In the remaining species studied, no cyclical fluctuation in numbers could be discerned. This has two implications of interest: first, it demonstrates that emergence and reproduction of many aquatic insects in equatorial lakes need not be cyclical; and second, it shows that, in the groups studied, the hypothetical artefact effect mentioned above does not influence catches in a light-trap to a significant extent.

It is intended to publish a full account of this work elsewhere.

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Preservation of Grass for Winter-feeding by Radiation Sterilization

IN the course of investigations on microbial decomposition of grass carried out at Hurley by one of us (E. G.), a method of sterilization was sought which would not alter appreciably the chemical and physical structure of grass. Ionizing radiation gave the most promising results. It was then decided to explore the possibilities of preserving grass for winter-feeding on a purely experimental basis by this method. A preliminary account by Grossbard *et al.*[1] was published in 1957. Radiation sterilization of meat, dairy products, grain and other materials has been studied extensively. The results have been reviewed by Hannan[2], Comar[3] and others.

Irradiation of small experimental samples (50–100 gm.) of ryegrass (*Lolium perenne*) tightly packed in cylindrical containers of polystyrene were carried out at the Wantage Radiation Laboratory. A cobalt-60 source was used and dosages of 1×10^6 to 4×10^6 rads were applied. Extensive sterility tests showed that a dose of 2×10^6 rads $\pm$ 10 per cent was adequate for complete sterilization. This agrees with the findings of other workers using different biological materials.

The samples were stored for periods of 6–18 months. Irradiation in itself did not cause any conspicuous changes in the physical appearance of the grass. However, a characteristic though not unpleasant odour developed immediately after irradiation. Samples kept in the dark at 4° C. retained their green colour up to six months, while those stored in the light at laboratory temperatures turned a straw colour after two to three months. Possibly factors other than temperature and light will affect persistence of chlorophyll.

Recently, exploratory experiments were carried out on larger samples ranging from 500 to 2,000 gm. tightly packed in polyethylene bags or tinned cans. A total of 30–40 kgm. was irradiated at any one time either from a cobalt-60 source or a 4-MeV. linear accelerator. The results obtained using the accelerator were inconsistent in themselves owing to the difficulty of measuring the dose delivered to the grass.

Batches of this irradiated grass were then fed to experimental sheep. A total of six animals was used for this test. Whether this grass was fed immediately following irradiation or after a month of storage the sheep soon became accustomed to it. While our results are of necessity on a small scale, it appears that irradiation in itself does not interfere appreciably with the palatability of the grass.

It is intended to irradiate larger bales of grass in the spent fuel-rod assembly at the Atomic Energy Research Establishment, Harwell, and to carry out more extensive trials on palatability, digestibility and the nutritional value of irradiated grass.

Another problem which is under investigation is a suitable container in which to pack and store the grass. We find that in polyethylene bags recontamination readily occurs, possibly owing to changes which have taken place in the plastic as a result of irradiation. Small sample bags of 'Metathene' (a polyethylene-'Cellophane' laminated film produced by the Metal Box Co.) filled with grass and placed inside the polyethylene bags also containing grass were more resistant, and while recontamination occurred on storage the percentage was lower than in polyethylene bags. So far the tin cans proved to be the most suitable containers.

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Polarization of Light of the Comets Arend-Roland (1956*h*) and Mrkos (1957*d*)

POLARIZATION of the total light of the Comets 1956*h* and 1957*d* was studied photographically by simultaneous exposures with three objectives and three 'Polaroids'. The planes of polarization of the three 'Polaroids' were at 120°. 2-in. objectives were used at *f*/9 with Agfa 'Astro' panchromatic plates. The characteristic curve was determined by comparison with an exposed photometric wedge. Errors due to the instrument were measured by means of light from an artificial source, polarized to a known degree by reflexion from a glass surface. The error of the polarization determined is $\pm$ 2·5 per cent.

Altogether we obtained seven plates of the Comet 1956*h*, during April 27–May 29, 1957. Only five of them, however, were suitable for detailed measurement. The Comet 1957*d* was photographed three times, but only two of these plates, during August 20–23, 1957, were measured. This was done with a self-recording microphotometer, using a square slit with an area of 0·005 mm.^{2}. In the case of the Comet 1957*h*, where the phase-angle θ was 58° or 69°, respectively, the values found were reduced for $\theta = 90°$. The results of our measurements are shown in Tables 1 and 2.