the mouths of the rivers and the present lines of water communication. First, a great sea dyke should be built at the north end with many locks, and with sluiceways to allow drainage at low tide; this will require some ten years and cost $16,000,000. Then a tract of 52,000 acres in the N. W. part should be dyked and drained, requiring five years and $5,000,000. Continuing the work, in all about a million and a quarter acres would be reclaimed in thirty-three years' time at a cost of $69,000,000. Experience shows that such lands can be rendered arable in about three years; and it is estimated that they could be rented by the state at $7 per acre per year. The report is a model of thoroughness for its consideration of every interest involved. The project now awaits the consideration of the legislative body.

CHARLES K. WEAD,
Secretary.

THE ELISHA MITCHELL SCIENTIFIC SOCIETY.

THE Society held its one hundred and thirty-eighth meeting on Jan. 21 at the University of North Carolina. The following papers were read:

'Recently Discovered Minerals in North Carolina': J. H. PRATT and COLLIER COBB.

'Arizona, Its Mineral Wealth': J. H. PRATT.

CHAS. BASKERVILLE,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE DAILY BAROMETRIC WAVE.

IN the *Monthly Weather Review* for Nov., 1901, Dr. O. L. Fassig has an interesting article on 'The Westward Movement of the Daily Barometric Wave.' The article is illustrated by charts showing the lines of equal pressure departure in the western hemisphere for each hour of the day for the month of July. Dr. Fassig's study was suggested by my own paper on the eclipse cyclone and the diurnal cyclones, but he was the first to complete charts of this kind and his charts add much to a knowledge of the behavior of the daily barometric wave and will no doubt aid materially in clearing up the cause of this wave.

The charts show very clearly that the diurnal areas of high and low pressure have distinct centers like the cyclones and anticyclones of the weather map, but unlike the latter move rapidly toward the west instead of toward the east. Moreover, the charts show very strikingly the effect of ocean and continent on the depth and position of the diurnal areas of high and low pressure, and one can scarcely doubt that surface heat and cold play a very important part in their formation.

Particularly instructive in this connection is the behavior of the early morning minimum of pressure. At 2 a. m., 75th meridian time, it is chiefly over the two Atlantic oceans, and is central over the North Atlantic, the cold ocean at this time of year when contrasted with the surrounding continents. Between 3 a. m. and 6 a.m. this barometric minimum passes over the land areas of North and South America and then the low pressure is found central over the cold southern continent where winter prevails, and the pressure scarcely falls below normal in the warmer northern continent. These facts appear to point very clearly to the dependence of this depression on a relatively low surface temperature, and are in line with the suggestions in my papers on the eclipse cyclone and the diurnal cyclones, namely that the morning minimum of pressure is the result of a cold air cyclone.

The afternoon barometric minimum moves from South America to North America during the afternoon following the place of highest temperature, thus indicating its dependence on surface heating.

Mr. Fassig does not state from what source his data are obtained. In drawing my own charts I have found a great scarcity of data from over the Pacific Ocean. The data for South America will be greatly added to when Professor Bailey's observations are published in the Harvard *Annals*. In constructing my own charts I scaled off the values at his stations from the curves published by him in the *American Meteorological Journal*, Vol. XII., p. 331.

H. H. CLAYTON.