

## VARIOUS INSTRUMENTS

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### NOTE ON A NEW IDRAC APPARATUS FOR RECORDING THE SPEED AND DIRECTION OF SUBMARINE CURRENTS AT GREAT DEPTHS

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(See *Hydrographic Review*, Vol. V, No 2, page 155)

It has already been announced in *Hydrographic Review*, Volume V, No 2, page 155, that Mr. IDRAC was causing a new type of speed and direction recorder for submarine currents at great depths to be constructed at the works of Messrs. BARBIER, BÉNARD & TURENNE. This apparatus is now ready, and enables currents to be recorded up to depth of 1000 or 1500 m.; it will record for a period of 4 hours.

The characteristics of the new instrument are as follows:—

The principle of the new apparatus is the same as that of the former one.

The apparatus represented on opposite page is composed of a very thick single cylindrical brass casing *C*, provided with a cover with rubber joints *j* tightened by nuts.

In the interior are placed the compass *B*, the photographic apparatus *P*, and a small 2 volt accumulator *A*.

Underneath, a brass cage contains the wing-vane *M* and the electric contact closed by it. This contact, which is not sheltered from the sea-water as in the other apparatus, has to be changed from time to time; this change requires only one or two minutes of very simple work.

An elastic rudder, not shown in the figure, enables the apparatus to set owing to the current.

The film is wound on a drum (similar to those of recording barometers) which makes one revolution in four hours and a half.

The times of introduction and of withdrawal of the photographic apparatus (indicated on the film by a line made by the day light) is noted. The time of immersion of the various depths are also noted in order to locate the records which correspond there to on the film.

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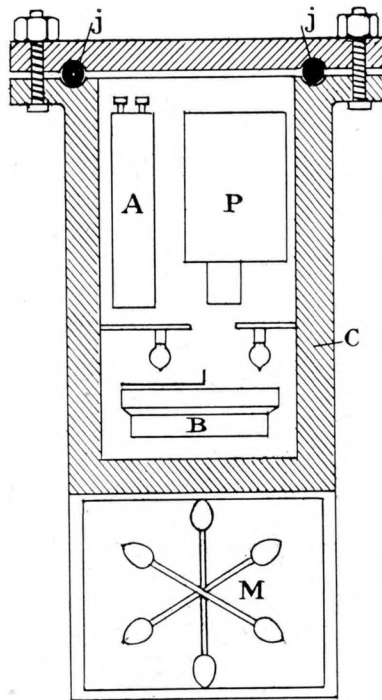
### NEW CAMERA FOR AERIAL PHOTOGRAPHY

(Extract from the *U. S. Naval Institute Proceedings*, Annapolis, November, 1929).

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The United States Army Air Corps just completed tests on the world's largest aerial camera, known as the *K-7 A*. This camera, developed to obtain large ground details from high altitudes, weighs 130 pounds. The picture it takes measures 9 by 18 inches. It carries a roll of film 150 feet long and 9 ½ inches wide. Its operation is fully automatic, and it possesses an automatic registering device by which the elevation of the plane, the time, date and the number of the negative are noted on the film. This camera is electrically heated so that it will function at the below-zero temperatures of the highest altitudes to which the camera is taken.

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New IDRAC  
Current-Recorder

Nouvel Enregistreur  
de Courants IDRAC

## THE LUMINOUS PROTRACTOR

(From the "*Revista General de Marina*, Madrid, November 1929 - 755.)

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Various maritime publications have given descriptions of a small optical apparatus capable of facilitating the plotting of courses and bearings on marine charts and making such operations more rapid and precise. It is a small lantern, which does not plot but indicates the desired direction by a fine line of shadow, bisecting a luminous beam. It replaces the pencil line, which must be drawn on the chart with a ruler, by a fictitious line projected on the paper.

The apparatus consists essentially of a lens fitted with a collimator which may be revolved about a vertical axis. Its orientation is measured on a graduated circle, forming the base, as in the ordinary protractor.

The instrument may be centred exactly on the position on the chart from which the bearing should be laid off, while an index carrying a mirror which moves over the graduations of the circle, permits the line of sight to be laid in the desired direction.

The instrument appears to be practical in those cases where it is a question of several bearings of the same point, or where the course of a vessel or airplane is being followed from a fixed station by means of optical, acoustic or radiogoniometric signals. With two or three such appliances in simultaneous operation, the course of the craft may be followed perfectly.

The illuminating lamp is located inside in the pedestal of the apparatus behind the reticule and a hinge allows the inclination of the optical system of the projector to be altered.

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## NOCTURNAL VISION BY MEANS OF THE "NOCTOVISOR".

(Extract from "*De Zee*", *The Helder*, September 1929, page 613)

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A demonstration took place before press representatives, at Box Hill, Surrey, of a new invention intended to enable vessels to see the lights of the aids to navigation as well as those of ships during fog.

This is a special application of the "Noctovisor" discovered by L. BAIRD and presented by him before the British Association in 1927.

The preparation for this experiment were made on the highest point of Box Hill, in a Swiss chalet to which BAIRD retired latterly.

The "Noctovisor" is a very simple apparatus resembling a large photographic camera; it can be mounted on board any vessel. BAIRD had placed the "Noctovisor" in his garden, at the top of the hill which commands a magnificent view on the neighbouring valley.

At nightfall, a motorcar left the cottage & descended into the valley. The onlookers could follow the head-lights of the car running on the high road with the naked eye for about 3 miles. At a signal given by the operator placed on the top of the hill, the head-lights were put out and complete darkness ensued. The cars head-lights had been obscured by ebonite plates, as an artificial substitute for fog.

The operator invited us to cast our eyes on the small screen placed behind the "Noctovisor", whilst he explored the valley to detect the obscured light. All of a sudden, a slight trace of the obscured light appeared on the edge of the screen, and, as soon as the apparatus had been focussed, this trace was transformed into a bright spot of orange-coloured light. The operator adjusted the apparatus so as to get the spot in the middle of the screen, and, by means of a fixed bearing-plate he was able accurately to determine the position of the fog-concealed light.

In the "Noctovisor" use is made of the invisible infra-red rays. The apparatus comprises a television sender and receiver mechanically coupled. It is constructed so as to be very sensitive to infra-red rays instead of to ordinary light. The objective of the "Noctovisor" projects a small invisible image, formed of infra-red rays, onto the disc of the television sender, and this image is instantaneously reproduced and made visible by the mechanically coupled receiver.

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## DEVICE FOR TAKING BEARINGS IN FOGGY WEATHER

(Extract from "De Zee" *The Helder*, September 1929, page 587)

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In the course of recent months, exhaustive investigations have been carried out on board the S. S. *Saint Julien* of the Great Western Railway Company, in order to ascertain the reliability which may be placed on an apparatus intended to prevent collision in foggy weather.

The object of this so-called "fog compass" is to determine accurately the direction from which a sound comes; it appears that the instrument, besides, allows the distance of the source of sound to be found.

The sonic vibrations are rendered "visible" by means of a special disc-shaped appliance, placed before the helmsman, on which a luminous line indicates accurately the direction of the sonic waves. The trials have shown that very faint blasts of a steam whistle can be picked up and made visible.

It is proposed to continue the trials and hopes are entertained that with the aid of this instrument it will be possible to determine the direction of gun-fire reports and of other sounds.

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## THE ADDISON-LUARD CALCULATOR

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The *Revista General de Marina*, Madrid, December 1929, page 891, gives a description of a new instrument applicable to air navigation: the ADDISON-LUARD calculator constructed by Messrs. Henry HUGHES & SON, LTD.

This apparatus, which is composed of a calculating plate, an alidade and articulated parallelograms, enables all navigational problems to be solved.

