It is estimated that two tracks which appear identical must be formed within 1/50 sec. of one another. The chamber is set off by the counters, on an average, once in 12 minutes, so that the probability of the random simultaneous appearance of two non-associated rays is of the order 3×10^{-5}.

An electron capable of passing through 2·5 cm. of lead without sensible deviation by ordinary scattering must have an initial energy greater than 10^9 e.v. The probability that only a single electron of high energy would emerge from the 2·5 cm. plate may be calculated from cascade theory as 0·007 for a 10^9 e.v. particle and negligibly small for one of higher energy. The particles which penetrated 15 cm. of lead could not be electronic.

J. G. Wilson[1] has calculated that the probability of a meson producing a knock-on proton of high energy is much too small to account for our photographs, and any process by which one proton knocks-on another would be expected to give rise to a number of slow protons distinguishable as heavy tracks. No such tracks have been observed.

We consider that our photographs are best regarded as evidence for meson pairs.

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[1] By private communication.

Occurrence of Greenockite in the Mendips

Although small amounts of greenockite (cadmium sulphide) have been found in Scotland associated with zinc blende, the mineral has rarely been found in England. In July last one of us (A. W. G. K.) was examining blende from a small dump at some old workings at a hamlet called Green Ore near Chewton Mendip. The area was at one time worked for calamine (zinc carbonate) and most of the material of the dump consisted of this; but blende, galena and barytes were also present.

Thin layers of a yellow mineral, ranging up to about 1 mm. in thickness, were noticed in various small patches in the blende. These were afterwards examined spectroscopically and chemically and proved to be greenockite. There appears to be no record of the mineral having been observed in the Mendips before this.

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A New British Locality for Fluorite in Somerset

Although small amounts of fluorite were recorded many years ago from the Avonian Limestone of the Avon Gorge at Clifton, it does not appear to have been found there again, or to have been previously recorded from any part of the Carboniferous of the adjoining Mendip Hills.

In November last year, I found minute traces of a dark purple granular mineral in a disused quarry in Shipham Gorge, near Axbridge on the south side of the Mendips. Subsequent tests showed this to be fluorite, but the amount was too small for satisfactory examination.

This year, however, further search has resulted in the collection of a number of small but well-formed crystals. These crystals range in colour from colourless to almost black, purple and mauve shades being the only ones so far noticed: they are all small, the largest being about 3 mm. across the cube face. The sample cube, a {100}, and the low 4-faced cube, *f* {310}, are the most frequent forms, but combinations of these two also occur. Some crystals recently found are very complex; many crystals are well zoned and in some specimens the fluorite crystals are accompanied by beautiful little bright crystals of chalcopyrite and little velvety black hemispheres of hæmatite.

The fluorite appears to be confined more or less to one band in the quarry and occurs in granular calcite filling vesicles in the black limestone of the *C*-zone. These vesicles are numerous, but the majority appear to contain no trace of fluorite.

Careful search in this and other parts of the Mendips over a number of years has failed to produce any other specimens, and so far this appears to be the only locality in the district.

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Œstrogen Depot Formation

In a recent communication, Zondek and Sulman[1] showed that, unlike œstrone, the hormone esters and stilbœstrol in oil, when injected into the rat, remain at the site of injection for a considerable time and from there are slowly absorbed.

Some time ago I undertook an investigation into the local effect upon the vaginal epithelium of the ovariectomized mouse of small doses of œstrone in arachis oil. The preliminary results showed little of interest, and the inquiry was put aside under pressure of other work. At the time I noticed, however, that a few control mice which received small doses of arachis oil alone, and showed little or no effect when the dose was injected into the body wall, did show proliferation of the vaginal epithelium, resembling that preceding œstrus, when the dose was injected into the perineum. The results are shown in the accompanying diagram. With doses of oil of from 0·0025 c.c. to 0·005 c.c. after times between 24 and 48 hours, the height of the epithelium is increased. This increase is a good deal more noticeable when the dose is administered in the perineum than when it is injected into the body wall.

From this it appears that (1) arachis oil, or some part of it, has the property of initiating some proliferation of the epithelium lining the vagina of the ovariectomized mouse; (2) this effect is rather localized.

The localization of the effect of the oil may in all probability be taken to indicate that the oil, or some fraction of it, forms a depot at the site of injection and is not distributed immediately all over the body. If this is so, then it may be that the depot-forming qualities of the solvent have some bearing upon the depot-forming qualities of the œstrogenic injection as a whole. The depot-forming qualities of arachis oil appear to have been made plain in these experiments through the accident of its effect upon this epithelium, which can be measured. It may be that some œstrogens, for example the esters mentioned and also stilbœstrol, simply tend to remain dissolved