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COVER
New mutant tomato. This orange tomato is controlled by a recessive single gene mutation and was recovered as a somatic genetic variant following plant regeneration from cell cultures of the standard red tomato (var. UC828B). This mutation simultaneously alters fruit color, flower color, and leaf pigmentation. Recovery of such single gene mutations is evidence that plant cell culture technology can be used as an important new mutagenic tool. See page 949. (David A. Evans and William R. Sharp, DNA Plant Technology Corporation, Cinnaminson, New Jersey 08077)
Language and Science Policies of New Nations

In this second half of the 20th century, a large number of the new nations that have emerged from the shadow of colonialism are facing serious language problems. Many of these problems stem from the multilingual character of the diverse populations that have been collected into single nations. Others are due to inadequate appreciation of the national and international uses of language.

Normally, two kinds of languages are available to new governments: indigenous languages, which are usually spoken by small populations or by those who are geographically restricted, and languages of wider communication, spoken by large populations around the world.

If the nation chooses an indigenous tongue, it is common to select the one spoken by its largest population. Such a choice may create serious internal problems because the remaining populations may resist the imposition of another group’s language. More trying, however, is the fact that the indigenous language may not allow easy access to science and technology. It may lack the necessary technical vocabulary, and translation may be difficult. This, in turn, may create the special problem of trying to modernize the language itself.

If the new nation chooses a language of wider communication, it is easiest to choose the old colonial language, since some of the population already speak it, but such a choice may have negative connotations. Or a nation may choose a language for cultural or religious solidarity (for instance, Arabic), but such a choice may work against aspirations for modernization. In general, a nation selects a language of wider communication to access to science and technology and thus to modernization and a higher standard of living. However, world languages that provide such access constitute a limited set: English, French, German, and Russian.

In order to cope with the problem, a number of nations have adopted systems in which a child upon entering school is taught in his indigenous language and learns a regional language at the elementary level, a national language at the secondary level, and a world language at the tertiary level. Such approaches are demanding on the student and the educational system, which must provide teachers and materials in all languages involved. These demands are very costly and may restrain the intricately layered educational program necessary for nurturing a self-sustaining science.

The problem is made more complicated by modern systems of information storage and retrieval. Most of the information already stored is in English. English speakers are the largest contributors to and users of these systems, and they are also the system managers. There is therefore a bias toward English that works against nonnative speakers of the language. Although some of this bias is overcome by the substitution of mathematical language, some still remains by virtue of language-specific semantic categories and the fact that the original text is probably in English.

It seems reasonable to assert, however difficult it may be to accept, that knowledge of a world language, especially English, is essential to the welfare of the new nations. Any other course is tantamount to restricting their capability for modernization. New nations must find a balance between the cultivation of indigenous culture-rich language and the need for a world language. Japan meets this need with elaborate translation services, and Saudi Arabia has undertaken to train a large scientific and technical manpower pool in English. And other strategies can be adopted.

The fact remains that many developing nations do not have the resources to invest in proper language strategies, and many have made language decisions often based on political criteria. As dependence on developed nations and their information systems grows, the language problems of new nations are intensified. Time is running out, but it is still possible to examine linguistic alternatives and develop better language policies for national needs.—ROBERT KAPLAN, President, National Association for Foreign Student Affairs, 1860 19th Street, NW, Washington, D.C. 20009