

Synchronome Time Ball

Norman Heckenberg & Anthony Roberts

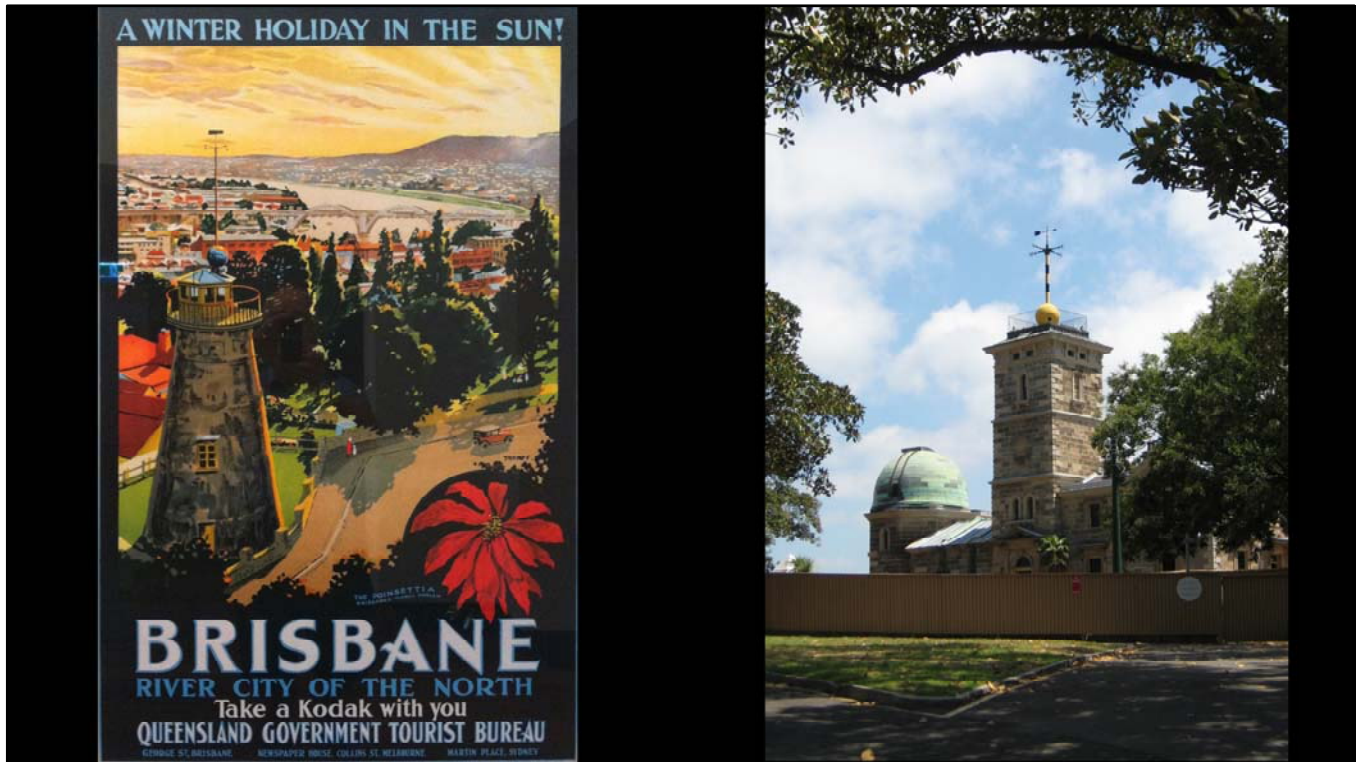
26 March 2016

(with notes)

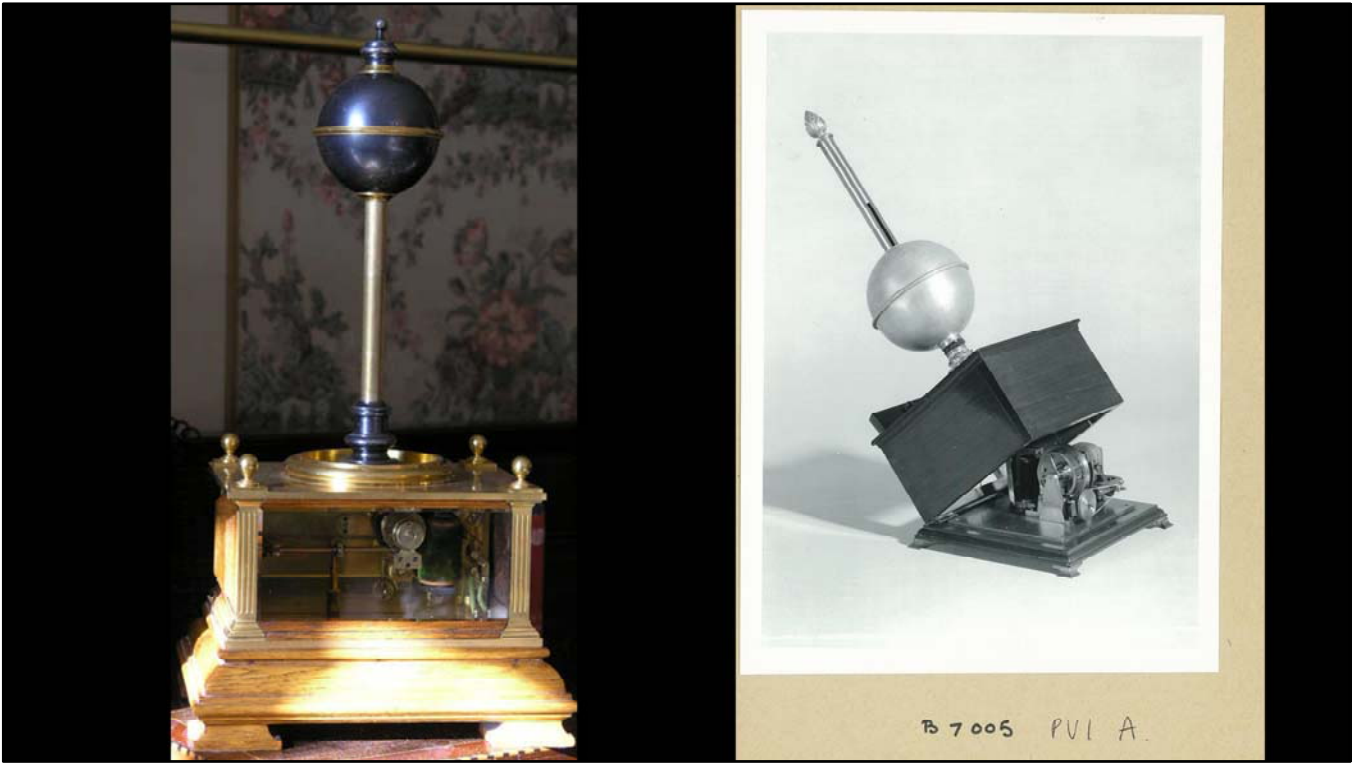
This presentation describes the restoration of a model time ball made by Synchronome around 1912.



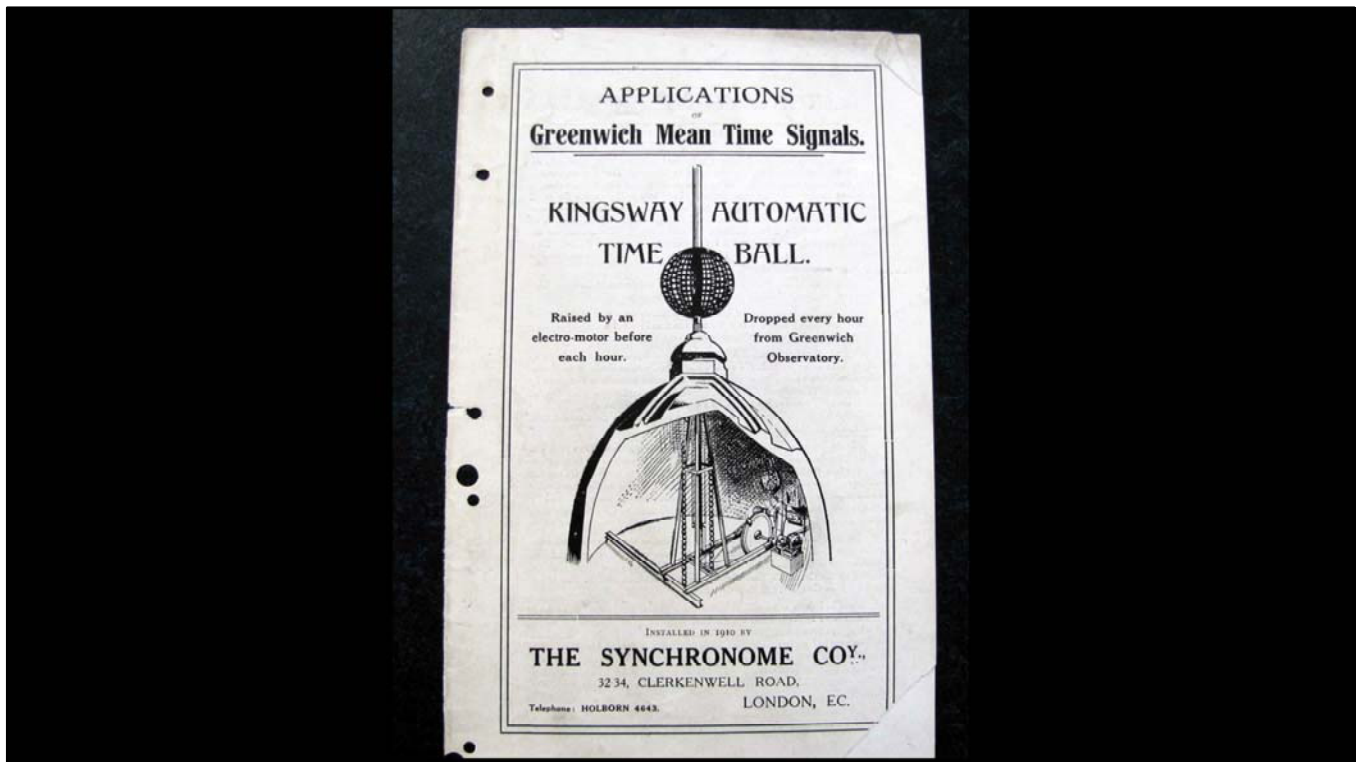
In 2007 the family of the late Lawrence Tapprel, who had been an apprentice at Prouds Electric Clocks and Scientific Instruments in Sydney and had collected many relics passed on to us the remains of something we recognised from a photograph sent by Prouds to the Synchronome Electrical Co of Australasia in Brisbane in 1916. Soon we realised that it was a model time ball.



Time Balls were traditionally sited at ports to allow ship's navigators to accurately synchronise their chronometers by observing the fall of the ball at 1pm each day. There is one, no longer operating, on the top of the [Old Windmill](#) in Wickham Terrace in Brisbane. Sydney Observatory still operates theirs every day.



A time ball spoke of accurate timekeeping, and small models were popular in display windows of jewellers, as these examples from Edinburgh and the National Maritime Museum in Greenwich show.



In 1910, the Synchronome Co. in London installed a four foot diameter ball on a building in Kingsway. Billed as the only automatic time ball in the world, it was dropped every hour.

KINGSWAY TIME BALL.

Reprinted from THE BRITISH HOROLOGICAL JOURNAL, January, 1913.

London's happy-go-lucky time-keeping is a by-word. Almost every community on the Continent, above the rank of a village, has its Municipal Time Service, because their City fathers recognize street timing as to be as much their duty as street cleaning and street lighting. Our Electrical Engineers have been willing as this for years, and now with more persuasive tongue and pen than Mr. Hape-Jones, the inventor of the modern method of "Synchronism" Electrical Time Service, which is so generally adopted now in large buildings, but neither the City Corporation, nor the London County Council, have yet felt the growing pressure of public opinion. They have built a fine street in Kingsway, but they have left it to private enterprise to give it time.

Thanks to Messrs. S. H. Benson, Ltd., the well-known Advertising Contractors, of Kingsway Hall, this has not long been wanting.

A Time Ball of 4ft. diameter has been provided on the summit of the dome of their lofty building, on the west side of the new street, and the ball is dropped precisely at each hour by electric current direct from Greenwich Observatory.

Unlike other time balls, which only work once a day, and require to be set up daily by hand before their fall, this one is wound up quite automatically by an electro-motor shortly before each hour of daylight, and is released precisely at every hour by the Greenwich Time Signal. A little electro-motor, no bigger than a hat (man's), raises it slowly by means of what is called a double worm reduction gear. The ratio of reduction is 1 to 10,000, which means that the motor revolves ten thousand times whilst turning the hoisting drum once.

Messrs. Benson's had their offices equipped, when they were built two years ago, with the "Synchronism" System of Electric Clocks, whereby uniform and accurate time is retained throughout them without any of the clocks having to be wound up, and that installation is now charged with the additional duty of switching on the electro-motor to raise the Time Ball at ten minutes before each hour, a function usually performed by a programme clock, or "Bell Controller," customarily used by them to ring electric bells at pre-arranged times.

The Ball, having been lifted to the top of the mast, an operation which takes the electro-motor about five minutes to accomplish, the latter gracefully retires, unditching itself from the winding drum, and leaving the ball held up on a hair trigger ready for releasing by the Greenwich Time Signal, which is transmitted over the lines of the Standard Time Company, Ltd.

It was laid down as a condition by the architects that there should be no shock or jar occasioned by the fall, and this has been overcome by an ingenious but simple method of counter-balancing, whereby this acceleration due to gravity is neutralized just before the ball reaches the bottom. It is then also that the switches are replaced, leaving the motor ready to raise the ball before the next hour. The simplicity of the apparatus appears to preclude the possibility of anything going wrong, but safety switches are provided, which will stop the motor in the event of any irregularity occurring.

The whole of this original undertaking was designed by Mr. Hape-Jones, M.I.E.E., carried out by the Synchronism Company, of 32-34, Clerkenwell Road, E.C.

SPECIAL ANNOUNCEMENT TO THE TRADE.

For Watchmakers and Jewellers, who have taken advantage of the recent great reduction in the subscription, and receive the daily Post Office Time Signal, we offer a

SMALL WORKING MODEL of THE KINGSWAY TIME BALL,

which forms a most attractive shop window novelty. It is made to the scale of 1 inch to 1 foot, the Ball being of brass or celluloid, 4in. diameter, and standing 2ft. high when raised.

An ordinary 4 volt accumulator, such as is used on motor cars, is suitable for operating the little electro-motor.

If desired, the model may be set to work automatically every hour, being dropped at the 60th second of the 60th minute by a contact applied to the shop regulator.

Price, £7 10 0

DEFLECTING NEEDLES, indicating on a circular dial, hatched. This needle is deflected precisely at 10 a.m. (or 1 p.m., as the case may be), by electric current direct from Greenwich Observatory.

PRICES.

With silvered engraved Dial and cast Brass ... £2 9 6

With painted Dial and spun Brass ... 1 18 6

These instruments are suitable for placing in Regulator Clock Cases. If separately cased in wood, add 7s.

SINGLE STROKE BELLS, as in the case of the instruments above described, have their electro-magnets specially wound to a high resistance, in accordance with the Post Office requirements.

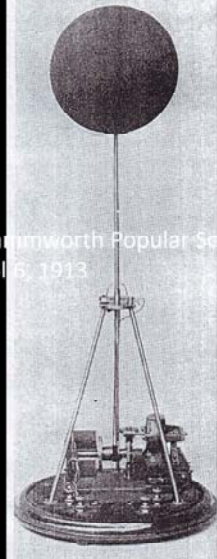
PRICES.

3in. Balls ... £0 10 0

4in. Balls ... 0 13 6

6in. Balls ... 1 0 0

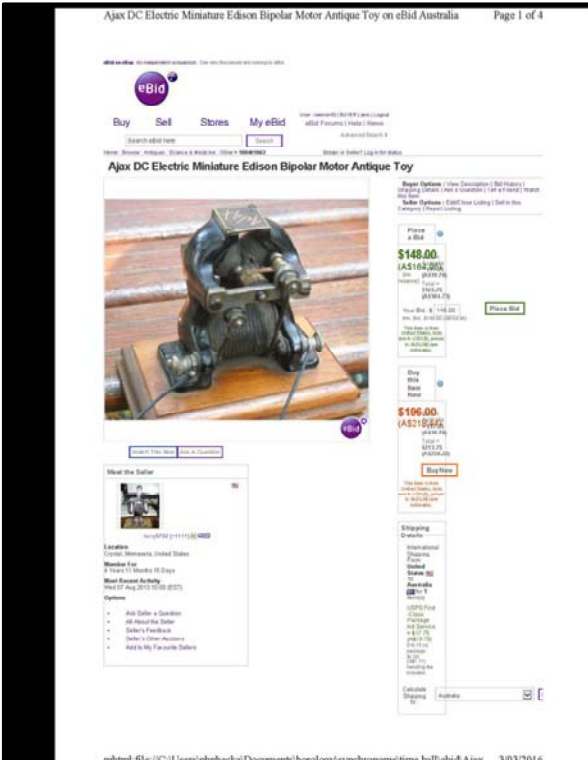
Hamworth Popular Science
Vol. 6, 1913



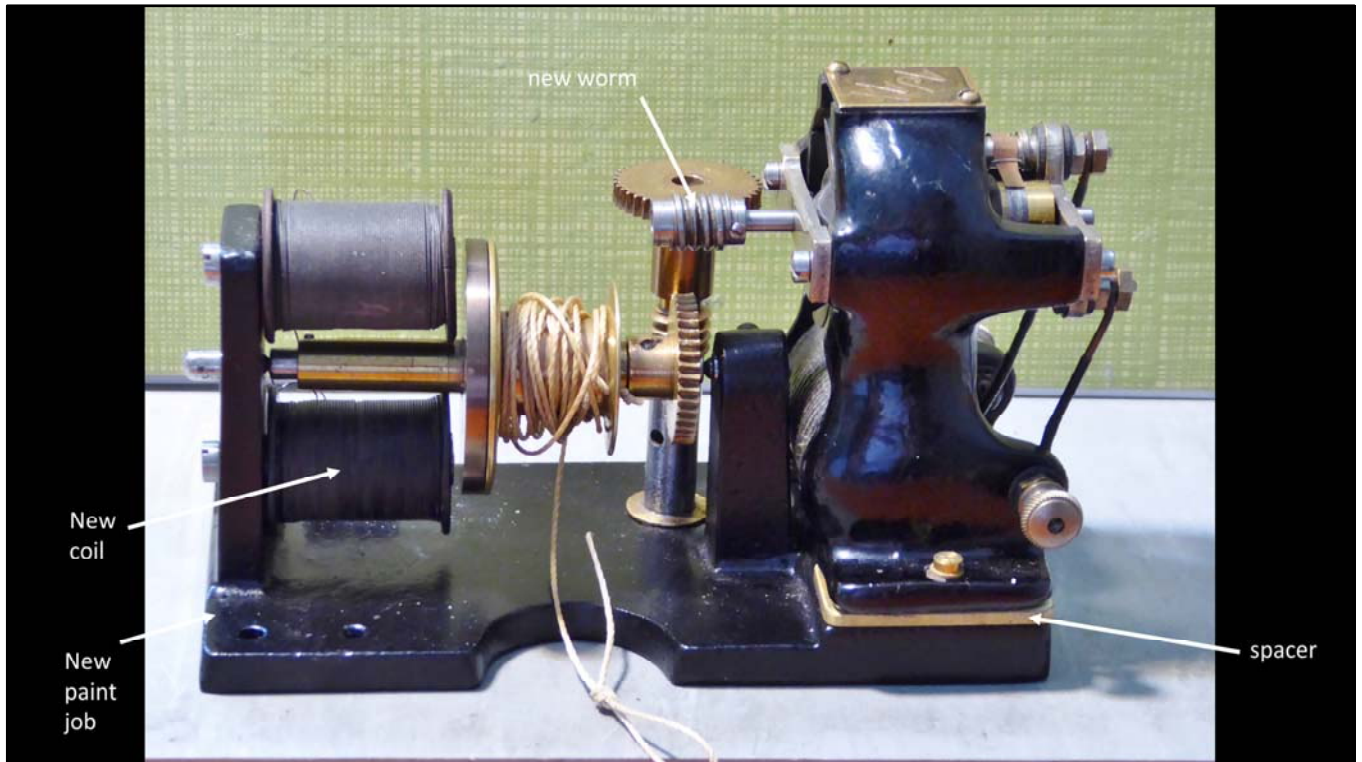
AN AUTOMATIC TIME-BALL THAT SIGNALS EVERY HOUR

This is a model of the ball erected by the Synchronism Company on top of a lofty dome in Kingsway, London. It is raised to the top of the mast at a quarter before each hour by means of an electro-motor which operates automatically. It is dropped precisely at each hour by electric current from Greenwich Observatory. It is the only automatic time-ball in the world.

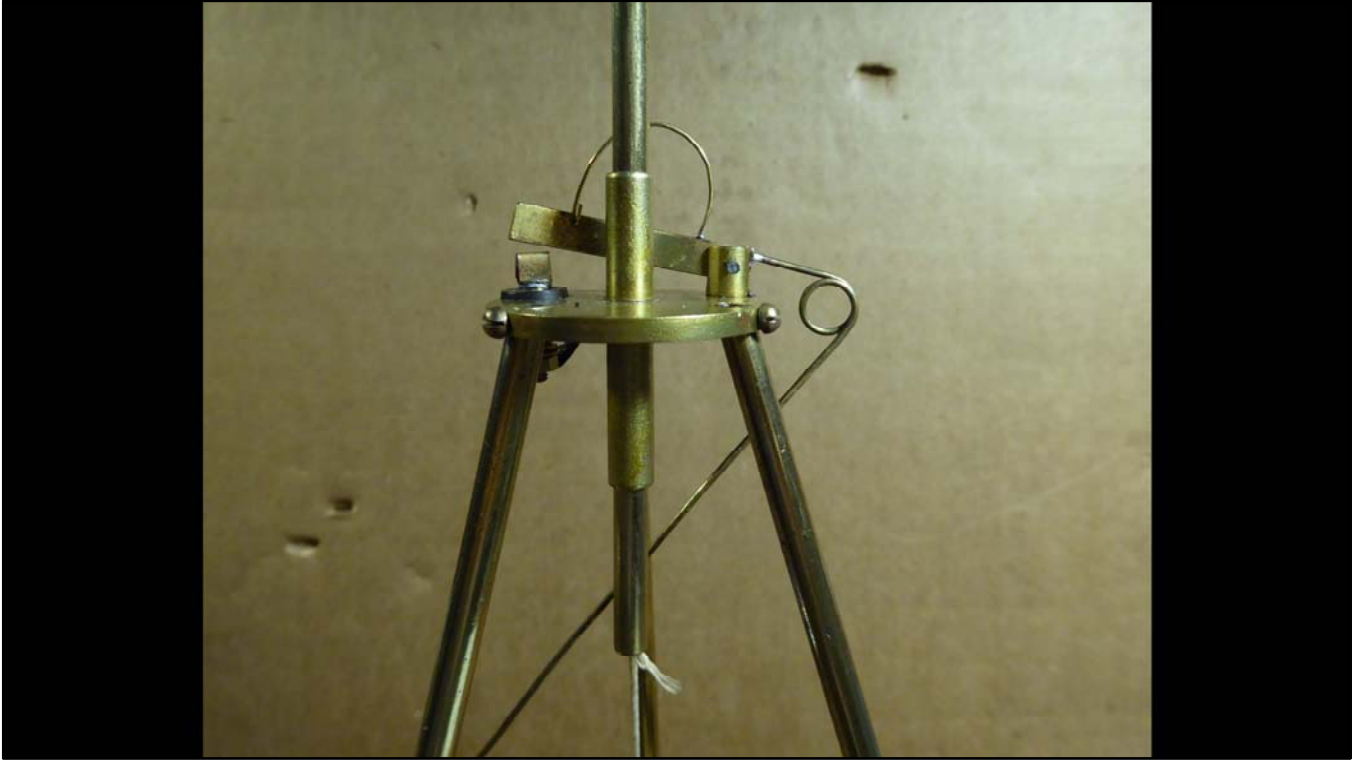
At the same time they brought out a 'small working model' 'which forms a most attractive shop window novelty' for watchmakers and jewellers



To restore the relic we had, we obtained a toy electric motor that was almost identical to the original in the old photograph, and made a replacement for the missing magnet coil.



The new motor was not a perfect fit and required two spacer/adaptor plates. We also had to cut a replacement worm gear and derust and repaint the iron base.



The spring wire parts of the motor switch had been lost and were replaced with reference to the old photograph. The motor current is brought to the switch through a wire inside one of the tripod legs.



There is a video of the model time ball operating at <https://vimeo.com/159726707>.

Thanks to:
Peter Taprell
Robert Jackson
Robert Miles
Arthur Mitchell
David Rooney

Finally, a Christmas tree decoration was pressed into service as a ball.