditions particulières du naufrage, livrèrent aux chercheurs des reliques d'une technologie ancienne mal comprise: l'architecture navale du XVI^e siècle. Les épaves de Red Bay, qui reposaient dans un état de préservation rarement vu pour des navires de cette époque, soulevaient l'espoir de percer plusieurs mystères quant à leur conception et à leur construction.

Un des premiers défis des archéologues de Red Bay fut celui de travailler efficacement dans les eaux glacées du détroit de Belle Isle — la température varie entre -2 °C et 7 °C, l'eau salée pouvant atteindre des températures sous zéro. Vêtus de simples combinaisons étanches, les premières années, les plongeurs étaient non seulement limités à des immersions « confortables

» dépassant à peine une heure et demie, mais ils devaient travailler dans des conditions où la dextérité et la capacité de concentration étaient grandement diminuées. L'adoption, en 1980, d'un produit de technologie emprunté au secteur de la plongée depuis les plateformes de forage en mer du Nord, soit la combinaison à eau chaude, révolutionna le travail à Red Bay: ce costume est alimenté en eau chaude par un tuyau relié à une chaudière placée sur la plate-forme de surface. Le plongeur baigne ainsi dans une eau tiède qui lui permet d'optimiser son efficacité non seulement en termes de temps de plongée (le temps moyen augmenta alors à plus de deux heures et quart), mais également en termes de qualité de travail. Plus de 14 000 heures de plongée purent ainsi être réalisées grâce à cette merveille!

Les techniques de fouille et d'enregistrement sont encore conventionnelles à ce moment, mais le souci du détail est poussé à l'extrême. Ainsi, un système de

carroriage rigide permet de bien contrôler la détermination de l'origine des pièces et la précision d'enregistrement des découvertes, y compris la coque du navire (figure 1). Comment? À l'aide de tiges d'aluminium, on divise le site en carrés de fouille de deux mètres par deux mètres qui trouvent leur équivalent sur le plan du site. On peut ainsi rapporter sur ce dernier l'emplacement exact d'un objet dans les trois dimensions en mesurant sa position par rapport aux tiges du carroriage. On releva ainsi près de 3 000 pièces de la structure du navire à Red Bay, dont environ 600 encore assemblées. Plus de 50 000 photos du site, de la coque et des artefacts furent prises, plus de 2 500 minutes de métrage filmées.

On perfectionna une technique de moulage sous l'eau de façon à obtenir une réplique exacte de certains détails de fabrication importants pour la compréhension de la structure du navire. Les restaurateurs utilisèrent d'abord du caoutchouc polysulfide afin de capter l'empreinte de la surface à reproduire pour ensuite le recouvrir de plâtre figeant à l'eau froide de façon à bien conserver la forme originale. Une fois en laboratoire, bien au sec, un positif exact de l'objet fut reproduit. On put ainsi obtenir une reproduction parfaite de traces d'outils montrant la méthode de façonnage des pièces de structure ou d'empreintes de clous ou de gournables (chevilles de bois) indiquant la méthode d'assemblage des différentes pièces. On capta même sur les membrures reposant dans le fond du navire des empreintes de dents de rats affairés à grignoter là où s'accumulaient les débris de nourriture! Cette technique trouve également son utilité dans la mise en valeur: une section de coque reproduite de cette façon permet de bien illustrer à quoi ressemblait la coque lorsque les archéologues la voyaient sous l'eau, ce qui sert à des fins muséologiques ou pédagogiques.

L'importance, pour la connaissance de l'évolution de la construction navale, du baleinier qui fut fouillé poussa les archéologues à aller encore plus loin dans l'enregistrement de la coque. Empruntant une technique utilisée pour la première fois en 1968-1969 sur une épave du IV^e siècle avant Jésus-Christ retrouvée à Kyrenia, à Chypre, les plongeurs démantelèrent la coque et remontèrent de façon successive chacun de ses éléments. Ceux-ci furent ensuite dessinés dans les moindres détails, à l'échelle 1:10. Traces d'outils, chevilles de bois, fixations de métal, usure du bois, etc., tout fut noté avec précision. Faute de pouvoir remonter le navire lui-même, ce qui supposait des sommes considérables qui n'étaient pas disponibles, les chercheurs purent travailler avec des images précises de chaque élément du navire.

Toutes les données recueillies — plans de sites, dessins relationnels des objets, notes de fouille détaillées, photographies et images vidéo, dessins en trois dimen-

sions des pièces de structure, etc. — sont analysées pour bien comprendre, d'une part, les événements qui ont eu lieu à Red Bay au XVI^e siècle et, d'autre part, les modes de fabrication, de fonctionnement et d'utilisation des objets retrouvés, dont le navire lui-même. Cette « fouille après la fouille », qui se poursuit toujours en laboratoire 15 ans plus tard, livre encore aujourd'hui plusieurs secrets du monde maritime au Moyen Âge.

IL ÉTAIT UNE FOIS UN NAVIRE BASQUE...

Les plans et relevés du site ont permis d'abord de décoriquer chaque événement relié au naufrage du baleinier et à son démantèlement par la suite. La séquence des étapes de la formation du site a pu être établie avec précision et comparée avec les quelques documents d'archives que nous possédons. Nous savons maintenant que le navire chargé de barriques d'huile de baleine heurta la côte après que ses câbles d'ancrage eurent cédé lors d'une tempête. Une fois le navire coulé, sa partie supérieure émergeait partiellement de l'eau, ce qui permit aux Basques de récupérer certains de leurs biens ainsi que des éléments du gréement qui étaient accessibles (poules, moques...). Après un hiver qui vit la destruction partielle du navire jusqu'au niveau du pont supérieur, on fit une tentative de sauvetage afin de récupérer les barriques encore emprisonnées; cela résulta en l'arrachement des pièces de structure du pont principal et du premier pont, entraînant l'affaissement des parois de la coque. Toutefois, les Basques ne purent libérer du fond de la cale la centaine de barriques intercalées avec les pierres de lest.

Si tous ces événements nous sont apparus clairement, c'est grâce aux enregistrements minutieux et aux analyses poussées qui suivirent. Par contre, c'est en partie parce que les Basques eurent accès au navire après le naufrage que le nombre d'objets retrouvés n'est pas faramineux. Parmi ceux-ci, on note évidemment les quelque 125 barriques d'huile, une cargaison justifiant la présence basque au Labrador. Un sablier, une boussole et un habitacle de bois pour ranger les instruments de pilotage témoignent des techniques de navigation de l'époque. Une cinquantaine de souliers, des fragments de vêtements, des contenants en céramique et des assiettes en bois nous renseignent sur les modes de vie des Basques (figure 2). Parmi les objets particulièrement inusités, mentionnons une gravure sur une planche du navire représentant un galion à l'ancre avec une *chalupa* attachée à sa poupe.

Pour ce qui est de la coque du navire, les dessins détaillés des pièces de structure ont mené à la construction d'une maquette du navire à l'échelle 1:10, un procédé qui permit de répliquer le travail d'assemblage des constructeurs de l'époque de façon à mieux compren-



Figure 2

OBJETS RÉCUPÉRÉS SUR LE SITE DE RED BAY

Un grand nombre d'objets furent récupérés sur le site. Parmi ceux-ci, des récipients en céramique dont quelques-uns pratiquement intacts. Certains servaient à la cuisson, d'autres à l'entreposage des victuailles.

dre leur approche et leurs méthodes (figure 3). En fait, c'est seulement après avoir étudié plus de 12 000 trous de clous de métal et de bois sur le côté bâbord du navire qu'on a commencé à déceler des indices pertinents! Ceux-ci ont révélé une structure située à mi-chemin entre le procédé millénaire de la coque en premier, comme chez les Grecs, les Romains et même les Vikings, et le procédé moderne de la structure ou ossature en premier, encore pratiqué aujourd'hui. Dans le premier cas, le bordé (planches formant la coque) est assemblé en premier, les planches fixées latéralement les unes aux autres par des milliers de mortaises et tenons, et les membrures (poutres formant la charpente) flottantes, c'est-à-dire non reliées les unes aux autres, sont insérées sur le bordé pour le renforcer. Dans le second cas, les membrures reliées latéralement les unes aux autres, sont érigées en premier, autonomes et rigides, pour ensuite supporter le bordé et lui donner sa forme.

Sur le navire de Red Bay, le charpentier basque avait utilisé la technique moderne naissante seulement au centre du navire, insérant 14 membrures pré-conçues, pré-assemblées et érigées pour recevoir le bordé. Par contre, tout le reste de la structure fut érigé d'une façon composite où l'esprit de la tradition antique était toujours présent. Selon cette méthode transitoire, un système de lisses de construction jouant le rôle du bordé premier de la technique ancienne, servait à définir la forme de la coque et à supporter en place temporairement les membrures flottantes sur lesquelles le bordé serait fixé. C'est en fait ce navire qui révéla au monde le secret tant recherché de la transition technologique entre la construction navale antique et celle de l'époque moderne.

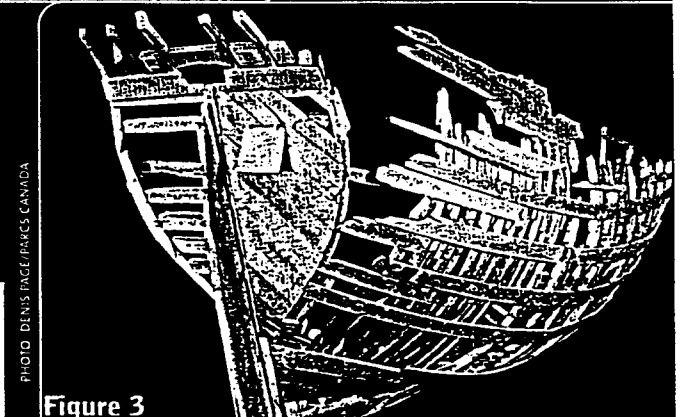


PHOTO DE NIS PAGE/PACCS CANADA

Figure 3

MAQUETTE MÉTALLIQUE D'UN GALION FOUILLE À RED BAY

Les dessins détaillés des pièces de structure ont mené à la construction d'une maquette du navire qui permit aux archéologues de mieux comprendre les méthodes d'assemblage utilisées par les constructeurs de l'époque. Ils ont ainsi découvert une structure située à mi-chemin entre le procédé millénaire de la coque en premier et le procédé moderne de la structure ou ossature en premier.

Les résultats des recherches ont été plus que probants: non seulement ont-ils permis de dresser un portrait détaillé de la construction d'un navire basque dédié à la chasse à la baleine de la coupe du bois en forêt jusqu'à sa mise à l'eau, mais ils ont mené à la traduction d'un traité d'architecture navale portugais du XVI^e siècle qui jusqu'alors n'avait pu être compris dans sa totalité. Ce traité, de Manuel Fernandes, *Livro de traças de carpinteria*, avait été rédigé par un artisan dans une langue de métier en grande partie incompréhensible pour les plus grands linguistes modernes. Seul le contact intime pendant plus de dix ans avec les milliers de pièces du galion de Red Bay apporta la connaissance profonde du langage des artisans de l'époque et permit d'élucider avec nos traducteurs les passages jusque-là insolubles.

Figure 4

CHALUPA DU XVI^e SIÈCLE

TROUVÉE À RED BAY, PUIS TRAITÉE ET RÉASSEMBLÉE À DES FINS D'EXPOSITION

Cette embarcation servait à chasser la baleine et à la ramener au lieu de dépeçage. Elle pouvait être mue par six rameurs ou à la voile. Un maître de chalupa, à l'arrière, la dirigeait à l'aide d'un aviron de plus de 6,7 mètres (20 pieds) de longueur. Elle est actuellement exposée au petit musée de Red Bay.

Hormis le grand navire baleinier, l'artefact le plus important et le plus significatif de la fouille de Red Bay demeure cette magnifique *txalupa* ou *chalupa* de 9 mètres (27 pieds) de longueur trouvée écrasée sous le côté tribord de la grande épave. Cette relique, récemment ré-assemblée dans les laboratoires de Parcs Canada, est le seul vestige au monde de cette célèbre et quasi mythique embarcation à rames et à voile qui demeure insurpassée comme embarcation de sauvetage en mer pour ses avantages: navigabilité extrême, vitesse et agilité (figure 4). Elle a aussi été un témoin privilégié de notre histoire dès ses premières heures: nombre de ses consœurs étaient déjà présentes avec les Basques le long des rives du golfe lors des voyages de «découvertes» de Cartier, ou autour de la région de Québec avant la fondation de la ville par Champlain. Cet exemplaire unique en montre au petit musée de Red Bay va maintenant révéler les secrets de ses performances et aussi, peut-être, le mystère de l'origine de la voile au tiers si chère aux chasseurs de baleines.

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INTERFACE

RÉ-ENFOUIR POUR PROTÉGER

Quand on fouille un site archéologique, l'acte de prélèvement des vestiges n'élimine pas d'emblée le défi de les protéger. Cette réalité est d'autant plus vraie pour les sites submergés. En effet, les objets qui ont reposé sous l'eau pendant des siècles ont vu leur structure modifiée et ont atteint un nouvel équilibre qui est de nouveau rompu lorsqu'on les retire du milieu marin. Une fois remonté à l'air libre, un artefact doit être stabilisé et traité si l'on veut assurer sa conservation à long terme. Les objets de bois, qui se sont gorgés d'eau, sont particulièrement vulnérables. On peut donc facilement comprendre le défi colossal qui consiste à préserver un navire presque complet! La fouille de Red Bay a également donné lieu à des innovations importantes du côté de la protection et de la conservation des ressources. Puisqu'on ne disposait pas des sommes colossales nécessaires pour traiter la structure du navire, comme il fut fait pour le *Wasa* en Suède ou encore le *Mary Rose* en Grande-Bretagne, et que de toute façon les restes de la coque ne se prêtaient pas au type de mise en valeur de ces deux navires, on décida de la ré-enfouir. Les quelque 3000 pièces ont ainsi été ré-ensevelies au fond du havre de Red Bay sous 315 tonnes de sable! Pour la première fois, un tertre de ré-enfouissement dont les conditions pouvaient être vérifiées de façon précise était mis en place. Les archéologues qui inspectent le site à intervalles réguliers ont la possibilité de prélever

des échantillons de bois et d'eau de l'intérieur même du tertre. Ils obtiennent un portrait de la conservation du bois et des taux en oxygène de l'eau très utile pour gérer l'évolution des vestiges.

La mise en valeur du site n'a pas été laissée de côté non plus: reproduction grandeur nature de la poupe du navire au Musée canadien des civilisations, film documentaire d'une heure, publications grand public, articles de magazines, publication d'un livre documentaire pour les adolescents et les musées, moulage d'une section de coque, bref, les témoignages abondent.

DE PHIPS À FRANKLIN: UNE MULTITUDE D'AUTRES FOUILLES

Le cas de Red Bay est celui d'une fouille exemplaire qui fut possible grâce à la réunion d'une multitude de circonstances exceptionnelles tant sur les plans scientifique

qu'économique et politique. Il serait très surprenant qu'on procède à une autre fouille subaquatique de l'envergure de celle de Red Bay. Les connaissances acquises là-bas ont pu être transférées, adaptées ou modifiées selon les sites. Et chaque site étant particulier, répétons-le, il doit faire l'objet d'une approche unique.

Le projet canadien qui ressemble peut-être le plus à celui de Red Bay, à plus petite échelle, est celui de l'épave de l'anse aux Bouleaux, qui s'est déroulé de 1995 à 1997 (figure 5). Il s'agissait de la fouille d'un des 32 navires (ou plus, selon certains) venus devant Québec avec Sir William Phips en 1690, au cours du célèbre épisode où Frontenac répondit: «Je n'ai point de réponses à faire à votre général que par la bouche de mes canons et à coups de fusils.» Le petit navire, d'une quarantaine de tonneaux, avait été perdu, au cours du repli forcé de Phips sur Boston, près du village actuel de Baie-Trinité sur la côte Nord. La fouille de sauvetage fut provoquée par la situation précaire de l'épave dans une petite anse exposée aux violences du golfe Saint-Laurent. Les travaux effectués, minutieux même dans ce contexte d'urgence, tenaient non seulement de l'importance de l'événement, mais également de deux autres facteurs: l'étonnant état de préservation des quelque 4500 objets découverts et la présence d'un fragment de coque qui révèle le plus vieil exemple de la construction navale en Nouvelle-Angleterre découvert à ce jour.

Pour la fouille de l'anse aux Bouleaux, on suivit le chemin tracé à Red Bay: enregistrement détaillé avec carroyage, démantèlement de la coque, remontée et

dessin à l'échelle 1:10 des pièces de structure, ré-enfouissement contrôlé des éléments de la coque. Évidemment, certaines techniques et méthodes furent mises à jour, modernité oblige. L'ordinateur, à ses débuts à l'époque de Red Bay, joua un rôle essentiel dans l'enregistrement et la gestion des artefacts.

Bien que l'analyse des données recueillies n'en soit encore qu'à ses premiers pas et que les résultats de recherche ne soient à ce stade-ci que limités, particulièrement en ce qui a trait à la coque du navire, cer-

LA FOUILLE DE RED BAY RÉVÉLA AU MONDE

LE SECRET TANT RECHERCHÉ DE LA

TRANSITION TECHNOLOGIQUE ENTRE LA

CONSTRUCTION NAVALE ANTIQUE ET CELLE

DE L'ÉPOQUE MODERNE.

taines observations très intéressantes peuvent déjà être faites. Une quarantaine de fusils, complets ou fragmentés, ont été retrouvés et tous sont différents (figure 6). Cette situation, due au fait que l'armée de Phips était composée de miliciens qui devaient fournir leurs propres armes, est très importante pour les chercheurs: voilà un portrait inédit de la variété d'armes en circulation dans la colonie anglaise à la fin du XVII^e siècle! Un autre aspect intéressant est le fait que plusieurs objets, dont des fusils, des cuillères, des outils, des haches de ceinture, une écuelle et même une bouteille de vin portent des initiales qui peuvent être rattachées à la liste des soldats qui provenaient du village de Dorchester, près de Boston, et qui furent perdus corps et âmes avec le navire. Il sera donc possible non seulement de relier les objets et leurs propriétaires, mais également d'avoir un certain portrait de la réalité sociale à l'intérieur d'une même communauté.

Toutefois, ce ne sont pas toutes les épaves qui peuvent ou doivent être fouillées. Le cas du *Corossol*, vaisseau du roi de France coulé à Sept-Îles en 1693, en est un parfait exemple. Malgré sa relative «antiquité», des fouilles ne furent pas nécessaires et ce, ni pour des raisons de protection, ni pour des impératifs de recherche: l'évaluation préliminaire du site démontra qu'il restait trop peu d'éléments du navire original — la coque avait été pulvérisée par les tempêtes et les glaces — ou de sa cargaison. Les vestiges, qui se limitent à huit canons et une soixantaine de boulets, ont été laissés *in situ*. Ils y seront plus utiles car le lieu est en voie d'être transformé



RECHERCHE

Parcs Canada

PHOTO PETER WADDELL/PARCS CANADA

Figure 5
PLONGEUR SUR LE SITE DE L'ANSE AUX BOULEAUX

Le plongeur examine ici une section de la coque après que les planches intérieures ont été enlevées. Ce petit navire d'une quarantaine de tonneaux faisait partie de la flotte de Sir William Phips venue attaquer Québec en 1690. Il a coulé près de Baie-Trinité sur la côte Nord alors que Phips se voyait forcé de rentrer à Boston après de courts engagements. Cette fouille a été menée conjointement avec le ministère de la Culture et des Communications du Québec.

en une petite réserve sous-marine où les plongeurs pourront visiter ce qui reste de ce navire du XVII^e siècle.

DES MUSÉES SOUS LA MER

Un tel concept de « musée sous la mer » est toutefois antérieur à la découverte du *Corossol*, en 1990. Depuis près de 40 ans, en effet, Parcs Canada gère une réserve d'épaves à Louisbourg, en Nouvelle-Écosse. Le havre de

fouilles archéologiques : l'épave repose dans une baie bien abritée et la proximité du parc historique la protège des plongeurs avides de souvenirs. Quant aux préoccupations de recherche, elles ne valent pas l'investissement d'une fouille pour l'instant : l'événement est bien documenté et les navires de cette importance et de ce gabarit sont, pour cette époque, très bien connus, contrairement à ceux de Red Bay. Dans ce cas-ci, ce sont

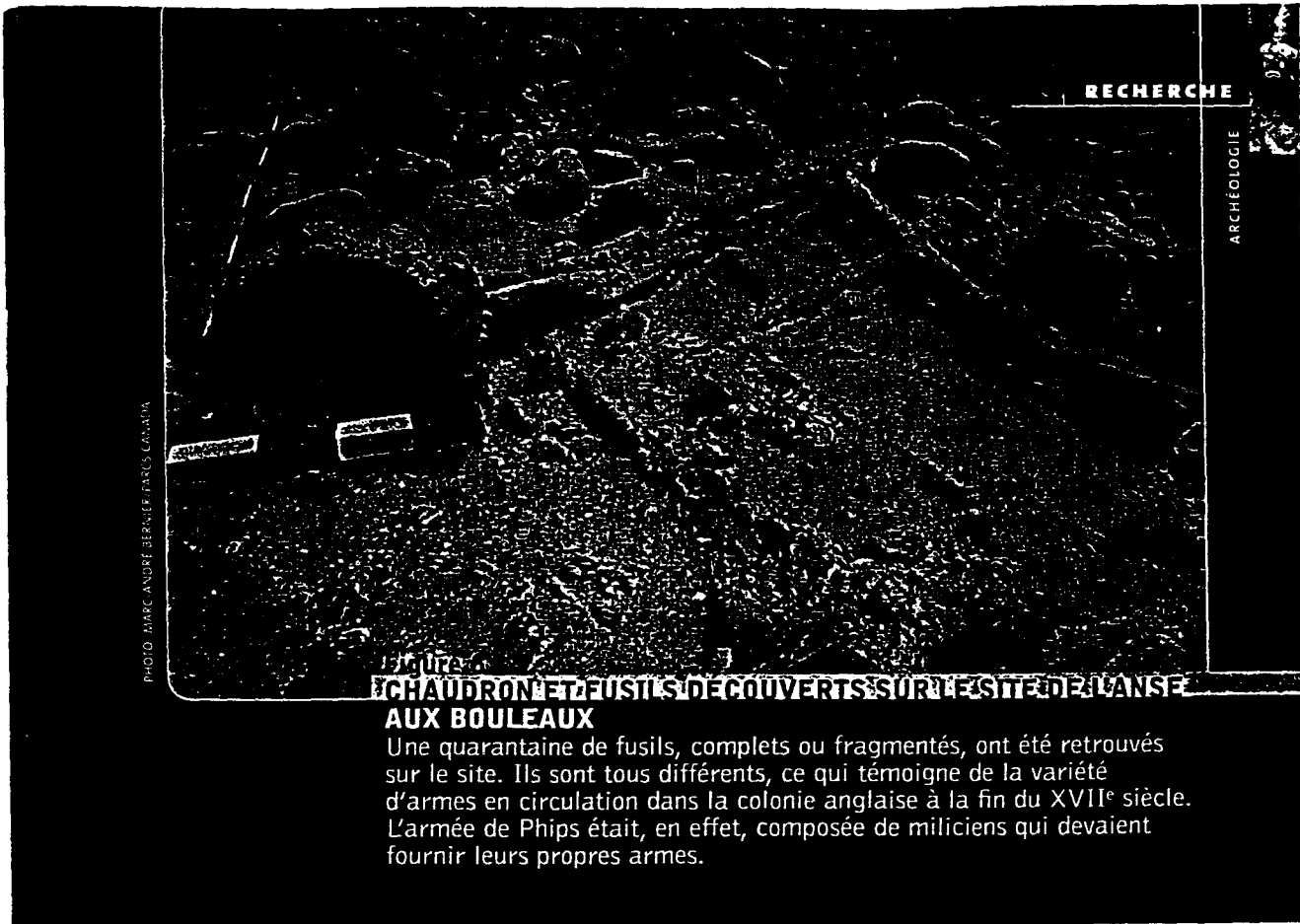
les aspects de la mise en valeur *in situ* et de la conservation pour les générations futures qui furent privilégiés. Ainsi, les plongeurs peuvent visiter le *Célèbre* accompagnés d'un guide qui veille à ce que la promenade se dé-

CE NE SONT PAS TOUTES LES ÉPAVES QUI DOIVENT ÊTRE FOUILLÉES.

Louisbourg, adjacent au parc historique national du même nom, renferme une vingtaine d'épaves du XIX^e siècle. La plus connue est celle du *Célèbre* — un vaisseau de 64 canons coulé en 1758 lors de la prise de la ville par les Anglais au début du conflit aujourd'hui connu sous le nom de « Conquête » (figure 7). Bien que, contrairement au cas du *Corossol*, les vestiges soient substantiels, on ne jugea pas non plus opportun d'effectuer des

roule en toute sécurité pour les plongeurs et pour l'épave. Avant de se mettre à l'eau, on peut visionner un film expliquant l'histoire et la construction du navire, et se familiariser avec un dessin du site qu'on apporte sous l'eau.

Il n'y a pas que les épaves de l'époque de la Nouvelle-France qui peuvent se prêter à la mise en valeur sous-marine. Au parc national Fathom Five dans le lac Huron,



L'ÉCHAUDRON DE FUSILS DÉCOUVERTS SUR LE SITE DE LA ANSE AUX BOULEAUX

Une quarantaine de fusils, complets ou fragmentés, ont été retrouvés sur le site. Ils sont tous différents, ce qui témoigne de la variété d'armes en circulation dans la colonie anglaise à la fin du XVII^e siècle. L'armée de Phips était, en effet, composée de miliciens qui devaient fournir leurs propres armes.

en Ontario, on offre aux plongeurs la possibilité de visiter plus de 25 épaves qui datent pour la plupart du XIX^e siècle, dont l'une, le *Sweepstakes*, fait l'objet de plus de 10 000 visites par an (figure 8). La beauté majestueuse de la baie Georgienne et les conditions de préservation uniques aux Grands Lacs canadiens – eau douce et froide – permettent aux amateurs d'épaves de se retrouver sur des navires parfois intacts, sur le fond. La situation dans ce parc marin illustre bien la nouvelle responsabilité des archéologues subaquatiques de Parcs Canada. Leur travail ne consiste plus exclusivement à « documenter » les épaves selon des critères purement scientifiques, mais ils doivent en plus fournir une panoplie de renseignements aux gestionnaires du parc afin de les aider à gérer les ressources culturelles. Valeur historique, étendue des vestiges, conditions de plongée, qualités esthétiques et environnementales font partie des données à livrer. Ce processus d'inventaire et d'évaluation est en cours pour le parc marin du Saguenay/Saint-Laurent. L'intervention touche non seulement les vestiges possibles des nombreuses épaves qui ont sombré sur les îles et les hauts-fonds présents à cet endroit du Saint-Laurent, mais également ceux des témoins physiques de la navigation, de l'exploitation et du commerce du bois ainsi

que de la présence amérindienne à l'intérieur de la rivière Saguenay.

LA LUTTE AU PILLAGE

Le rôle de l'archéologue a également évolué en ce qui a trait à la protection des vestiges. Autrefois limitée à l'intervention archéologique – le moyen le plus sûr consistait souvent à tout retirer de l'endroit où les vestiges se trouvaient menacés –, la protection prend aujourd'hui des dimensions nouvelles. Le nombre sans cesse croissant de plongeurs et le développement phénoménal des technologies poussent les archéologues/gestionnaires à diversifier leurs approches. Une des facettes les plus prometteuses est la sensibilisation de la communauté des plongeurs sportifs. Parcs Canada offre depuis maintenant trois ans des cours d'initiation à l'archéologie subaquatique. Ces cours, inspirés de ceux développés en Grande-Bretagne par la Nautical Archaeology Society et accrédités au niveau international par celle-ci, permettent aux plongeurs de s'initier aux rudiments du relevé archéologique subaquatique et, surtout, à la pertinence de l'intervention archéologique. Ces cours ne sont évidemment pas offerts que pour le simple plaisir de la formation théorique: déjà plus de 60 plongeurs

ont pu participer à de véritables interventions archéologiques de Parcs Canada, dont plusieurs lors de la fouille de l'anse aux Bouleaux en tant que fouilleurs. Le succès de cette démarche est véritable: d'une part, les plongeurs initiés sont plus sensibles à l'importance de la protection des épaves et à la nécessité de l'approche archéologique; d'autre part, ils sont en mesure de sensibiliser eux-mêmes les autres plongeurs qu'ils côtoient.

Malheureusement, cela n'est pas suffisant pour assurer la protection du patrimoine marin. Les chasseurs de trésors avides d'objets monnayables sont une menace constante et nombre de sites sont détruits chaque année à travers le monde à la suite d'interventions dont

Un projet d'amender cette loi pour soustraire les épaves patrimoniales au régime du sauvetage actuel a malheureusement avorté il y a plus d'un an. Malgré cette carence législative, le Canada jouit d'une réputation très enviable pour sa gestion des épaves patrimoniales et leur mise en valeur, du moins dans le cas des épaves déclarées d'intérêt historique national par la Commission des monuments et lieux historiques du Canada.

Tel est le cas des épaves de navires fort convoitées de l'expédition de Sir John Franklin perdus corps et biens vers 1848 lors d'une expédition désastreuse visant à découvrir le passage du Nord-Ouest. La disparition de ces navires, le *HMS Erebus* et le *HMS Terror*, a engendré

à l'époque la plus grande opération internationale de recherche et de sauvetage en mer de l'histoire de l'humanité. Il en résulta rapidement une cartographie de l'Archipel arctique et, par ricochet, l'extension des limites du territoire canadien à son immensité actuelle. Déclarées d'intérêt historique national en 1992, ces

LES CHASSEURS DE TRÉSORS AVIDES D'OBJETS MONNAYABLES SONT UNE MENACE CONSTANTE ET NOMBRE DE SITES SONT DÉTRUITS CHAQUE ANNÉE À TRAVERS LE MONDE.

le but ultime est la revente d'artefacts. Le Canada ne fait pas exception, comme en témoigne le cas du *Feversham*, coulé en 1711 en Nouvelle-Écosse; les pièces de monnaie qu'on y trouva ont été vendues aux enchères par Christie's de New York. Ou celui de l'*Auguste*, coulé en 1761 également en Nouvelle-Écosse; une croix de l'ordre de Saint-Louis appartenant au fils du grand explorateur De La Verandrye a également été dissipée dans un encan. Certains cas de chasse aux trésors sont plus problématiques car ils sont camouflés derrière une façade archéologique. Dans d'autres encore — le *Titanic* en est peut-être le plus bel exemple —, on utilise l'engouement public pour les épaves afin de justifier la remontée non contrôlée d'objets à des fins pécuniaires. Ces situations ont poussé l'UNESCO à promouvoir, depuis quelques années, le concept d'une convention internationale pour la protection du patrimoine culturel submergé. Une ébauche d'un tel texte est en phase de révision par un comité d'experts de l'UNESCO dont le Canada fait partie et qui s'est réuni à Paris cet été.

Au Canada, la situation n'est souvent guère plus rose. La *Loi sur la marine marchande du Canada* légitimise certes le rôle du sauveteur qui prélève des objets sur une épave tout en lui conférant l'obligation de les déclarer et de les remettre au receveur d'épaves local, lequel a un an pour retrouver le ou les propriétaires. Mais cette loi n'offre pas un système de protection pour les épaves patrimoniales que l'on voudrait protéger, au contraire.

épaves, qui renferment chacune les plus vieilles locomotives de ligne à vapeur au Canada, lesquelles constituaient leur moyen de propulsion d'appoint, font maintenant l'objet d'une attention très particulière de la part des différents paliers de gouvernement. Si elles étaient enfin découvertes après plus de 150 ans de recherches infructueuses, elles seraient traitées avec tout le soin et le respect dus à des biens culturels de si grande importance. Une prospection archéologique menée à partir d'un brise-glace en août 1997 a mené à la découverte d'indices apparemment fort probants de la proximité d'une de ces épaves. Ces artefacts sont maintenant évalués par les archéologues subaquatiques de Parcs Canada.

L'archéologue subaquatique évolue donc avec son temps. À son rôle de chercheur se joignent depuis longtemps ceux de gestionnaire, d'éducateur, d'informateur et de protecteur. Les notions de récupération, d'analyse, de recherche, de protection et de mise en valeur sont maintenant plus près que jamais les unes des autres.

Les archéologues subaquatiques sont maintenant riches d'une expérience qui leur permet de mieux relever les défis qui les attendent. De plus, les nouvelles générations se montrent plus décidées à protéger les vestiges culturels irremplaçables de notre passé maritime, et la conjoncture internationale est de plus en plus positive: en cette année internationale de la mer, déjà marquée par l'initiative déjà mentionnée de l'UNESCO et par la tenue de l'exposition universelle à Lisbonne, se



Figure 7

**PLONGEUR EXAMINANT L'UN DES
CANONS DU CÉLEBRE SUR LE SITE
DE LOUISBOURG**

Ce vaisseau de 64 canons fut coulé en 1758 lors de la prise de la ville par les Anglais. Appartenant à une catégorie de navires bien documentée, il ne fit pas l'objet de fouilles, mais de mesures de conservation et de mise en valeur. Des visites guidées sont offertes aux plongeurs.

tiendra au Portugal un grand colloque international sur l'archéologie des navires médiévaux et sur la protection des épaves patrimoniales, sous les auspices du Portugal, de l'UNESCO et d'ICOMOS (International Council on Monuments and Sites), dont le comité scientifique international est présidé par un Canadien. Notre contribution à ce colloque sera majeure, reflétant le rôle de premier plan joué par notre pays dans cette résurrection du patrimoine submergé, rôle qu'il a su garder depuis ses toutes premières actions en ce sens à Louisbourg il y a près de 40 ans.



Figure 8

**ÉPAVE DU SWEEPSTAKES DU PARC
MARIN NATIONAL FATHOM FIVE**

Cette épave de la baie Georgienne fait l'objet de plus de 10 000 visites par an. Les conditions de préservation uniques aux Grands Lacs canadiens — eau douce et froide — permettent aux amateurs d'épaves de se retrouver sur des navires parfois intacts.

PHOTO: PETER WADDELL / PARCS CANADA

Pour en savoir plus:

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La piraterie archéologique fait rage au large des Açores

(Le Monde, 20 novembre 1996)

Le décret-loi portugais de 1993 permettait de donner concession de l'exploitation commerciale du patrimoine culturel subaquatique. Cela avait pour conséquence d'attirer les chasseurs de trésor de par le monde : situation illustrée par cet article de Javier Garcia (*El Pais*), traduit de l'espagnol par François Maspero (*Le Monde*) . Heureusement, une nouvelle législation (décret-loi du 27 juillet 1997) vient abolir ce décret-loi de 1993.

Cet article illustre parfaitement les dangers qui menacent le patrimoine culturel subaquatique si les Etats adoptent une législation permissive dans ce domaine.

Avec la courtoisie de *El Pais*.

TRÉSORS Les corsaires anglais ont coulé plus de quatre-vingts galions espagnols et portugais, qui gisent sur les fonds de la baie d'Angra, dans l'île de Terceira. Chargés de trésors inestimables, ces vaisseaux, retour des amériques, faisaient escale aux Açores, où plus de huit cents navires ont été coulés depuis le XVI^e siècle. ● LES MOYENS modernes d'exploration

sous-marine permettent d'atteindre les épaves à des profondeurs jusqu'alors inaccessibles. ● LES PREMIÈRES explorations, qui avaient eu lieu dans les années 70, ont été interrompues jusqu'à la publication, en 1993, d'un décret-loi qui a permis aux chasseurs de trésors de reprendre leurs activités sous couvert de recherches scientifiques. ● LES ARCHÉO-

LOGUES, selon une enquête d'« El Pais », déplorent cette situation, qui est pour eux le résultat de pressions exercées par des groupes spécialisés dont l'objectif essentiel est le profit.

La piraterie archéologique fait rage au large des Açores

Des centaines de galions ont été coulés aux abords de l'archipel, escale stratégique au milieu de l'Atlantique pour ces vaisseaux de retour des Amériques chargés d'or ou d'argent. De mauvaises justifications scientifiques sont données à cette moderne chasse au trésor

EN 1589, une flotte de corsaires anglais commandée par le duc de Cumberland coulait le galion espagnol *Nuestra Señora de Guía* devant les côtes de Terceira, l'une des plus belles îles de l'archipel portugais des Açores. Le navire avait embarqué une cargaison d'or dans le port de Veracruz au Mexique et regagnait l'Espagne après son périple aux Amériques. C'était l'époque où les galions espagnols et portugais revenaient du Nouveau Monde et des Indes orientales chargés d'or, d'argent et de pierres précieuses, et faisaient nécessairement escale aux Açores sur la route de la péninsule Ibérique.

Le sort du *Nuestra Señora de Guía* est celui de centaines d'autres navires dont le naufrage a été enregistré dans les eaux portugaises au cours de ces années dorées et épiques où les navigateurs sillonnaient les mers en quête de nouveaux trésors. Le Musée national d'Archéologie de Lisbonne a décompté 850 navires officiellement enregistrés, dont 88 gisent au fond de la baie d'Angra do Heroísmo, à Terceira.

La valeur de ces cargaisons est incalculable. Mais « ce qui intéresse les chasseurs de trésors est, bien plus que la valeur de ces butins, la vente d'obligations à haut risque pour financer et patronner ces expéditions », affirme Luis Filipe Castro, ingénieur civil et président par intérim d'Arqueonautica, association sans but lucratif qui dénonce depuis des années l'installation au Portugal de ces puissants chercheurs de trésors.

Les fonds de l'archipel des Açores, ancienne escale obligée des traversées transatlantiques, constituent un des plus grands sanctuaires archéologiques sous-marins de la planète et, depuis les années soixante-dix, ils attirent ces nouveaux « chasseurs », qui sont les pirates des temps modernes : des corsaires qui se servent de la technologie sophistiquée de notre époque pour atteindre des profondeurs que, jusqu'ici, la mer interdisait à l'homme.

La richesse archéologique des Açores a été l'un des principaux objectifs de plusieurs expéditions britanniques qui, profitant d'une certaine passivité des instances officielles, ont tenté de localiser divers trésors fabuleux. C'est ainsi que, le 18 janvier 1972, l'Anglais Sidney Wingall arrivait aux Açores pour chercher les restes du navire *Revenge*, qui faisait partie de la flotte qui causa la défaite de l'invincible Armada en 1588. Son permis était le premier que délivrait le Portugal pour faire des recherches dans ses eaux.

Quelques mois plus tard, une deuxième expédition britannique, conduite par John Grittan, actuel directeur d'Arqueonauticas SA (l'une des sociétés de recherche actuellement installées à Lisbonne), arrivait en baie d'Angra d'Heroísmo pour découvrir le véritable emplacement d'une flotte espagnole chargée d'or et d'argent qui fit naufrage devant Terceira en 1591. C'étaient les premières tentatives pour récupérer les trésors de nos ancêtres, et elles se soldèrent pour Grittan par une condamnation à vingt-cinq jours de prison et la suspension de ses activités.

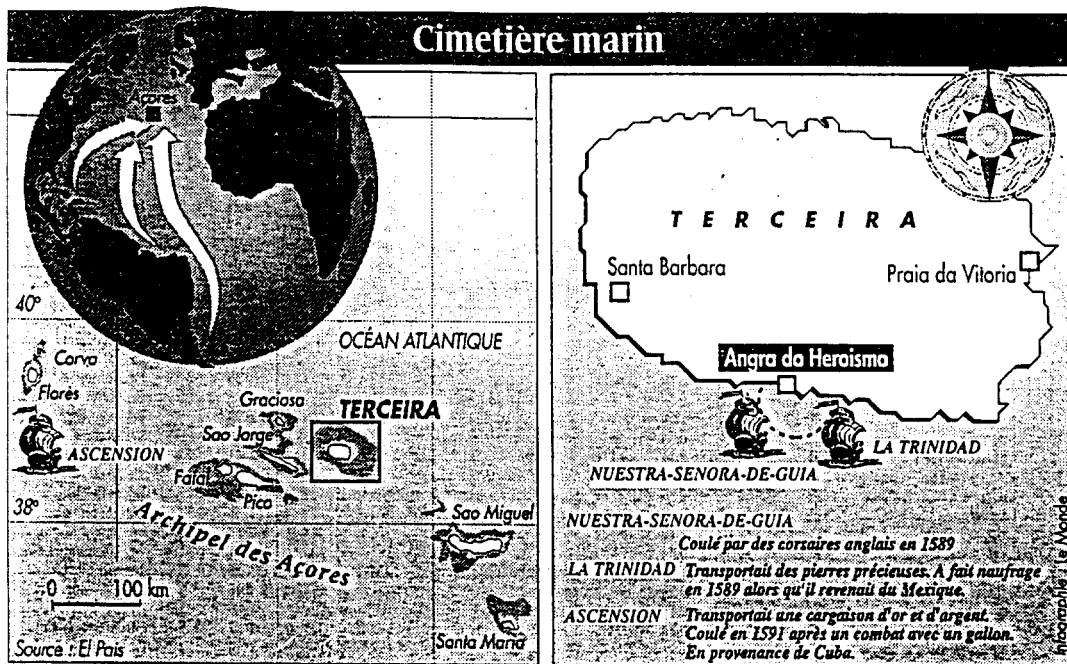
A partir de ce moment, les explorations sous-marines furent pratiquement paralysées ; cela jusqu'à l'année 1993, date à laquelle un décret-loi du gouvernement social-démocrate et conservateur d'Anibal Cavaco Silva a favorisé, selon des archéologues portugais réputés, la reprise des activités des chasseurs de trésors. Une demi-douzaine de sociétés se sont fait enregistrer au Portugal pour « explorer » – c'est le terme qu'elles emploient – ce patrimoine archéologique.

Les chasseurs de trésors recherchent le profit sous l'apparence de découvertes scientifiques

Pour de nombreux spécialistes internationaux, ces sociétés ne sont que les paravents de puissants lobbies qui « recherchent exclusivement le profit sous l'apparence d'un prétendu intérêt scientifique ». Le décret-loi a levé au Portugal l'interdit sur la chasse aux trésors, et l'actuel gouvernement socialiste prévoit de le réviser rapidement.

A la faveur de ce texte se sont donc installées au Portugal plusieurs entreprises, qui sont en concurrence pour « l'exploration » des immenses richesses du patrimoine archéologique national. Il s'agit d'Arqueonauticas SA, présidée par le contre-amiral Isaias

Cimetière marin



Les Açores étaient une escale stratégique au milieu de l'océan Atlantique. 800 navires ont fait naufrage dans l'archipel des Açores, des bâtiments espagnols et portugais - dont 88 devant Angra do Heroísmo.

Gomes Teixeira ; de Vitor Cruz, qui représente au Portugal une société française de matériel sous-marin ; de New Era, société de prospection sous-marine liée à Bob Cembrola, directeur d'un musée naval aux Etats-Unis ; de Robert Marx, homme d'affaires américain internationalement connu pour son activité dans la recherche de trésors ; de Ben Marish, ex-adjoint de Marx ; et de Seahawk, société de prospection sous-marine dont le siège est à Tampa (Floride), dirigée par un associé de Robert Marx.

Ces entreprises constituent le noyau central des modernes chercheurs de trésors, selon des archéologues portugais qui soulignent l'importance de Robert Marx. Cet homme d'affaires américain est bien connu dans le monde de l'archéologie pour avoir écrit des dizaines de livres sur l'histoire et l'archéologie sous-marines, mais la renommée de ce millionnaire excentrique est surtout étroitement liée à la chasse aux trésors. Bob Marx a récupéré dans les eaux brésiliennes des pièces de valeur qui sont apparues par la suite à Londres chez Christie's, alors que la législation brésilienne

interdit expressément la sortie du pays de tout ce qui relève du patrimoine antérieur au XX^e siècle.

Selon des sources lisbonnaises, le puissant Robert Marx s'est chargé de faire pression sur l'ambassade des Etats-Unis au Portugal pour que le gouvernement portugais approuve le plus rapidement possible la délivrance de permis de prospection. Jusqu'à maintenant, ses pressions n'ont obtenu aucun résultat, mais elles démontrent l'excellence de ses connections politiques et économiques.

De leur côté, ces modernes chasseurs de trésors défendent l'intérêt scientifique de leurs expéditions, lesquelles doivent nécessairement passer par la rentabilité de leurs investissements. Le président d'Arqueonauticas SA (constituée en mai 1994), le contre-amiral Gomes Teixeira, affirme que l'un des buts de sa société « est une meilleure connaissance de notre passé, de la forme des navires et de leur armement ; la compréhension du développement historique et culturel ; la contribution à une large présence des objets archéologiques dans les musées nationaux et régionaux ». Le directeur financier de cette même société,

Antonio Catalao, ajoute : « Nous ne sommes pas des pirates ! »

Le vice-président de la commission nationale de l'Unesco au Portugal, Mario Riuvo, explique que « durant de longues années, les océans ont constitué une réserve qui a sauvegardé le patrimoine culturel sous-marin. Avec le progrès technologique, accéléré par la situation mondiale et particulièrement par la fin de la guerre froide, les moyens militaires ont été mis à la disposition de la société civile (laboratoires et entreprises) et la mer est devenue transparente, plus accessible et plus vulnérable à l'action de l'homme ».

C'est pour cette raison que l'Unesco prépare actuellement les bases d'un projet ambitieux visant à protéger ces patrimoines archéologiques dans divers pays du monde. Mario Riuvo lance un cri d'alarme : si des mesures draconiennes ne sont pas prises, ces entreprises et ces groupes de pression se livreront « au pillage et à la déprédation des mers, aujourd'hui beaucoup plus vulnérables ».

Javier Garcia
Copyright : El Pais
traduit de l'espagnol
par François Maspero

Les « joyaux » espagnols

Parmi les navires qui ont fait naufrage le long des côtes portugaises figurent sept galions espagnols chargés d'or, d'argent et de pierres précieuses. Ce sont les « joyaux » espagnols que les profondeurs de l'Atlantique se sont chargées de protéger durant des siècles.

1. Le navire *La Piedad*, de 200 tonneaux, qui a coulé en 1551 devant les côtes de Setubal, en provenance des Caraïbes, avec une cargaison d'or, d'argent et de perles.
2. Le galion *Nuestra-Señora-de-la-Concepción*, de 120 tonneaux, englouti en 1566 devant Lagos, en Algarve. Il venait de Saint Domingue et transportait de l'or et de l'argent.

3. Le *Trinidad*, de 350 tonneaux, qui a fait naufrage en 1589 sur la côte de l'île de Terceira, aux Açores, en provenance de Veracruz (Mexique). On croit qu'il transportait une importante cargaison de pierres précieuses.

4. Le galion *Nuestra-Señora-de-Guia*, de 230 tonneaux, coulé à proximité de la côte de Terceira par des corsaires anglais sous le commandement du duc de Cumberland. Il venait également de Veracruz.

5. Le navire sévillan *Ascension*, coulé en 1951 près de l'île de Flores (Açores) après un combat avec le galion *Revenge*. Il venait de La Havane (Cuba) et transportait une cargaison d'or et d'argent.

6. Le *San-Pedro-de-Alcántara*, qui a fait naufrage le 2 février 1786 dans la baie de Peniche, devant la ville d'Obidos, venant de Callao (Pérou). Il contenait une importante cargaison d'or et d'argent, évaluée à l'époque à 7 millions de pesos. Une grande partie en a été récupérée peu après le naufrage.

7. Le galion *Mercedes*, coulé le 5 octobre 1804, à 56 kilomètres approximativement au sud du cap de Santa Maria (Faro), en provenance de Montevideo (Uruguay). Le bateau se dirigeait vers Cadix et transportait dans sa cale 871 000 pesos d'argent, ainsi qu'une cargaison d'or et de bijoux.

Sources : Nigel Pickford, *The Atlas of Shipwreck and Treasure*, Dorling Kindersley Ed., Londres, 1994.

**The Archaeological Institute of America (AIA) comments
on the UNESCO/ UN Division of Ocean Affairs and the law of the Sea
Draft convention on the protection of the underwater cultural heritage**

Comments of the Archaeological Institute of America (AIA) invited by the
Office of Ocean Affairs of U.S. Department of State.

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**The Archaeological Institute of America (AIA) comments
on the UNESCO/ UN Division of Ocean Affairs and the Law of the Sea
Draft Convention Protection of the Underwater Cultural Heritage.**

The Archaeological Institute of America (AIA), the largest archaeological organization in the United States, with over 10,000 members, welcomes the opportunity to comment on the UNESCO Draft Convention on the Protection of the Underwater Cultural Heritage. Comprised of professionals in archaeology and interested laity, the AIA is dedicated to archaeological education, publication, and the preservation of the world's cultural patrimony.

The seas beyond the territorial jurisdiction of nations comprise the last great archaeological frontier, a vast domain containing numerous archaeological resources--including not only sunken ships and aircraft, but also submerged ports, docks, and wharves; historical towns; and even prehistoric sites. This underwater cultural heritage constitutes a primary and often unique record of human history, and deserves to be managed in the common interest.

Archaeological sites located in internal waters, archipelagic waters, and territorial waters may be protected and controlled by the legal authority of the relevant coastal states. But archaeological resources in the submerged, extraterritorial ocean realm--often very well preserved in deep, anaerobic environments--lack any effective legal regime that might provide a mechanism for their preservation and management in the public interest. They are, in fact, wholly exposed to threats from numerous sources, especially the depredations of commercial recovery efforts and unregulated ocean development projects.

For this reason, we welcome the efforts of UNESCO and the United Nations Division of Ocean Affairs and Law of the Sea in proposing the Draft Convention on the Protection of the Underwater Cultural Heritage. Members of the Archaeological Institute of America have followed closely the progress of the proposed Convention to date, commenting on preliminary drafts of the Convention by the International Law Association (beginning in 1993), and participating in the drafting of the ICOMOS International Charter on the Protection and Management of Underwater Cultural Heritage, which was ratified in 1996.

We strongly support the present version of the Convention (April, 1998) and urge the United States delegation to endorse it.

Following are specific comments on various questions solicited by you in your memorandum of 27 May 1998.

1. How should underwater cultural heritage be defined?

The definition of underwater cultural heritage should be broadly construed, comprehending not only shipwrecks and their cargo, but all vestiges of submerged archaeological resources. A more inclusive definition would cover all of the various types of submerged archaeological sites known to exist besides shipwrecks. In the current U.S. law, submerged cultural resources are treated inconsistently. The Abandoned Shipwreck Act of

1987 (43 U.S.C. 2101 et seq.), for example, only covers submerged abandoned vessels, their cargoes, and other contents, while oil-drilling projects authorized by the Minerals Management Service are subject to the provisions of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.), which cover not only shipwrecks but also other submerged cultural resources, such as 10,000-year old Paleoindian sites.

The definition used in the draft Convention is appropriate, although we would prefer to use the more recent cutoff date of 50 years instead of the Convention's 100 years.

2. Should the Convention be limited to abandoned underwater cultural heritage?

The issue of abandonment is a difficult one, especially in light of recent developments in U.S. case law. Until the Central America case, most ancient shipwrecks were considered to be abandoned by virtue of the long passage of time. As the judge in the Atocha case stated (*Treasure Salvors v. The Unidentified Wrecked and Abandoned Sailing Vessel*, 569 F.2d 337 [5th Cir., 1978]), "Disposition of a wrecked vessel whose very location has been lost for centuries as though its owner were still in existence stretches a fiction to absurd lengths." A more restrictive view of abandonment emerged, however, in the Central America case; in this view, an express statement of abandonment is considered necessary even for ancient shipwrecks. The recent *Brother Jonathan* case confirmed the notion of express abandonment; the appellate court agreed with the district court that abandonment could not be inferred merely by the passage of time (*Deep Sea Research, Inc. v. The Brother Jonathan*, 89 F.3d 688 [9th Cir. 1996]), and the Supreme Court's decision of 22 April 1998 (No. 96-1400), since it did not rule on the question of abandonment, did little to change the importance of the concept of express abandonment.

This restrictive interpretation of the definition of abandonment has been strenuously argued before the courts by attorneys for treasure salvors. Their goal is to take shipwrecks they wish to salvage out of the jurisdiction of the state and federal governments (in accordance with the Abandoned Shipwreck Act) and return them to admiralty jurisdiction, where they will be once again subject to the laws of salvage and finds. The Abandoned Shipwreck Act had specifically excluded shipwrecks covered by the act from the laws of salvage and finds.

The draft underwater Convention attempts to address this problem by offering a specific definition of abandonment. Underwater cultural heritage would be considered abandoned if 1) the owner of underwater cultural heritage has not pursued research or recovery within 25 years of the availability of the technology for exploration; and 2) at least 50 years have elapsed since the last assertion of interest by the owner, even if no technology for exploration or recovery has been available.

We support this definition of abandonment. It would place the burden on owners of underwater cultural heritage to affirmatively assert an interest in their property. It would also prevent the current situation, where salvors resurrect the ownership rights of long-disinterested parties, and/or purchase ownership rights, for the sake of avoiding the requirements of the Abandoned Shipwreck Act. Express abandonment only serves the purpose of treasure salvors, and does nothing to ensure that underwater cultural heritage will be adequately treated and preserved in the public interest.

3. What should be the competence of the Coastal State in respect of underwater cultural heritage :

- a) within 24 nautical miles from Territorial Sea baselines?;
- b) in the Exclusive Economic Zone or on the Continental Shelf beyond 24 nautical miles?

Article 303 (2) of the U.N. Convention on the Law of the Sea (1982) allows for the regulation of "archaeological and historical objects found at sea" within the contiguous zone. Few states have taken advantage of this provision; only France and Tunisia make use of the concept of the contiguous zone in protecting underwater sites within a 24-mile zone.

Instead of limiting competence to the 24-mile zone, we favor the more comprehensive protection of underwater cultural heritage offered by the present draft Convention. Article 5 of the Convention would allow States Parties to "regulate and authorize all activities affecting underwater cultural heritage in the exclusive economic zone and on the continental shelf." The United States already exerts control over some of this area in terms of underwater cultural heritage: archaeological resources are protected in national marine sanctuaries and in oil lease tracts controlled by the Minerals Management Service.

4. Should Admiralty law apply to underwater cultural heritage covered under the Convention?

Traditionally, admiralty law is concerned with the business of carrying passengers and cargo over water. Marine salvage, a part of admiralty law, evolved as a means of encouraging the saving of property that was at risk of loss, damage, or deterioration in a maritime context. The principle was to save property from imminent marine peril on behalf of its owners and return it to the stream of commerce. It was never intended to apply to submerged archaeological sites or ancient sunken ships.

In recent decades, treasure salvage has been added as an element of marine salvage under admiralty law. From an archaeological perspective, salvage law is a wholly inappropriate legal regime for treating underwater cultural heritage. Salvage law regards objects primarily as property with commercial value and rewards its recovery, regardless of its importance and value as cultural heritage. It encourages private-sector commercial recovery efforts, and is incapable of ensuring the adequate protection of underwater cultural heritage "for the benefit of mankind as a whole," a basic principle expressed in the U.N. Convention on the Law of the Sea (1982) and reiterated in the present Convention (Article 3).

The U.S. Abandoned Shipwreck Act of 1987 (ASA) recognized the fundamental conflict between admiralty jurisdiction and preservation of the underwater cultural heritage when it stated that the laws of salvage and finds did not apply to shipwrecks under the ASA's jurisdiction. (The point is only further confirmed by the recent, and to date successful, efforts of some treasure hunters to have certain historical shipwrecks effectively removed from the jurisdiction of the ASA by arguing that they are not abandoned.)

Treasure hunting, or private sector commercial recovery, has never been able to convincingly demonstrate that it can operate in a way that satisfies the archaeological and preservation interests. Commercial recovery frequently results in the destruction of underwater

cultural resources as systematic archaeological recording, excavation, and conservation are sacrificed in the interests of expedient recovery of marketable property. Even commercial projects that are regulated by state authorities have an abysmal record in terms of professional standards of performance, preservation, and dissemination of information. The aims, methods, and practices of treasure hunters are fundamentally at odds with those of archaeologists and preservationists.

Those who favor private sector commercial recovery argue that only entrepreneurs will have sufficient capital to undertake costly exploration and recovery projects in the oceans, and that archaeologists must therefore collaborate with them even if it means sacrificing some of their ethical standards. But underwater exploration, even of the deep sea, is regularly being conducted by archaeologists with assistance and funding from a variety of sources; treasure hunters are not the only ones who are exploring the seas. And the public interest is often best served by the preservation in place of underwater cultural sites, not by the continuous recovery of waterlogged artifacts with all the attendant problems of conservation and curation.

Those who represent treasure hunters also claim that maritime salvage law is an adequate means of ensuring that preservation values will be taken into consideration during recovery projects. They point to the Central America case, for example, where a new criterion for determining the salvage award was introduced--"the degree to which the salvors worked to protect the historical and archeological value of the wreck and items salvaged" (Columbus-America Discovery Group, Inc. v. Atlantic Mut. Ins. Co., 974 F.2d 450 (4th Cir. 1992)). But admiralty court is no place for matters of archaeological competence to be evaluated; the relevant governmental authorities, with professionals in the disciplines of archaeology history, and preservation, are more properly to be charged with this responsibility.

In the case of the Central America, for example, despite the court's statements about protection of historical and archaeological values, precious little archaeological information has been made available (if it even exists). According to an entry on the ship in *The Encyclopaedia of Underwater Maritime Archaeology* (James P. Delgado, editor; British Museum Press, 1997, p. 93): "No overall site photographs, a site map, or any other archaeological information has been released."

In summary, maritime salvage law is thoroughly unsuited for the protection of the underwater cultural heritage; it should have no place in the operation of the Convention.

5. Should underwater cultural heritage be managed solely for the purpose of historic or archeological preservation or should the Convention encourage and facilitate multiple use management including public access and private sector commercial recovery?

The Convention is to be a Convention on the protection of the underwater cultural heritage. Protection in the public interest is the primary goal, and the Preamble of the Convention enumerates the many threats to the underwater cultural heritage, including threats from unsupervised activities, commercial recovery efforts, and looting. We support multiple use management so long as it does not include private sector commercial recovery that is inconsistent with the basic tenets of preservation as detailed in the ICOMOS Charter on the Protection and Management of Underwater Cultural Heritage. For example, public access is to be encouraged, provided it does not damage or diminish the underwater cultural heritage.

Private sector investigations and recovery would be permitted so long as projects were conducted in accordance with the standards outlined in the ICOMOS Charter. These standards include a research design, framed within a preservation perspective; professional staffing; adequate funding; systematic recording and documentation; a conservation program; a site management program; adequate reporting; and curation of the project archive. Certain provisions of the Charter would, in all likelihood, rule out the activities of treasure hunters and shipwreck salvors, including provisions that preservation in situ should be regarded as a first option (Article 1); that recovered underwater heritage be deposited in a permanent curatorial facility (Article 2); that the scientific integrity of the project archive must be maintained (Article 13); and that underwater cultural heritage should not be traded as items of commercial value (Article 13).

We strongly support the draft Convention as a tool for the protection and management of the underwater cultural heritage. Commercial treasure salvage projects should have no role in the Convention.

Thank you for affording the Archaeological Institute of America an opportunity to comment on this important proposed Convention. We support the Convention and urge you to endorse this significant step in protecting the world's underwater cultural heritage.

Stephen L. Dyson
President

The World's Worst Investment : The Economics of Treasure Hunting with Real Life Comparisons'

by Peter Throckmorton

This article shows that salvage industry is not as good an investment as one might imagine. Investors should 'take a hard look at the economics of museums and the tourist trade'.

This article has been reprinted from *Underwater Archaeology Proceedings from the Society for Historical Archaeology Conference 1990*, pp. 6-10, by permission of the Society for Historical Archaeology.

PETER THROCKMORTON

The World's Worst Investment: The Economics of Treasure Hunting with Real Life Comparisons

Introduction

The cost of undersea treasure hunts is double that of projects carried out by competent scientists. Only one in

twenty salvage companies has any chance of making money. However, there is a way for investors to profit from shipwrecks.

Historic Preservation as a Public Issue

The American public has been exposed to a storm of rhetoric arising from the conflict between salvors and historic conservationists. Treasure hunters argue that their trade is good old American enterprise at its best and history and archaeology are boring and unnecessary pursuits carried out by a "bunch of bureaucrats feeding at the public trough" (Mel Fisher's attorney Paul Horan as quoted in *Time Magazine* in 1985). Extremist archaeologists say that compromise between business and science is impossible and seem to want to hide in their ivory towers while the salvors smash what they like.

The real issue is that American treasure hunting is destroying scant resources of desperately poor emerging Caribbean nations. Historic preservation in the Caribbean is an economic issue. Traditional sources of income for many Caribbean islands have declined in the past ten years. For example, the value of sugar exports from the Dominican Republic in 1987 were one-third of what they had been in 1977, and in the smaller islands they were about one-half. Jamaica's bauxite exports were down by over one-half in the same period. In contrast, tourism, two-thirds of it North American, has increased in all the islands. In Jamaica, the Dominican Republic, St. Kitts and Nevis, St. Lucia, Antigua, and the Cayman Islands it has doubled since 1980, and in St. Martin it has tripled. Today, tourism is rapidly becoming the treasure of the Caribbean.

Archaeology and Tourism

A recent study of the economic impact of the arts in Britain, by Mr. John Myerscough of the Policy Studies Institute, analyzed the economic impact of the arts, including museums, on Britain's economy. Foreign spending accounts for 37 percent of the turnover of the arts, compared to 27 percent of British manufacturing as a whole. The arts are the fourth biggest earner in Britain. Twenty-seven percent of tourism earnings are attributable to cultural attractions. A study by the Association of American Museums has shown that each tourist who visits a museum leaves about 10 dollars in the immediate local community's tax structure.

Archaeological resources are an asset to communities that create museums, because museums attract tourists. The ruined crusader castle in Bodrum, Turkey was converted into an archaeological museum in 1959. At that time the town's population was around 5000 and there was almost no tourism. Since then, George Bass and his group have been excavating shipwrecks and creating exhibit material. Today the museum is the second most visited in Turkey, after the National Museum in Ankara. The population has also tripled and local businesses are thriving. There are perhaps half a million visitors per year.

In 1967 Bass' group started excavating a fourth century BC ship off Kyrenia, a village well off the main tourist track at the southeastern end of the island of Cyprus. In 1967 Kyrenia Castle was the sixth most-visited archaeological site in Cyprus. By 1974, when the Turks invaded Kyrenia and put a stop to tourism on that end of the Island, there were over one hundred thousand visitors per year, and Kyrenia castle, with its ship exhibit, had risen to second in popularity.

The following table (courtesy Michael Katsev) illustrates the process:

TABLE 1

Visitors to Kyrenia Castle

1966	11,867	
1967	27,206	October survey of site
1968	29,791	First summer of excavation
1969	47,739	Second summer of excavation
1970	69,405	Begin preservation; temporary museum opened
1971	93,025	Continue preservation
1972	93,025	Begin hull reassembly
1973	113,500	Continue reassembly
1974	62,137	Visitors through mid-July; Turkish invasion

A significant part of the Caribbean's historical heritage is its dramatic history of buccaneering, privateering, slave trading and naval warfare. The islands were a cockpit for the conflicts of Europe for four centuries. The relics of all this are scattered over thousands of reefs and Cays and they are being mindlessly destroyed by treasure hunters. Americans are paying for this destruction twice. First, in the tax deductions granted to investors in salvage companies, and second in aid

money given to impoverished governments. Tourist dollars paid to taxi drivers, hotel keepers, restaurateurs, store owners and the like, go directly into the local economy. Economies supported by tourism don't need our aid money.

Shipwrecks and the material in them, properly excavated, curated and exhibited in a museum are as valuable as historic houses, moldering castles or pre-Columbian ruins. When Caribbean countries barter away their historic shipwrecks in return for a percentage of an imaginary take, they lose tourist attractions that could produce income for all foreseeable time.

Opportunities like the one that existed in Bodrum 30 years ago are scattered all over the Caribbean. There are even suitable castles: St. Juan de Ulloa in Veracruz, English Harbor in Antigua, Sans Souci in Haiti, and Brimstone Hill in St. Kitts, to name a few. The treasures of the *Concepcion*, housed today in the old Governor's Palace in Santo Domingo, are the centerpieces of a spectacular historic restoration project and a thriving local boom, which brings the Dominicans much more money than if the collection had been sold. If the *Concepcion* had been professionally excavated the collection would be even more valuable.

Museum Economics

Digging into historic sites whether on land or under the sea usually produces material that has no value unless it has been intelligently excavated, conserved, and exhibited. Shipwrecks are an extreme example. A few farseeing investors are beginning to understand that museums can pay. Several companies are now investigating financing archaeological projects that will result in museums, and building resorts around them, so that they acquire the long-term profit from the visitors attracted by the museum. If the museum is non-profit the excavations that produce the material can be done as 501(C)(3) projects through universities; this cuts costs in half. Investors are beginning to understand that archaeology is valuable, not because it produces "treasure", but because it brings in tourists.

A successful museum that might serve as a model for museums in emerging Caribbean countries is the Maine State Museum in Augusta, Maine, which was in part inspired by the National Museum of Mexico. The museum is free. Its attractive exhibits illustrate Maine's natural history and changing seasons, the disappearing world of nineteenth century Maine, and the 10 thousand year history of the state. It attracted 180 thousand visitors in 1978. The state legislature funds the museum according to annual visitation, figured at a rate of ten dollars per visitor per year. Half of this is spent for day-to-day operations, the other half for statewide educational programmes and development. Its director, Paul Rivard, says that people don't come to Maine specifically to see the museum, but stay longer in the state because of it.

Maine, with a population of 1.2 million, has about 4 million out-of-state visitors per year who spend 1.7 billion dollars. Like the Caribbean islands mentioned above, Maine's tourism is increasing at the rate of about 10 percent per year. Not so spectacular as some Caribbean islands, but still impressive. Maine's per capita income of 16 thousand dollars a year is not much higher than that of the most successful Caribbean tourist islands: the Cayman Islands per capita income is 12 thousand dollars, the Bahamas' is 9 thousand dollars.

Jim Thompson, of Maine's Department of Economic and Community Development, says that his office is investigating the relationship between amenities such as museums, theaters, concerts, fairs and festivals in order to establish how much such amenities effect the length of stay of visitors. The idea being that the longer you keep tourists in the state, the more money they will spend. Another aspect of providing

cultural amenities is that their clientele will be more prosperous than, say, visitors to beaches or rock concerts.

Vasa, a battleship of 1628 salvaged intact from Stockholm Harbor in 1961, further illustrates the point. Conservation proved very expensive: there was an outcry against the project. Today, according to the Swedish tourist board, one million tourists spend an extra day in Sweden because of the *Vasa*. At about three hundred dollars per day per tourist, this amounts to several hundred million dollars per year added to Sweden's economy.

It appears then, that the best way to make real money out of old shipwrecks is to use them to create museums and then profit from the added revenue that follows the increase in tourist length of stay.

The Salvage Boom

Treasure hunting in Florida boomed in the early 1960s, with the discovery of the 1715 plate fleet off Vero Beach. What had been a relatively genteel weekend hobby as practiced in the Keys in the early days of SCUBA diving, became a gold rush, with its attendant cast of profit-minded adventurers. The best known, Mel Fisher, came in from California to work on the 1715 Plate Fleet, then moved to Key West for the famous search for the *Atocha* which he eventually found, to the acclaim of the American public.

Florida's policy towards its underwater antiquities has cost the state millions. The state's 25 percent share from the treasure grubbing of the past 20 years is a collection worth only about 5 million dollars today. The Florida state museum has in its possession approximately 1500 gold coins worth on the market about \$2000 each, and about 20 thousand silver ones, worth \$80 to \$150 dollars each. This represents the state's 25 percent of all treasure recovered in Florida pre-1982.

The collection has cost more than its value to maintain, especially if one includes the cost of the continual legal cases that have resulted from the state's policy. If Florida had used state money, and invested 10 million dollars in two great maritime museums back in the 1960s, instead of giving leases to salvors, the state would be nearly half a billion dollars richer each year, if the Swedish example applies to Florida. The state's share of that sum in taxes would be not less than 25 million dollars per year. If the state was maintaining two museums at the Maine rate of 10 dollars per visitor there would still be a direct profit in tax money of 5 million dollars per year. It could even be argued that individuals and corporations who wanted to do legitimate work in searching for and excavating shipwrecks in collaboration with the state, would have profited. As things stand today in Florida, the state has set up such efficient barriers to stop treasure hunters, that even legitimate archaeology is inhibited.

The emerging economies of most small Caribbean islands can't even afford decent education systems and health care, much less archaeology and museums. As a result, they are wide open to the blandishments of salvors. As of the summer of 1988 there were five salvage companies working in the Bahamas and three or four in the Dominican Republic. A big one has a monopoly in the Turks and Caicos. Another, smaller, has rights to the British Virgin Islands. Mel Fisher has managed to get concessions from the Antiguan government for the reefs of Barbuda. Treasure hunters with millions of dollars behind them are working in the Marianas, the Philippines and the China Sea. In most cases the treasure hunters' contracts gives them exclusive rights, thus keeping out archaeologists. In 1988 I flew in a light plane over the east coast of Florida and spotted seven different salvage vessels industriously blowing sand with their mailboxes in the Vero Beach area where the 1715 fleet went ashore. These are said to be working under concessions from the Fisher organiza-

tion, which controls the leases. The hunt for antiquities has been reduced to the level of strip mining.

Florida treasure hunting sprang from a booming get-rich-quick society that has little historical past. Salvors tended to be working class midwesterners. Their divers were mostly typical products of the failed education system in this country, where one-quarter of the population can't read the directions on a can of soup and three-quarters don't read newspapers as often as once a week. According to a National Geographic Survey released in July 1988, one in four Americans can't identify the Pacific Ocean or the Soviet Union on a map, and 75 percent can't locate the Persian Gulf.

Today's salvors are no more aware of the cultural material they destroy than the peasant farmers who rob tombs for a living in Sicily or Columbia. Treasure investors are not well informed. Individuals knowing nothing about history or the ocean, with their sources limited to the national slicks and pulp "Treasure" magazines, are fair game for promoters. As P.T. Barnum said, "a sucker is born every minute."

When Mel Fisher won the Cobb Coin Case entrepreneurs turned treasure hunting into a nationally-financed industry. The passage of PL 828 and the public confrontations that preceded it drew attention to the operations of salvors from environmental agencies, state and Federal prosecutors and the Securities and Exchange Commission. The promoters moved to the Caribbean. Like the drug trade that began with a bunch of happy-go-lucky hippies smuggling marijuana with sail boats, the treasure salvage industry has grown.

Today's treasure hunts are promoted on Wall Street and the Vancouver Stock Exchange. Their investors include some of the wealthiest men in the world. What we are seeing today is an assault on antiquity by an industry, not by a bunch of small-time adventurers. In scale it is larger and better financed than any assault on antiquities in history. About 25 treasure hunting companies are touted every year. About half get financed, for a total of up to 100 million dollars. This industry is equipped with big ships that have attached prop blowers that can blast away 500 tons of sand in 15 minutes, and open a hole in the sea bottom that is 15 feet around at the bottom and 50 feet across at the top. Sophisticated instruments can detect a cannon 100 yards away. Treasure salvage is now an industrial process.

While we deplore Lord Elgin's removal of the marbles from the Parthenon, we must admit that Europe's willingness to pay Turkish pashas good money for pagan statues saved a lot of statues from being smashed by Moslem fanatics. When dealers and governments paid adventurers to rob Egyptian tombs, they wanted the goodies because they cared about them. Today's investors are paying salvagers to take the valuables and smash the rest. The difference is one of scale. The modern salvagers of the *Geldermarsten* (the Nanking ship) are said to have dynamited the almost intact wreck after salvaging the Chinese blue on white porcelain so its location would remain unknown and the government from which it was stolen could not prove ownership.

The Government of the Turks and Caicos gave an exclusive contract to a professional industrial salvage company called TACMAR to rummage the shipwrecks in their territory for gold and silver in 1987. This is the moral equivalent of the Egyptian government giving Morrison Knutson a contract to bulldoze the Valley of the Kings in order to increase Egypt's gold reserves.

In the case of the Egyptian tombs, the salvaged material is now mostly in museums and the tombs themselves are mostly intact. While one can deplore destruction, a large percentage of their historical value survives. This is not so in the case of a looted shipwreck, where 90 percent of the interest lies in the ship itself and the artifacts that are ignored by the salvors, and destroyed, because they have been uncovered. One shipwreck like the *Geldermarsten* equals, in quantity of material destroyed, over 3,000 Etruscan tombs.

Now, in 1990 TACMAR seems to be going out of business. Nothing of value has been found and millions of dollars have been spent. The company's Wall Street investors have, perhaps, wearied of supporting a profitless project.

Evaluation of Some Undersea Archaeological Projects

Note that valuation of material recovered is based on today's estimated market value of the collection as a whole. In the case of expeditions that recovered material of important scientific, but little market value, the value of recovered material is given as \$1 x \$1. Value of collection to the host country is counted as \$10 per visitor to the museum per year in the years since the exhibit became public. Money spent is the amount spent on the actual excavation calculated in today's dollars, calculated as 1960-67 x 3.4, 1977-87 x 1.7. All expeditions listed below are over 100 on the rating scale given below:

TABLE 2

Expedition/Year	Cost	Return	% Return
Cape Gellidonya 1960	\$1,000,000		Museum x 11
Pelagos 1969	\$ 50,000	\$ 210,000	Market x 4
Torre Sgarratta 1967-68	\$ 100,000	\$ 100,000	Market x 1
Kyrenia 1968	\$ 120,000	\$ 240,000	Museum x 2
Yassi Ada 1961-63	\$ 370,000	\$1,000,000	Museum x 3
Ulu Burun	\$ 600,000	\$1,000,000	Market x 2
Totals	\$1,330,000	\$3,550,000	Mixed x 2.6

Evaluation of a Group of Salvage Operations

Key to numbered items graded on 1 to 10 scale, 10 = excellent. The items below are broken down into ten questions for each heading. In the case that an item is not required, ten credit points are given.

- 1) Magnetometer
- 2) Research
- 3) The Expedition
- 4) The Ship
- 5) Equipment Shallow water
- 5a) Equipment Deep water
- 6) Archaeology
- 7) The Crew
- 8) The Company
- 9) Financing and Accountability
- 10) Political

This is a gross return of perhaps 35 million dollars, of which investors got less than 10 million dollars. However, the gargantuan *Atocha* project skews the figures. If one subtracts the approximately 13 million spent on the *Atocha*, we are left with 15 projects that cost a bit over 17 million dollars, which returned to their investors a total of between 3 and 4 million dollars. Only one project, *Concepcion II* returned any profit to the investors. This is a good deal less than donors got by supporting the 501(3)(C) non-profit tax organizations that did the non-profit projects listed, i.e., 33 percent as opposed to 50 percent plus. Cost of the non-profit operations averaged about 5 thousand dollars per month, while salvage operations averaged nine thousand dollars. The most inefficient treasure hunt spent 500 thousand dollars for 16 days at sea.

TABLE 3

Project	Rating in Each Category										Total Rating	Cost	Return for \$1
	1	2	3	4	5	6	7	8	9	10			
Concepcion II 1987	10	10	7	10	9	0	8	10	9	9	92	\$	130,000x\$18.
Phoenix *	10	10	10	10	10	6	8	9	8	9	90	\$	2,000,000x\$0
White Squall 1984	10	9	9	6	7	7	7	5	7	6	73	\$	100,000x\$1
Accuro 1979	5	6	9	9	7	4	8	7	8	8	71	\$	375,000x\$0
Seaview 1987-88	3	2	8	6	8	9	9	9	3	9	66	\$	1,250,000x\$0
World Explorer 1984	8	8	8	8	8	3	6	6	5	6	66	\$	250,000x\$0
Concep 1978	2	10	5	7	9	8	8	9	2	6	66	\$	3,000,000x\$1.5
Staed 1982	3	5	6	8	6	5	7	8	7	7	62	\$	210,000x\$0
Rex II 1982-3	5	4	6	10	2	7	7	6	4	6	61	\$	275,000x\$0
TACMAR * 1986-88	0	5	4	7	8	3	5	4	9	5	50	\$	4,000,000x\$0
Atocha 1972-86	3	9	5	5	6	6	7	2	3	2	49	\$	13,000,000x\$2.5
MAVL 1 1984-5	1	5	5	10	10	0	5	3	4	6	49	\$	350,000x\$0
Baltimore 1982	0	3	5	6	6	4	6	6	5	5	46	\$	175,000x\$0
Sea Search* 1987-81	0	4	8	7	6	0	6	3	1	3	39	\$	750,000x\$0
James Bay 1978	3	0	3	5	8	0	5	3	5	4	36	\$	800,000x\$0
NCR* 1985-88	0	0	2	8	5	0	2	2	2	5	26	\$	500,000x\$0
Total													\$27,165,000x\$3.30
*ongoing project													

Notes: The grading system derives from experience with about fifty expeditions over the past thirty years in eight different countries. It is too lengthy to detail here. Amounts are approximate and are translated to 1988 dollars. Return is difficult to calculate due to the secretive nature of the salvage business. Returns of less than ten cents on the dollar have not been listed.

Trends

Pre-1985 Spanish treasure projects are relatively small time. The large industrial-type projects, i.e., TACMAR, Phoenix, and two large projects in the Philippines (not listed), have appeared post the 1985 *Atocha* discovery and its attendant publicity.

Treasure hunting seems to be something that you can raise millions for doing even if your organization is incompetent. The old style investors didn't seem to care. When the *Miami Herald* put an investigative reporter onto Mel Fisher's operation, she found that a majority of Fisher's investors were satisfied because it had been an exciting adventure, and a much smaller percentage were suing because they felt conned. No one had any criticism of the inefficiencies of the project.

A grade of over 70 seems necessary for success. *Conception I*, although it returned \$2 gross for \$1 invested, went bankrupt, because the "take" was split with the Dominicans, which returned investors less than 50 cents on the dollar.

The *Atocha* project is the subject of much speculation. However the *Miami Herald* report shows that the luckiest *Atocha* investors probably didn't break even. The 3:1 return does not include investors. A low rated project such as *Atocha* can achieve something, if good money is continually thrown after bad, but is unlikely to return a profit.

Competent archaeologists are excavating shipwrecks and conserving what's worth saving for less money than the salvors spend ripping them up by the roots. Nearly all of the salvage projects being floated around the world today are doomed to failure because of the incompetence and ignorance of their principals, or because they are scams, designed only to benefit the promoters. No one seems to notice.

If investors understood that they cannot profit unless they employ professionals and professional societies could guarantee that the archaeologists are competent, and persuade host governments that they need cultural resource surveys, and need to protect shipwreck sites that can stock museums, there would be a better future.

It is not to the advantage of any salvor who wants to make money, to spend time wrecking sites that contain no treasure. It is not to the advantage of governments to allow cultural

resources that might eventually benefit tourism, to be destroyed. It is not to the advantage of investors to be victims of the incompetence and chicanery that is characteristic of the treasure salvage industry today. Only archaeologists can prevent this.

Conclusion

Even a profitable barbarity, like the *Geldermarsien* project, would have paid its investors many times what it did if the project had been legitimate. Because the material was probably stolen, there was a chance that the country that owned it might sue. This caused a fast auction in Amsterdam. The porcelain sold is said to be bringing several times its auction price today. Even if the salvage company had gotten only half the porcelain, the investors would have made more money.

The only groups that have consistently performed in the shipwreck salvage business are a few salvors, and archaeologists using the systems developed by Penn Museum and their followers in the 1960s. If investors want to make money they need to turn away from the incompetents who infest the salvage business, and deal with professionals.

Governments of countries being exploited by salvors need to take a second look at what they are permitting and what it will cost the next generation. Archaeologists need to fulfill their professional responsibilities better. All of us who stand to benefit from reform of the salvage business, salvors, archaeologists, investors and the citizens of the countries being exploited should ask the people who control our foreign aid investment in the third world to take a hard look at the economics of museums and the tourist trade.

As things stand, investment in the salvage industry only benefits promoters and lawyers.

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**L'archéologie nautique et subaquatique
au Portugal au tournant du siècle**

par M. Francisco J. S. Alves

Cet article présente la situation législative et administrative relative au patrimoine culturel subaquatique dans un des plus grandes nations maritimes de jadis : le Portugal.

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L'archéologie nautique et subaquatique au Portugal au tournant du siècle

Francisco J. S. Alves*

Avec la publication des Décret-Lois N°17/97 du 14 mai 1997, et N°164/97 du 27 juin 1997, le Portugal a amorcé un changement profond de philosophie de gestion dans le domaine du patrimoine archéologique et subaquatique.

En effet, le premier décret-loi est venu consacrer au sein du 'Ministério da Cultura' la gestion autonome du patrimoine archéologique par la création de 'l'Instituto Português de Arqueologia' (IPA) – la séparant désormais de la gestion du patrimoine architectonique (IPPAR). Du même coup, dans le cadre de l'IPA a été créé le 'Centro Nacional de Arqueologia Náutica e Subaquática' (CNANS). La compétence exclusive du 'Ministério de la Cultura' dans ce domaine est ainsi assurée désormais par un département d'Etat spécifique, avec le niveau de direction générale, au sein duquel fonctionne un service national spécialisé, doué de la nécessaire autonomie administrative, budgétaire et opérationnelle, possédant son propre personnel.

Le second décret-loi, concernant le régime de gestion du patrimoine nautique et subaquatique, est venu révoquer celui de 1993 (D.-L. N°289/93, du 21 août) qui, à juste titre, est venu combler les espérances des chasseurs de trésors et des compagnies de sauvetage maritime (souvent les mêmes). Souvenons-nous que ce décret-loi, publié à contre-courant des principes de l'archéologie moderne, a soulevé dès l'origine l'indignation des milieux les plus avertis, et a donné lieu à un mouvement de contestation relayé par l'association sans but lucratif 'Arqueonáutica', qui déboucha sur un débat public élargi (Alves, 1995). Ce débat a été, d'ailleurs, favorisé par l'intérêt que la radio, la presse et la télévision ont accordé au cas, notamment par ses contours scandaleux, à la suite de la divulgation que le juriste et député, responsable de la rédaction du décret, s'était lié à des entreprises qui se prétendaient intermédiaires pour les candidats "aux excellentes hypothèses d'affaires ouvertes par la nouvelle loi", et était devenu par la suite le représentant d'un des plus connus et controversés chasseurs de trésors du monde.

La loi actuelle se caractérise par plusieurs innovations. En premier lieu, elle assume explicitement le retour aux principes d'unité épistémologique, scientifique et déontologique de l'archéologie, quel que soit le milieu physique dans lequel ils se développent. Le décret tranche ainsi explicitement sur la contradiction entre les finalités scientifiques et celles du profit financier dans la recherche archéologique, excluant désormais celui-ci de son cadre légal. En deuxième lieu, le décret concerne non seulement le patrimoine subaquatique, mais aussi celui qui est de nature nautique et qui gît en milieu non aquatique, comme c'est le cas des épaves de navires anciens découvertes récemment lors de travaux d'extension du réseau du métro de Lisbonne dans un quartier de la ville correspondant à l'ancienne berge du Tage. En troisième lieu, elle introduit – de pair avec la traditionnelle récompense à l'inventeur de 50% de la valeur des découvertes fortuites – une récompense établie en fonction de l'importance du site, du point de vue scientifique et culturel, quand il s'agit de la découverte d'un site cohérent, 'complexe' ou 'fermé' (comme on dit dans le jargon archéologique), dont le paradigme est une épave de navire.

Enfin, la loi aggrave les sanctions financières et pénales se rapportant aux atteintes au patrimoine et en violation de ses dispositions. Ces transformations du cadre législatif et institutionnel au Portugal sont venues couronner le tournant scientifique qui parallèlement a eu lieu ces dernières années dans ce domaine du patrimoine.

Comme il avait été dit à Giardini Naxos (Alves, 1993), un panorama 'noir' s'était alors installé au Portugal dans le domaine de l'archéologie et du patrimoine subaquatiques à la suite de la publication de la loi qui favorisait l'exploitation commerciale du patrimoine culturel subaquatique ('chasse au trésor'). Ce panorama se caractérisait aussi par un authentique 'couvre-feu' politique, culturel et administratif, ce qui s'est traduit du point de vue des activités dans ce domaine par deux années 'zéro' – 1994 et 1995 (Alves, 1995).

Les changements politico-culturels et législatifs survenus par la suite ont permis de débloquer cette situation, non sans préjudices évidents pour ce patrimoine, comme l'atteste la perte d'informations scientifiques, par séchage des bois de charpente de la grande épave *Cais do Sodré*, du XV/XVIe siècles, et le cas de l'épave *Ria de Aveiro A*, du milieu du XVe, identifiée en 1994, dont le sauvetage a attendu le feu vert administratif pendant un an et demi.

En effet, en 1995, est apparue l'épave d'un grand navire dans les travaux de déblaiement d'une nouvelle galerie du métro de Lisbonne, large de 24 mètres. L'épave, par un curieux hasard, avait été justement coupée à ses extrémités. La datation par radiocarbone a révélé qu'elle datait du XV/XVIe siècles (Rodrigues, 1998 et 1999a et b). Outre de nombreux détails extrêmement intéressants attestant sa tradition ibéro-atlantique, en rapport direct avec les textes classiques de l'architecture navale portugaise, notamment Oliveira (1580) et Lavanha (1608-1616), on a trouvé sur l'épave le tronçon terminal d'une manivelle (pinção/whipstaff) de l'appareil de manoeuvre, ce qui représente peut-être la plus ancienne utilisation connue d'un appareil de ce type.

En 1996, cet état de chose allait changer, mais la nouvelle situation s'est seulement éclaircie entre mars et juin 1997 avec la publication officielle d'un nouveau cadre législatif et institutionnel cité plus haut.

Ainsi, le projet S. Julião da Barra a été lancé en mai/juin 1996, à la suite d'une décision du commissariat du Pavillon du Portugal de l'Expo'98 de baser son programme muséographique sur un thème d'archéologie subaquatique concernant la 'Carreira das Indias'. Le projet, développé au départ sous l'autorité administrative de l'IPPAR, a impliqué la mise en place d'une équipe permanente d'archéologie subaquatique sous la direction de l'auteur du projet et de Filipe Castro, qui a hérité toutes les infrastructures d'archéologie subaquatique réunies en quinze ans au Musée National d'Archéologie, devenant ainsi l'embryon du futur CNANS. La zone de S. Julião da Barra, sur à l'embouchure du Tage, aux abords de la fortification éponyme du XVI/XVIIe siècle, était en effet le plus important cimetière d'épaves de la côte portugaise. L'association 'Arqueonáutica' en collaboration avec le Musée national d'Archéologie de Lisbonne y avait localisé en 1984 une épave d'une 'nau da India', fort probablement la *Nossa Senhora dos Mártires*, ayant fait naufrage en 1606 au retour de Cochin. Le projet S. Julião da Barra, bien qu'ayant démarré tardivement à la fin octobre 1996 en raison de tracasseries administratives et ayant souffert d'un mauvais hiver, a produit cependant des résultats surprenants au long d'une année entière de travaux de terrain. Ces travaux comprennent l'identification et l'étude d'une partie centrale de la coque d'une nau de fort tonnage, avec d'importantes liaisons structurelles préservées. Ce morceau de coque s'est révélé être un document d'un intérêt exceptionnel - dans le cadre de l'étude comparative des vestiges nautiques de tradition constructive ibéro-atlantique

(Alves et al., 1998a, b et c, Castro, 1998) - et par rapport aux sources classiques citées plus haut. Malgré la faible profondeur du site et la proximité de la côte, la vase conservée entre les membrures de l'épave était encore pleine de poivre, deux paniers en osier ayant été récupérés dans son sein. Parmi le mobilier trouvé aux alentours se distinguaient des céramiques orientales notamment de la porcelaine chinoise datant du règne Wanli, ainsi que d'autres nombreuses trouvailles typiques, dont les plus spectaculaires et importantes scientifiquement ont été les instruments nautiques: deux compas et trois astrolabes nautiques, ce dernier est trouvé dans un exceptionnel état de conservation, avec la date de fabrication (1605) gravée dessus, de même que la marque de l'atelier de Francisco Góis (G), identique à celui provenant de l'épave *Nuestra Señora de Atocha*.

Auparavant cependant, dès le début de 1996, à la suite d'un protocole signé entre l'Université d'Aveiro et l'IPPAR, débuta le projet de sauvetage de l'épave *Ria de Aveiro A* datant du milieu du XVe siècle, avec l'appui de la 'Junta Nacional para a Investigação Científica e Tecnológica (JNICT) et du programme 'Praxis XXI'. L'épave a été complètement fouillée dans son intérieur et toute la charpente interne a déjà été récupérée (Alves, 1998, Alves et al., 1999a et b). Cette épave, composée de la moitié arrière complète d'un fonds de carène d'une coque, atteste un caboteur entre 15/20 mètres de long, et constitue l'exemple le plus complet et le plus ancien, connu à l'échelle mondiale, de la tradition constructive ibéro-atlantique. Les origines de cette tradition, dont les exemples archéologiques les plus anciens, connus, datent tous du XVIe siècle, semblent ainsi s'inspirer une tradition locale de la côte atlantique de la péninsule ibérique. Le navire transportait une cargaison de fruits secs et de céramique régionale, celle-ci représentant la collection de céramique de l'époque des découvertes portugaises la plus complète, la plus étendue et la mieux datée, connue jusqu'à ce jour (Alves et al, 1997 et 1999c). Par la suite, au milieu de 1996, est apparue aussi à Lisbonne, au square du Corpo Santo, dans le cadre des travaux du métro (comme l'épave du *Cais do Sodré*), à l'endroit de l'ancienne berge du Tage, un petit morceau arrière d'une autre épave, formellement très semblable à celle d'*Aveiro*, qui a été datée du XIVe siècle par le radiocarbone (Alves et al., 1998 et 1999d et e). Malgré sa petite dimension (1,8 x 1,6 m), le vestige a une importance évidente, soulignée, d'ailleurs, par son rapport avec l'ensemble des trouvailles haut citées. C'est notamment le plus ancien témoignage connu, d'un navire de tradition ibéro-atlantique avec gouvernail d'étambot, construit selon le principe 'skeleton first'. L'ensemble de ces découvertes au Portugal a été complété en juin 1997 par une autre, qui a eu lieu comme les premières aux alentours de Lisbonne. Elle a été découverte pendant des travaux de déblaiement d'un parc automobile au square du Município, de nombreux madriers de grandes dimensions, façonnés en forme de membrures de navire. Localisés aux alentours du célèbre chantier naval de la 'Ribeira das Naus', il s'agit évidemment de la matière première, déjà façonnée, d'un entrepôt de ce chantier – ce qui semble constituer un des rares exemples de vestiges de ce type connus en Europe. Comme les autres découvertes citées, ces vestiges se trouvent en traitement et en étude au siège du CNANS.

Un dernier mot s'impose à propos des îles atlantiques des Açores, région autonome dans le cadre politico-administratif portugais. En effet, en 1996, à la suite d'une campagne de prospections archéologiques subaquatiques dans le cadre de la construction d'un port de plaisance dans la baie d'Angra de Heroísmo, capitale de l'île Terceira, dont le centre historique est classé Patrimoine Mondiale, deux nouvelles épaves ont été découvertes. Elles ont été datées toutes les deux du XVIe siècle, tandis que les épaves déjà connues de la Baie d'Angra étaient plus récentes (Krisman, 1999a et b). La première, *Angra C*, appartenait à un navire construit selon le principe "skeleton first", manifestation de tradition nord européenne, voire hollandaise; la seconde, *Angra D*, était clairement d'origine ibéro-atlantique, peut-être espagnole. Toutes les deux ont été

intégralement fouillées et démontées entre avril et juillet 1998 sous la responsabilité du CNANS par une équipe d'archéologie subaquatique nationale et régionale renforcée par de nombreux éléments recrutés internationalement et qui a été techniquement assistée par un spécialiste de démontage d'épaves archéologiques de renommée internationale (Peter Waddel) du Service de Parcs Canada (Monteiro & Garcia, 1998).

Ces découvertes ont été complétées en 1998 par le développement d'un programme national de recherches subaquatiques qui a eu, pour la première fois, une importance inter-régionale significative. Soulignons dans ce cadre, qu'à la suite d'une insistante invitation des autorités portugaises, l'Institute of Nautical Archaeology (INA) développe aux Açores depuis 1997 un projet sous la responsabilité de Kevin Krisman, en collaboration avec l'équipe régionale en place. L'importance de l'ensemble des découvertes d'épaves de tradition ibéro-atlantique a amené le CNANS en 1998 à organiser avec la collaboration de l'Académie de Marine de Lisbonne, un Symposium International sur l'Archéologie des Navires de Tradition Ibéro-Atlantique. Réalisé à Lisbonne, du 7 au 9 de Septembre, dans le cadre de l'Expo'98 consacrée aux Océans, ce Symposium a eut succès un retentissant. Sa séance inaugurale a été présidée par le Ministre de la Culture et George F. Bass. Il faut mentionner que le Symposium a été précédée par la réunion annuelle du Comité International du Patrimoine Culturel Subaquatique (ICUCH) de l'ICOMOS, et a compris dans sa première journée une séance organisée par l'UNESCO ayant pour thème le Projet de convention pour la protection du patrimoine culturel subaquatique. Les trois événements ont naturellement permis de réunir à Lisbonne, non seulement les plus grands spécialistes mondiaux du thème du Symposium, mais également de nombreux autres spécialistes internationaux et des responsables de la gestion de ce patrimoine. Ce forum international sur le patrimoine culturel subaquatique réuni à Lisbonne en Septembre 1998 a donc traduit et consacré en quelque sorte un tournant majeur ayant eu lieu au Portugal dans ce domaine ces dernières années du XXe siècle. Il pourra aussi représenter - nous l'espérons - une contribution significative pour la promotion et la sauvegarde du patrimoine culturel subaquatique mondial à l'aube du 3ème millénaire.

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The Nautical Archaeology Society Training Programme

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The note '*The Anse aux Bouleaux Project and the NAS course*', by Marc-André Bernier of Parcs Canada, shows how such a training programme can have a very benevolent effect on the protection of the underwater cultural heritage.



NAUTICAL ARCHAEOLOGY SOCIETY

THE NAS
TRAINING PROGRAM



Archaeology Underwater

Training with the Nautical Archaeology Society

Introduction

As one of the stated aims of the Nautical Archaeology Society is, *to advance education in nautical archaeology at all levels* the Society has developed a structured training program which is open to both divers and non-divers.

To date over 2500 divers and non-divers have attended NAS Part I courses, over 400 have attended the first stage of the NAS Part II course and many have gone on to successfully complete NAS Part II and have been awarded the 'NAS Archaeological Diver Certificate.'

The NAS Part III Advanced Archaeological Certificate has also been completed by a number of participants. The NAS Part III qualification can be achieved by attending a series of weekend modules, or as part of a field school. Over 400 participants have attended more than 40 events ranging from **Ancient Technology** courses to the deployment and use of **Underwater Sonar Systems**. We are also very close to seeing our first 'graduate' at Part IV.

Many of our NAS Program participants are working on projects linked to archaeological groups around the UK and on independently initiated projects. Much of this work is being included in local and national Maritime Sites and Monuments Records.

The major advantage of the NAS Program is that a standard has been maintained not only over the length of time that the Program has been in operation, but also across the wide geographical spread of the course locations. The Program has now been recognised by the Institute of Field Archaeologists, the UK's professional archaeological body as a part of their Continuing Professional Development Program.

The NAS Training Program continues to be developed and now includes a Tutor Development Program. The major aim of this initiative is to ensure that all NAS courses are taught by tutors with a common understanding of the syllabus and philosophy, while at the same time recognising the need to be flexible in our approach to enable regional and international differences to be incorporated within the NAS Program. This particularly applies to approaches to legislation and heritage management issues.

The NAS Training Program provides a framework syllabus within which there is sufficient flexibility to make the Program appropriate in any country or region with an interest in protecting and promoting their archaeological heritage.

Chris Underwood. NAS Training Director

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Administration

The Program is administered by a Training Director who is responsible to the NAS Executive Committee. The Training Director is supported by regular contact with archaeologists with a high level of expertise and experience in working underwater, who also have a background in the teaching of archaeological techniques. All tutors, lecturers, projects, sites and individual courses are approved and assessed by the Training Director.

The NAS has a full-time Training Director, part time Administrative Officer, two part time Training Officers responsible for Scotland and Wales and 2 regional co-ordinators responsible for the South West and North East regions of England. The NAS Training Program is partly funded by the UK Department for Culture, Media and Sport, Historic Scotland, CADW (Welsh Heritage Agency) and the Environment and Heritage Agency, Dept. of Environment, NI to respond to enquiries, to arrange and teach courses, and to develop all aspects of the Program.

The NAS Program

The NAS Certification Program consists of Parts I - IV which have been designed to comprise a series of components with a gradually increasing academic and practical archaeological content. Participants are required to give a gradually increasing commitment as they progress through the Program, e.g.

- NAS Part I participants only have to attend the course.
- NAS Part II includes the production of a survey report assessed against a number of criteria.

A brief description and an outline syllabus is given below for each part of the Program. There is no provision for awarding any parts of the Program in retrospect for previous archaeological experience or qualifications.

A training logbook for the entire program is issued to each NAS participant on completion of NAS Part I. All subsequent certificates, courses, practical experience gained and lecture/conference attendance's can then be entered into this logbook. NAS Part I courses will often be initiated by an individual or group applying to the NAS Training Office for a course. A convenient date and venue is then arranged. As the NAS Training infrastructure has developed, we have established a series of favoured and repeatable venues, where we have access to good teaching facilities and are often associated with archaeological centres or organisations, such as the Portsmouth Naval Base Heritage Centre which houses the *Mary Rose*, *HMS Warrior* and *HMS Victory*.

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The NAS International Program

The NAS is an International Society and a number of Part I courses have been held outside the United Kingdom. The current list is as follows:-

Australia, Austria, Bermuda, Canada, Germany, India, Ireland, Italy, Mexico, South Africa, Sweden, Switzerland, Turkey, and the USA have all run NAS courses or field schools over the past 10 years.

Many of these groups have purchased the Program from the NAS as a purpose made teaching aid. Some, such as Parks Canada Archaeological Service and the Australian Institute of Maritime affairs have integrated the NAS Program into their national heritage management strategies. Others have been independent groups with a high degree of motivation toward the protection of their local underwater cultural heritage.

The NAS is keen to increase this international dimension to include a greater range of countries running NAS Programs. The NAS 'star' system of qualifications has been chosen to reflect other similar ratings awarded by the UK diving organisations and the CMAS who also accredit international diver training. It is the belief of the NAS that it would be an advantage for those running archaeological training programs elsewhere to have a common basic standard for their courses. This will enable the international value of any certificate or accreditation to be more easily recognised both by archaeological project directors and by NAS Program participants wishing to assist on projects outside of their own country.

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Part I: AN INTRODUCTION TO UNDERWATER ARCHAEOLOGY

Part I is a preliminary course aimed at introducing nautical archaeological and underwater archaeological techniques to divers and non-divers, and to promote their interest in the subject. It provides a broadly-based view of the subject by covering a wide range of topics.

The objectives of the NAS Part I course are that participants should:-

- have been introduced to the basic principles and aims of archaeology
- appreciate the need for the recording, protection and preservation of the underwater heritage;
- have been given the necessary knowledge to undertake a basic pre-disturbance survey of a site.

The emphasis during the practical sessions is on surveying and recording. In addition, the theory component stresses the need for the conservation and preservation of the underwater cultural heritage. The format involves a two-day course (often a weekend) which is conducted by approved tutors and instructors. Certain parts of the course can be adapted to suit the special requirements of the individual groups taking part.

The minimum diving qualification level for those taking part in the pool exercises is CMAS 1-Star or equivalent, e.g. BSAC Novice Diver, SAA Club Diver, or PADI Advanced Open water. The Part I course is not examined and the Certificate (NAS International 1 star) is awarded for attendance only.

Part I: Outline Syllabus:

- Definitions, Organisation, Legislation.
Definitions of archaeology, differences between archaeology and salvage, organisation (sport diver involvement, institutions involved in archaeology), legislation relating to archaeology underwater, safety aspects (codes of diving, HSE regulations).
- Basic Principles, Conservation, Archaeological Science.
Stratigraphy, typology, conservation, archaeological sciences
- Surveying.
Pre-disturbance survey, setting-up datums, trilateration, datum offsets, planning frame, drawing up results.
- Practical surveying on land and underwater in a controlled environment.
(e.g. a swimming pool); datum fixing; survey methods - trilateration, datum-offset techniques, planning with the drawing frame, basic recording; plotting and presenting survey data. (Non-divers do not participate in the pool sessions but suitable alternative tasks can be arranged).
- Search and Survey.
Position fixing, remote-sensing methods, sites and monuments registers, heritage management.
- Records, Recording, Publication.
Recording systems, levels of records, publication levels, archives.
- Getting involved in nautical archaeology.

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Part II: TECHNIQUES IN NAUTICAL/UNDERWATER ARCHAEOLOGY

The NAS Part II course is designed to build upon the theory and techniques introduced in Part I.

The NAS Part II qualification is modular and does not have to be completed in one session. Participants have a choice of,

- either attendance at a Lecture Series which aims to increase the level of knowledge of the subjects introduced during the NAS Part I
- or at a Survey Day School.

The Survey Day Schools are often part of an NAS Field project, such as the Mulberry Harbour or Pembrey Sands. Non-divers are well catered for as many of our Survey Day Schools are in the inter-tidal zone. The Survey Day Schools are designed to provide tuition in the field in the basic survey techniques covered in Part I, while at the same time introduce 3-dimensional surveys using 'Web for Windows', theodolites, EDMs, etc. The survey data collected during the Survey Day Schools can be used to provide the data for personal or group Part II Projects. The Survey Day School reinforces basic survey techniques and introduces the practical difficulties associated with working in the 'field'.

In addition to the Survey Day School or Lecture Series participants are required to:-

- attend a minimum of two full days of conferences related to archaeology
- undertake and report on a short practical survey.

Guidance notes for the Part II "Project/Survey and Report" are available from the NAS Training Office.

The NAS Part II "Archaeological Diver Certificate" (NAS International 2 star) is awarded to participants on completion of the lecture and conference requirements and when a survey report to the required standard has been submitted.

Part II: Lecture Series

The topics, 2/1 & 2/2 are compulsory and 5 other lectures from the following list must be covered. They are ideally covered in a one day series of lectures, or may also be accumulated from individual approved lectures.

- 2/1. **Archaeological Principles.**
- 2/2. **Advanced on-site survey methods; levelling, plan and section drawing; three-dimensional survey methods; computer-aided systems.**
- 2/3. Area search and survey methods; geophysical prospection techniques.
- 2/4. Site and Finds Recording systems; on-site recording and finds processing.
- 2/5. Photographic recording; methods and applications.
- 2/6. Conservation; the physical and chemical characteristics of underwater sites; the fundamentals of corrosion and biological deterioration.
- 2/7. Archaeological science; environmental archaeology, on-site sampling; dating methods.
- 2/8. Historical research methods; information sources such as Public Record Offices, archives, Hydrographic sources, etc.

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- 2/9. Excavation methods and strategies; use and application of airlifts and water dredges.
- 2/10. Experimental Archaeology; ship reconstruction and sailing trials.
- 2/11. Management of Archaeology; the work of the Heritage agencies such as English Heritage.
- 2/12. Open subject.

Part II: Survey Day School

The overall aims of the Part II Survey Day School are:-

- to reinforce the survey skills introduced during the NAS Part I
- introduce more advanced survey systems,
- to introduce the participant to the practical difficulties involved in undertaking a three dimensional survey in the field.

The location of a Survey Day School can include:- the littoral, inter-tidal and sub-littoral zones. This presents us with a variety of teaching environments, e.g. wrecks, hulks on the foreshore, harbours, inundated settlements, fish traps and isolated finds, etc.

The course should include 2 formal theory elements, which are also covered in the Lecture Series, the alternative route within the Part II Syllabus.

- * 2/1 Archaeological Principles
- * 2/2 Advanced on-site survey methods

N.B. The Advanced Survey Lecture can include, Acoustic Positioning Systems, Differential Global Positioning Systems (DGPS), Direct Survey Method, Web for Windows), EDM's, Microwave Systems, Theodolites, or another suitable system for on-site survey. The presentation can be in the form of a tutorial or workshop. The presentation should be at a level above that presented at NAS Part I, and as a guide be between 40-60 minutes in duration.

The information/data collected may be used for a Part II Survey & Report, subject to the criteria detailed in the Part II Survey Guidance Notes.

Part II: Conference Requirement

Participants should attend the equivalent of a two-day conference to gain a background knowledge of current work in the field of maritime/nautical/underwater archaeology, although due to the lack of specifically maritime related conferences we accept attendance at other land related conferences. An alternative option might be to attend two one-day conferences or ten relevant lectures in addition to the lecture series of Part II. Many approved conferences are advertised in the NAS Newsletter.

Part II: Practical Survey Requirement

The basic requirement is to demonstrate that the participant is able to carry out basic archaeological survey and report writing. The report can be submitted by an individual or group, but where a group project is undertaken it must be clearly demonstrated that everyone contributed to the data gathering and report preparation. It is recommended that all prospective participants in this component of the NAS Program liaise directly with the Training Director or Part II Project

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Co-ordinator, in order to agree a suitable topic for the survey and to remain in contact throughout the duration of the project and the writing up stage. As mentioned to earlier, guidance notes for the Part II "Project/Survey and Report" are available from the NAS Training Office.

Part III: Advanced Archaeological Certificate: NAS International 3 Star

The NAS Part III component of the Certification Program will provide the major formal teaching element, in that participants will either:-

- attend a full-time field school, often based around the work on an actual archaeological site
- or attend a series of modules in specific techniques

Either option will include a minimum of 100 contact teaching hours. This will involve lectures, on-site demonstrations and practical exercises in many of the techniques of archaeology underwater (including section drawing, datum positioning, recording in situ, sampling deposits, excavation strategies and methods). Workshops will be held where the students will obtain practical experience of the handling of archaeological materials, first-aid conservation, finds drawing and photography.

The main objective of the NAS Part III course is to produce a competent underwater field-worker who has the knowledge to be an asset to any project. The minimum diving qualification standard for the aspects which include open-water work is CMAS 2-Star or equivalent (e.g. BSAC Sport Diver, PADI Advanced Open-water). The Part III "Advanced Archaeological Diver Certificate" (NAS International 3 star) will be awarded to participants after successful attendance of all the components of the field school, either in one session or in weekend modular form.

The NAS Part III syllabus is accredited by the Institute of Field Archaeologists. Holders of NAS Part III will be credited with the equivalent of 24 months worth of field experience in an application to join the IFA. Submission of a portfolio of work and course notes will be required for assessment by the NAS Training Director and validation board.

Syllabus:-To achieve NAS Part III, students will need to complete a series of courses covering a sufficiently broad area of the syllabus. The syllabus consists of 7 core subject groups:-

1. **Research and Information Technology**
2. **Archaeological Science**
3. **Survey**
4. **Excavation**
5. **Recording**
6. **Conservation**
7. **Ancient Technology**

NAS Part III Assessment Criteria:-

- Students must accumulate 100 points in 6 out of the 7 core subject groups. Points are awarded on the basis of a full point for each practical contact hour and ½ point for a theoretical contact hour. The points allocation is set according to assessment of the course syllabus.
- A maximum of 28 points can be obtained in any 1 core subject.

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- A minimum of 8 points must be obtained for each of the 6 chosen subject groups.
- Experience cannot be considered retrospectively.
- For those seeking recognition of their qualification by the Institute of Field Archaeologists all course material and assignments will be required to be assessed in the form of a portfolio submitted to the NAS Training Officer.

Part IV: DISSERTATION

The final element and the highest grade of the NAS Program is the Part IV Certificate. The primary objective is to provide a certification level for a field-worker capable of supervising a work programme on a site in conjunction with an archaeological director. This component will not involve further formal teaching although guidance and advice will be provided at all stages by the NAS Training Director. To qualify for the final certificate (NAS International 4 star) the candidate must have fulfilled the following requirements:-

- have worked on at least three different archaeological sites for a minimum of twelve full weeks in total since they completed their NAS Part II certificate.
- have completed a dissertation or extended portfolio of work on an approved project or topic including a full report prepared to publication standard.

The Training Director will encourage participants who are awarded the Part IV Certificate to publish their work in the appropriate journal and pass details to the relevant Sites and Monuments Record.

It is expected that participants in the NAS Program who wish to proceed to higher levels than Part IV would apply to a University or other higher education institution to undertake a suitable degree or diploma course.

The NAS welcomes any enquiries concerning the NAS Certification Program (including enquiries from outside the United Kingdom) which should be addressed to:

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The Anse aux Bouleaux project and the NAS course

In December of 1994, Marc Tremblay, a sport diver from Baie-Comeau, on the North Shore of the St. Lawrence River in Quebec, Canada, discovered a wreck in front of his summer cottage near the small village of Baie-Trinité. He immediately contacted Parks Canada archaeologists who were able to investigate the site before any human disturbance had occurred.

If this sport diver had made his discovery a few years earlier, things would have been very different. In this area of Quebec, there is in the diving community a long tradition of taking artifacts from wrecks. This goes back to the discovery in the 1960's of some of the eight wrecks from Sir Hovenden Walker's fleet lost at Pointe aux Anglais in 1711. The diver mentality has simply been "finders-keepers". Tremblay was no exception to the rule, as he had been collecting artifacts from the sea for the past ten years.

Things began to change in 1990 with the discovery of the wreck of the *Corossol*, a French vessel lost in the bay of Sept-Iles in 1693. Members of the sport diving community then began to collaborate with Parks Canada archaeologists to map the limited remains. Even though the work at Sept-Iles did not yield an abundant number of artifacts, the work done was under the scrutiny of the divers in the area. One of these more active divers of the diving community was Marc Tremblay who began to understand the importance of the archaeological approach.

In October of 1994, Marc Tremblay then approached Parks archaeologists and Quebec Ministry of Culture's local representative to undertake the formation of a group for the preservation of the submerged cultural heritage of the North Shore. At this time, Parks Canada had taken the steps to adhere to the Nautical Archaeology Society's Training Program: Chris Underwood came to Canada in March 1995 to train Instructors at Parks Canada, in Ontario and in British Columbia. The North Shore group was to be one of the first to receive the NAS training. When the *Groupe de Préservation des Vestiges Subaquatiques de Manicouagan* (GPSVM) was formed in February, they officially put in their charter that members were to take the NAS training.

In the meantime, Marc Tremblay made a dive at his cottage, at Anse aux Bouleaux, on Christmas Eve of 1994 and discovered the remains of a wreck. A week later, a Parks archaeologist dove on the site and confirmed the potential importance of the discovery.

In May of 1995, 21 divers took Level 1 of the NAS training course in Baie-Comeau. Immediately after the course, a three-week project started, with the goal to map the Anse aux Bouleaux site. The 21 GPSVM-NAS-trained divers worked with Marc-André Bernier, putting in 194 hours of diving. The information recovered, including a pre-disturbance site plan, led to the identification of the wreck which proved to be a small troop carrier from the New England which had taken part in 1690 expedition against Quebec City led by Sir William Phips. Phips did not succeed in taking Quebec City

and lost four of his 32 ships on the way back. The vessel found at Anse aux Bouleaux carried some 46 militiamen from Dorchester Massachusetts who all lost their lives: no news of their fate ever came back to New England.

Following this identification, excavation took place in the summers of 1996 and 1997. Again, volunteer sport divers played a key role. The diving team comprised 12 divers daily: 6 archaeologists and 6 sport divers. To participate in the excavation, every GPVSM diver needed to have taken the NAS Level 1 course and to work at least one full week. In the 8-week-long 1996 project, 25 NAS-trained divers made 319 hours of diving (48% of the total amount). In the 11 week long 1997 project, 32 divers dove for 439 hours (45% of the total). Of course, these numbers do not account for the numerous hours spent in the lab doing field notes or various other tasks.

The significance of the Anse aux Bouleaux wreck is very high. First, it testifies for one of the most famous events in the history of New France: the siege of Quebec by Phips. The hull remains represent the oldest found example of New England shipbuilding. Also, the context of the passengers of the ship is rather unusual: some forty plus militiamen from the same small community who had to bring their own weapons and personal effects. Given the fact that we have the list of men who were on board and that many artifacts bear the initials of their owner, the assemblage has the potential to deliver interesting and unique interpretation on New England life in the late 17th century. The diversity of the weapon-related artifacts is one example of this. All the muskets found are different and the accoutrements discovered show us a vast array in the carrying methods, from the bandoliers to the cartridge pouches with paper-wrapped cartridges.

More than just partners in the excavation of shipwrecks, the members of the GPVSM have now become an important part of the protection survival of their maritime heritage and the NAS training program has played an important role in this process.

Marc-André Bernier

The treasure of the *Atocha*

Review by Jeremy Green.

This is a review of the book 'The treasure of the *Atocha*' written by an archaeologist, reflecting his collaboration with treasures hunters. Reprinted from *The International Journal of Nautical Archaeology and Underwater Exploration* (1987), 16.1 :73-86, by permission of the Nautical Archaeology Society.

Reviews

The treasure of the *Atocha*

DUNCAN MATHEWSON III

160 pp., colour and b and w illus. Sidgwick and Jackson, 1986, £15.00

Any book that makes me sit down and think really hard about what I am doing is, as far as I am concerned, interesting and stimulating. I cannot think of another book that has had such an effect on me; not because the book is particularly well written, but because the subject is controversial and challenging. I think Mathewson should be commended for his honesty and in writing this book. He has clearly given credit where credit is due (particularly to Eugene Lyon), has admitted his mistakes and has been critical where he has felt it to be necessary. Interestingly, the criticism has been meted out as much to the archaeologists as to the treasure hunters. The book is not an apology and as such challenges much of so-called archaeological thinking. It raises all sorts of problems, many of which go far beyond the scope of a book review but are, however, interwoven into the theme. I would like to try and discuss some of them here.

In my limited encounters with the fringe of the treasure hunting world, it has always surprised me how inefficient and at times inept their operations are. For a group of people, dedicated and driven by the profit motive, they demonstrate a lack of organization that is quite stunning. So often we hear of the dangers they face and of their bravery in risking their life and their wallet. In reality they are often grossly inefficient. Mathewson, seems to have felt something of this too. He seems to have lived in an uncomfortable relationship with Treasure Salvors and this comes through in a number of places in the book. For example, the concentration of work on the Quicksands area was, in Mathewson's opinion, a mistake, 'But this also showed me that until Treasure Salvors made a commitment to search Hawke Channel, very little new archaeological information would be found to lead us to the treasure. Finding the gold and silver up in the Quicksands was satisfying—and profitable—but it was not furthering our overall objectives'. This was 1975 and it was ten years before they found the 'motherlode' and it was in Hawke Channel.

Mathewson was employed by Treasure Salvors in 1973 and the reasons for his employment illuminate the dilemma that the treasure hunters were in at the time. 'The addition of a professional archaeologist to

the staff would help to defend Treasure Salvors against the State's criticism' and 'though the crew had recovered several rare and unique artefacts, it had yet to find the main bulk of the treasure cargo . . . It would take a disciplined, highly organized effort, meticulous record keeping, and innovative archaeological techniques to find the rest of the ship'. I delighted in his description of his first meeting with Treasure Salvors. Obviously, after a great deal of soul searching and agonizing, Mathewson decided to take the plunge and meet Mel Fisher with the prospect of being offered a job 'expecting to be the centre of an interesting and possibly intense meeting'. Instead, on the day of his arrival he was virtually forgotten as Treasure Salvors had just made yet another discovery; (such events were to occur sporadically for the next sixteen years). 'As I looked at the wild scene unfolding around me' on board Mel Fisher's floating office, the *Golden Dubloon* —'How had a serious archaeologist gotten into the middle of all this?'

Thus, Mathewson's appointment was a new approach by Treasure Salvors to the search. It must have been clear, even to Mel Fisher, that the 'its over there' approach to blowing holes in the sand simply was not working. Reading through the events, one gets the impression that the treasure hunters were beginning to learn, albeit slowly. For example position fixing was becoming more sophisticated. At the very beginning one expects there was none, but in time this changed from a crude compass-bearing system to a sophisticated radio-position fixing system. No doubt, finance was a very real problem and it is clear, at times, Mel Fisher could not afford to pay his divers, but the learning process appears to have been inordinately slow.

Something that is not well explained in the book, is what happened between 1975 and 1982. In 1975, Mathewson believed that Treasure Salvors were searching in the wrong place. After the traumatic events of that year, with the loss of the crew of *Northwind*, Mathewson enrolled in a graduate programme, 'until Mel heard the same message (that Hawke Channel theory), there was little I could do to help him'. However, it was not until 1982 that they began to explore this theory in earnest and Mathewson was finally proven correct on 20 July 1985.

When they found the motherlode, it is extraordinary to find Mathewson lecturing his divers on archaeological techniques, and, in his own words, failing. After sixteen years there seems to have been hardly

anyone interested in archaeology. Again in his own words: 'they pointed to the name. Treasure Salvors on the side of the boat, "That's the name and that's what we do," We want to find treasure. We don't want to do all the archaeology for you and have the *Dauntless* crew find the treasure. We are out here for the same reason they are—to find treasure—not to be archaeologists'. One wonders why he did not start training earlier. Mathewson, as he says, was trying to do archaeology of some sort. 'The whole world is watching us' he told his unimpressed treasure hunters. It may not have been possible to influence or indoctrinate the divers owing to the unusual nature and method of employment of divers by Treasure Salvors, but I would have expected him to have gathered a larger core of staff to support this work and his ideals. Clearly, he gathered a team together after the discovery, including some archaeologists, but we hear little more of them.

The final scene, in which the people interested in doing some form of archaeology find themselves in the midst of the obvious chaos, is classic. Almost symbolically the salvage boat 'blows' with the mailbox (as it turns out by mistake) right in the middle of the survey area. 'We'd found the main hull of one of the most important Spanish shipwrecks in the Americas, and it was being blasted by the propwash of the salvage boat. The silver ingots rocked back and forth on top of the timbers as water churned around them violently. In a matter of minutes the blowers had disturbed the surface of the rock ballast and the precious silver ingots that were stacked on top of them'. This prompted Mathewson to blow his top. 'You don't have to like me but you have to respect me' was his impassioned cry. All along one gets the feeling that Mathewson lacked the respect of the treasure hunters.

I respect Mathewson for writing this book. He has been honest in trying to tell the story and events much as they happened. It would have been easy to gloss over the messy bits and make it sound slick. I sympathize with him when he states bitterly (and with some justification too) that 'for most of the time I have been blackballed in the archaeological community. On several occasions I was prevented from giving papers at archaeological conferences and have been discouraged from submitting reports on the *Atocha* site to professional journals'. Ultimately he will be judged on his archaeological report. This will be the real test. It will also reflect on the archaeological society who judged him by this obstructionism. Mathewson in working for Treasure Salvors was working for the archetype; treasure hunting is Mel Fisher and Treasure Salvors. But unless Mathewson has been cleverly able to dissemble his feelings, I believe he was genuinely trying to do archaeology, which would be a difficult job for anyone in that situation being disdained or disliked by both the treasure hunters and the

archaeologist. I am not sure that he has succeeded as an archaeologist; not because he worked with the treasure hunters, but because he failed to convert them.

Most of us would admit that there is no right way, no textbook way, to excavate a site underwater. We would all admit that given our time again we would learn by our mistakes and do it differently. And we all have made mistakes, lots of them. Mathewson, a person with an archaeological background, working with the treasure hunters has probably made similar mistakes, some of his own making, but many the results of others! But the real point is: one can do good, bad or indifferent archaeological excavation, but unless one publishes, it is not archaeology. So the publication will be critical in deciding if this is archaeology at all. Indeed, if Mathewson is going to prove himself he will have to do a lot better than the chapter 'Beyond the glitter . . . Secrets revealed' which is the beginning of an artefact analysis. This is a popular book and it should be judged as such, but the chapter is pretty banal even so: 'A good sample of different types of rings have been recovered from both 1622 treasure galleons. Their comparative study will provide more clues about different facets of life centuries ago'.

On reflection, after reading all this, I feel depressed. Has the archaeological community become moribund? Everywhere we hear of treasure hunters setting off on yet another project and somehow we all seem to be sitting around listening to a conversation which goes like this: 'Yes, terrible, and do you know X has joined them as an archaeological advisor. Yes terrible, and after all he/she has only been out of work for six years. Not archaeology you know, can't be, working for treasure hunters. Still must be off, we are auctioning the latest material from my archaeological dig. Bit of a rush you know, doing the archaeological analysis in a month. Still we recorded everything'. One recalls that Tolkien cry; 'Awake! Awake! It is red dawn. Strange things await us . . . Good or evil, I do not know; but we are called'. It is about time the archaeological community woke up and listened to the call.

We can define cultural heritage and it can be protected through legislation, but only if society wishes. It seems in many places, Florida being one, that society does not wish to do this. Either we can accept this and keep silent, or try and educate society to value their heritage. With the shambles that is developing in this field it is obvious that neither of these things is happening. In Florida we have treasure hunters doing 'archaeology', in the United Kingdom we have archaeologists doing treasure hunting; what else is it when the legislation insists that the sites are excavated archaeologically, but the material has to be sold at auction? We really need to rethink the whole situation.

Maritime archaeology is a luxury society can afford. Potentially, we have a resource that is the envy of

many of our terrestrial colleagues. But where are we going? what are we doing? In some respects we are retreating into a self-serving elite, using technical jargon and alienating ourselves from the public, the divers and our so called arch-enemies the treasure hunters. The Institute for Nautical Archaeology and other organizations are going a long way in showing what can be done, but this is not enough. If we are not careful, society will decide that we are too expensive a luxury and look to the treasure hunters as an alternative. It is happening already.

Maybe there will come a time when projects such as the *Mary Rose* and the *Wasa* will be appreciated by our masters (they who hold the purse strings) for what they really are: great money making systems. These latter-day Scrooges say; 'projects such as the *Mary Rose* are far too expensive'. There was even said to be a lobby from *maritime* archaeologists opposing raising the *Mary Rose* because it would cost too much (can you credit it?) However, these projects are now earning money—are you listening out there you treasure hunters?—£200,000 a year through bookshops and admissions. The late and much loved Kelly Tarlton said, a salvor/treasure hunter turned archaeologist, that the idea of selling artefacts was just 'plain dumb'. Put it in a museum, charge admission and create a renewable source. Even mortgage it, but never sell collateral, not in this day and age. Maybe this is the way we must go. In fact Mathewson says it: 'The *Atocha* project vividly demonstrates that archaeologists should learn to use the profit motive to preserve the integrity of wrecksites being legally salvaged by commercial companies'.

On a final point, because of the economic climate and the recent successes of treasure hunters in the auction houses of Europe and America, many young and unemployed archaeologists may be considering a career similar to that taken up by Mathewson in 1973. It is unlikely that one would ever again find such a dramatic and colourful situation as described in this book and it was obviously not without its personality problems. Mel Fisher, in the foreword states: 'Though Duncan and I did not always agree about how things should be done on the site, we became convinced that neither of us could do our job properly without cooperation from the other'. It is a suitable book to reflect on. Mathewson does not really answer the question 'was it all worth it' but that is a bit like *Life, the Universe and Everything*.

Finally, Mel Fisher again: 'I hope it [the book] inspires adventurous people all over the country who dare to dream the impossible. Let's all work together to ensure that we will always have the opportunity to search for our own treasures—wherever they may be . . . Good diving to you all!' Food for thought for all of us!

JEREMY GREEN

The Men Who Stole the Stars

by George F. Bass

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The Men Who Stole the Stars

By George F. Bass

When I looked into the sky that night, I thought at first that a cloud covered part of the Big Dipper. But the crisp night air had not a trace of moisture. After cleaning my glasses and looking again, I realized that Mizar simply was not there any longer. I called the observatory of the university nearest me.

"There's a star missing," I said. "Mizar isn't there any more."

"We have no comment at this time," was the reply.

The next issue of *Tempus*, our leading news magazine, provided an explanation. Under the "Science" heading was a brief news item:

"Astronomer Claude Blakely, after years of research and experimentation, has at last developed a method of capturing stars. For an undisclosed price, he has sold Mizar to an anonymous dealer in Geneva. The dealer, through a New York spokesman, assures the public that the star will be put on display in a private planetarium within the next two years, and that hundreds of citizens will be able to see it there."

I began a flood of outraged letters to magazines, syndicated editorial writers, and politicians. The stars, I said, belonged to everybody. Astronomers were supposed to map the stars, measure them, and study them in the most minute detail. But, I added, astronomers were supposed to be after knowledge. They were not supposed to own the stars. I didn't believe that Mr. Blakely should really be called an astronomer.

"Your attitude strikes me as hoity-toity," replied one of the best known of the columnists. "Claude Blakely knows more about astronomy than any Ph.D. or he couldn't have gone out and netted that star. And anyway, why should professional astronomers have *all* the stars? There are enough to go around. You're just jealous that you didn't make a buck out of it."

My response that the public as well as astronomers had a right to the stars, and that future generations had a right to see them, went unanswered.

Some of the public did write to their congressmen, but since most lived in smoggy cities and never saw the stars anyway, few letters were sent. A young congressman from one of the states with an exceptionally clear sky did, eventually,

introduce legislation to ban star catching. By then, however, Blakely had sold rights to his star-stealing device to a number of partners.

"The clammy hands of big-brother government are trying to take away the hard-won spoils of the last of the great inventors," thundered the columnist. "Claude Blakely and his partners represent the last frontier of free enterprise."

The night that I noticed Sirius was no longer in the sky, I opened the *Newsletter of Private Star Lovers* that had arrived in the afternoon mail. It had as a logo a bald eagle holding a star in its talons, flanked by waving American flags.

"Fellow citizens. Write to your congressmen about the communist-inspired plot to take away our rights to catch and sell stars. There are millions of stars in the heavens, as any schoolboy knows. You can't even see some of them they are so dim. There cannot be any rational reason to keep them *all* up there. Especially when there are billions of dollars to be made by private investors. Stand up for your rights as Americans. Stand up for free enterprise!"

By then the night sky was beginning to look a bit faded. Investors were after the really bright, sparkling stars first so the first-magnitude stars were disappearing at an alarming rate.

Astronomers made joint and private outcries about what was happening.

"Precious knowledge about the creation of the universe is being lost forever. It doesn't do me any good to see Betelgeuse in the cavern of some Austrian duke," one wrote. "It's been taken out of context."

A senator from a rather foggy state submitted a piece to a family weekly:

At last astronomy is making money, not simply spending it. Millions of dollars of National Science Foundation grants will now be saved that would otherwise have been wasted on larger telescopes and more radio telescopes. Have all the astronomers, spending all that money for centuries ever made a dime for the public? They talk about knowledge. Claude Blakely is the first one ever to show common sense!

When Polaris was snatched, I was sure that the tide would turn in favor of amateur star gazers and professional astronomers. But, except for a few yachtsmen, most people were watching their TV screens and couldn't be

bothered about it.

"Why didn't he use Loran?" my sister asked when she saw the article about the sailor who lost his way through disappearing stars and ended on the rocks. "That's what all those satellites are for, anyway, isn't it?"

"They'll be snatching satellites next," I mumbled. I let the sharp photographs of the starry night sky drop one at a time in a pile on the floor between my feet. "That's the way it used to be."

* * *

Dr. Bass, president of the Institute of Nautical Archaeology and a member of the Society's Ship Trust Committee, sent us this story as part of a long letter.

"Peter," he said, "if you substitute shipwreck for star in this story, you'll have a precise description of what is happening in this country, and the world, with regard to nautical archaeology."

He continued:

"Even the ending is based on my visit to a noted French archaeologist some years ago, who showed me a stack of 'before and after' photographs of classical shipwrecks on the bed of the Mediterranean. The letters, columns, newsletter, and statements are all based on actual publications.

"Why don't we sell Mount Vernon, brick by brick, to make some money? If we allow the Parthenon to stand, wouldn't it be all right to sell bits of marble from the rest of the Greek temples as doorstops? After all, if it's under water we allow it—in the name of free enterprise!"

The Ship Trust Committee believes the only "enterprise" was that of the men who sailed these ships. We deplore the "let's play pirates" attitude which has led a science editor in a leading magazine to glorify the lifting of "booty from the brine" by adventurers who loot ships on the seabed. No real economic benefit flows to society from this; and the loss in knowledge is irreparable.

Dr. Bass's letter has been circulated and has become something of an underground classic. We are proud to publish it. and we urge those who wish to act on it to be in touch with the Institute of Nautical Archaeology, PO Drawer AU, College Station TX 77840. ♣

SEA HISTORY, FALL 1979

Statement of Principle Concerning the Underwater Cultural Heritage

Underwater treasure hunters present a serious threat to the cultural heritage. Because of the cost and complexity of diving equipment, treasure hunting is usually carried out by western salvors or salvage companies. Treasure hunting has until recently involved the research for European ships at the period of colonial expansion. The valuables searched for have been usually gold and silver bullion and specie. Such items when sold at auction pay for the cost of salvage and enable the treasure hunter to re-finance searches for new sites. The bullion in vast quantities seldom realizes values greatly in excess of the metal value except where rare examples are found.

The recent discovery of a large consignment of eighteenth-century Chinese porcelain realized \$17 million at auction. This sale has identified a new area for the treasure hunter.

In order to deal with this threat it is essential that a definition be made of what the cultural heritage of a country is and to then enact legislation to protect this heritage. In many cases underwater archaeological sites are inadequately protected by legislation. Additionally, many countries are not concerned with underwater sites that belong to other cultures. As a result treasure hunters and looters are often granted permission to operate on such sites, with a subsequent division of the recovered material between the country and the salvor. Such agreements should be discouraged. Unless countries develop their own archaeological expertise and control their total underwater heritage, there will be an inevitable erosion of the heritage.

All work on sites of archaeological significance should be carefully controlled. Material from such sites should be kept together as a total collection, and under no circumstances should be sold. Proper attention should be given to conservation and archaeological standards of excavation should be maintained.

International co-operation is a possible line of support for developing and developed countries. The ASEAN and APAFA training programs are examples of such programs. The objectives are twofold. Firstly, by gathering together a large group of maritime archaeologists from a number of countries it is possible to carry out major projects, simply because of the concentration of expertise.

Secondly, such operations present an opportunity to train students in the field. UNESCO would seem to be an ideal organization to sponsor a series of such projects in the region.

If positive steps are not taken immediately it is anticipated that the recent advances that have been made by treasure hunters internationally but particularly in South-east Asia will result in a tragic loss of essential and important cultural heritage.

Adopted by UNESCO Regional Seminar on the Protection of Movable Cultural Property (Brisbane, 2-5 December 1986)

Lisbon Declaration

The participants of the International Symposium on the Archaeology of Medieval and Modern Ships of Iberian-Atlantic Tradition which convened at Lisbon on the occasion of Expo'98;

Believing that ships and watercraft of all descriptions and ages hold essential information on the history of humankind;

Knowing that the archaeological heritage is a non-renewable resource, deposited over thousands of years, but vulnerable to destruction through modern technologies;

Impressed by the rapid and most rewarding developments in underwater archaeological protection and research ensuing from the adoption and implementation of the Portuguese heritage legislation in 1997;

1) Urgently call on other States to adopt and implement national legislation to similarly reduce continuing threats and non-precautionary incentives to the exploitation of this heritage and to support and contribute to negotiations at UNESCO for an international convention on the protection of the world's underwater cultural heritage.

In this process States' delegates must be well-informed on issues regarding underwater archaeological heritage and the urgency to exclude such heritage from the regime of salvage legislation. Protection must be ensured regardless of location and questions of sovereignty or ownership.

2) Note their concern that in the UNESCO/DOALOS (United Nations Law of the Sea Unit) Convention for the Protection of the Underwater Cultural Heritage the operational provisions of the ICOMOS International Charter on the Protection and Management of the Underwater Cultural Heritage should be adopted as a minimum.

Adopted by all present at the International Symposium on the Archaeology of Medieval and Modern Ships of Iberian-Atlantic Tradition in Lisbon on the 9th of September 1998

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