

HYDROGRAPHICAL OBSERVATIONS ON THE
"PRINCESSE ALICE."

THE yacht *Princesse Alice*, with the Prince of Monaco on board, left Monaco on July 18 and arrived at Gibraltar on the evening of July 22, having been detained some hours by the pursuit of a school of *Orca gladiator* and the capture of one of them. The whale hunt took place within sight of the rock. Having coaled, the ship left Gibraltar on the evening of July 23, and shaped a course for the Azores. On July 24 an interesting sounding was made in lat. $36^{\circ} 6' N.$, long. $10^{\circ} 16' W.$ (Paris). The depth was 1473 metres, and the temperature of the bottom water was $9^{\circ} 4 C.$ As this thermometer was mounted so as to be overturned by the motion of a small screw propeller, its indication was not entitled to complete confidence; but when the dredge, coming from the same depth, brought a quantity of mud which had a temperature of about $8^{\circ} 75 C.$, it was evident that the conditions as regards temperature were very different from those which obtain in the open waters of the North Atlantic. At the above depth the temperature could not be expected to be above $4^{\circ} 5 C.$ It is evident that this sounding struck one of the main drains out of the abysmal regions of the Mediterranean, and furnishes evidence of the *brining down*, to use a stoker's expression, of the waters of that sea, of which a more particular description can be found in the article "Mediterranean" of the "Encyclopædia Britannica."

Unfortunately, no sample of the bottom water was procured, and confirmatory evidence of its salinity is lacking, but the excess of temperature is so great that we may use it with perfect confidence in estimating the composition of the water, considered as a mixture of the deep water of the Mediterranean with that of the neighbouring regions of the North Atlantic.

If we take the original temperature of the Mediterranean water in the mixture to be $13^{\circ} C.$ and that of the Atlantic water to be $4^{\circ} 5 C.$, it consists of 50 per cent. of Mediterranean and 50 per cent. of Atlantic water. This is a spot where, with adequate means, with the necessary skill and experience, and, above all, with sufficient patience, a very fine piece of oceanographical work can be done.

Continuing westwards, the ship's course passed close to the Gorringe or Getysburg bank. As the former *Princesse Alice* spent July 25, 1894, on this bank, when enormous quantities of fish were taken with the line, the Prince decided to spend July 25, 1902, on the same spot. The fishing was about equally successful, but there was not the same surprise or novelty about the experience. The depth of water on the bank is very uneven and the surface of the bottom very rough. The following soundings, taken when searching for the shallowest part, are given in the order in which they were made: 192, 146, 200, 122, 83, 177 metres. In the evening the westward course was resumed, and it was shaped so as to pass over the position of the Josephine bank. This bank was discovered a short time before the *Challenger* sailed, and at the beginning of the cruise it was a question whether she should not make a station on it; but, on the one hand, it was felt that the ship had been fitted out for the investigation of deep and not of shoal waters, and on the other the bank did not lie in her route either from the Channel to Gibraltar or on that from Gibraltar to Madeira. Moreover, the interest which attaches to oceanic shoals and to their study was not, and could not be, at that time recognised.

On July 26 soundings were obtained, gradually shoaling to 1038 metres with hard bottom. This was taken to be on the eastern escarpment of the bank, and one of the Prince's latest *nasses* or traps, made of wicker-work, was sent down and buoyed, with lights. The ship was kept near during the night, and early in the morning the pro-

cess of heaving up was begun. It was continued with much patience, but the cable had evidently hooked on the rocky bottom, and it finally carried away. Had it been the *nasse* which had got fixed, it would have come away quite easily, because it would have been torn to pieces. The remainder of the day was spent in sounding over the bank, in so far as time permitted, and the results are rather remarkable.

In sharp contrast with the Gorringe bank, the depths on which are so uneven, the soundings made on the Josephine bank revealed a uniformity of depth which is astonishing. The superficial area of the bank is evidently very considerable, but in the time at disposal it was impossible even roughly to delineate it. An area of about three miles square was sounded over, and the depths are here given in the order in which they were obtained: 218, 230, 220, 219, 211, 216, 218, 215, 212, 215, 189, 190, 204, 208 metres. The descriptive value of these figures cannot be excelled. A successful, but in no way very remarkable, dredging was made in this water. In the evening the route was continued in the direction of Ponta Delgada, in the island of St. Michael. Soundings were obtained in 4275 and in 2589 metres, and the writer was enabled to attach to the sounding lines piezometers of two different and rather novel patterns, and thus to resume the experiments on compressibility at great pressures which he began on the *Challenger*. The instruments acted quite satisfactorily, and it is hoped that useful results will be obtained with them. On the morning of July 31, when only a few miles off the coast of St. Michael, the dredge was put over in 1189 metres, and a very rich haul was obtained.

Although no very definite or detailed programme exists, it is the Prince's intention to work among the islands for a week or two, then to make an excursion southwards to the very deep water which lies between this archipelago and the Canary Islands, and thence to work homewards so as to arrive at an European port by the middle of September. Up to the present date the weather has been everything that could be desired, and the bright, bracing climate of these islands is invigorating and refreshing.

J. Y. BUCHANAN.

Yacht *Princesse Alice*, August 1.

NOTES.

THE impressive rite of the coronation of King Edward was performed on Saturday last in circumstances of unequalled splendour. All who witnessed the spectacle must have been moved by feelings of loyalty and love for their Sovereign and country, and of pride in the history of the British race. Few men of science appear to have been invited to the function, though the nation owes so much to them. Scientific knowledge combined with medical skill has brought the King safely through a period of great danger and suffering, and given us all cause for thankfulness at our monarch's return to health. The modern science of electricity contributed as much as the mediæval pageantry to make the day memorable. But the ceremony belongs more to the past than to the future; it is the symbol of unity between the King and his people, and it shows the basis of liberty of thought and action which is our national heritage, and without which progress is impossible. The past has truly been glorious, but the future needs the development of new attributes of national character if we are to maintain our position among the peoples of the world. We trust that the reign of King Edward VII. will not only be long and happy, but that it will be characterised by the cultivation of the scientific spirit which will promote its prosperity.

A SPECIAL number of the *Atti* is devoted to the anniversary meeting of the Reale Accademia dei Lincei, held at Rome on June 1 under the patronage of the King and Queen of Italy.