initial reports. Science teachers at the convention pointed out that students taking the assessment seemed to be weaker in physics and chemistry than biology. They called for new emphasis in the teaching of physical sciences.

Richard Webster, state senator from Missouri, said that the results of the citizenship test indicate a weakness in Americans' knowledge of state and local governments. He asked educators to reexamine their civics courses in light of this weakness.

Assessment can achieve its full potential for enforcing accountability only if it is applied locally. Then weaknesses in specific school systems can be corrected at the local and state level where power over education policy is lodged. National assessment, however, will not be used for evaluating local school systems. State politicians who control the national project are opposed to such an "intrusion into local jurisdiction." These politicians are, on the other hand, generally eager to use the methods of national assessment in conducting their own local assessments. The state or locality would fund, conduct, control, and take credit for the assessment. National assessment would provide the methodology. How widespread local assessment becomes and how meaningful it will be depend largely on whether assessment gains acceptance as a fair and accurate measure of educational achievement. If it gains such acceptance, those school administrators who have in the past avoided evaluation because of a lack of judging methods will be forced to bow before the public demand for accountability.

The assessment techniques still have a way to go before they gain that widespread acceptance. Included with the reports on science and citizenship were the comments and criticisms of two panels of assessment reviewers. The panels were made up almost exclusively of teachers. Among their criticisms were the following.

1) The assessment did not make any distinction between real and professed beliefs of the people it tested. In the citizenship test, for example, an overwhelming majority of those quizzed indicated that they would not mind living next door to a person of another race. Yet there was no way of telling whether those who answered in this manner really believed this or whether they were simply giving what they assumed would be considered the "correct" answer.

2) In setting its objectives for education in citizenship, the assessment stuck mainly to conventional, idealized goals. In developing and testing the objective "know the main structure and function of our governments," they tended, for example, to overlook the views of blacks in Mississippi who may see the function of government as promoting the separation of races.

3) In some cases the assessors made mistakes in summarizing the information which the tests yielded. On one question 9-year-old children were told that big leaves often yield more water than little leaves. They were then shown pictures of five leaves of different sizes and asked to pick the one which gives off the most water. Eighty-nine percent performed the obvious task of picking the biggest leaf. The assessors then reported that this test proved that 89 percent of 9-year-olds *knew* that big leaves give off more water than little ones, despite the fact that that information was given as part of the question.

4) In the science assessment too many questions were devoted to assessing how much knowledge Americans have and too few to determining their attitudes toward science and their abilities to use scientific methods.

5) Some of the new testing techniques may affect the test results. In the questions which are asked verbally by an examiner, for example, it should be determined whether it makes any difference if the examiner is of a different race from the person being examined.

6) The assessors drew only the most generalized conclusions from their data. For the most part they left it up to the public to form their own opinions about what national assessment means for education. In effect this enabled every person with an ax to grind to draw his own particular preformed conclusion from the results. "The assessment proves what I have known for a long time," said one politician in a typical preface to an explanation of what assessment means.

Yet, despite these criticisms the method of assessment was received in general with approval even from some traditional opponents of assessment. There are strong indications that local and state officials will adopt the techniques for their own use. "I fully expect that assessment will go down to the state and local levels," said James E. Allen, former U.S. Commissioner of Education. "The public is increasingly demanding performance. I feel that teachers and other groups will be willing to accept evaluation of educational performance once they are assured that there is a fair method of doing it," he added.

Ewald B. Nyquist, New York Commissioner of Education, indicated that he favors assessment, and called for a public system of comparing state and local school systems with respect to their educational achievements and progress.

How soon assessment will reach the state and local levels remains to be seen. But the national assessment administrators proclaim that their program is an ongoing one which will grow and improve. If it does, and if it gains widespread acceptance as a fair method for evaluating local school systems, it could be the long-sought means of providing accountability in education.

—THOMAS P. SOUTHWICK

RECENT DEATHS

George H. Conant, 73; former teacher of plant pathology, Ripon College and University of Pennsylvania; 15 May.

Raymond T. Ellickson, 60; professor of physics, University of Oregon; 31 May.

Ronald M. Ferry, 78; retired associate professor of biochemistry, Harvard University; 26 May.

Mary J. Fraps, 71; retired research professor, poultry science department, University of Maryland; 3 May.

Richard M. Fraps, 67; retired senior physiologist, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Maryland; 9 April.

John C. Godbey, 87; retired professor of chemistry, Southwestern University; 14 June.

Alonzo F. Myers, 75; former chairman of higher education, New York University; 24 May.

Robert W. Ramsey, 63; professor of physiology, Medical College of Virginia, Health Sciences Division, Virginia Commonwealth University; 7 April.

Burrell O. Raulston, 84; emeritus dean, University of Southern California School of Medicine; 27 May.

Harold C. Taylor, 64; director, W. E. Upjohn Institute for Employment Research; 6 May.

Erratum: In "Charge-mosaic membranes: dialytic separation of electrolytes from nonelectrolytes and amino acids" by J. N. Weinstein and S. R. Caplan (17 July, page 296), Eq. 1 on page 296 should read

$$\omega^*_s = \left(\frac{J_s}{\Delta\pi_s}\right) \Delta p = 0$$