

**-- FIELD MANUAL --**

**CARLTON ISLAND VESSEL PROJECT**

**N Y S D A**

**Underwater Archaeology Committee**

## INTRODUCTION

Archaeology has been called the deliberate and premeditated destruction of a historic site. Our only justification for this work lies in the most accurate recording of what we find. The ship we are working on, and the artifacts we are finding, have been on the bottom of the St. Lawrence River for almost two hundred years. They are well preserved and would last for many, many, more years if left undisturbed.

It is up to all of us to' conduct this operation in such a manner that we will be able to take pride in the job once it is done. It is up to us to earn the respect of the official and scholastic community so that we will be the ones who will be called upon to conduct the next "dig", and the one after that . . .

We are amateurs. None of us is a trained underwater archaeologist. None of us is a professional historian. Fortunately for us, we are in a new field with few real experts. Land archaeology was pioneered by dedicated amateurs. We are in a similar situation to theirs a hundred years ago. We are in a position to pioneer, and even to become recognized experts in our new field. It is up to us.

We must conduct this "dig" inch-by-inch, recording everything as we go. This is harder to do than it would be if we were working a land site, but it can be done. Professional land archaeologists will be evaluating our work, and we must meet their exacting standards or be criticized as "amateurs" in the worst sense of the word.

It may seem to you that the procedures set up in this field manual are too stringent . . . that these procedures are unnecessarily detailed and "nit-picking". Perhaps when the job is done we will look back and decide that the results of our work do not justify the painstaking man-hours that were spent.

But today we dare not make that assumption. Today we do not know what we will find. Today we have no way of knowing what light the most insignificant piece of data may shed on tomorrow's find. We cannot know how today's find will fit into the overall pattern of all of the finds of all of the tomorrows until the job is done. We will never even know what we have lost if today's data are not recorded.

## **GUIDELINES**

1. All Original excavation on the vessel must be done by hand fanning. No pumps or air lifts are to be used.
2. No artifact, once uncovered, is to be moved until its exact location has been recorded. Location must be recorded in reference to the grid and depth below the datum plane.
3. All major artifacts discovered are to be photographed before being moved.
4. The Day Book must be kept up to date. All finds are to be entered, and all other events and data pertaining to the project must be recorded here.
5. All finds must be assigned a number in the Excavation Register, and all location data entered.
6. It is the responsibility of each site director to make sure that the above records are accurately kept. Any site director who fails to do this conscientiously will be replaced.
7. It is the responsibility of each site director to make sure that the site records, slates, and all other tools and materials are left in good order for the next day's work.
8. When a pump or air lift is used to remove tailings from behind the working face of the dig, all material discharged must be inspected before being discarded.
9. Only one diver at a time should excavate in any 5 foot by 5 foot grid square. If a second excavator is working, he should be at the other end of the ship.
10. It is the site director's responsibility to make sure that all persons in his crew have been properly instructed in the methods to be used in doing their jobs. He should constantly check their work to make sure that proper procedure is being followed.

## SHIP EXCAVATION TECHNIQUE

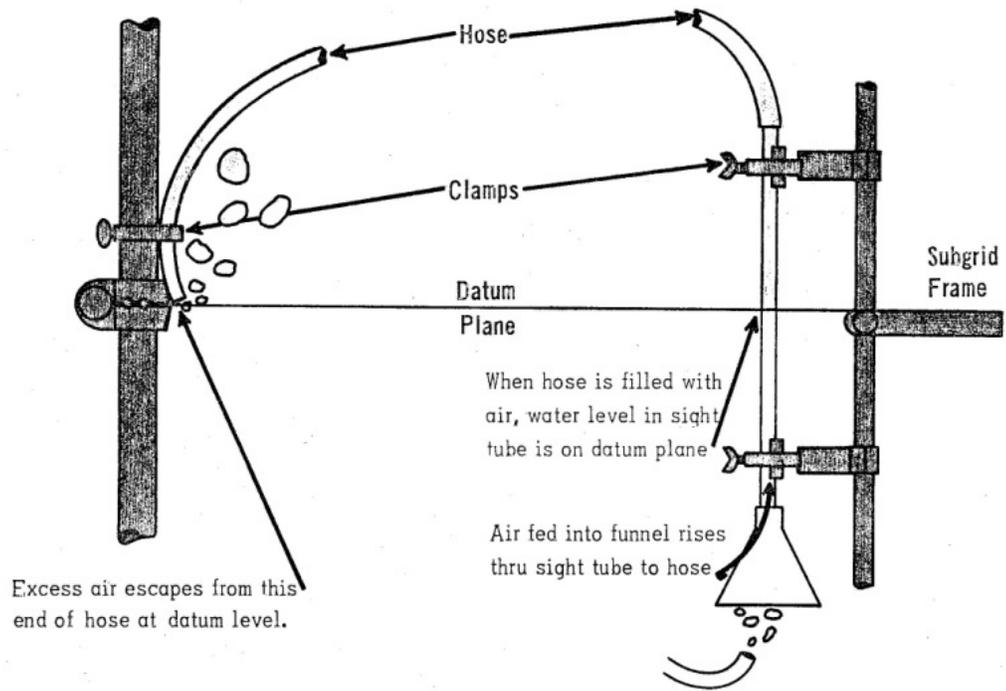
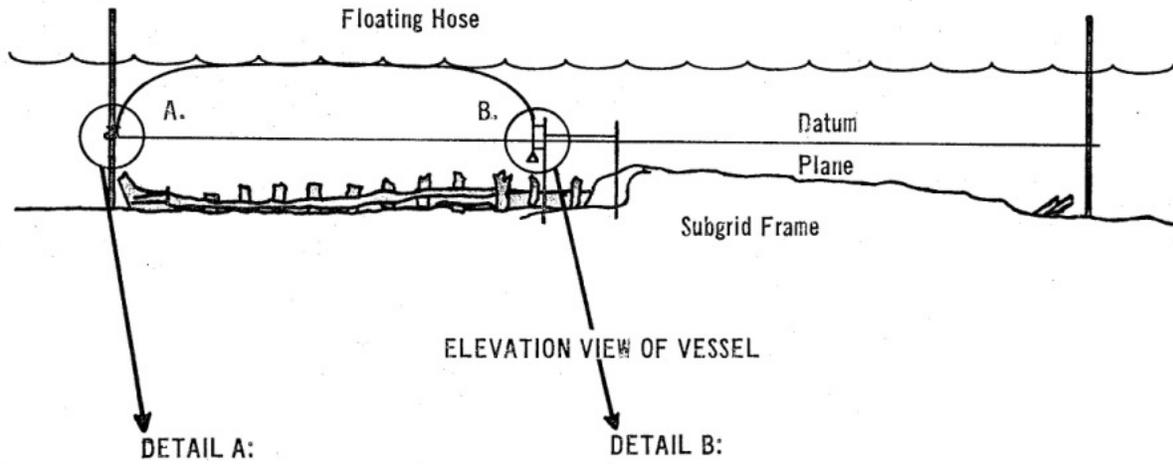
As pointed out earlier, our prime goal on this dig is not the recovery of artifacts, but the recording of artifacts. Excavation must proceed -slowly, and no find is to be moved until its location has been recorded by the diver. Important finds must be photographed in place before being moved. (Refer to section on photographic procedure)

Before excavation is started, the subgrid must be set up and leveled. Because the subgrid that was used in surveying the site in its original condition was not well suited to excavating, it has been revised to allow the diver a clearer field in which to work. Use of the new system involves locating the subgrid frame on the cables at the square to be excavated. Four pointed posts are then driven into the bottom or into ship timber until they constitute a firm support for leveling the frame at the datum plane. After the frame has been leveled, it is locked into position to serve as a fixed reference for all measurements taken in that square. The exact procedure for this is given in step-by-step format below:

1. *Position the frame on top of the cables in the square to be excavated, and clamp it into position.*
2. *Drop one of the pointed stakes thru one of the corner fittings and, using a small spirit level, make sure it is straight up and down. Then drive it firmly into the bottom. Do this in all four corners.*
3. *Bring the nearest leveling tube to the frame and clamp it to one of the uprights so that the clamps on the sight tube straddle the frame (See Sketch No. 1) with the bottom clamp against the frame.*
4. *Release air into the funnel until you are sure the tube is full. Have a diver swim the length of the tube to make sure it is floating and not caught on some obstruction. The water level in the clear tube will then be at exactly the same level as the fixed end of the tube, which is on the datum plane.*
5. *Raise the corner of the frame until the top of the pipe frame is level with the water in the sight tube. Clamp the frame in place on the vertical post with the set screw.*
6. *Repeat Steps 3, 4, and 5 to level the other three corners of the frame.*

*Now you have established as accurate fixed reference frame for both horizontal and vertical measurement for as long as you are excavating in this square. You are ready to excavate:*

SKETCH 1



Ideally, the excavation crew will consist of four members:

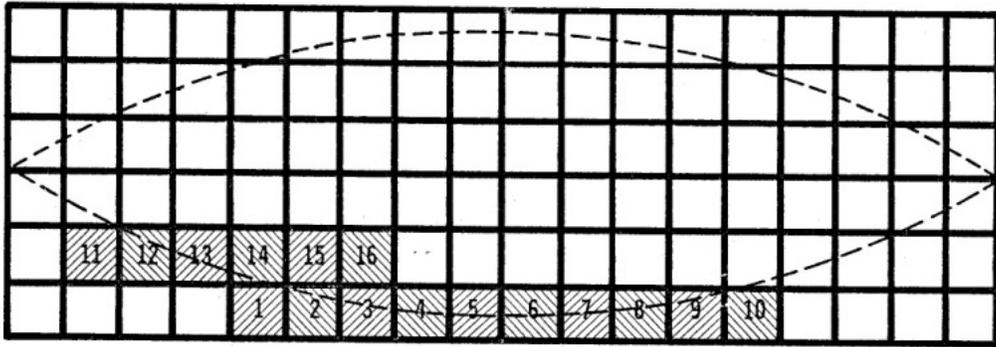
- (a) Site Director
- (b) Recorder
- (c) Photographer
- (d) Excavator

No work should be done on the project unless a certified site director is present. The site director may serve as the photographer or recorder. He may also work as an excavator, but he should do so only when there is a competent recorder on the boat. Two divers are recommended when setting and leveling the subgrid. The photographer is the logical one to help with this. He should stay suited up and remain in the general area in case he is needed.

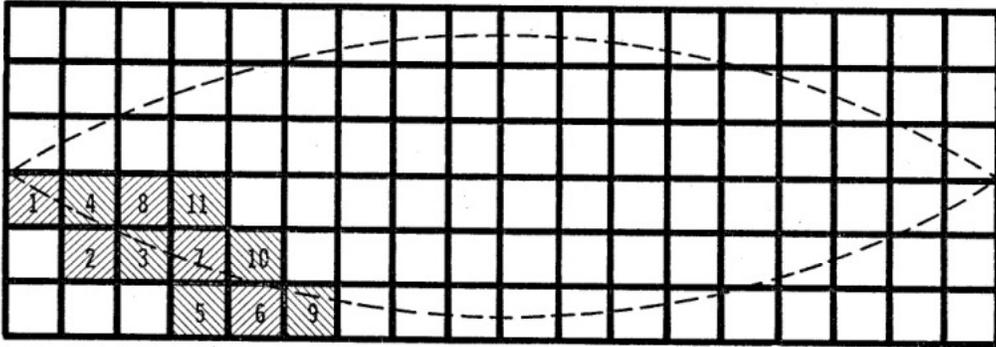
The recorder should stay dry, and he must take care to keep his records from getting dripped on or splashed.

- 1. As stated earlier, only hand-fanning technique is to be used for original excavation.*
- 2. Only the area inside the ship is to be excavated. You may ignore all grid squares that lie outside the remains of the hull. We'll dig these later.*
- 3. Excavation is to proceed from the stern toward the bow, on the starboard side, and that side is to be completely cleared before any work is to be done on the port side of the keel.*
- 4. You may choose to work a row between one pair of cables {see Sketch No. 2A}, or you may work a row across from the side of the ship toward the keel {see Sketch No.2B}. Whichever method you choose, always work the outboard squares first. Do not excavate as shown in Sketch 2C.*
- 5. If your digging disturbs one of the subgrid posts, the setscrew must be loosened, the post driven deeper, and the frame leveled again. If the other three posts are still solid, the frame may be leveled with the spirit level, rather than using the leveling tube.*
- 6. Only one diver at a time can work a grid square. . Experience has shown that a single diver can by fanning set lip a slight current that will give him a clear field to work in. Another diver working nearby will spoil this, and neither will be able to see what he is doing.*

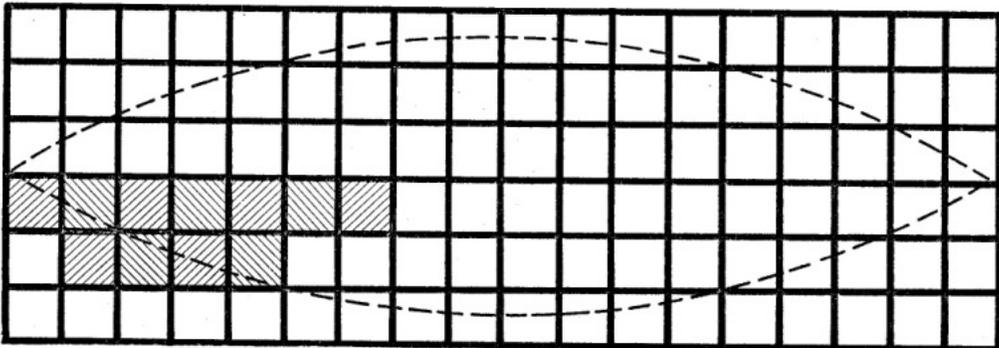
SKETCH 2



a.) Right



b.) Right

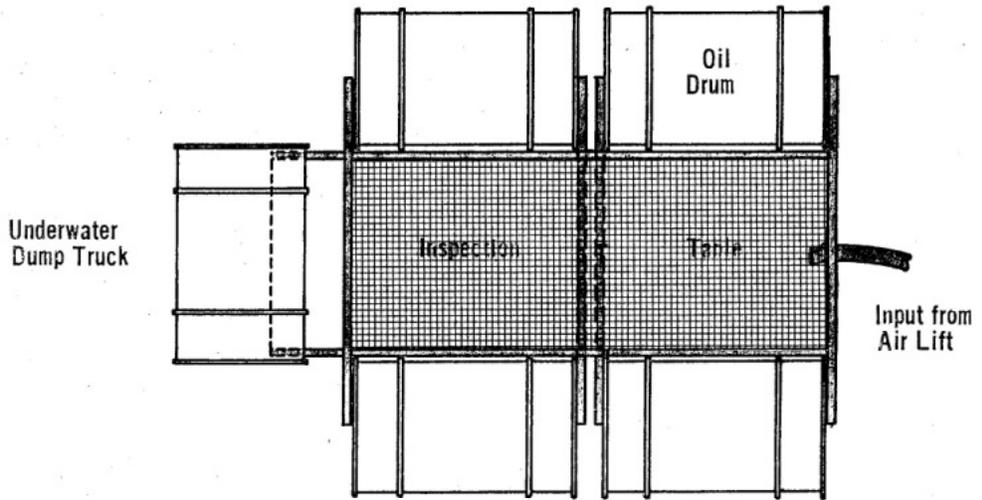


c.) Wrong

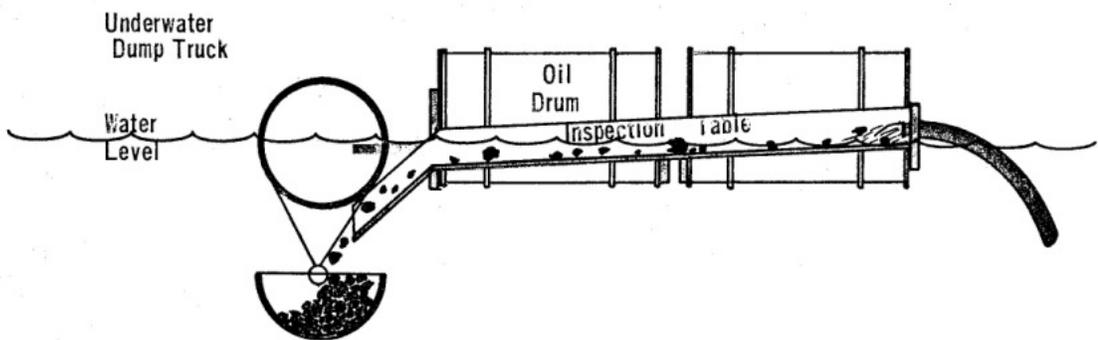
7. *If it is found desirable to work two excavators at a Lime, a second subgrid may be set up at the bow of the ship, and excavation may be started toward the center from that end. Please work from the bow only when you are working two divers.*
8. *As you excavate, dig right down to the ceiling planking or to the hull planking, whichever stops you. Try to maintain a more or less vertical working face. Maintain a clear area of planking at least two feet behind the face of the dig so you will be sure that nothing has been missed.*
9. *When something of interest has been uncovered, it must not be moved until its location has been recorded. If a small artifact is not discovered until it has been dislodged by the act of fanning, the excavator must estimate its original position and record it immediately on his slate. (see section on "Recording Technique")*
10. *When tailings become piled behind the excavator to the extent of hindering further operations, they should be removed with an air lift. Larger rocks should be hauled away to the dumping area. All tailings should be removed from the starboard side, leaving it completely clean.*
11. *All tailings must be carefully inspected before being dumped. For this purpose, a floating inspection table is used. This table is shown in Sketch 3. It consists of a wide wooden trough supported by four oil drums. This trough is sloped at a low pitch. The air lift discharges the tailings at the upper end of the trough. One or more workers sitting on the drums will inspect the sand and gravel and push it toward the low end, where it will fall into an "underwater dump truck" positioned to receive it. When the dump truck has been filled, the air lift must be stopped until the dump truck has been emptied and brought back.*

SKETCH 3

PLAN VIEW:



SECTION VIEW:



## RECORDING

The method to be used in leveling the subgrid assembly over the area to be excavated has been described under "Excavation Technique". The purpose of this subgrid is to provide a datum plane and fixed reference points from which the location of any artifact may be measured. If these measurements are carefully recorded, the exact location in which the artifact was found can later be plotted on a master plan of the ship.

The steps to be followed in recording are:

1. *General entries in the Day Book.*
2. *Measuring horizontal location.*
3. *Measuring vertical distance from the datum plane.*
4. *Recording these measurements in the Excavation Register.*
5. *Photographing.*
6. *Sketching arrangement and position on plastic slates.*
7. *Transcribing data into the Day Book,*
8. *Tracing sketches from the plastic slates.*

1. **General Day Book Entries.** The Day Book is similar to a ship's logbook or diary in which a running account and permanent record is kept of each day's activities on the site. All events that have anything to do with the project should be recorded here, and the following specific data should always be entered each day:

- (a) Water height on the scale at the box upright of the main grid. Use a plus or minus sign to indicate whether the level is above or below "zero" on the scale. If the surface is choppy note the highest and lowest readings occurring in one minute and record the point half way between the two.
- (b) Weather conditions and temperature.
- (c) Names of people on the job, and their assignments.
- (d) A summary of the day's activities.
- (e) Messages and / or suggestions for the next day's site director. .

**2. Measuring Horizontal Location.** The location of all artifacts must be measured and recorded. For artifacts larger than Y2 inch across, a point on the artifact must be designated to which all measurements will be taken. Normally, this should be the highest point on the artifact. A thumbtack stuck into the artifact at the reference point might be helpful.

This point can be located accurately in the horizontal plane by taking only two measurements from the upright subgrid posts. For consistency, we will always use the same posts: the port and the starboard posts at the stern end of the subgrid. The site director must make absolutely certain that all members of his crew understand this. **WHETHER EXCAVATING FROM THE BOW OR THE STERN, ALWAYS MEASURE FROM THE TWO POSTS AT THE STERN END OF THE SUBGRID.** Any misunderstanding here will invalidate much of our work.

Measurements will be made with two steel tapes that will be clipped to the vertical posts. Be sure that the tapes are held level when measuring, and measure to the nearest inch or half inch.

Record each measurement as it is taken. Don't rely on memory. Remeasure after recording each figure, as a check.

At the end of each day's use, the tapes must be brought topside and as much water as possible shaken out of them. Then they are to be placed in a bottle of alcohol provided for this purpose. They must be left in the alcohol when not in use to prevent rusting.

**3. Measuring Vertical Distance From Datum Plane.** A horizontal bar is provided for this purpose. When you are ready to measure, this bar is placed on top of the subgrid frame, and the distance from the bottom of this bar to the artifact reference point is measured to the nearest inch or half inch. The steel tape used for this purpose must be maintained as outlined above to prevent rusting.

Record this measurement at once, and then measure it again as a check.

**4. Recording Measurements In The Excavation Register.** Our Excavation Register is unique in that it may be taken into the water with the diver. The following sample sheet with its fictitious entries show how typical finds would be recorded directly by the diver in soft pencil. Please note that space is provided for comments on the attitude of the artifact. The "CIV" number (for "Carleton Island Vessel") is assigned by the diver in straight numerical sequence, starting with "001". Permanent accession numbers will be assigned at the preservation lab.

**ALL ENTRIES IN BOTH THE DAYBOOK AND THE EXCAVATION REGISTER MUST BE MADE IN PENCIL, WHICH DOES NOT SMEAR WHEN WET.**

CIV NO.	DESCRIPTION	GRID SQUARE	MEASUREMENTS				DATE	DIVER
			PORT	STBD.	VERT			
001	IRON BELT AXE W/ WOOD HANDLE BROKEN 6" FROM HEAD, HEAD STAMPED W/ BROAD ARROW. Attitude - HEAD DOWN W/ HANDLE @ 45° FROM HORIZ. Soil - SANDY GRAVEL OVERLAIN W/ SILT.	III C	31 1/2	54	43	7/11/74	J. MURF	
002	4 LEAD PISTOL BALLS, Attitude - IN GROUP APPROX. 4" ACROSS, ABOUT SAME LEVEL, Soil - EMBEDDED IN BROWN ORGANIC MAT'L. IN SAND.	III C	34	55 1/2	44 1/2	7/11/74	J. MURF	
003	SAMPLE OF UNIDENTIFIED BROWN ORGANIC MAT'L, TAKEN IN GLASS JAR, Attitude - APPEARS IN LAYERS AND CLUMPS IN BOTTOM SOIL, Soil - EMBEDDED IN SAND,	III C	34	55 1/2	44 1/2	7/11/74	N. MOFF	
004	UNIDENTIFIED IRON OBJECT 1 1/2" X 2" X 1/2". BADLY RUSTED, Attitude - ON EDGE W/ 1/2" EDGE DOWN, Soil - UNDER LARGE ROCK IN SANDY GRAVEL,	IV D	12	63	47 1/2	7/12/74	S. JONES	
005	GROUP OF 27 BLUE TRAFFIC BEADS IN AREA ABOUT 5" X 3", Attitude - IN THIN LAYER ON SAND Soil - LYING ON TOP OF SANDSTRAUM UNDER BROKEN STONE, BASES UNIFORM BUTTON W/ BROWN LOOP, 51ST, REG'T,	IV D	33	71	55 1/2	7/12/74	J. GOTC.	
006	Attitude - Soil -							
007	BAR SHOT. TWO HALF BALLS 3" DIA JOINED BY 8" BAR 3/4" SQUARE. Attitude - NEARLY FLAT, Soil - SANDY GRAVEL W/ SOME LARGER STONES,	III G	47	29 1/2	51 1/2	7/30/74	S. JONES	

If he has not done so before, the diver should now inform the site director of the find.

**5. Photographing** - The site director will make the decision whether or not to photograph a particular find in situ. His decision should be based on whether or not the photographer will add interest or value to our records. There would be no point in photographing a musket ball or two; but a photo of a group of musket balls amid the fragile remains of leather pouch that we might not be able to preserve would be of great value.

An underwater photographer, with proper equipment, should be on the site at any time excavation is going on. If a photographer is not available on a particular day, other work can be done, such as removal and inspection of tailings, plotting the locations of various parts of the ship structure, or working on other aspects of the Project in the Bay.

Besides in situ artifact photography, we should do a good job of recording photographically other aspects of our operations:

- 1. Excavation in progress underwater.*
- 2. Airlift in operation underwater.*
- 3. Inspection of tailings brought up by airlift.*
- 4. "Underwater dump truck" in use.*
- 5. Abovewater recording of important finds.*
- 6. Recording various aspects of other phases of our operations in the total Project. .*

In other words, we should make an effort to document photographically all phases of our operations. These photos will be of value for our final reports on the Project, and may also be used for publicity releases during the Project.

Every photograph of an artifact in situ must be carefully staged:

- 1. The artifact should be fully excavated so far as is possible without damaging or dislodging it.*
- 2. It is standard procedure for every archaeological photo to include a scale so that approximate sizes can be determined at a glance. We have prepared a 12 inch long plastic scale with space on it to enter the following information:*
  - (a) Artifact number.*
  - (b) Port and starboard measurements.*
  - (c) Vertical measurement.*
  - (d) Grid square number.*

*This data must be clearly marked on the scale with black grease pencil, and the scale laid beside the artifact where it will photograph clearly.*

3. *A white plastic arrow marked "Bow" should be placed in the field of view and properly oriented.*
4. *If an effective photo of the artifact embedded in the working face of the "dig" can be composed, this would be extremely valuable. Actually a horizontal shot that shows its position in the stratigraphy is much more informative than a conventional view from above.*

Eventually, there may be hundreds of photos. If each one shows clearly the data specified, the work of sorting and cataloging will be immensely simplified. Also, a properly done photo may help to solve an error or discrepancy that might be found in the written data.

6. **SKETCHING** - The plastic slates that were used for sketching the site in its original condition are to be used for sketching artifact location. Although the subgrid is no longer divided into one foot squares, the excavator can estimate approximate location. After drawing the artifact in soft pencil, it should be identified on the sketch by its ER number.

All artifacts must be sketched in situ. Don't depend on photos.

It is hard to tell in advance what we will be able to learn about the stratigraphy, or layering, of the site. It is obvious that the site contains much more stone and sand than would normally have been used for ballast in the ship. Every effort must be made to discover a dividing line between the original ballast and the added material.

All information that might contribute to this area of investigation should be recorded.

The depths at which items of ship structure, tree limbs, etc., are found would be important clues. So would any discontinuities in the type or general size of stones found.

The bottom part of the slate may be used in sketching an elevation view to indicate the position of artifacts or other clues in the stratigraphy.

Each artifact on a sketch must be identified with its ER number. Draw only a few artifacts in each sketch. You can always make another sketch showing additional artifacts in the same area.

7. **Entering Data In The Day Book** - The entry of general data in the Day Book has already been discussed. In addition to the general entries, each artifact must be completely described in the day Book when found, its ER number and location entered, with the name of the diver, and comments as to its condition and any other pertinent data. Position in relation to other objects and type of soil in which it is embedded should be noted.

If soil, rock, or wood samples are taken, they should be assigned numbers and recorded in the Excavation Register and the Day Book just as if they were artifacts.

**8. Tracing Sketches From The Plastic Slates** As sketches are finished by the diver, he passes the slate up to the Site Director, who checks to make sure that the grid number has been entered and that all artifacts are identified by their "CIV" number. The slate is then dried off with a towel and passed to the Recorder.

The Recorder places a blank sheet of tracing paper over the slate. Since this paper is prepunched for a three-ring binder, it should always be placed on the slate with the holes along the left hand margin. Three-ring binders have been provided, with divider tabs for each grid square.

The Site Director should check each finished tracing against the original to make sure nothing has been left out before the slate is erased. As soon as each tracing has been checked, it should be filed in the correct binder.

Soft rubber erasers are provided for erasing the slates, and these should always be used first. If they do not completely clean the slate, it may be rubbed with steel wool to remove stubborn pencil marks or other stains. Don't overdo it with the steel wool or you may damage the permanent markings on the slate which are not supposed to be erased. Keep the steel wool in an air tight jar when not in use, as it is very sensitive to moisture, and you'll have a rusty mess on your hands if you let it get damp. There is a small pencil sharpener in another jar. Try to keep this fairly dry, too.

Trace only the five foot square outline from the slate. The reference lines on the slate are there only to assist the diver in locating the artifact in approximately the right place in the square, and they need not appear on the tracing. The artist who makes the final drawings will use the measurements to locate it more accurately than the diver will have been able to do.

## ON-SITE PRESERVATION

All artifacts made of, or containing, organic materials must be kept wet and protected from mechanical damage. This includes wood, leather, bone, cloth, or any other material derived from animals or plants. All such artifacts must be placed in watertight plastic bags and kept moist until they can be delivered to the preservation lab. Some of these items may be in such delicate condition that they should be eased into a bag taken below by the diver. This is particularly likely in the case of leather or cloth. The bags do not have to be completely filled with water, nor do the artifacts in them have to be completely covered with water. Since the bags will be sealed airtight with a twist wire, a teacupful or so of water in the bag should be sufficient to prevent dehydration.

Metals, glass, ceramics, and other inorganic materials do not have to be kept wet in most cases; out if you're in doubt as to the composition of an article, by all means keep it wet. It's been wet for almost two hundred years, and a few more hours or days won't hurt it. Remember that even ceramics and glass do deteriorate over the centuries, and that an intact bottle or vessel may not be nearly as solid as it looks. Even though the glass in the lip and bottom of an old hand-blown bottle may be very heavy, it may be only a sixteenth of an inch thick on the sides. Treat all such things as tenderly as a Christmas tree ornament . . . for they may be that delicate. Pack them in a carton, cushioned with wadded-up newspapers or similar dunnage for transport to the lab.

All artifacts must be tagged with their "CIV" number as soon as they are brought on board the boat. Items that are placed in bags should have the tags attached to the bag. Similar items with different numbers must not be put in the same bag, but items that can easily be identified may be placed in the same bag and the tag noted in such a manner that the lab technician can sort them out. Such a tag might read:

CIV-135 Bone or Ivory Button  
CIV-136 Wood Handle Sheath Knife  
CIV-137 Three Nuts  
CIV-143 Tortoise-Shell Comb

Large plastic tote boxes are provided for transport of bagged and loose artifacts to the lab at Sackets Harbor. These boxes are watertight and may be partially filled with water to carry items that are too large to fit in a plastic bag. Larger items that won't fit in the boxes are better left on the bottom until special provision can be made for their safe shipment.

At the end of each day's work, the Site Director must either take the day's finds to the lab, or make definite provision for their delivery. Don't assume that someone else will do it unless you have made definite arrangements with that person that day. Never leave artifacts at the site overnight.

## LEAVING THE SITE

Now we come to the part that separates the Site Director from the ordinary diver the end of the day. It's probably later than you had planned on leaving (it always is). You've been in the sunshine and fresh air all day (or in the rain and fresh air).

You've been diving. You still have that long drive home to face.

You're tired. You're a volunteer . . . you don't have to do anything.

You're also an adult with a sense of responsibility, or you wouldn't have volunteered for this job. There will be another Site Director on the job tomorrow or next weekend, and he will expect to find all of the equipment in good order when he arrives. He will probably know nothing about your activities of the previous day, so please leave him a complete record in the Day Book. If you have had problems with the equipment, explain them. If something is lost or missing, record it so he won't spend half a day looking for it. If something essential needs to be replaced, either replace it, call the next Site Director, or advise the Project Director. Communications is the key to a smooth-running project.

In order to simplify the daily "wrap-up", we are providing a one-page check sheet for the Site Director to use at the end of each day's work. This will help to remind him of all the things that must be done before he leaves the site. These sheets are kept in a loose leaf binder. When you open this binder, the first page you see should be the check sheet filled out by the previous Site Director. After reading it over, you should transfer it to the back of the book. When you are closing out the site at the end of your day, fill in the blanks on the sheet, check all the boxes as you perform the activities, and sign the completed sheet, leaving it on top.

The check sheet book, the Day Book, the Excavation Register, the grid sketch books, and all of the supplies and equipment used on the site should be placed in one of the large plastic tote boxes and left as arranged for the next Site Director.

END OF DAY CHECKLIST

- Remove and stow level assembly.
- Securely moor dump truck.
- Securely moor inspection table.
- Remove compressor from water and cover.
- All corners of grid properly buoyed.
- Clean and dry tapes and put them in jar of alcohol.
- Allen wrench stowed.
- All Day Book entries made.
- Check over Excavation Register.
- File all tracings.
- All artifacts properly packed and identified for shipment to lab.
- Record any damaged or lost equipment.
- Art supplies stowed.
- All books stowed in box.
- Artifact transport to lab arranged.
- Turnover of records and equipment to next Site Director arranged.

NOTES: \_\_\_\_\_  
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Date: \_\_\_\_\_

Signed: \_\_\_\_\_

*Site Director*