

recording of Morse telegraphic signals. I think that his conclusion that there is no reason why more frequencies could not be selected in the wave bands at present employed for broadcasting misses the point.

Broadcasting employs a band of radio-frequency wave-lengths, and the whole range of audio-frequencies between about 26 oscillations per second to about 8000 have to be received simultaneously. Audio-resonant selection, on the other hand, can be carried out on very sharply tuned radio-frequencies, and its whole object is to pick out one musical note only, and to reject all other audio-frequencies except that to which the resonator is attuned.

If this principle were applied to broadcast reception, one note only would be picked out whenever it occurred, and all the rest of the music would be rejected.

I notice also that I am credited with a statement that Sir Wm. Preece described the "Hot-wire Microphone or Thermo Telephone" to the Royal Society in 1880. In point of fact, these are two separate instruments, and, as I pointed out in my lecture, Sir Wm. Preece described the thermo-telephone in 1880, but the hot-wire microphone (or red hot wire telephone transmitter, as it was then called) was described by Prof. Geo. Forbes to the Royal Society in 1887.

G. G. BLAKE.

Onslow Road,  
Richmond, Surrey, Aug. 16.

#### A Vibrating Soap Jelly.

SOME years ago, H. N. Holmes showed that a silicic acid jelly could be prepared which gives a musical tone on tapping. It is perhaps worth putting on record that the same phenomenon can be exhibited by a soap jelly, as Mr. P. van Campen happened to discover in this laboratory. A bottle had been nearly filled with ordinary soft soap and set aside. After a few months it turned out that a clear jelly had been formed. On tapping the bottle gently, it gave a very low but distinctly audible tone. It is particularly noteworthy that, whereas the silicic acid jelly is rather stiff and brittle, the soap jelly is very soft, and yields to a slight pressure of the finger.

The pitch of the tone was very low. It was a little higher after the soap had been kept at room temperature for about three months. After cooling in the ice-box, the pitch was raised again a little, as might be expected. When warmed above 25°, the jelly began to melt, but set again when cooled and showed the phenomenon anew.

It would appear that the soap crystallises to a network of crystal fibres possessing sufficient rigidity to allow sound vibrations. At a low temperature the crystals increase in number and in size at the cost of the solution contained between the network, whilst they dissolve again on warming.

I am informed that the same phenomenon has sometimes been observed in a soap factory in Holland.

E. H. BUCHNER.

Chemical Laboratory,  
The University, Amsterdam.

#### Electric Charges on Omnibuses.

WHEN light steam waggons fitted with rubber tyres were first run upon the roads, it was found desirable to provide an earthing device consisting of a short piece of chain which dangled from the vehicle to the ground in order to dissipate the electric charge which accumulated on the vehicle due to the escape of the steam.

Under favourable weather conditions and after descending a long incline with the brakes on, the ordinary motor omnibus also becomes charged to such an extent that upon approaching the bus, just before it has stopped, a spark about 1 cm. long bridges the gap between the hand-rail and the passenger's finger.

The spark is quite attenuated, and the only sensation is a slight pin-prick, though this might be unpleasant to people who are specially sensitive to electric shocks; and it would seem that an earthing device similar to that used on steam waggons should be provided.

That such a shock is present is known to some of the conductors, and it is usually attributed to some slight leakage from the magneto, though this is unlikely in view of the length and comparative weakness of the spark.

I have frequently noticed this effect in boarding a No. 111 bus about half-way down Crouch Hill, N.8.

L. BELLINGHAM.

71 Hornsey Rise,  
London, N.19.

#### Food-Value of Pasture Grass.

THE editorial article in NATURE of July 16 directs attention to the important results secured at the Cambridge School of Agriculture on the value of young pasture grass as a concentrated food for stock. In the Prairie Provinces of Canada, annual and winter annual cereals are used very widely for both hay and pasture. It may be of interest, therefore, to refer to some analyses of such material carried out at the University of Alberta.

The dry matter of young wheat plants, collected at various times in the autumns of 1921 and 1923, contained from 21 to 34 per cent. of crude protein, of which about 90 per cent. was in a fluid condition in the cells. Of the total dry substance in the plants, from two-thirds to three-fourths was contained in the tissue fluids. The detailed analyses have been published in another connexion (*Alta. Coll. of Agr. Research Bull.* No. 1; 1924; and *Jour. Agric. Sci.*, 16, 522-538; 1926).

While no feeding trials were made, the analyses seem to leave no doubt that this material should rank as a high-class concentrate.

R. NEWTON.

Edmonton, Alberta, Canada,  
Aug. 12.

#### Corrosion of Copper Pipes.

THE presence of a metal tends to inhibit the corrosion of a more electro-positive metal. On the other hand, when a metal is coated with a material to which it is electro-negative, it is well known that intense local corrosion is apt to ensue if defects arise in the coating.

Copper utensils are effectively protected by a coating of tin, the potential between copper and tin being about +0.4 volt. Tin, however, is not a suitable lining for copper water pipes. The explanation of this anomaly is that in a pipe the tin lining does not keep bright. On tarnishing it becomes more electro-positive and is ultimately electro-positive to copper. In this condition it is pernicious.

The potential between copper and the tarnished tin lining of a pipe (in water) was found to be -0.1 volt: this pipe failed by local corrosion.

A. F. DUFTON,  
F. L. BRADY.

Building Research Station,  
Garston, Herts,  
Aug. 15.