LETTERS TO THE EDITOR

SCIENCE'S TOWER OF BABEL

WITH sympathy and understanding, the Editor of *Nature* publishes the following communication from Prof. H. Newton Barber, professor of botany in the University of New South Wales, Sydney, Australia.

Though not necessarily supporting Prof. Newton Barber's plea for "four-letter words", the Editor considers that Prof. Newton Barber has picturesquely stressed the confusion caused by unnecessary abbreviations. Moreover, he has confined himself to the subject of biochemistry; but he can rest assured that similar difficulties occur in all branches of science, from space science to virology.

In some cases, abbreviations are easily understood, time- and space-saving, and therefore justified. But in others they seem to be deliberately manufactured to make confusion worse confounded for both over-worked editors and confused readers.

"Four-letter Words"

"I recently had to read an account of the VII SCOR Meeting held at Hamburg during November 30–December 4, 1964. One paragraph of the report read as follows:

'If the IAMAP-IAPO WG on Air–Sea Interaction cannot be brought to life, SCOR will try to form a joint IAMAP-IAPO-SCOR-UNESCO WG on the same subject but probably with different terms of reference.'

"I have still to decode this message. I doubt whether the effort is worth it. However, our biochemical colleagues do encode in initials many important principles and concepts. Is it not time for us to consider turning some of these into a more standard English form? I have in mind DNA and RNA. DNA, as anyone who has looked at TV or read PSSB (for those uninitiated in the intricacies of 'initialese', PSSB stands for Penguin Science Survey B) will tell you, is short for deoxyribonucleic acid (or deoxyribonucleic acid) and RNA is short for ribonucleic acid. Let us carry the evolution of this new language a stage further. Instead of stark, upper-case initials, can we not manufacture more good old English four-letter words to represent these important substances, so tightly linked with reproduction and the genetic code? Let us in future refer to DNA as Dona and RNA as Rina.

"What to do with ATP, ADP, NAD, NADP, which last, of course, used to be DPN and TPN until the Commission on Enzymes got busy, and a host of others, I do not know. Perhaps UNESCO might request ICSU to call a joint meeting of IUB-IUBS, with IUPAC thrown in, to consider the matter."

H. NEWTON BARBER

PHYSICS

Effect of a Dissolved Electronegative Gas (Sulphur Hexafluoride) on High Field Conduction in Liquid Dielectrics

As recently as 1959 it was believed that the best criterion of liquid purity was high electrical strength and low electrical conductivity. It was then discovered that in the case of *n*-hexane¹ minute quantities of dissolved oxygen resulted in an increase in the breakdown strength and enabled conductivity measurements to be made up to extremely high stresses. Since then the effect of oxygen in several dielectric liquids has been closely investigated. It was found that it had a stabilizing effect on conduction currents in transformer oil and resulted in a considerable reduction in conduction current pulse activity^{2,3}. Accumulated evidence indicates that it is the electronegative character of oxygen which is important.

Among more than a score of electronegative gases, sulphur hexafluoride (SF₆), long known for its unusual chemical stability, is of particular interest. Its successful application as a high-voltage gaseous insulant, together with its highly electronegative character, led to its use in the investigation recorded here as an additive to insulating oils. So far as we are aware, this is the first time that this or any other electronegative complex gaseous compound has been investigated as an additive to a dielectric liquid.

The test liquid used in the present work was B.30 transformer oil of Peruvian origin, which was filtered through a No. 5 sintered-glass filter and degassed to a pressure of 4×10^{-3} torr. Spherical stainless-steel electrodes (6 mm diameter), which had been mechanically polished, were used in all the experiments.

As an illustration of the results obtained, Fig. 1 shows the conduction current–stress characteristics for degassed transformer oil and for oil containing SF₆ in solution at an equilibrium pressure of 0.4 torr at gap spacings of 100 μ and 200 μ . The liquids were stress conditioned for at least 2 h at a stress of 600 kV/cm before making any current–stress measurements. Contrary to expectation, sulphur hexafluoride in solution in the oil resulted in a considerable increase in conduction current magnitudes. It will be noted that the current–stress characteristics have a shape similar to that reported by previous workers for degassed oil⁴.

The stress conditioning period was closely examined in these tests. Fig. 2 shows variations in conduction current with time from the instant of voltage application for an oil sample containing SF₆ at a partial pressure of 0.4 torr at a gap spacing of 200 μ , stressed at 600 kV/cm. It can be seen that conduction current magnitude increased gradually with the duration of the stress conditioning process. This is the opposite behaviour from that usually observed for degassed liquids, or liquids containing any gas other than SF₆, in which case currents gradually decrease with time⁵. An interesting observation made