

resulting general-view would be put under photogrammetric equipment in a future. During the initial stage exactly 1071 exposures were taken, during actual excavations a further 792, making a total of 1863 exposed squares.

Photographing was carried out in daylight at depths of 15—17 metres. Kodak Tri-x 27 din (black/white) was used throughout. Films were overdeveloped to equal 35 din. Exposure time 1/30 seconds, aperture 1:2,5.

Underwater visibility was 3—4 metres during the initial operations but dropped to about 1,0—1,5 m during the closing days.

On the protection of underwater antiquarian sites in Finland

By Risto Halme

The public interest in scuba-diving increases all over the world. In the diving-season, from May to December, about 2000 scuba-divers are on the move along the Finnish shores, spotting new wrecks. The absolute majority of abt 400 wrecks, reported to the Board of Antiquities, are located by amateur divers. Such activities are naturally to be seen as an important and valuable information service, but difficulties can not be avoided. All scuba-divers are not loyal co-operators, fresh underwater finds are not always reported, wrecks already in the files of the Board of A. are violated by diving robbers. A wooden wreck within Finnish waters is often found in an astonishingly state of preservation, owing to the absence of teredos. Robber-divers thus attack timbers, planking and decks to get at attractive loose objects. In recent years even solid oak-members, torn from wrecks, are of interest for manufacturers of souvenires as the darkened bluish "sea-oak" produces fine objects. The price-level is consequently high.

According the revised law of 1963 such activities are unlawful, all wrecks falling under the law (100 years from the date of the foundering)

being reserved for scientific research headed by the Govt. Board of Antiquities and National Monuments. The Board is entitled to delegate such work to local authorities — to the staff of a local museum; alternatively a recognized scuba-club may be authorized to carry out limited tasks: documentation, measuring etc. There-against diving-clubs are not authorized to carry out excavation work on their own behalf. Not only wrecks but loose underwater objects, not belonging to shiphulls nor to antiquarian underwater sites, are considered govt. property. Such objects are to be bought at a fair and reasonable price by the Govt. Board of Antiquity. Should an agreement not be reached, the object is to be returned to its proprietor.

In spite of active information, directed against the field of amateur-divers, regulations are often violated, resulting in irreparable destruction of historically important shipwrecks. The causes may be either lacking knowledge of the law or sheer negligence of regulations issued. Information may be increased by pamphlets, supplied to organizations, but the imminent threat, represented by robbers, requires active protection. The resources of the Board of Antiquities are negligible. Only a network of reliable observers, spread along the coasts, may work.

Such a network is under construction, being based primarily on loyal scuba-divers. But even a close spun net of individuals can not be effective enough to secure the integrity of the most valuable wrecks. The network of scuba-divers is to be seen as the pattern of a larger organization built from various authorities: the Coast-Guard, the Military Forces (the Navy and the Coast Artillery) and the local police offices. The possibilities for the mentioned authorities to execute a real observation of the law are yet nominal as they should be able to go down to look for actual damage done, in case objects or hull-fragments raised and found in the possession of divers are not considered evidence enough.

As only a few of the authorities mentioned may rely on diving personally, a workable scheme, aiming at a reliable control of underwater sites, had to be designed. The solution turned out to be the scheme of "prohibited areas": within a

radius of 300 metres diving is absolutely forbidden, with exception of constructional work by the Board of Navigation, sea-rescue operations or archaeological fieldwork by the Board of Antiquities. This scheme did not require an amendment of the revised law of 1963, as "prohibited areas" were within the scope of the provincial gov:t:s. These authorities are in a position to protect important archaeological sites — dry or underwater — by additional decrees, completing common law. A first example on this scheme is the prohibited area declared by the Provincial Govt. of Kymi in September 1976. This area covers the Russian frigate "Nicholas", sunk in 1790 in the battle of Ruotsinsalmi = Svensksund.

It is not the intention of the Board of Antiquities to extend this scheme to every wreck reported or known within Finnish territorial waters. As the antiquarian position of wrecks may be measured along a considerable scale, only the most important should be protected in the way described. Wrecks are usually classified in 3 categories according their antiquarian importance. Only first rate wrecks, marked by "three stars", will successively be protected in the way described. The number of these wrecks amounts to 6 only.

The Varmbådan wreck

By Olli Tappola

The headland of Porkala always was an important position in the history of the Bay of Finland. During every epoch the impact of the dominant headland was felt in war or piece alike, taking a toll in wrecks. Close to the crossing of four important channels is a rocky islet, the Varmbådan. This name was applied to a wreck located in 1974, later dated to the 17-th century. The task of an underwater investigation was entrusted by the Bureau of Maritime History (Board of Antiquities) to the "Teredo-Navalis" Club, collaborating with the Bureau.

An uninterrupted run of underwater activities in important archaeological sites requires fare-

sighted planning of fieldwork. At the present stage ambitious large-scale excavations should be carried out in summer holidays, enabling amateur-divers to assemble in necessary numbers. The progress of work should flow according plans. Only safe and foolproof methods should be considered, to be developed for future use. The Varmbådan-project may be seen as a testfield for large-scaled operations.

The wreck lies in a creek composed of three rocks, in 6—9 metres, of water, with a list to port. Only the sternpost, frames of the starboard side of the forecastle and planking from here forwards are visible. In the port hull-side, collapsed and lying on the bottom, four openings — gunports? — are observed. Visible too are structural members of the forecastle and (obviously carved?) details of the cutwater. Between the stern- and fore-castles remains of deckbeams and longitudinal carvels are seen. The stoneballast has shifted to port and covers the port innerplanking.

The max. length between stem- and sternposts at decklevel is 31,60 metr. Max. breadth along the deckbeams was found to be 7,10 m., measured 18 m from the stern and located by the ships stove. The approximated length of the keel is abt 29 m. The planned documentation of the wreck in its present state is not yet completed. Only loose objects incidentally found were recovered: a coin from the reign of queen Christina (1634—1654) — 1/4 öre-, minted 1636, a gunball O 105 m/m, a horsemans spur, a sharpening stone, wooden blocks, a mallet and a considerable number of wheels to guntrucks.

Documentation work started in winter-conditions — diving from the permanent ice — by photographing and measuring certain marks fixed to hull-structures.

These activities aims at the construction of a reliable grid for a mosaic photomap. This furthers the understanding of fixed members of the hull, and will act as a foundation for continued research.

When measuring the vertical differences of the mentioned fixed marks the tool used was an ordinary level, a rod of 4 m length, and a