

Rizvi College of Arts, Science & Commerce

Identification And Functioning of Oceanographic Instruments

TYBSc.

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DEPARTMENT OF ZOOLOGY

NISKIN WATER SAMPLER



- **The Niskin bottle created by American inventor Shale Niskin 1966, is more widely used than the Nansen bottle in modern ocean – water sampling activities.**
- **The Niskin bottle is viewed as an improvement over Nansen’s design because of its plastic construction and because it does not require end – over- end movement to collect samples.**
- **Open Niskin bottles are attached to a cable and lowered to water depths where sea water samples are to be obtained for chemicals analysis.**

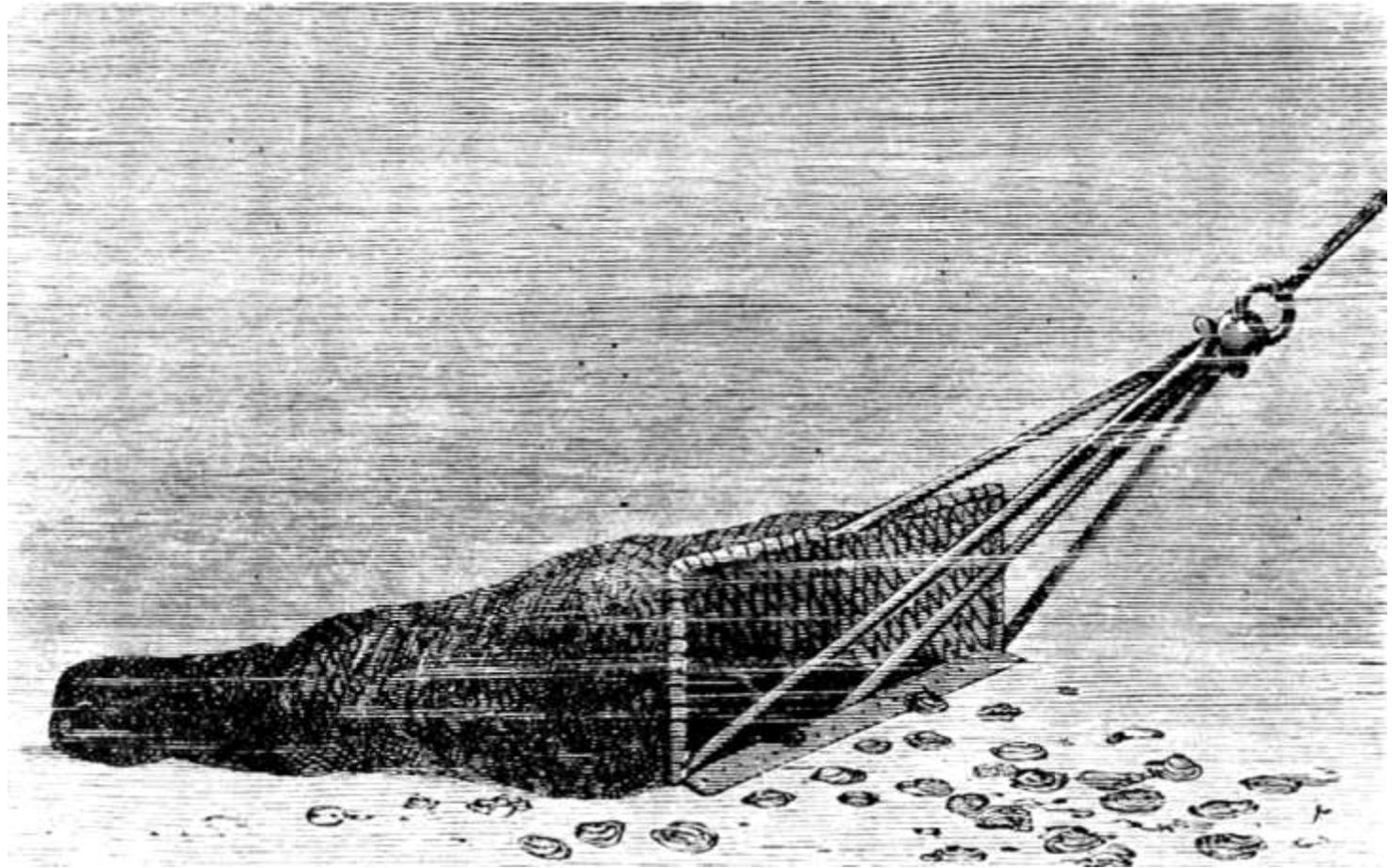
- **A metal messenger “trips” each bottle on the cable individually, causing it to fill with water and close securely.**
- **A rosette cluster, water collecting bottles are arranged around a rigid, circular frame in a rosette pattern.**
- **Technicians are able to close the bottles individually as the array is lowered or raised through the water column.**

PETERSEN GRAB



- It was developed by Petersen (1918) for quantitative investigation of benthic animals in relatively shallow waters.
- It consists of a pair of very heavy metal jaws that are held open during the descent.
- When the grab strikes the bottom, the slackened cable releases the tension on a clutch that holds the jaws open, and when the cable is again drawn tight by the winch aboard ship, the jaws snap shut by their own weight and enclose the material, including the sessile organisms, covering a measured area, usually 0.1 m², of the bottom over which the open jaws descended.
- The organisms caught are screened from the bottom sediments classified and counted.

DREDGE



- **A dredge consists of a heavy rectangular or triangular iron frame to which a bag like fish net of cotton or wire web is attached to retain the organisms.**
- **The dredge is dragged on the bottom by means of a wire cable operated from a power winch aboard a slowly moving ship.**
- **The size of dredge used varies greatly, depending upon the equipment available for their manipulation aboard ship.**

- **A practical size for use on a vessel 15 m or more in length and in water of moderate depth has a beam of about 1 m.**
- **Only stationary or slowly moving organisms are caught.,**
- **Microscopic forms are included if they are incidentally attached to larger animals and plants or in sediment that has not been completely washed through the meshes of the net during the ascent of the dredge.**
- **The dredge has its greatest usefulness in collecting material for qualitative rather than for quantitative study.**

References:

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