

which was used for the making of gliders to be attached to aircraft in order to help with the transport of troops to France during the invasion from Great Britain.

Heating was by high temperature hot water and mechanical ventilation was installed in parts of the buildings in which fumes had to be dispersed. The boiler output was about 10 million B.T.U's per hour.

R. J. Lucas was my office mainstay here. He was a knowledgeable and likeable man, and it is a pity that he later resigned as a director. I have never known the reason for this.

11. MARSHALL'S FLYING SERVICES, CAMBRIDGE:

I think that this was for the Air Ministry because it was used for the training of pilots. I only dealt with a portion of the whole site which dealt with the aircraft hangers. Heating was by means of low pressure hot water with a boiler output of about 3 million B.T.U's per hour.

12. SHAWBURY, SHROPSHIRE, FOR THE MINSITRY OF AIRCRAFT PRODUCTION:

The work here was only a small part of a very large site for aircraft maintenance. My work here was for the heating of one maintenance hanger by means of a low temperature hot water system, with a boiler output of 1½-2 million B.T.U's per hour.

13. SMALL JOBS:

I dealt with several small jobs connected with aircraft including a dope shop for Phillips and Powis at Reading, and for the Royal Naval Air Station at Yeovilton.

14. ROYAL ARMY SERVICE CORPS DEPOT AT ASHCHURCH, NEAR TEWKESBURY, FOR THE WAR OFFICE:

This was the only work I did for the War Department and the order was obtained in spite of strong competition from Hadens and others. It was also the largest job I ever undertook so that I feel it merits a fuller description than for some others.

Here again, R. J. Lucas was my mainstay, together with the foreman, T. R. Stevens. In terms of heat output it will rank amongst the largest ever done by the firm. In terms of cost it will be less than others. A reason for this was because the War Department had placed bulk orders for boilers and automatic coal stokers direct with manufacturers for use on many of their sites, so that the cost of this equipment was not shown in the firm's accounts.

The site was near to Tewkesbury and covered many acres. Lucas lodged in Tewkesbury so as to be easily available for site supervision when the first section was dealt with. I was lucky in being able to visit the site from home, which was only about 80 miles away, and due to a special grant for petrol. At times, but for short periods only, I put up in Tewkesbury.

The site and boiler house were served by means of a special branch line. There were many large single storey sheds for the storage

of army vehicles, together with a repair and maintenance shed and offices. Heating was by high temperature hot water at about 320°F. from the central boiler house, and this served some 400 unit heaters in the sheds and a calorifier for the offices.

Later the American Army took over the site in preparation for the invasion across the Channel.

The boilers were of Messrs. Danks Supereconomic Type, six in number and with a combined output of 72,000 lbs. of steam per hour, and were fed automatically by Hodgkinson coal stokers. Later one boiler was transferred to a "Dutch Barn" boiler house so as to serve the repair shed in the event of the main boiler house being bombed.

I carried out the work in both boiler houses such as pumps, thermostatic controls, pipework etc. The pumps were fitted on the flow main (see my remarks later) and the flow and return headers were of 14" internal diameter. Pressurization of the system was by means of steam cushions on the tops of the boilers. Special automatic isolating valves were fitted to the outgoing mains so that in the event of a major bursting or bombing of those mains, the boilers would receive some degree of protection. These special valves would not have been effective in the event of a breakage of the mains inside the boiler house (see my remarks later).

The mains were of mild steel with welded joints and flanges for valves etc. They were run in external ducts and at the high level of the sheds, and were insulated. A pair of 9" mains served one set of sheds and 7" served the others, the offices being served by a smaller pair.

The unit heaters were suspended from roof trusses and were thermostatically controlled in groups of 6 and 8 by contactors on 3 phase supply (see my remarks later). On setting to work the teething troubles were:

1. Cavitation at the main circulating pumps which caused the boiler house pipework to bang and jump up and down. In the event of a fracture the superheated water would have flashed into steam and there would have been a disaster. The special automatic isolating valves would not have operated in these circumstances. I still have a vivid recollection of switching off the coal stokers in conjunction with T. R. Stevens following which we both fled for our lives. From a distance we both looked at the boiler house expecting to see volumes of steam coming from it, but fortunately this did not occur and the plant gradually cooled down. Cavitation was overcome by by-passing some of the cooler return water into the suction sides of the pumps.
2. A large number of the unit heater motors burned out. I have never been sure whether this was due to faulty motors or to single phasing. All motors were taken down, repaired, tested and refixed. The contactors were replaced with ones containing single phasing preventors and after this all was well.

Before finishing these records of wartime work, I would say that Queens Wharf was fully employed on mechanical work, but I cannot remember any individual jobs which were dealt with.

LONDON OFFICE 1944 - 1948:

When it was seen that the war was likely to end, I took on a large job on the basis of materials and labour only without an addition for overheads and profit. Competitive firms did likewise because Rosser and Russell obtained the order at a figure which was only just below the quotations from other firms. This was done with the agreement of the directors so as to keep some of the experienced workmen employed during the change-over from war to peace conditions. Other work was taken on at very low figures for the same reason but not at such a drastic figure.

This sort of situation resulted in no ordinary dividend being paid in 1946. In the long run, however, these decisions were justified and were considered as a "business risk".

Frank died in 1945 and Nelson in 1948, both sad losses to the firm. Duncan became Managing Director in 1945.

One of my most pleasant recollections of this period concerns work done at the Royal Albert Hall. Nelson had carried out minor work there previously, but when the major work appeared he was too unwell to deal with it. Ian Duff and I, therefore, dealt with the work of installation of new boiler plant with oil burning equipment a ^{single} steam main and mechanical ventilation to the Dressing Rooms etc. We got on well together and the architects were very friendly. I remember two stories as follows:-

1. The oil burners were provided by a North of England firm who specialised in work for the Royal Navy and they dispatched their materials to H.M.S. Royal Albert Hall. In spite of requests from the firm they continued to do so, and at last saw daylight and no doubt as a joke sent some consignments to "Royal Halibut Oil". On starting up the burners spluttered a lot. Did they leave them with some halibut oil inside?
2. On one occasion Ian and I were walking round the first-tier corridor when the boxes were open for the cleaners. The Royal Box was open but empty and so we entered it. The Queen's chair was marked "E.R." (my initials) and so I sat in it and Ian sat in the King's chair. The Hall was in semi-darkness, but as we sat there the lights around the organ lit up and the organist played "God Save the King". The King and Queen were due to be present in the evening so that the organist was practising for later on. Ian and I did not know what to do, but finally remained seated. Afterwards we rose and made for the door which by then had been locked shut by the cleaners. We managed to clamber over a balustrade to a nearby box and made our "non-royal" exit through a door which had not been locked.

By now work had become more plentiful, and due to experience gained during the war it became more advanced technically and especially on air-conditioning. In the early 1940's there had been disagreement on the Board which was followed by resignations.

In 1948, shortly after the death of my father, I resigned and left the firm. Just prior to leaving the firm I had prospects for the following large jobs in hand, for which I had done the preliminary work:

1. Braby's Factory, Deptford.
2. Hull University.
3. Messrs. Marshall and Snelgrove's premises in Birmingham after the wartime bombing.

I believe that the firm were eventually given the orders for all of these, but I was never informed about them or given a word of thanks.

In 1949 I commenced my own business as a Consulting Engineer and later I joined up with R. W. H. Couzens and together we dealt with all the services for buildings including electrical work and lifts. We retained the name of his firm: i.e. Couzens and Brown. This would be another long story and although it would deal with the type of work done in the period 1949-1972 (at my age of 70) it would be unconnected with Rosser and Russell.

FINALLY:

My history of Rosser and Russell is based almost entirely on my memory because I had little else on which to base it, and I did not obtain any information from the firm's records.

I feel that my memory is reasonably correct although it reaches back to many years ago.

I hope that some of the contents will prove to be useful at some future date.

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