complex ferric phosphates. This indicated that the effect of humic acids was not merely an ion exchange at the root surface, but that the translocation of iron to the leaves was being promoted. This could be demonstrated by a split-root technique, and experiments with tomatoes were in progress when the afore-mentioned report (*4*) appeared. Our results are therefore briefly presented here (*7*).

We have been able to confirm that EDTA, absorbed by the roots in one compartment, caused translocation to the leaves of iron supplied in the presence of high phosphate from the roots of the other compartment. Within 1 mo about two-thirds of the EDTA supplied had disappeared.

If a water extract of peat was used instead of EDTA the plants grew equally healthily. Humuslike substances synthesized from "A.R." sucrose (*8*) were equally effective in preventing iron chlorosis. The plants became chlorotic if the humic water was withdrawn.

A ratio of phosphorus to iron in healthy leaf cells varies within narrow limits, chlorotic leaves having either high (iron deficiency) or low (iron toxicity) ratios (*5*). If ferric chloride was supplied to one compartment and phosphate to another, the plants continued to grow healthily. It would appear that it is the level of soluble iron in the cells of the root that determines how much iron will be translocated to the leaf. A more detailed description of these experiments is in preparation.

P. C. DE KOCK

Macaulay Institute for Soil Research, Craigiebuckler, Aberdeen

References and Notes

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10 January 1955.

Improved Adhesion and Visibility of Cytologic Preparations by Use of the Frosted Glass Slide

Frosted glass may be used to good advantage as an aid in the adhesion of material to a glass slide in the preparation of various types of nonmucoid fluids and secretions for microscopic study. The slide discussed here is frosted or etched on the entire surface of one or both sides and is referred to as the *frosted glass slide* [U.S. Pat. pending].

During the process of staining cellular material spread over a conventional type of slide (only one side frosted on one end for easy marking purposes),

Fig. 1. (Left) Unmounted slide showing material smeared on both frosted and clear surfaces. (Right) Same slide when mounted with a cover glass.

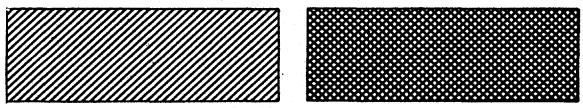

Fig. 2. (Left) Slide frosted on one surface. (Right) Slide frosted on both surfaces.

it was observed that, where the specimen partially covered the label end or frosted surface, it appeared more intense than on the clear surface. There was a distinct difference in the two areas, the line of change occurring at the boundary of the frosted edge. It was apparent that the material adhered more readily to the area of frosted glass than to the clear surface (Fig 1, left). After mounting (Fig. 1, right), the frosted glass was observed to be completely clear in the area of contact with the mounting medium.

These observations led to testing and then to use of the frosted glass slide for cytologic and histologic preparations. It was also found useful in bacteriologic, hematologic, and other laboratory studies. Experiments were performed using slides frosted from end to end on one or both surfaces and varying in degrees of grain (Fig. 2).

Frosted glass comparable to a 150-emery grain has proved most satisfactory for routine cytologic and histologic procedures; however, variations ranging from 120- to 170-emery grain may be used for the other preparations mentioned in the foregoing paragraph.

Principle A: adhesion of material. Cells, bacteria, and other inclusions found in body fluids and secretions adhere more readily to a frosted or etched glass surface than to a smooth one. One of the most serious problems in the cytology laboratory today is that of preparing smears to meet the cytologist's requirements for giving an accurate interpretation. Since many specimens encountered are nonmucoid, there is always the problem of a certain loss of important material. Routine staining procedures require much washing, which results in considerable loss of material, regardless of the amount of caution taken during processing.

Such substances as egg albumin are now being used for adhesive purposes. However, use of the frosted glass slide eliminates the need for such adhesive substances, which often obscure the important detail, especially in the examination of watery-type specimens. The slide frosted on one side is suggested for routine use (Fig. 2, left, 150-emery grain).

Principle B: diffusion of light. Frosted glass diffuses the light coming through the microscope and thus cuts down the glare and reduces eye fatigue. This is accomplished when the frosted surface is on the

under side. Therefore, the slide shown in Fig. 2 (left), with the specimen mounted on the smooth side, may be used for this purpose only. The slide etched on both sides (Fig. 2, right) serves the dual purpose of light diffusion and improved adhesion.

The frosted glass slide should also find a place in high-school, university, and other laboratories where the majority of students work with an inexpensive and a comparatively poor light source.

In Fig. 3 (left and right), it is shown that the mounting medium completely clears the frosted glass in the mounted or contact area. It should also be noted that the light diffusion is equal in Fig. 3 (middle and right).

Figure 3 (right) illustrates the mounted slide frosted on both surfaces. The contact surface is transparent, but the frosted glass on the under surface can still be seen.

In bacteriologic, hematologic, or other studies where mounts are not required for routine work, the immersion oil used to examine the specimens will clear the frosted glass. In this respect, it acts in the same manner as the mounting media, for example, permount, Canada balsam, and other substances that have substantially the same refractive index as glass.

The advantages of frosted glass slides over clear glass slides can be summarized as follows: (i) Increased adhesion of material to the slide results in a higher percentage of accuracy and assists the microscopist in his final evaluation or diagnosis. (ii) Light diffusion by use of the frosted glass slide cuts down glare and reduces eye fatigue, which is extremely important to the cytologist or pathologist who spends an unlimited amount of time at the microscope. (iii) The frosted glass slide is suggested for use in high-school and university laboratories, where the source of illumination for microscopic work is frequently of poor quality.

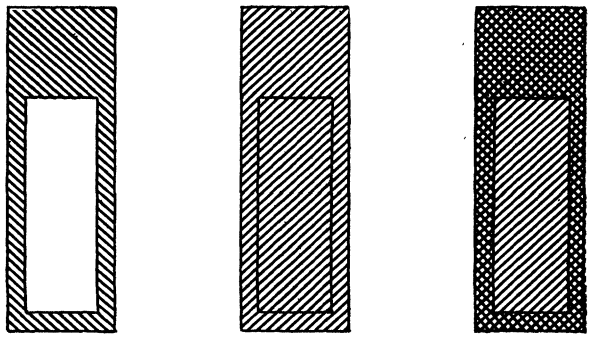

Fig. 3. (Left) Slide, as shown in Fig. 2 (left), mounted on frosted surface. (Middle) Slide, as shown in Fig. 2 (left), mounted on clear surface. (Right) Slide, as shown in Fig. 2 (right), mounted.

EVELYN STUART DAKIN
Laboratory of Cytopathology,
Roosevelt Hospital, New York

15 February 1955.

Association Affairs

AAAS Sections Call for Papers for the Atlanta Meeting

Ten sections of the Association will arrange sessions for contributed papers at the Atlanta meeting, 26–31 Dec. 1955. The secretaries to whom titles and brief abstracts should be sent, *not later than 30 Sept. 1955*, follow:

C—Chemistry. Dr. Ed. F. Degering, 26 Robinhood Road, Natick, Mass.

D—Astronomy. Dr. Frank K. Edmondson, Goethe Link Observatory, Indiana University, Bloomington, Ind.

E—Geology and Geography. Dr. Robert L. Nichols, Department of Geology, Tufts College, Medford, Mass.

F—Zoological Sciences. (If outside the scope of the American Society of Parasitologists and the Society of Systematic Zoology, which are meeting with the AAAS.) Dr. Harold H. Plough, Department of Biology, Amherst College, Amherst, Mass.

G—Botanical Sciences. (If outside the scope of the American Phytopathological Society, which is meeting with the AAAS.) Dr. Barry Commoner, Henry Shaw School of Botany, Washington University, St. Louis, Mo.

I—Psychology. Dr. William D. Neff, Department of Psychology, University of Chicago, Chicago, Ill.

L—History and Philosophy of Science. Dr. Jane M. Oppenheimer, Department of Biology, Bryn Mawr College, Bryn Mawr, Pa.

Nd—Dentistry. Dr. Russell W. Bunting, School of Dentistry, University of Michigan, Ann Arbor.

Np—Pharmacy. Dr. John E. Christian, School of Pharmacy, Purdue University, Lafayette, Ind.

Q—Education. Dr. Dean A. Worcester, University of Nebraska, Lincoln.

New Section Officers

As authorized by the Council of the AAAS at its meeting in Berkeley last December, the Board of Directors, on 20 Mar., approved the nominations of two of the Association's sections, as follows:

Vice president and chairman of Section N—Medical Sciences: S. E. Luria, professor of bacteriology, University of Illinois.

Vice president and chairman of Section P—Industrial Science: Earle L. Rauber, vice president and