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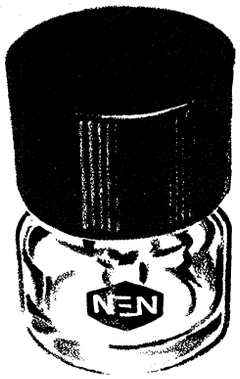

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1. J.A. Eisman, et. al., The Lancet, December 22/29, 1335-1336 (1979)

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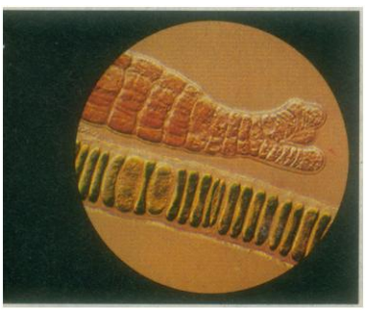
COVER

Patterned maize kernels. Interruption of gene action by transposable elements underlies the red striping (*P* gene) in the kernel's outer layer and the purple spotting (*R* gene) in the next inner layer. The two systems of instability were combined in an analysis of the *R* gene. See page 1457. [Alaine Johnston and Charles Thomas, Laboratory of Genetics, University of Wisconsin, Madison]

NIKON VISIONS



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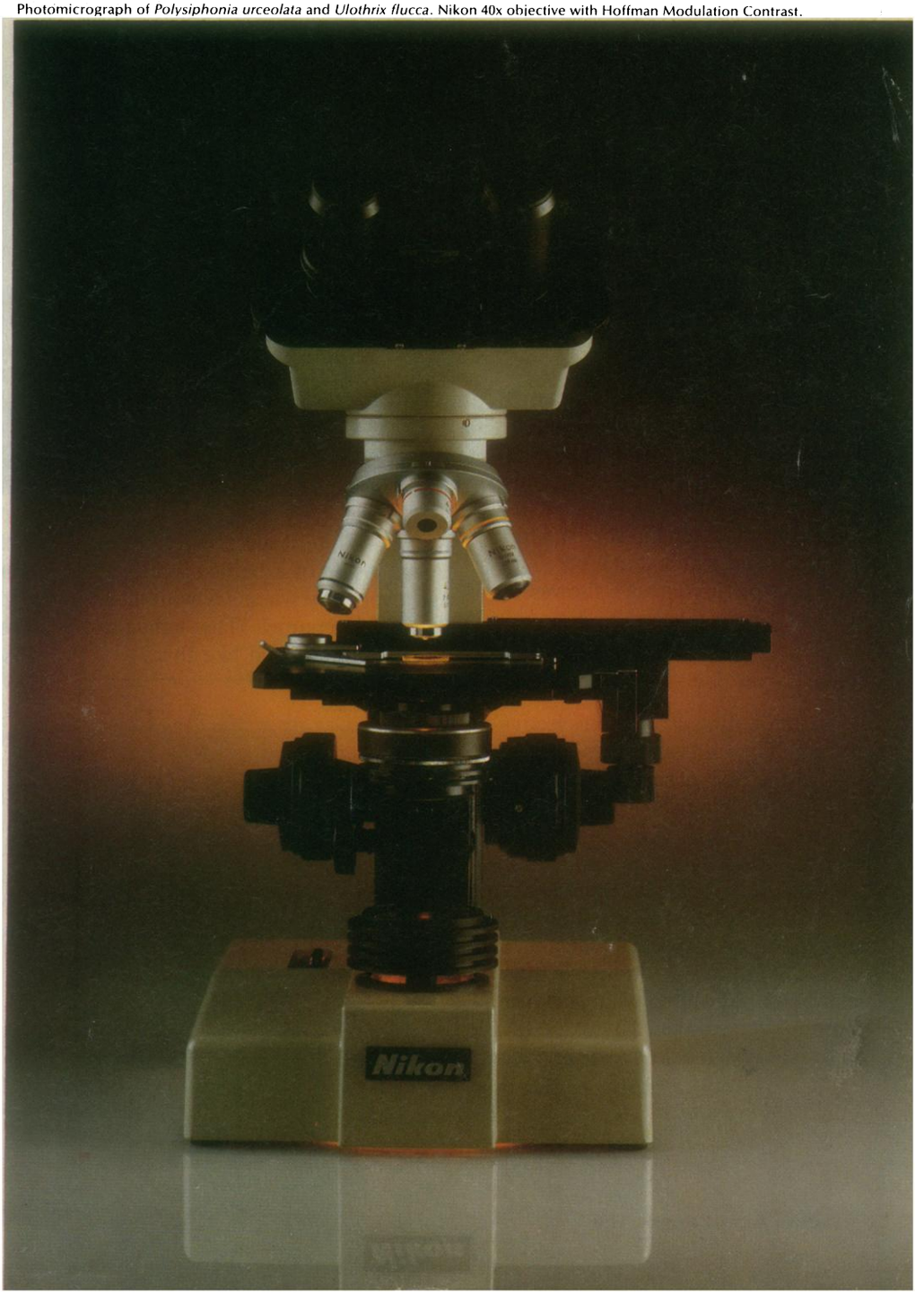
Photomicrograph of *Polysiphonia urceolata* and *Ulothrix flucca*. Nikon 40x objective with Hoffman Modulation Contrast.



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No matter how black the blackest ink that can be laid down on a magazine page, it cannot come even close to the blackness of this thing. Anybody who knows how to make a blacker black ought to publish a paper on how to do it. Until that happens we know of nothing in the world that's blacker. Not only is it black in the visible and the UV—as black as the blackest known alternative in the visible—but it is blacker than anything else we have ever heard of out to 2.5 μm in the infrared, where few things are really very black.

If you need something that black, we tell you how to make it yourself. We sell the principal component, which happens to be the whitest known white. Needs for the whitest of whites and the blackest of blacks both occur in spectrophotometry and radiometry, among other endeavors. They serve as standards against which samples are measured. When measuring reflectance of a sample with considerable transmittance in the infrared, the departure from blackness in the backing can introduce significant error. The light trap pictured above shows the following reflectances:

λ in μm	0.35	0.5	1.0	1.5	2.0	2.5
reflectance	.0004	.0004	.0006	.00075	.001	.001

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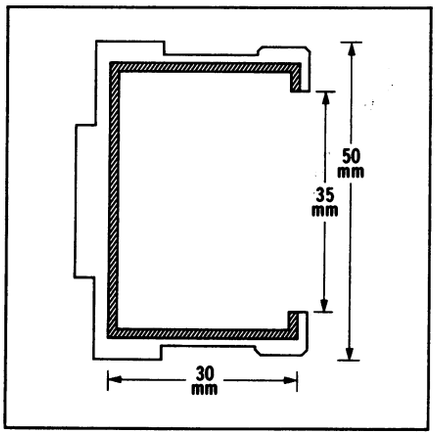

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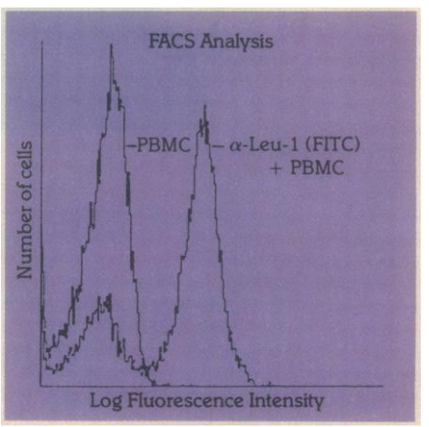
α-Leu-3a Clone SK3		■		
α-HLA-Dr[4] Clone L243			■	■
% of PBMC	20-40%	40-60%	10-20%	10-20%
Subpopulation Contains:	Suppressor and Cytotoxic	Helper and Inducer	Antibody-Forming Cell Precursor	Macrophage Precursor



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References:

1. Evans, R.L., et al. (1978). Two functionally distinct subpopulations of human T cells that collaborate in the generation of cytotoxic cells responsible for cell-mediated lympholysis. J. Immunol. 120, 1423.
2. Engleman, E.G. and Levy, R. (1980). Immunologic studies of a human T lymphocyte antigen recognized by a monoclonal antibody. Clinical Research 28, 511A.
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4. Lampson, L.A. and Levy, R. (In Press). Two forms of Ia-like molecules on human B cell lines. J. Immunol.
5. Conley, M.E. and Kearney, J.F. (1980). Hybridoma antibodies specific for human IgA subclasses. Federation Proceedings 39 (3), 927.

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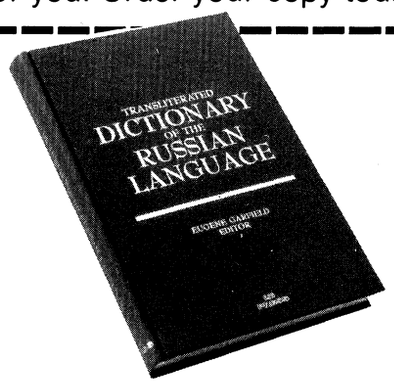

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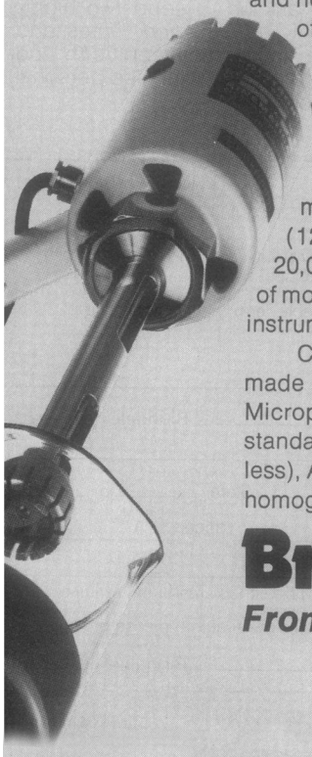

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27 June 1980, Volume 208, Number 4451 **SCIENCE**

Food, the Hidden Crisis

As familiar as the energy crisis is to all of us, there is another, energy-related crisis that has been recurring since the beginning of history and continues to plague us today. That is the international food supply and the problem of world hunger. In many ways, world hunger is a hidden crisis, for it comes to our attention only in a sporadic fashion. Yet it probably represents a more explosive threat to world peace than does nuclear proliferation.

Hunger comes in several varieties. One is literal starvation. Another is malnutrition (nutritional imbalance), which is far from uncommon, even among the affluent. Today, however, the major variety of world hunger is chronic undernutrition, a problem preponderantly though not exclusively of the poorer nations. The United Nations Food and Agriculture Organization estimates that as of 1975 around 450 million people were chronically undernourished. Calculating differently, the World Bank put the figure at above 1 billion—one-quarter of the population of the earth. More than half of them are children, and more of them are women than men.

Hunger is not an inevitable part of the human condition. In our report*, the Presidential Commission on World Hunger declares that "if decisions and actions *well within the capability of nations and people working together* were implemented, it would be possible to eliminate the worst aspects of hunger and malnutrition by the year 2000." To accomplish this goal, we must increase our efforts to redress the imbalance of food supplies between the developed nations and the less-developed nations, where hunger presents its starkest face. Unfortunately, most projections show that even if we fully unleashed our total agripower, the United States alone still would not be able to meet the levels of food demand in the developing countries projected for the year 2000. Obviously, the solution to the food and hunger problem in the countries of the developing world lies within their own borders; they must build a self-reliant system of food production and distribution.

One of the major obstacles to achieving such self-reliance is energy-related. Much of the highly vaunted agricultural productivity in the United States is due to agricultural research based on energy-intensive technology. Until recently, this same approach was carried over into the transmission of our research and technology to the developing world. Thus, the developing countries have been holding their own in the last few years largely because of strategies and techniques developed as part of the so-called Green Revolution. Because of their higher rates of population growth, these countries have had to achieve food production growth rates that are higher than those of the developed nations just to stay where they are on a per capita basis. This the Green Revolution has helped them to do. The elements of the Green Revolution, however, are primarily improved plant varieties, chemical fertilizers, irrigation, and mechanization—all fossil fuel-intensive.

Research efforts are now shifting away from energy-intensive technology. The new focus is on greater photosynthetic efficiency, more efficient nutrient and water uptake, improved biological nitrogen fixation, and breeding genetic resistance to pests and environmental stress. These highly sophisticated, promising areas of research will require marshaling of the best scientific talent in both the United States and the developing world. Whether it involves germ plasm banks or somatic hybridization, the effort will entail a collaborative approach by U.S. agricultural experiment stations, international agricultural research centers, and scientific institutes in the less-developed nations.

In the long run, we must recognize that knowledge itself—theory, invention, discovery, technology—and human skills must be shared globally if the world hunger problem is to be solved.—CLIFTON R. WHARTON, JR., *Chancellor, State University of New York, Albany 12246*

*The final report of the Commission was submitted to President Carter in March 1980. This editorial is excerpted from the author's address to the Economic Club of Detroit on 31 March.

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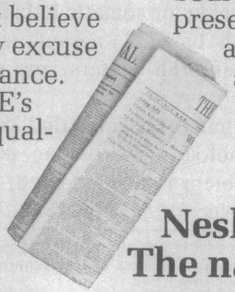

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