ing percentage was 23.6 ± 0.04 per cent. Although this difference may be significant, it is so small that it must be ignored if observations on field soils are contemplated.

In spite of its important technical properties, methyl cellulose seems to be of limited use in modifying the water relationships for soils similar to those in Hawaii. For pot tests of soils rich in silica sand or "greenhouse" soils the material may be of considerable value. The fact remains, however, that the high viscosity of dilute suspensions precludes its use in an extensive agriculture, as is suggested in the reference cited.

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Penicillin Action on the Germination of Seeds

In a previous work we have demonstrated that sulfanilamide inhibits the germination of seeds (*J. biol. Chem.*, 1944, 152, 3, 665–667) and that this drug acts on seeds in the same way as on some germs. It would be reasonable to expect penicillin to act similarly. In order to make evident this possibility, we proceeded as is shown in the following table:

INFLUENCE OF PENICILLIN ON THE GERMINATION OF SEEDS

No.	Penicillin (Oxford Units) per cc.	Germination of seeds	
		24 hours	48 hours
1	1,000	–	–
2	500	–	–
3	100	–	–
4	50	–	–
5	10	–	–
6	5	–	++
7	1	+	+++
8	0.5	++	++++
9	0.1	+++	++++
10	..	++++	++++

Penicillin was diluted to a total volume of 10 cc., and each dilution was placed in small glasses (diameter, 4.5 cm.). In each glass 50 French lettuce seeds (*Lactuca sativa* L. var. *capitata* Roz.) were placed, and the whole was kept at room temperature. The germination of these seeds in water is very rapid, and it is possible to read it after 18 hours from the beginning of the experiment. This observation is made with the eye brought to a level with the surface of the liquid, since the lengthened seeds float and, when they germinate, the radicles grow downward.

Readings taken 24 hours later show a visible difference between the testimony and the sample having received but 0.1 Oxford Unit, thus proving seed sensibility toward penicillin during the germination. After 48 hours seeds ungerminated until then begin to germinate. This may be explained by the fact that penicillin is progressively destroyed at room temperature.

In order to demonstrate that pencillin acts as a phytostatic, as a bacteriostatic does in the case of bacteria, we substituted the solution of penicillin for water after 48 hours in Experiments 1–5, and normal growth of seeds was then observed.

Adding penicillin to seeds not under the effect of the drug and which had begun to germinate was without effect unless a great quantity of penicillin was added (more than 1,000 Oxford Units/cc.).

We have tried to employ a test based on the above experiments to the quantitative determination of penicillin, but so far we have had no encouraging results except for approximative estimation.

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A Substitute for Microfilm Readers

Many laboratories do not yet have convenient access to microfilm readers. Such literature, however, can be viewed by use of a binocular dissecting scope, using a 10 x ocular and a 0.7 x objective. This serves especially well for short references after the whole article has been studied once with a full-sized reader in the college library. Prolonged periods of reading using the binocular would probably prove as difficult as with some of the small-sized monocular viewers now on sale.

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An Improved Slide Rule for the Addition of Squares

The writer once constructed a pair of scales similar to the C scale of the slide rule described by Dr. Morrell (*Science*, 1946, 103, 113) and has often used them in a course on the art of computing, as an aid in teaching the concept of a functional scale, preparatory to the treatment of the logarithmic slide rule and of nomography in general. On reading Dr. Morrell's note it was consequently evident that the number of operations necessary to solve the given equation, $d = (x^2 + y^2 + z^2)^{\frac{1}{2}}$, can be markedly reduced by using such a pair of scales.

In the procedure indicated by Dr. Morrell (p. 114), only the B scale and the cursor are actually used; the A scale is referred to descriptively, and the others not at all. The operations involve three settings of the cursor, two settings and a third motion of the slider, and the final reading. If we have a pair of scales, the zero of the slider can be first set at the value of x on the fixed scale and the cursor at y on the slider, which will be at $(x^2 + y^2)^{\frac{1}{2}}$ of the fixed scale. Then, bringing the zero of the slider to the hair line of the cursor, we have the value of d on the fixed scale opposite that of z on the slider. This involves two settings of the slider and a final reading, as before, but the third motion of the slider is eliminated and there is but a single setting of the cursor, unless a second setting be used as an aid to interpolation of the final reading.

As Dr. Morrell's A and D scales are identical except for the decimal point, both are not really necessary, and one of them could be replaced by a fixed duplicate of one of his movable scales. Were the writer to need an instrument for the problem described, the disposition would probably be: A and B like Dr. Morrell's C; C and D like his B; and a fifth scale, of equal parts, replacing his A and D, on the slider between B and C.

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