A Curious Flame.

THE following experiment with a Bunsen flame may interest some of your readers.

A Bunsen burner is lighted below and turned down so that the escaping gases will no longer burn at the upper end of the tube. The end of a glass rod is placed in the stream of gas and a lighted taper applied to it. The gas now burns steadily and the flame takes the form of a finger-stall attached by one point to the rod. A little adjustment of the gas supply may be required. A glass tube filled with water will not serve, which suggests that the rod must have a temperature of more than 100° C. Wires of any common metal may be used instead of the glass rod. It is a beautiful experiment.

The above came under my notice about six months ago when experimenting with flames, and I can find no reference to it in any

book or journal. Perhaps some of your readers can give me information.

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Winchester College, October 20.

THE LONDON FOG INQUIRY.

THE action of the County Council of London in devoting a sum of money for the purpose of aiding the Meteorological Council in making an inquiry into the occurrence and distribution of fogs in the London district has attracted public attention to an undertaking which is in itself of a very unambitious character. The discomforts and dangers of a London fog are indeed a loud challenge to the scientific and practical intelligence of Londoners, but what is aimed at in the present case is not any heroic attempt to deliver London from its insidious enemy, but the collection of information as to the best mode of attacking the purely meteorological question of local forecasts. In the language of the hour, it is a scouting expedition and not an attack in force.

Whether such a preliminary inquiry will of itself yield results that are either novel or valuable is still to some extent a matter of opinion. It originated in a request from the electric lighting authorities of several districts to be supplied, for obvious reasons, with forecasts or warnings from the Meteorological Office of the probable occurrence of serious fogs. Very much is already known about fogs. Apart from the special investigations of Dr. Russell and others, the students of weather maps are quite familiar with the general meteorological conditions under which fogs are likely, and recognise even more easily the conditions when they are unlikely. Besides this more or less technical knowledge, there is a large and increasing store of experience of fogs amongst the millions of dwellers in the London district. From recent circumstances I am able to say that he who would select an abode in London can obtain much curious information on the subject from friends, scientific and otherwise. It may take the form of testimony as to the relative prevalence of fog in other people's localities or its intolerable prevalence in his own, according to the temperament of the witness. It must, perhaps, be allowed that it is a rash undertaking to controvert the statement that the phenomena of London's fogs are well known.

Yet when one is brought face to face with the practical question, "Can you give us an hour's warning of the approach of a fog in any particular district?" one is driven to realise that, after all, the abundant knowledge based on the prolonged experience of many observers lacks coordination. If conditions are favourable for the occurrence of fog, which part of London will be the first to experience it? and at what rate will it spread or move to other parts? and where will it be most dense? Will it begin on the river and gradually extend to the heights, as a sea fog pours over the land? or will the heights first cover themselves with mist rolling down to the valleys? or if some locality is specially favoured as compared with others, by what numerical or percentage estimate should the advantage be estimated?

Statistical answers to these questions are clearly within reach. One year's experience will give no final statistical results, but it may at least give an indication of the possibility and prospect of obtaining such results. Some preliminary understanding must be arrived at as to the method of describing the experience of the different observers. There are fogs of many colours and of diverse character and density; some are on the surface, others, which do not come so low even as the tops of buildings, produce at noonday the darkness of night. It may be assumed that these differences of type, as well as differences of distribution, are not entirely capricious, but are related to some specific difference in the meteorological conditions, general or local, the local topography and conditions of the surface, or the local geology. All these things can also be ascertained, but whether the differences are sufficiently marked as to be recognisable in individual cases and to form a basis for forecast work is a question which, with all deference to the opinion of those who regard the phenomena of fogs as known, is worthy of investigation. Nor is it even easy, when one considers the difficulty of securing uniformity of convention among observers and uniformity of exposure of thermometers and other instruments. It is a question that requires to be approached, if confusion is to be avoided, with the intelligence of trained scientific scepticism.

The County Council, while authorising the organisation of observations at the fire stations by the staff of the fire brigade and possibly at other institutions under the control of the Council, have assigned to the Meteorological Office the responsibility for the conduct of the investigation and for providing all necessary instruments. The Office is also expected to make arrangements for observations outside the administrative County of London. The organisation of the details of such cooperation is not without its difficulties, but the cordiality with which the County Council has expressed its desire to cooperate is a weighty element in favour of the success of the attempt. It is obvious that without such cooperation the organisation of an efficient system of volunteer observations would be a matter of great labour and prolonged delay.

I have been careful to indicate the limitation of the immediate scope of the present inquiry to the collation of local observations of fog, and perhaps of temperature of air and water, with other local data and the general meteorological conditions. This is mainly a matter of appropriate organisation. There are, however, some physical aspects of the formation of vapour in the atmosphere which may be of service as a guide to the classification of the conditions of distribution of fog. In the forefront I would place the question as to what is the source of supply of the water which is the main constituent of those fogs which are not simply wreaths of smoke. Does the water come from the ground on which the fog lies? or the air in contact with it? or from some higher or more distant region? It is a matter of common observation that a surface of relatively hot