was 313 tons, and the weight of the *Leda* was 338 tons. The welded vessel was commissioned and completed in 1938. Both ships underwent rough-weather trials in Faroe–Icelandic waters for about a fortnight in September 1938.

A PAPER read by A. Nicholls on the *Seagull* to the Institution of Naval Architects on March 31, 1939, and abstracted in *Electric Welding* of June, gives the conclusions to be deduced from the relative costs of building the two ships and their behaviour when on active service. In the discussion on the paper, the Captain of the *Seagull*, who was present, said that he had found the vessel perfectly satisfactory in all respects, although he admitted that he had his doubts when he heard that he had been drafted to an all-welded ship. He had taken her to the region of Iceland for her trials in order to give the vessel a severe test in rough weather, and he testified to the almost complete absence of creaks and groans. He had found that at the same revolutions per min. his vessel was faster than any other in the flotilla, due, he thought, to the saving in weight, and he found that her fuel consumption was considerably less than the *Leda* and the other vessels of the flotilla. On the *Seagull*, which was a minesweeper, there was very little vibration from the winch aft, when drawing in the cables. The author concluded that there are no insuperable difficulties in the way of fabricating a ship's structure entirely by welding and that the redistribution of labour entailed by the new technique does not involve additional expense nor increase the time of building.

New York and London Roads

IT is stated in *Roads and Road Construction* of July that municipal engineers were greatly impressed by the highways followed during the Royal tour in the environments of New York. In particular the West Side Express Highway, the Triborough Bridge, the Henry Hudson Parkway and the Great Central Parkway can be described as magnificent highways. They form part of the system which has been built up during the past ten years near New York. Some of the engineers have returned with plans for bringing certain old-fashioned highways of Great Britain up to date. In New York City and Long Island alone there are more than a hundred miles of parkway and nearly two hundred fly-over crossings. Traffic using these routes is able to reach the heart of Manhattan without a single hold up such as those which delay motorists many times on most routes into big cities of Great Britain. The question is discussed why New York and in a lesser degree Paris, Rome and Berlin have been able to achieve what London has only been able to do in a very minor degree. It is suggested that there are two factors, the first connected with organization and the second with a happy choice of opportunities and times for road building. The development of parkways in the vicinity of New York was conceived and promoted by an independent organization known as the Long Island State Park Commission. This Commission has pursued a continuous policy, and has overcome difficulties in a way impossible to a well-meaning local authority. The opportunity presented by the economic crisis of 1929 and the vast sums afterwards distributed by the Federal Government for the relief of distress and unemployment was taken full advantage of with very happy results. The result has been that New York has now an unrivalled arterial road system. It is hoped that a similar coincidence, namely a strong independent planning authority aided by the central government could, and perhaps one day will, do the same for London.

A 'Hot' Lightning Flash

A RECENT report issued by Science Service, of Washington, D.C., states that the Westinghouse Company has perfected a method, first discovered by P. L. Bellaschi, for producing an artificial electric discharge which imitates natural lightning in its ability to set fire to materials in its path. This form of discharge, which is called 'hot' lightning, is used for the routine testing of all high-tension power transformers sent out by the Company. The volt-amperes required for the test are 1½ million volts, 80,000 amperes. In the previous method used of creating discharge flashes, the heat developed was intense and they had enormously destructive explosive effects on whatever they hit unless it was adequately protected, but they did not last long enough to set fire to combustible targets, only leaving a scorched hole. In the 'hot' lightning stroke, there is a low-amperage, long-duration stroke following the main and 'leader' lightning discharged, similar to natural lightning. The after-stroke of 'hot' lightning generates temperatures only half as high as the main stroke, but it lasts between 100 and 1,000 times as long. The long-duration charge is produced by means of additional condensers or by a transformer from which the charge is 'soaked' through a series of resistance inductance coils in oil and permitted to follow the initial high-current discharge relatively slowly. Demonstrations are shown by the Company of 'hot' lightning, fusing sand in a fibre tube, setting fire to cotton cloth and burning holes through copper sheets varying from one thirty-second to one-sixteenth of an inch in thickness.

Earthquakes during May 1939

ACCORDING to the Bureau central séismologique de Strasbourg, 120 earthquakes were felt by people or recorded by instruments during May 1939. Eight were registered on each of the first and last days, seven were registered on each of the sixth and fourteenth, and only one was registered on each of the seventh, fifteenth, eighteenth and twenty-ninth. The most severe shocks appear to have been those in the region of Akita, Japan, on the first, in California near 29·5° N., 113·8° W. on the second, in the Azores (scale 5 on the island of Santa Maria) on the eighth, in the monts d'Aubrac, France (scale 5) on the sixteenth, in the Adriatic on the twentieth, and at Kalacryta (Greece) where houses were cracked and the intensity reached 8 on the Rossi-Forel scale on the thirty-first, six in all. The last of these appears