in longitude 66° 57′ and latitude 44° 49′; the westernmost point is Cape Alva, Wash., in latitude 48° 10′, which extends into the Pacific Ocean to longitude 124° 45′.

From the southernmost point in Texas due north to the forty-ninth parallel, the boundary between the United States and Canada, the distance is 1,598 miles. From West Quoddy Head due west to the Pacific Ocean the distance is 2,807 miles. The shortest distance from the Atlantic to the Pacific across the United States is between points near Charleston, S. C., and San Diego, Calif., and is 1,152 miles.

The length of the Canadian boundary line from the Atlantic to the Pacific is 3,898 miles. The length of the Mexican boundary from the Gulf to the Pacific is 1,744 miles. The length of the Atlantic coast line is 5,560 miles and that of the Pacific coast line is 2,730 miles. The Gulf of Mexico borders the United States for 3,640 miles.

Nearly all maps of the United States show the parallels of latitude as curved lines and are likely to lead the ordinary observer to believe that certain eastern or western states are farther north than some of the central states that are actually in the same latitude. For this reason, one who is asked which extends farther south, Florida or Texas, is very likely to say "Texas," but, as stated, the mainland of Florida is nearly 50 miles farther south than the southernmost point in Texas. For the same reason, when we consider the geographical positions of countries south of the United States we find that errors are likely to be made in estimating position or extent in longitude. Few realize that the island of Cuba, for example, if transposed directly north would extend from New York City to Indiana, or that Habana is farther west than Cleveland, Ohio, or that the Panama Canal is due south of Pittsburgh, Pa., or that Nome, Alaska, is farther west than Hawaii.

THE BRITISH DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

The following is a list of Research Associations which have been approved by the department as complying with the conditions laid down in the government scheme for the encouragement of industrial research and have received licenses from the Board of Trade:

The British Boot, Shoe and Allied Trades Research Association, Technical School, Abington Square, Northampton. *Secretary*—Mr. John Blakeman, M.A., M.Sc.

The Brittish Cotton Industry Research Association, 108, Deansgate, Manchester. *Secretary*—Miss B. Thomas.

The British Empire Sugar Research Association, Evelyn House, 62, Oxford Street, London, W.1. *Secretary*—Mr. W. H. Giffard.

The British Iron Manufacturers' Research Association, Atlantic Chambers, Brazennose Street, Manchester. *Secretary*—Mr. H. S. Knowles.

The Research Association of British Motor and Allied Manufacturers, 39, St. James's Street, London, S.W.1. *Secretary*—Mr. Horace Wyatt.

The British Photographic Research Association, Sicilian House, Southampton Row, London, W.C.1. *Secretary*—Mr. Arthur C. Brookes.

The British Portland Cement Research Association, 6, Lloyd's Avenue, London, E.C.3. *Secretary*—Mr. S. G. S. Panisset, A.C.G.I., F.C.S.

The British Research Association for the Woollen and Worsted Industries, Bond Place Chambers, Leeds. *Secretary*—Mr. Arnold Frobisher, B.Sc.

The British Scientific Instrument Research Association, 26, Russell Square, W.C.1. *Secretary*—Mr. J. W. Williamson, B.Sc.

The Research Association of British Rubber and Tyre Manufacturers, c/o Messrs. W. B. Peat & Co., 11, Ironmonger Lane, E.C.2.

The Linen Industry Research Association, 3 Bedford Street, Belfast. *Secretary*—Miss M. Burton.

The Glass Research Association, 50, Bedford Square, W.C.2. *Secretary*—Mr. E. Quine, M.Sc.

The British Association of Research for Cocoa, Chocolate, Sugar Confectionery, and Jam Trades, 9, Queen Street Place, E.C.4. *Secretary*—Mr. R. M. Leonard.

THE CENTENARY OF OERSTED'S DISCOVERY[1]

On August 31 and September 1 the centenary of the discovery of electromagnetic action by the Danish physicist, Hans Christian Oersted, was celebrated at Copenhagen. Meetings were held in the Town Hall and

[1] From *Nature*.

university, at which many Scandinavian men of science were present, and the occasion was marked by the publication of some of Oersted's scientific correspondence. It was during the winter of 1819–20 that Oersted observed that a wire uniting the ends of a voltaic battery affected a magnet placed in its vicinity, and after prosecuting his inquiries some months longer, in July, 1820, he published his Latin tract, "Experimenta circa effectum Conflictus Electrici in Acum Magneticum." The importance of his discovery received instant recognition. Ampère, Arago and Davy all seized on the idea, and four months after the publication of his tract Oersted was elected a foreign member of the Royal Society and awarded the Copley medal. Efforts to connect magnetism with electricity had hitherto met with little success, and Wollaston, in his discourse as president of the Royal Society, referring to Oersted's discovery, expressed the hope that "the gleam of light which thus beams upon us may be the dawn of a new day, in which the clouds which have hitherto veiled from our sight the hidden mysteries of light and heat, of electricity and magnetism, may be dispelled." Oersted, who was the son of a country apothecary, originally studied medicine, but turning his attention to chemistry and physics while at Copenhagen University, and he held that position until his death in March, 1851, at the age of seventy-three. Known alike for his genial and kindly nature and for his scientific labors, he was the author of some two hundred memoirs, and received many honors at home and abroad. Twenty-five years after his death a bronze statue of him was erected on the old fortification of Copenhagen.

THE NATIONAL COMMITTEE ON MATHEMATICAL REQUIREMENTS

THE National Committee on Mathematical Requirements held a meeting at Lake Delavan, Wisconsin, on September 2, 3 and 4, at which a number of reports were discussed and adopted. A report on The Revision of College Entrance Requirements received the greatest amount of discussion. It is hoped that this report may be released for publication early in October. It includes a general discussion of the present problems connected with college entrance requirements in mathematics, a report of an investigation recently made by the National Committee concerning the value of the various topics in elementary algebra as preparation for the elementary college courses in other subjects and a suggested revision of the definitions of entrance units in elementary algebra and plane geometry. A copy will be sent to any person interested upon application to the chairman of the committee, Professor J. W. Young, Hanover, N. H.

A preliminary draft on mathematics in experimental schools was discussed at this meeting. Mr. Raleigh Schorling of the Committee has spent over a year collecting material for this report. Miss Vevia Blair of the committee presented her report on the present status of disciplinary values in education. It is expected that this report also will be released for publication in October. It gives a critical review of the complete literature concerning the experimental work on the transfer of training.

Professor E. R. Hedrick presented a report which he prepared at the request of the National Committee on "The Function Concept in Secondary School Mathematics." This report also will be published in the near future.

A preliminary report on junior high school mathematics is in the press of the U. S. Bureau of Education and should be ready for distribution early in October. A subcommittee under the chairmanship of Professor C. N. Moore in preparing a report on "Elective courses in mathematics in secondary schools." A committee under the chairmanship of Professor David Eugene Smith is preparing a report on "The standardization of terminology and symbolism" and Professor R. C. Archibald is preparing one on "The training of teachers." It is expected that all three of these reports will be presented for the consideration of the national committee in October.