

Comments and Communications

Ascorbic Acid in Tea

AN ASSOCIATED PRESS dispatch, dated April 29, 1951, from Moscow, stated that "researches of the Bakh Institute of Biochemistry have conclusively proved that the tannin of tea leaves is equivalent to Vitamin C in citrus fruits."

It may be of interest to scientific readers to recall the fact that in 1935 Henry Tauber and I reported (*J. Biol. Chem.*, 110, 559) that tea contains 0.22 mg of true ascorbic acid per gram of substance. This is about half to one third as much as is present in citrus fruit juices, and "the amount available from a nutritional standpoint is much less, because of the actual amount used in infusions and hence consumed."

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A Basic Feature of the Chambers' Micromanipulator

AN article by M. J. Kopac (1) gave the impression that there is an error in the basic construction of the Chambers' micromanipulator. The modification Kopac introduced is to replace the upright post of the Chambers' instrument with the main body of a standard B & L microscope. This has the excellent feature of introducing a long-range control, both coarse and fine, for the vertical movements. Such a device was indeed tried in one of the earlier Chambers' models, but it was discarded because the stability of the fine horizontal movements would thereupon be dependent on the firmness of the coarse adjustment mechanism of the microscope part. This presented the possibility that wear and tear over a period of time might loosen the adjustment and hence vitiate the efficiency of the fine horizontal adjusting mechanism of the micromanipulator.

The criticism made was that the up-and-down fine movement of the Chambers' instrument, being in an arc, "produces an appreciable lateral displacement of the microtip [of the needle] along with the vertical motion." The possibility of such a displacement was very much on my mind at the time the instrument was first devised and would have condemned using the principle of arc movements unless such a possibility could be circumvented. It was circumvented successfully, so that the principle of arc movements produced by the spreading apart of rigid bars against the springs was finally decided upon as the most practical, efficient, and economical way for securing stable fine movements. Moreover, the construction involves an absolute minimum of frictional surfaces. As a result, instruments constructed by E. Leitz on this arc-movement principle for all three fine movements have been in constant use and are still serviceable after more than 30 years.

The displacement, regarded as a criticism of the construction, is eliminated provided the micromanipulator is properly mounted with reference to the height of the moist chamber on the stage of the microscope. In the field of the microscope the straightness of travel of the microtips, although they move along arcs of circles, is due to the minuteness of the arc ($< 2-3$ mm) of a 3-in. circle along which the microtip moves. In order to ensure the horizontal movements traveling at right angles to one another, the manipulator has to be put in a proper position with respect to the microscope.

In the present statement, attention is restricted to the mechanism for the up-and-down movement. Fig. 1

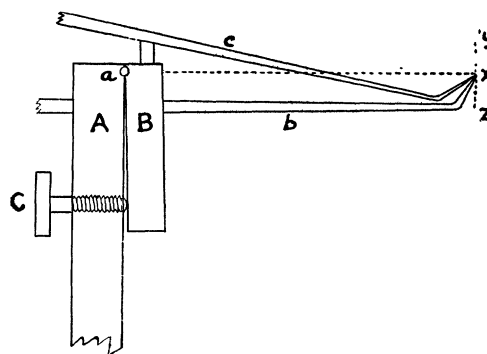


FIG. 1. Diagram of part of Chambers' micromanipulator illustrating the up-and-down moving mechanism. *A* represents the vertical rigid post; *B* is the vertically placed bar, spring-hinged at *a* so that turning the screw *C* will induce an up-and-down movement of the microtip at *x* along the most vertical part of the arc *y-z*. It is immaterial where the shaft of the needle is placed—e.g., either *b* or *c*, provided the shaft is mounted somewhere on *B* and the microtip is at *x*.

is a diagram in which the height of the post *A* is properly adjusted as follows: The pivot, or center of rotation, of the spring bar at *a* must be at a height level with the roof of the moist chamber on the stage of the microscope. This will cause the tip of the microneedle, when touching the undersurface of the cover-slip roofing the operating moist chamber, to be about on the level of a dotted horizontal line, *x*, projected from the pivot and over the microscopic stage. In such a position the microtip will travel along the most vertical part of the arc, *y-z*, irrespective of the position of its shaft—e.g., either *b* or *c*.

The fault of the Chambers' model lies in the lack of adequate control of the coarse adjustments. These adjustments are serviceable chiefly for bringing the tips of the microneedles and pipettes into the field of the microscope. For actual operation only the fine adjustments are to be used. It is to be hoped that Kopac's modification will take care of the coarse vertical adjustment that is sorely needed in the mounting of the microtip in the vertical position. As long as the firmness of the introduced vertical control mechanism is

maintained, this introduces a much-needed long-range coarse adjustment.

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Reference

1. KOPAC, M. J. *Science*, **113**, 232 (1951).

Information Wanted

I AM preparing a biography of Richard Everingham Scammon, who was professor of anatomy at the University of Minnesota from 1914 to 1930, and distinguished service professor, Graduate Faculty, since 1935. Dr. Scammon is now retired and living at Branson, Mo.

I would appreciate your bringing this project to the attention of your readers, some of whom may have interesting and valuable stories, anecdotes, letters, or other reminiscences pertaining to him. All correspondence in the original will be carefully preserved and returned to the owner. I would request that all communications be sent directly to me.

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Language Problems in Science

DISCUSSIONS about language problems in English and American journals are always a source of mild amusement to those of us who belong to the smaller languages. Mice must have a similar feeling if they can hear the elephants discussing the disadvantages of being small!

Generally, a scientist from one of the smaller languages must possess a working knowledge of—besides his own—the three main languages, English, French, German. The designation “main languages” does not refer to the number of people using them as their mother tongue, nor to the actual number of pages of science being published in the various languages today. It simply reflects the fact that the relevant literature has been published in these three languages. This is a fact that cannot be debated, whether we like it or not.

The need to learn three foreign languages (and generally to learn at least one of them thoroughly) imposes a not-inconsiderable extra intellectual burden, even if these languages are rather closely related. Do the proponents of Esperanto (or any other “synthetic” language) realize that the introduction of this language as a means of scientific communication would mean that we shall have to learn a fourth language (admittedly somewhat easier than the rest)? Even if by universal agreement, starting tomorrow, Esperanto should be the only language to be used in scientific publications, there would still be the old literature (very important in many branches of science) which would necessitate forever the learning of other languages, and in many cases a spot of Latin besides.

There is another point glibly overlooked by the proponents of Esperanto—viz., that it is very far from being universal in structure. Esperanto is an Aryan language—west Aryan, to be more specific—and to non-Aryans it is just as difficult to learn as the much more useful living languages.

Under special circumstances many considerations may justify the publication of scientific material in a small language; but speaking as a member of a very small nation myself, I completely agree (in matter, though perhaps not in form) with the denunciations that have appeared in *SCIENCE* of all tendencies toward linguistic isolationism. Scientific studies are pursued all over the world by people speaking no end of languages, and I have no more right to demand that my colleagues shall learn Norwegian to study what I may produce, than anybody else has the right to demand that we shall all learn Burmese. We cannot demand that the scientific world shall take notice of a publication when we ourselves do nothing to make this possible. If we cannot write the other language ourselves and cannot afford a complete translation, simple consideration should prompt us to give at least a summary. (But the art of making summaries is no easy one!)

Linguistic isolationism is no monopoly of the small languages. In the great ones it takes the less obnoxious form of neglecting all literature of other languages and of not bothering to learn even two foreign ones sufficiently well to use them. This is generally a detriment to the individual only, whereas the loss of an important publication in a small language will generally be a detriment to science as a whole.

Lincicome maintains (*SCIENCE*, **113**, 607 [1951]) that, “if allowed to use their national tongue, many writers will publish much of scientific value that would remain unpublished (and therefore totally inaccessible) if it had to be translated.” Is Lincicome prepared to learn Burmese to gain access to this literature? I am not, and I doubt if any Burmese colleague would be prepared to learn Norwegian. Abstracting journals do a great job, but have we any right to load the burden of translation upon the shoulders of our colleagues?

However much sympathy one might have for nationalism, linguistic isolationism is inconsiderate and constitutes, I think, one of the sins that cannot be forgiven in human society.

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HAVING spent two months in Japan I have had my attention greatly sharpened as to communication. I've just caught up with the exchange of letters between H. David Hammond, D. R. Lincicome, and Ancel Keys. I take it as obvious that language is being used for chauvinistic purposes in many places, and am convinced that both language and science are being used for such purposes wherever the USSR is in political control.

However, the real questions about scientific writing