

staffs—who will not become Chief Scientists or Permanent Secretaries—with a pay and career structure which matches that of those of their colleagues whose job weight, background and qualifications is unquestionably in no way superior to their own. That is not the case now; we are quite determined that it shall become so.

All this is far removed from your suggestion that we may become “entirely lost in detailed quibbles”, or that we are taking an insufficiently radical view of what is needed. I should have thought that our aims are precisely those which would result in scientists assuming their rightful position in the Service. As you have recognized, it will be a sorry day for science and scientists generally if we fail. We do not intend to fail; there is too much at stake.

Yours faithfully,

CYRIL COOPER

Deputy General Secretary

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## History of “Plasmas”

SIR,—There has been speculation as to the basis for Irving Langmuir’s use of the word “plasma” to describe a particular

region of an electrical discharge in a gas. I was working for Langmuir when he made this innovation about 1927, and, much later, described it in a letter to a friend at the General Electric Research and Development Center, dated April 20, 1967. The pertinent extract from this letter follows.

“Meanwhile word had come down from on high that we had better do something about mercury-arc rectifiers and converters, which were the big new things in the electrical engineering world, although at that time they were all in glass bulbs. So Langmuir began to study mercury vapor discharges. He shortly invented his probe, I did the experimental work and most of the mathematics, and we soon accumulated a lot of data about ion densities and velocity distributions in the mercury arc columns, in the positive columns of Geissler tubes, and in gas-filled thermionic tubes.

“We noticed the similarity of the discharge structures they revealed. Langmuir pointed out the importance and probable wide bearing of this fact. We struggled to find a name for it. For all members of the team realized that the credit for a discovery goes not to the man who makes it, but to the man who names it. Witness the name of our continent. We tossed around names like ‘uniform discharge’, ‘homogeneous discharge’, ‘equilibrium discharge’; and for the dark or light regions surrounding

electrodes, names like ‘auras’, ‘haloes’, and so forth. But one day Langmuir came in triumphantly and said he had it. He pointed out that the ‘equilibrium’ part of the discharge acted as a sort of sub-stratum carrying particles of special kinds, like high-velocity electrons from thermionic filaments, molecules and ions of gas impurities. This reminds him of the way blood plasma carries around red and white corpuscles and germs. So he proposed to call our ‘uniform discharge’ a ‘plasma’. Of course we all agreed.

“But then we were in for it. For a long time we were pestered by requests from medical journals for reprints of our articles. This happens to me this day. The scientific world of physics and chemistry looked askance at this uncouth word and were slow to accept it in their vocabulary. The engineering world treated it as a GE trade name. Then all of a sudden, long after I had left the laboratory, to my pleased surprise, everybody started to talk about plasmas. This happened not long before they became thermonuclear and so government subsidized. That finally put the seal of respectability on plasmas.”

Yours faithfully,

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## British Diary

### Saturday, September 18

**Cell Proliferation and the Differential Response of Normal and Malignant Cells**, Professor L. F. Lamerton, British Institute of Radiology, at Southampton. (Silvanus Thompson Memorial Lecture.)

### Tuesday, September 21

**Infra-red Techniques** (three-day conference) Institution of Electrical Engineers; and the Institution of Electronic and Radio Engineers, at the University of Reading.

**Synthesis of Sugar Phosphonates**, Professor H. Paulsen, Carbohydrate Group (Chemical Society Subject Group), at Birkbeck College, University of London, Malet Street, London WC1.

### Wednesday, September 22

**Fibre Optics** (7.30 p.m.) Dr M. Chown, Institution of Electrical Engineers,

jointly with the Harlow Engineering Society, at Harlow Technical College, Harlow, Essex.

**Nuclear and Particle Physics** (three-day conference) Institute of Physics and the Physical Society, at the University of Oxford.

**On-Line Computer Methods Relevant to Chemical Engineering** (7.30 p.m. symposium) Institution of Chemical Engineers, jointly with the British Computer Society, at the University, Nottingham.

**Process Pumps** (three-day conference) Institution of Mechanical Engineers, at the University of Durham.

### Thursday, September 23

**MOS Integrated Circuits** (7 p.m.) Mr R. G. Hibberd, Institution of Electrical Engineers, at the Medway College of Technology, Chatham, Kent.

**Population and Pollution** (two-day symposium) Eugenics Society, in the Meeting Rooms of the Zoological Society of London, Regent’s Park, London NW1.

**The Consumers’ Association—Its Aims and Achievements** (7 p.m.) Mrs Alma Williams, Oil and Colour Chemists’ Association, at the Beech Tree Hotel, Maxwell Road, Beaconsfield.

### Friday, September 24

**Chlorinated Rubber Marine Paints** (6.30 p.m.) Mr C. G. Reid, Oil and Colour Chemists’ Association, Midlands Branch, at the Chamber of Commerce and Industry, 75 Harborne Road, Birmingham.

**Some Aspects of Metal Pretreatment and Printing** (7.15 p.m.) Mr P. Gollop, Oil and Colour Chemists’ Association, at the Royal Hotel, Bristol.

### Saturday, September 25

**Science Simulation Seminar**, Institute of Mathematics and Its Applications, and Chelsea College of Science and Technology, at the Centre for Science Education, Bridges Place, London SW6.