recorded for females, and the lowest but one for males.

We have thus (the report states) the curious phenomenon of an unprecedentedly high marriage rate in 1915 succeeded by an almost unprecedentedly low one in 1916. The flood of marriages which set in with the second quarter of 1915 did not ebb until a year later, so that considerably more marriages were registered in the first quarter of 1916 than in the corresponding quarter of any previous year. These violent changes are no doubt the direct consequence of the war, and appear in 1917 to be giving place to a less abnormal state of affairs.

There was in 1916 a notable increase in the proportion of marriages of young widows. The population of widows under thirty years of age must have been greatly increased as a result of the war. The marriage prospects of spinsters were decreased for two reasons—there were fewer marriageable males in consequence of the losses of unmarried combatants, and more marriageable females in consequence of the losses of married combatants.

In proportion to the total population, the birthrate was 20.9 per 1,000 living. The reduction of natality accompanying the war only amounted to 12 per cent., whereas in Germany the fall was reported to have been 40 per cent. in the two years 1915 and 1916.

The excess of births over deaths was 277,303. The number of fatal casualties incurred by English and Welsh troops during the year, says the report, must be very much lower than 277,303, and so the increase in population must have continued. The German statistics record 1,331,000 deaths in 1916, apparently exclusive of at least the great majority of fatal war casualties, as against 1,103,000 births; and the Hungarian figures are for deaths "not in action" 428,057, as against 333,551 births.

The deaths of 508,217 persons were registered, a rate of 13.3 per 1,000. The deaths of children under one year of age numbered 71,646, or 91 per 1,000, the lowest rate ever recorded. Eighty-eight reputed centenarians died, 70 of whom were women.

STANDARD TIME AT SEA

FOLLOWING the action of the French navy the Lords of the Admiralty summoned a conference of representatives of the various government departments and scientific societies interested, to consider and report upon the desirability of establishing a standard time at sea in the British naval and merchant services. The report of this conference has now been presented to the Lords of the Admiralty, and the *Geographical Journal* publishes a summary of its recommendations. The conference had the advantage of the assistance of the French hydrographer, M. Renaud, accompanied by Lieutenant de Vaisseau Moreau, of the wireless staff of the French navy.

The principal business of the conference was to consider the desirability of extending to the sea the system of time zones now widely adopted on the land; a system whose advantages have long been recognized as highly conducive to precision and certainty in the interchange of telegrams, the arrangements of train and postal services, and in many other departments of life. Until recently a ship at sea was a law to itself; and although ship's time was usually more or less adjusted to apparent time at noon each day, there was no certainty that the time of a message despatched from the ship or of an entry in the ship's log could be translated into Greenwich mean time. The conference was of opinion that the establishment of zones at sea (outside territorial waters) corresponding to the time zones on land is the most practical method of obtaining uniformity in time reckoning at sea; and after examination of the "Planisphère des Fuseaux Horaires" prepared by M. Renaud (of which a copy has for some time been displayed in the Map Room of the Society) it recommended the adoption of the boundaries of the zones as defined therein and now in use in the French navy. It also expressed a hope that those countries which have not yet adopted the system of hour zones will in course of time conform to this system. The question of summer time was considered, and the conference was of the opinion that there was no advantage in introducing summer time on the high seas.

Only in this and in one other respect did the conference propose any change in the French system. The second change is one of nomenclature only, but it is of some importance. In the French system the time zones are numbered eastward from 0 to 23 hours, which, while in many respects convenient, has the disadvantage that it does not give without ambiguity the reduction from the time of any zone to the time and date of Greenwich. The conference therefore recommended that

> The zone extending from 7½ degrees east to 7½ degrees west of the meridian of Greenwich should be the Zero Zone. The zones west of the Zero Zone should be described as Plus 1, Plus 2 . . . up to Plus 12 for that part of Zone 12 lying east of the date line (*i. e.*, the line described in the Admiralty Sailing Directions based on the 180th meridian, on crossing which from east to west the date must be advanced or put back one day respectively), and the zones east of the Zero Zone should be described as Minus 1, Minus 2 . . . up to Minus 12, for that part of Zone 12 lying west of the date line.

To ensure the application of the above scheme the conference considered it desirable

(*a*) That the alteration of the time of the clocks in ships should always be one hour, and be invariably recorded in the ship's log; but the instant at which the clock is altered need not necessarily be that at which the ship passes from one zone to another.

(*b*) That the zone description, *i. e.*, the correction required to obtain Greenwich time, be always plainly shown on the clocks, either by labels or otherwise.

(*c*) That in all entries in ship's records, whenever a date is given it should be accompanied by the zone description; and that in all official communications and correspondence, when a time is given the zone description should be added.

(*d*) That for all regular meteorological observations the ship's clock time should be used. That, as a rule, all self-recording meteorological instruments on board ship (which it would be difficult to adjust continually for zone time) should keep Greenwich time; the zone description should be entered daily on the record.

MEETING OF PETROLEUM GEOLOGISTS

AT a meeting of petroleum geologists held in Oklahoma City, Oklahoma, on February 15 and 16, the American Association of Petroleum Geologists was formed. The new organization was largely a change of name and widening of scope of activites of a highly successful local organization, the Southwestern Association of Petroleum Geologists, which has been in existence for three years. Over 100 geologists from various parts of the country were present. The widespread interest in petroleum geology and the large number of men now engaged in the profession was thought to warrant a national organization and the momentum gained by the local body assured the success of such a step.

Thos. M. O'Donnell, representing the Federal Fuel Administration, addressed the meeting and brought assurance from Washington that there need be no fear of hampering interference from his department as long as the oil men of the country did their patriotic duty and exerted their utmost efforts to maintain an adequate supply of oil to meet war demands.

An evening session was entertained with a talk by Professor James F. Kemp, on the geologic problems connected with the New York water supply, illustrated by stereopticon slides. The same session was addressed by Dr. I. C. White, who gave an interesting account of the huge gushers of Mexico. Dr. White's connection with the Doheny interests in Mexico gave weight and interest to his remarks on this subject through the courtesy of Mr. E. L. Doheny the moving pictures of the Huasteca Petroleum Company's wonderful well, Cerro Azul No. 4, were exhibited.

Professor R. D. Salisbury, of the University of Chicago, attended the meeting and was greeted by some twenty students of his department, who are now interested in the oil business of the southwest.

The list of papers presented at the several technical sessions included:

> The distribution of underground salt water and its relation to the accumulation of oil and gas, by Roswell H. Johnson, Pittsburgh, Pa.