The First International Acoustical Conference

THERE is scarcely any subject which, during the last few years, has assumed greater commercial and social significance than acoustics. Alongside has come the steady growth of noise—that is, unwanted sound—which in its many aspects is beginning to stir the consciousness of the public to such an extent that it is demanding measures for relief in the more outstanding cases. Acoustics has furthermore developed a large specialized terminology, and the need for agreed measuring units and standards has become more and more pressing.

In Great Britain such questions have been dealt with by a British National Committee under the auspices of the British Standards Institution. Under the chairmanship of Dr. G. W. C. Kaye, this Committee has developed and classified an extensive glossary of acoustical terms*, particular attention being given to units and standards, among them the scales and units of loudness and energy-level. As regards these latter, which are of especial importance, considerable divergencies have unfortunately prevailed in the practices of different countries, not only as regards the scales, units and zeros of the standard reference tones, but also in the listening techniques and phraseology employed. In its work, the British Committee kept in mind the desirability of eventual international agreement in such matters and to this end set up specifications dealing with the standard reference sound (a sinusoidal plane progressive wave of a frequency of 1000 cycles per second), and the arbitrary zero of reference (0·0002 dyne per sq. cm.). The "phon" (a name we owe to Barkhausen) was adopted as the unit in the subjective scale of equivalent loudness, while the use of the "decibel" (a name which originated in America) was restricted to the scale of the associated energy or pressure level.

In July of this year, the first international conference on acoustics was summoned in Paris under the auspices of the International Electrotechnical Commission (I.E.C.), some sixty delegates from thirteen countries assembling under the presidency of M. Duval, president of the French Electrotechnical Committee. Substantial agreement was reached in the several sections set up to deal with vocabulary, fundamental units and methods of measurement, electro-acoustics, and noise abatement. Chief interest centred in the questions of fundamental units and methods of measurement, and it is satisfactory to learn that the proposals eventually adopted are in complete agreement with the specifications submitted by the British delegation under the chairmanship of Dr. Kaye. The "phon" and the "decibel" are accordingly accepted as international units, so that an important contribution to international acoustical measurements has been achieved. Particular mention should be made of the helpful and conciliatory outlook of the United States and German delegations, of whom Dr. Harvey Fletcher and Dr. Grutzmacher were the respective chairmen.

An inquiry into the present position of objective noise meters indicated that while great progress had been made, there was not enough experience available to approve at the present juncture the specification and standardization of a 'universal' noise meter which will measure on the phon scale any and every type of sound. Other points dealt with included the standardization of methods of testing microphones and loud-speakers, the different procedures adopted in various countries for measuring acoustic absorption coefficients by the reverberation method, the methods used to investigate the transmission of air-borne and impact sounds in buildings, and the steps taken in different countries for reducing noise.

The pronounced success of the Conference owed much to the valuable preparatory work of the I.E.C. and the co-operation of M. Valensi, secretary of the Comité Consultatif International Téléphonique. It was agreed at the final plenary meeting that the work of future conferences should be administered by the Federation of National Standardising Bodies known as the International Standards Association, the I.E.C. concurring and actively collaborating.

* "British Standard Glossary of Acoustical Terms and Definitions" (London: British Standards Institution, 1936) 3*s*. 6*d*. net.

Concentration of Solutes in Vacuolar and Cytoplasmic Saps

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IF 25–30 gm. of mature leaves of the cotton plant are rolled up, wrapped in cloth, the wad placed between two disks about 2 in. in diameter and the whole put in the jaws of a small vice, sap is expressed on the application of pressure. As the sap flows out of the wad, much of the leaf is squeezed out from between the disks. To obtain more sap, the tissue must be collected into a ball and again wrapped up in the cloth. On the application of pressure, sap is again expressed. This process can be repeated three or four times; but a point is reached when even under the greatest pressures that can be obtained in the vice, the yield of sap amounts to only a few drops. If now the residue from which sap has been expressed is frozen at −16° C. and then thawed, much more sap can be obtained on the application of very small pressures.

It was observed by Dixon and Atkins[1] that the concentration of solutes increased in successive fractions. They also discovered that preliminary treatment of the leaf by freezing or by exposure to anæsthetics greatly increased the concentration of