

to sanction the proposed surveys. The correspondence on this subject will be found appended to this Introduction (Appendix I.).

Bathymetrical charts of Loch Lomond and Loch Awe were published by the Hydrographic Department of the Admiralty about the year 1860, based on surveys undertaken by naval officers. Some of the general charts of the Scottish coasts published by the Admiralty show a few soundings down the centre of the lochs of the Caledonian Canal, but the charts of Loch Lomond and Loch Awe were the only systematic surveys of Scottish fresh-water lochs that existed at the time the above-mentioned representations were laid before the Government. It is true that previous to this date many Scottish proprietors and others had made most praiseworthy endeavours to ascertain the depths of many of the lochs, but these were generally not laid down on charts or made public. In the year 1887 Mr J. Y. Buchanan recorded a depth of 175 fathoms in Loch Morar; and in 1888 I sounded all along this loch, and recorded a depth of 180 fathoms at one spot. At about the same time both Mr Buchanan and I took very many soundings in Loch Lochy and Loch Ness. I had also taken many soundings in Loch Katrine and other Scottish lochs before attempting any systematic survey. In the year 1888 the late Mr J. S. Grant Wilson, of the Geological Survey, published in the *Scottish Geographical Magazine* an account of Lochs Tay, Earn, Rannoch, and Tummel, with special reference to the glaciation of the district, and he gave small contoured maps of these lochs, in which the position of some of the deeper soundings was laid down. This represents the state of knowledge of the depths of the Scottish fresh-water lochs at the time when I commenced, with the assistance of my young friend the late Mr Fred. P. Pullar, to attack the problem in a systematic way about 1897. We were led to take up this self-imposed task because, as above stated, there was no hope of the work being undertaken by any Government department.

A start was made with the lochs of the Forth basin, but a good deal of preliminary work had to be undertaken before quite satisfactory methods were arrived at for carrying on the work of the survey. Indeed, some of the lochs were surveyed two and even three times with different sounding-machines, and by different methods of determining the position of the soundings. When these initial difficulties were overcome the work proceeded as rapidly as the time at our disposal permitted, being at that time regarded as a holiday task. The first paper—on the lochs of the Trossachs and Callander district—was published in April 1900; and a second paper, dealing with the other lochs of the Forth basin and two lochs of the Tay basin, appeared in March 1901.

It so happened that I had to visit the East during the winter of