when the solution was afterwards heated. An irradiated solution of ovalbumin with a perceptible odour of formaldehyde gave on distillation an aqueous distillate neutral in reaction, and whilst not responding to the pyrogallol and nitroprusside-phenylhydrazine tests for formaldehyde, it produced a brown coloration with ammoniacal silver nitrate on boiling.

The conclusion is that formaldehyde (or some substance resembling formaldehyde) is produced on irradiation of ovalbumin by ultra-violet light. The increased acidity is probably due to conversion of amino groups to methylene derivatives by the aldehyde (Henriques and Sørensen, *Zeit. physiol. Chem.*, **64**, 120; 1909). An alkaline reaction evidently favours such a combination, with the result that no reducing action (as, for example, on gold chloride) can take place.

That formaldehyde functions as a precursor of hexoses and starches is generally accepted, and hence it is conceivable that the protein of the pyrenoids can give rise to the carbohydrate of their envelopes.

The action of ultra-violet light on proteins is being further investigated.

F. O. HOWITT.

University College,
Nottingham, Feb. 3.

Globular Lightning.

PROF. MARCHANT'S account of a case of globular lightning inside a room, in NATURE of Jan. 25, leads me to think that the publication of the details of two somewhat similar instances which occurred in the dining-room of the Faulhorn Hotel, near Grindelwald, are worth putting on record.

I did not witness either occurrence myself, but I questioned Fräulein Suzanne Iacci, the manageress of the hotel, on the subject on Aug. 2, 1925; her answers are given in inverted commas.

It seems probable that both induction and stationary waves are concerned with the phenomena.

"About 5 P.M. of a hot fine July afternoon in 1921, I was in the dining-room of the hotel, with my sister Margaret and six other guests. A dark cloud was noticed approaching from the east, but neither rain, hail, nor snow fell before the occurrence of the fire-balls, and only distant lightning had been observed. Suddenly from the air inlet of the large stove, in which a small wood fire was burning, came, practically simultaneously, a large number of very bright round balls of various colours, the largest perhaps nearly as large as my head. Almost at the same moment, a dreadful deafening explosion occurred, and the balls had all vanished. The room was full of a grey smoke —perhaps disturbed dust—and a strong peculiar odour was observed. I opened the doors to clear the air, and then examined the room. I could find no signs of scorching on the curtains, flowers, or the unenclosed stuffed birds and animals in the room. The fire had not been disturbed, and none of the fuel was ejected. The guests who were nearest the stove momentarily experienced a slight electric shock, but no one was injured. I myself was farther away, and did not feel any shock.

"In July 1914 my sister Louise and Madame Bohren, the wife of the proprietor, were in this same room during a hailstorm, and they had a similar experience. On this occasion the stove was not alight. No damage was done on this occasion either.

"During thunderstorms I always warn people not to stand too close to the stove, as they sometimes receive nasty electric sparks. There is no record of any serious injury here since the hotel was built in 1830."

I afterwards interviewed the sister (Margaret) and Mme Bohren in Grindelwald. Their account nearly agreed with the above, though to the latter the incandescent spheres of 1914 appeared of the same colour and size—"reddish and of about the size of my two hands". I should add that this hotel stands in a very exposed position only a few feet from the summit of the Faulhorn (8800 feet). It is surrounded by a series of lightning conductors. The closed cylindrical stove was 5 feet 4 inches high and 2 feet 2 inches diameter. It stood just away from the wall of the room on a wooden plank. The air inlet referred to above was rhomboidal in shape—the sides being 1·7 cm. and 4·3 cm. in length. The iron flue at the top was 11 cm. in diameter. For warming purposes this flue passes horizontally through several bedrooms on the floor above the dining-room before issuing through the roof some 20 feet above the stove. I have a small photograph of this stove and will lend it to anyone interested in it.

Since the last occurrence the stove has been 'earthed', and a lightning conductor has been fixed above the chimney.

WILLIAM COLEBROOK REYNOLDS.

"Wharfedale", Upminster,
Essex, Feb. 4.

Improvements in the Peel-Method of Preparing Sections of Fossil Plants.

THE peel-method of preparing sections of fossil plants was briefly described by me in NATURE of Oct. 13, 1928, p. 571. The use of cellulose esters was recommended for preparing peel-sections. Since writing that letter, I have performed experiments on the use of gelatine instead of cellulose esters, and have obtained results which fully justify the adoption of gelatine on many occasions in which this type of section is required. For small sections the cellulose ester solutions are more easily applicable, but for large sections, for example, those exceeding 2 sq. decimetres in area, gelatine is preferable.

Gelatine peel-sections are non-inflammable and involve in their preparation none of the unpleasant smelling and sometimes actually noxious solvents necessary when using cellulose esters. There is very little difference in translucency; cellulose pell-sections are perhaps a little clearer than gelatine, but this advantage amounts to little.

The surface of the petrifaction is prepared and etched with acid in the manner described before, washed, and then, *before* the surface is allowed to dry, a hot solution of jelly containing a certain quantity of glycerine and formalin is poured on to the surface. The quantities and proportions used must be determined by experiment. To cover a surface 1 sq. decimetre in area it is necessary to use about 2 grams of fairly pure gelatine such as that used in making bacteriological cultures, 50 c.c. water, 0·5 c.c. glycerine, and 0·5 c.c. formalin (40 per cent). The surface must be surrounded before the etching process with a rim of plasticene or some other substance and should be levelled by means of a spirit-level. The water and glycerine are mixed, heated, and the jelly stirred until dissolved. The heating is continued until the mixture is at a temperature of about 60° to 80° C. The formalin is then stirred in quickly and the solution is immediately poured over the surface of the petrifaction. The jelly is allowed to set, and then the specimen under treatment may be removed with its adhering layer of jelly to a warm, well-aired place to dry. Dust must not be allowed to settle on the jelly. When the jelly has become dry it may be peeled off. As it is always more brittle than cellulose