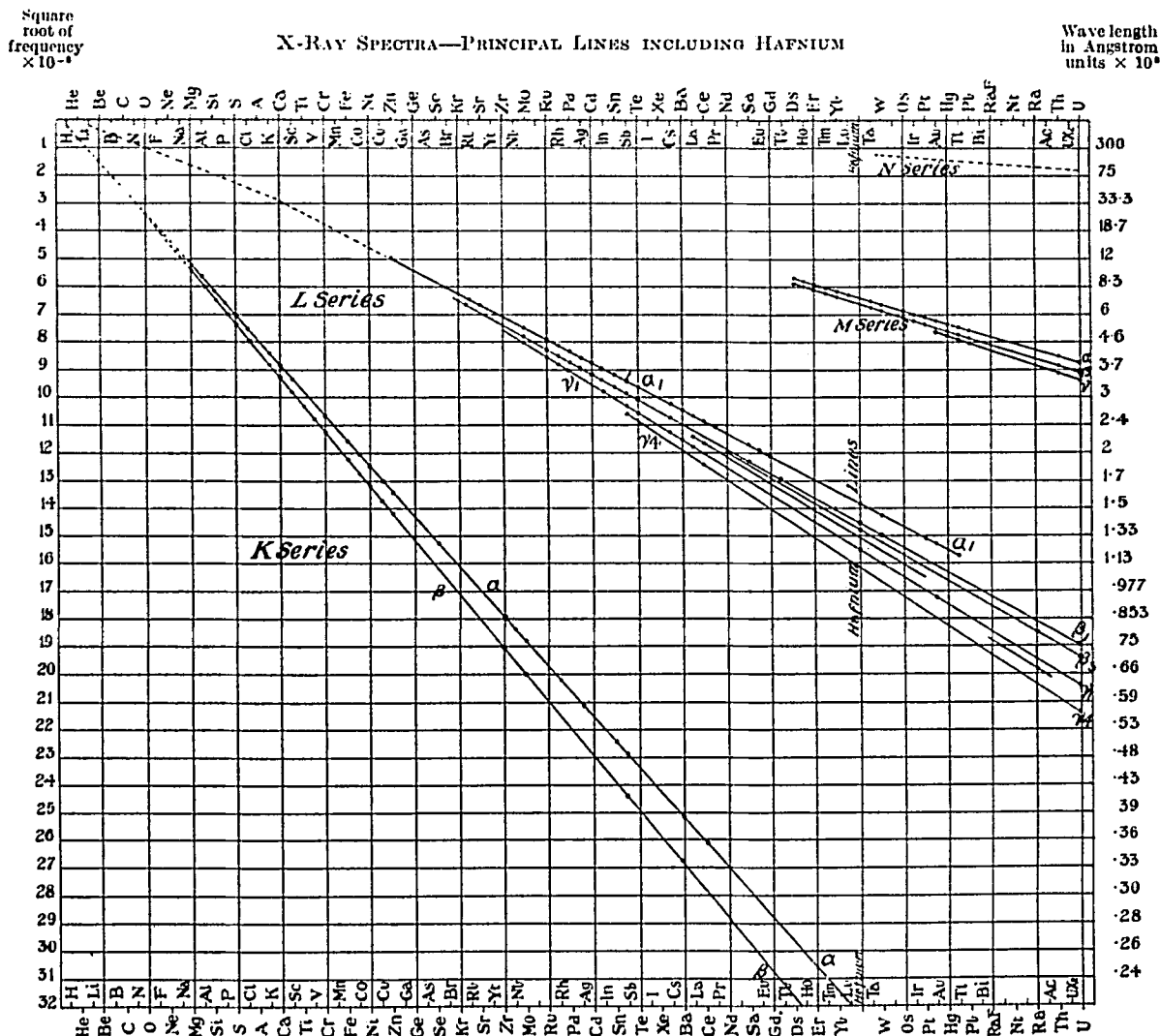


THE NEW ELEMENT HAFNIUM

Professors Coster and Hevesy of Copenhagen announce in *Nature* of the 20th inst. the discovery of a new element which they call Hafnium, after Hafniae, an ancient name for Copenhagen. The new element is homologous to zirconium and is apparently present in specimens of zirconium minerals to the extent of possibly one per cent. It has been discovered by means of its X-ray spectrum and the diagram we print above shows how the principal lines

The University of Copenhagen has taken a very important place of recent years in both Chemistry and Physics; the theories of Professor Bohr as to the structure of the atom and the calculations he has made of the orbits of the revolving electrons are known all over the world and seem to have provided a clue to unravel the difficulties of the emission of ordinary bright-line spectra. The output of accurate determinations of X-ray spectra by



of the X-ray spectra of the elements fit into a scheme which enables any element, whether known or unknown, to be identified by its X-ray spectrum. The lines of Hafnium which have been measured are: $\lambda_{\alpha_1}=1565$, $\lambda_{\alpha_2}=1576$, $\lambda_{\beta_1}=1371$, $\lambda_{\beta_2}=1323$, $\lambda_{\beta_3}=1350$, $\lambda_{\gamma_1}=1177$ X. u. Our diagram, necessarily very hurriedly prepared, shows the wave lengths in units which are a thousand times larger than the X-units used by the discoverers of the new element.

Professors Hjalmar, Coster and others has been considerable, and these workers and their French colleagues, Professors Urbain, de Broglie and Dauvillier, have now made nearly a complete survey of this interesting field of research. The claims of Urbain and Dauvillier to fill the space belonging to the atomic number 72, with a rare earth element celtium, must be borne in mind, and we hope to be able to publish a full account of the subject at a later date.