with testing them in the laboratory. The co-operation of the former will be acknowledged in more extensive reports. The work depended very much on the skill in handling wild populations in the laboratory of Prof. W. C. Morgan, jun. (now at South Dakota Agricultural College), at the initiation of the experiment, of Mrs. Joan Suckling and Mary Anne Dann during its continuation, and most recently of Dr. Louis Levine, Andrew D. Beasley, Frank Burnett and Robert E. Stephenson, of the Nevis Laboratory.

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An Instrument for measuring Soil-Moisture Deficit

The estimation of residual available soil moisture should be an essential part of irrigation practice. Penman's method[1], based on meteorological observations, gives excellent results ; but in its present form it is somewhat cumbersome for use by commercial growers. Various alternative methods are available ; for example, measured evaporation from an open water surface may be expressed as potential evapotranspiration by means of a suitable conversion factor[1]. Garnier has measured evapo-transpiration directly using a standard grass surface[2]. There is, however, a need for a simple device which will integrate rainfall and evaporation measurements and give a reading expressed as soil-moisture deficit.

We have devised a combined rain-gauge and evaporimeter which ultimately may prove suitable for use by growers for day-to-day control of irrigation. It would also provide valuable data if installed in meteorological stations. The instrument is intended to be placed in a growing crop, so that it collects rain and irrigation water in a common receiver ; an evaporation surface, consisting of an unglazed ceramic disk, draws its water supply by capillarity from this receiver. Successful operation of the instrument depends upon correct adjustment of the ratio between the area of the collecting surface and the area of the evaporating surface. The total effective area of the evaporating surface is therefore determined by comparison with a free water surface. This is expressed in terms of area of soil completely covered by plants, using Penman's conversion factor (0·8 for south-east England, March–August). The instrument is then constructed so that the area of its collecting surface equals the area of its evaporating surface thus expressed in terms of plant-covered soil. It is necessary to provide means of adjusting the effective area of evaporating surface to compensate for differences in rate of water-loss between wet soils and dry soils, and between soils completely covered by plants and those only partially covered. An overflow is provided in the receiver at a level corresponding to field capacity, so that any rain which falls when the instrument is indicating field capacity is collected separately and gives a measure of the amount of drainage which has taken place through the soil. The water supply to the evaporating surface is so arranged that when the instrument is indicating wilting point, the water-level in the receiver is just below the level of the outlet, thus cutting off the supply and preventing further evaporation.

When the instrument is correctly adjusted, the amount of water in the receiver at any time corresponds to the amount of water remaining in the soil, so indicating directly the current soil-moisture deficit.

Many workers are carrying out experiments to determine the maximum permissible deficit at various growth stages of the major crop plants. The results of such experiments will enable this instrument to be used for deciding when to irrigate, in addition to indicating how much water is required to restore the soil to field capacity.

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Index of Translations of Foreign Scientific Material

The editorial article in *Nature* of November 19 raises once more the problem of how to ensure that foreign scientific material is economically translated and made available. The index of unpublished scientific translations maintained by Aslib, and covering the principal countries of the Commonwealth, is, I believe, one step in the right direction. May I appeal to readers of *Nature* to help make the index more effective by arranging, whenever possible, for details of partial or complete translation, made or about to be made by their organizations, to be notified systematically to Aslib ? The details required are : author, name of periodical, volume, issue number, inclusive pagination, date and translated title, as well as the form of translation (for example, typescript, microfilm, etc.), whether it is complete, partial or a summary, whether it can be bought or borrowed, and the name and address of the holding organization.

Many inquirers now systematically check with Aslib before starting a translation. Their intention to undertake the translation, if one is not known to exist, is recorded at once, so that it is sometimes possible to suggest a joint task with expenses shared to a subsequent inquirer. Last year (the third year of operation) the cost of 137 translations, representing perhaps some £3,000 and possibly unwelcome delays as well, was saved by the index ; the figure will doubtless be increased considerably as more firms and institutions collaborate.

The language barrier, however, is only one of many problems in the dissemination of knowledge. Paradoxically, Great Britain spends substantial sums (something like £300 million a year) on research to produce new knowledge, but only trifling amounts on research into ways of putting it where it can be of the widest practical use. Perhaps the time is ripe for the principal organizations representing scientists and information workers to consider jointly how the country's needs in this respect can best be met.

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