In our opinion, the result of the present investigation—until further irrefutable proof of the separate identity of the properties is found—justifies the assumption that P and Q are identical.

Our thanks are due to Prof. Tanemoto Furuhata, Tokyo, for a gift of anti-Q.

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A Caliper for measuring Photographs, X-Rays and Drawings

THERE is at present no instrument on the market suitable for measuring distances in photographs, X-rays or drawings both accurately and in considerable numbers. Our particular problem was to measure various dimensions of the human figure on 12 in. × 10 in. pictures of subjects photographed in the nude for studies of body-build. The measurements had to be accurate to 0·1 mm., and a large number of them had to be recorded. In this technique, known as photogrammetric anthropometry, needle-pointed calipers are used, so as to locate the precise point at which the edge of the body shades into the white background of the picture. Some form of enlargement of the scale of measurement other than a vernier, which is awkward to read and thus gives rise to too many reading errors, was clearly desirable. We first used calipers based on a scissors principle, with a magnification of scale of about × 5 due to the needle-pointed arms being shorter than the arms carrying the reading scale[1]. However, these proved unsatisfactory in practice due to the scale being on the chord rather than the arc of the opening circle, and because adjustment to remedy this varied from one instrument to another and was not entirely reliable.

A straight-bar design appeared to be better, and eventually the question of how to achieve the required scale enlargement was solved by the use of a dial gauge. The new instrument, made by British Indicators, Ltd., Sutton Road, St. Albans, Herts, is illustrated in Fig. 1. It rests flat on the photograph with the needle-tips adjusted so as just to clear the surface until tilted a fraction downward. The dial reads a total of 10 mm. in 0·1 mm. divisions and is linked to the right-hand needle point, which is moved by operating the thumbscrew at the far right-hand end. The left-hand needle point can be fixed at 1 cm. intervals up to 15 cm. by releasing the trigger seen underneath the left-hand bar, and moving the bar along until the desired figure appears in the round window at its right-hand end. This provides the coarse adjustment mechanism and enables the instrument to read in divisions of 0·1 mm. from zero up to as much as 15 cm. There is play of about 0·1 mm. in the thumbscrew mechanism, but this can be practically entirely obviated by arranging always to rack the dial in the same direction before taking the final reading.

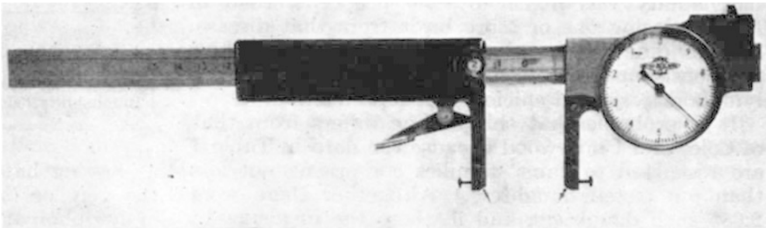

Fig. 1

We have recently found this instrument useful for measuring the relative amounts of bone, muscle and fat along given diameters in X-rays of the legs and arms (see ref. 2), and in measuring the growth of epiphyses in serial X-rays of growing children. However, it is so much less tedious in operation than conventional dividers that it seems likely to be of use to research workers and engineers in a variety of fields.

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1 Tanner, J. M., *Lancet*, i, 574 (1951).
2 Tanner, J. M., "Growth at Adolescence" (Blackwell Sci. Pub., Oxford, 1955).

Removal of Mineral Nutrients from Tree Crowns by Rain

IN 1951, C. O. Tamm[1] gave figures for the mineral nutrient composition of rain-water collected under three species of forest trees. M. G. Mes[2] has since published experimental work on the loss of phosphorus and other mineral elements from living leaves due to the influence of rain.

This communication reports the composition of rain-water collected under a thirty-year old plantation of *Pinus radiata* D. Don in Whakarewarewa Forest, Rotorua Conservancy.

The supply of nutrients to the soil in rain-water is compared with the return contained in the litter-fall from the stand. The results in Table 1 cover the period November 26, 1954–June 2, 1955.

Table 1. NUTRIENT CONTENT OF RAIN-WATER AND LITTER COLLECTED BENEATH *P. radiata*

	Rain-fall (cm.)	Litter-fall (gm./m.²)	Nutrient return to soil (m. equiv./m.²)				
			Ca	Mg	K	Na	P
Rain-water 30 yd. from trees	68·7	—	1·3	1·4	2·2	23·4	—
Rain-water beneath trees	42·0	—	4·7	12·6	21·5	81·4	4·9
Litter beneath trees	—	252	61·6	21·2	16·5	10·4	24·6

It seems that when considering the return of mineral nutrients to the soil under *P. radiata*, both litter-fall and rainfall must be taken into consideration, since in the cases of potassium and sodium a large proportion of the total return to the soil is contained in the rainfall.

A fuller account of this work will be published at a later date.

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1 Tamm, C. O., *Physiol. Plant.*, 4, 184 (1951).
2 Mes, M. G., *South Afr. J. Sci.*, 50, 167 (1954).