Letters to the Editor

The Editor does not hold himself responsible for opinions expressed by his correspondents. He cannot undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. *No notice is taken of anonymous communications.*

NOTES ON POINTS IN SOME OF THIS WEEK'S LETTERS APPEAR ON P. 200.

CORRESPONDENTS ARE INVITED TO ATTACH SIMILAR SUMMARIES TO THEIR COMMUNICATIONS.

Some New Types of Pleochroic Haloes

EXAMINATION of a large number of biotite specimens from all parts of the world by my students and myself[1] has shown the existence of six distinct types of pleochroic haloes. Two of these, the common type due to uranium and the rarer thorium type, arise from parent radioactive elements of such long periods that α-rays are still being emitted and the darkening of the ring structure is still progressing in these haloes. The remaining four types appear to arise from parents of such short periods that all activity must have long since ceased. The first two types may be referred to as 'active' haloes and the last four as 'extinct' haloes.

To avoid premature implications as to their origin, the extinct types will be designated as *A*, *B*, *C* and *D*. The *A* type is similar to that described by Joly[2] as "emanation haloes". Types *B*, *C* and *D* are believed to be new. A photomicrograph of a *C* type halo is shown as an example in Fig. 1.

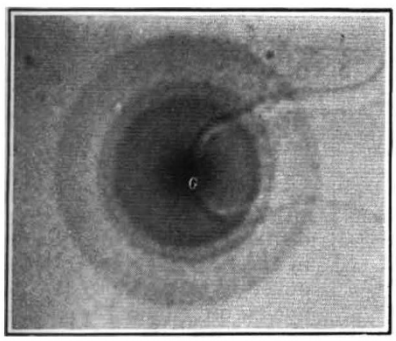

Fig. 1.

The *A* type has one ring, *B* has two rings, *C* three rings and *D* one ring. Certain subsidiary rings, mainly due to the actinium family, are occasionally found. The results of measurements of ring radii with the halo photometer are shown in the accompanying table.

Type	Ring radius in microns	Associated α-particle	Number in group
A	19·80	Po	62
B	34·49	RaC′	24
	20·00	Po	24
C	34·59	RaC′	23
	24·03	RaA	25
	19·85	Po	21
D	16·21	Ra	26

In the third column is shown the α-particle, the range of which agrees with the ring radius within the limit of experimental error and which appears to be the most probable parent of the halo ring in question. The fourth column shows the number of rings actually measured on the photometer records of a limited number of very good haloes mounted on slides and sorted out as to type by visual inspection.

It is to be noted that all six types of haloes may be accounted for by known radioactive elements, and that the ring radii appear to be constant in haloes contained in minerals of all geological ages.

The extinct haloes are fairly common, except type *D*, which is rather rare. All have been observed in more than one biotite specimen. Compound haloes are also found which are due to the superposition of two extinct types, notably *A* and *C*. Extinct haloes are often found arranged along irregular lines the course of which has little relation to the crystal directions. Often a distinct narrow channel is visible, which passes through the centres of the haloes and is sometimes surrounded by a faintly darkened tubulation the radius of which is that of the haloes.

It seems clear that an explanation of the mode of formation of these new types of haloes lies in hydrothermal action, but a detailed consideration is beyond the scope of this letter. A full account of these haloes and a discussion of the mechanism of their formation will be given shortly elsewhere.

G. H. HENDERSON.

Dalhousie University,
Halifax, N.S.
June 12.

[1] *Proc. Roy. Soc.*, A, **145**, 563, 582 (1934); **158**, 199 (1937).
[2] *Phil. Trans.*, **217**, 51 (1917).

Colchicine, 'Phytocarcinomata' and Plant Hormones

COLCHICINE has been shown to produce a bulbous hypertrophy of the root tips and coleoptile of wheat seedlings[1]. In these swellings, the appearance of the mitotic figures closely resembles those found in certain organs of animals treated with colchicine, and also in malignant tumours of animals[2,3]. In this respect, the action of colchicine appears to be similar to that of *B. tumefaciens*, which causes the 'phytocarcinomata'. On the other hand, A. P. Dustin[4], Amoroso[5] and Peyron *et al*[6] have claimed that colchicine inhibits the growth of malignant tumours in animals.

I have tested the effect of colchicine on the growth of tumours in plants by the following method. Seventy tomato plants (var. Kondyne red), grown in pots, were inoculated on the same day, with a virulent strain of *B. tumefaciens*, five inoculations being made on the main stem of each plant. The plants were then divided into five groups. One group was used as a control; colchicine was tested on another