bands observed by Moraczewska[3] in selenium, at a temperature at which its vapour is certainly polyatomic, represents the continuation of our $n''=0$ sequence. A further study of this system promises interesting conclusions as to the binding energy and structure of such polyatomic molecules, of which little is known.

A full account of our investigations will be published in the *Bull. Acad. roy. Belgique*.

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Suggested Polarisation of Electrons

G. P. THOMSON[1] has investigated the peculiar form of asymmetry in the scattering of electrons reported by Rupp[2]. According to Rupp, fast electrons when scattered first by gold through 90° and then passed through a gold foil show asymmetrical diffraction rings, while Thomson could not find any asymmetry up to the voltage of 160 k.v.

We have repeated these experiments, extending the voltage up to 190 k.v., but no effect was found. As in Rupp's experiments, a thick target was used for the first scatterer. Special precautions were made to prevent the non-uniformity of backgrounds; photometric as well as visual comparisons were made on rings up to $\sqrt{35}$ and $\sqrt{36}$. Eight plates were obtained at voltage ranging from 150 to 190 k.v., but none of them showed any asymmetry such as reported by Rupp.

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Magnetron Oscillations

IN recent issues of NATURE[1], a discussion took place between us regarding the short wave oscillations produced by split-anode magnetron valves. After further discussion in private correspondence, we are now agreed on the following points:

(1) The oscillations observed by Posthumus[2] in 2- and 4-anode magnetron circuits with wave-lengths of the order of 1 metre appear, on the experimental evidence, to be of the same type as those previously observed by Megaw[3] and others in 2-anode magnetron circuits with similar wave-lengths. The original difference of opinion on this point arose through the emphasis laid on the static negative resistance characteristics in Megaw's explanation of these oscillations.

(2) Static negative resistance characteristics ('dynatron' characteristics) can be observed in both 2- and 4-anode magnetrons under suitable experimental conditions. With usual valve dimensions, these characteristics enable oscillations to be maintained only in circuits of rather low decrement.

(3) At very short wave-lengths, the effect of electron inertia on the dynamic characteristics is such that the term 'dynatron' applied to these oscillations by Megaw is probably a misnomer. At such wave-lengths the maintenance of oscillations appears to depend on the final energies of the electrons, which may be less than the energy corresponding to the anode voltage, rather than on the angles traversed by the electrons during their transit, which determine the static 'dynatron' characteristics. This conclusion follows from the success of the 'rotating field theory' of Posthumus[4] in predicting the relation between optimum wave-length range, anode voltage and magnetic field strength.

(4) It appears from recent experiments carried out by Megaw that there is no discontinuity between the short wave oscillations under discussion and the longer wave oscillations, which are adequately explained by the negative resistance characteristics, when the decrement of the oscillatory circuit is sufficiently low. With circuits of higher decrement, discontinuities may be observed due to the decrease in valve impedance which may occur when the oscillation period is comparable with the electron transit time, particularly when higher modes of oscillation of the circuit are readily excited.

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Dew Ponds

THE legend that dew has anything particular to do with 'dew ponds' seems to die very hard. The essence of a dew pond surely is that it should be watertight, which those who make them seem to know quite well. Except in very abnormal years such as 1921 (and I suppose 1933 and perhaps 1934, though I have not seen the figures) the rainfall in England for the year largely exceeds the loss by evaporation from a water surface, and in an average year an empty watertight pond will have accumulated about 5 inches of water from January 1 to the end of April, will lose 2 inches during the next three months and will then progressively become deeper until at the end of the year it has 11 inches. Evaporation averages about 15 inches and never exceeds 20 inches, so that making allowance for the probability that it is a good deal more in exposed ponds than in the relatively sheltered tanks in which it is measured, it would seem that 2 feet of water in the early spring would see any watertight pond safely through any summer. It is also desirable that there should be no standing vegetation, which downland farmers know, though they attribute its bad effect to the roots perforating the floor of the pond rather than to transpiration, which is extraordinarily effective. Last summer (1934) a cement tank in my garden with *Potamogeton crispus* and *Lemna* lost 5 inches of water, while a precisely similar tank a few feet away which had three good clumps of *Alisma plantago* lost 19 inches and went dry.

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