In some experiments which were made by the writer, by the method adopted in photographing the absorption spectrum of magnesium, the only absorption which was observed in the region between $\lambda = 6000$ Å.U. and $\lambda = 1900$ Å.U., with low vapour density, was at $\lambda = 3775{\cdot}87$ Å.U. At this wave-length the absorption consisted of a narrow sharply defined band. When high vapour densities were used, narrow diffuse absorption bands appeared at approximately $\lambda = 3230$ Å.U. and $\lambda = 3000$ Å.U. as well. No absorption was observed at $\lambda = 2768$ Å.U., $\lambda = 2580$ Å.U., $\lambda = 2530$ Å.U., or at $\lambda = 2380$ Å.U.

As mercury vapour is known to absorb at $\lambda = 2536{\cdot}72$ Å.U. and at $\lambda = 2338$ Å.U., it is just possible that the absorption observed by Wood and Guthrie with thallium vapour in the neighbourhood of these two wave-lengths was due to the presence of mercury in their absorption tube. As the second member of the series spectrum of thallium given by $\nu_1 = (2, p_1) - (m, s)$, has the wave-length $\lambda = 3229{\cdot}88$ Å.U., the absorption observed by Wood and Guthrie at $\lambda = 3230$ Å.U. is accounted for. Just what the absorption observed by them at $\lambda = 3092$ Å.U. means is, however, not very evident. This wave-length has not as yet been associated with any series in the spectrum of thallium. It may possibly be related to one or other of the series $\nu = (1{\cdot}5, \mathrm{S}) - (2, p_2)$, and $\nu = (1{\cdot}5, \mathrm{S}) - (m, \mathrm{P})$, but this does not seem likely, for any evidence which we have points to the probable occurrence of all the members of these two series in the extreme ultra-violet.

The method of electronic bombardment has not as yet been applied to the vapour of thallium, but experiments in this direction are now in hand, and it is expected that some information will soon be obtained, which may not only indicate the significance of the occurrence of absorption at $\lambda = 3092$ Å.U., but which may also enable one to definitely locate the wave-lengths in the spectrum of thallium, whose frequencies are given by $\nu = (1{\cdot}5, \mathrm{S}) - (2, p_2)$, and $\nu = (1{\cdot}5, \mathrm{S}) - (2, \mathrm{P})$.

7. *Summary of Results.*

1. The absorption spectrum of non-luminous magnesium vapour in a vacuum consists of narrow sharp bands at $\lambda = 2852{\cdot}22$ Å.U. and $\lambda = 2026{\cdot}46$ Å.U. These lines are the first two members of the singlet series whose frequencies are given by $\nu = (1{\cdot}5, \mathrm{S}) - (m, \mathrm{P})$.

2. When magnesium vapour in a vacuum is bombarded by electrons, no radiation characteristic of the spectrum of this metal is emitted until the electrons possess kinetic energy equal to that which would be acquired in a fall of potential of approximately 4·5 volts. With a field corresponding to 5·9 volts the spectrum obtained consisted of a single line $\lambda = 2852{\cdot}22$ Å.U.