and the comprehension of such content by children in the normal intelligence range is truly surprising, particularly in the light of our current expectations of children.

I have written at greater length elsewhere on this theme [see my article in *The Science Teacher* (March 1960)], and I expect to spend the next several years assessing the feasibility of elementary-school science programs based on content selection by professional scientists.

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Weather Forecasting

In his recent article "The atmosphere in motion" [*Science* **131**, 1287 (1960)], Robert R. Long has presented an interesting summary of his well-known work on the channel flow of stratified fluids, and the comparisons between theory and experiment which he presents are impressive. I think most dynamic meteorologists would certainly agree with him in stressing the need for a great deal more basic hydrodynamical research in order to strengthen the foundations of dynamical weather prediction. I also feel that he would find few who would quarrel with the statement that forecasting accuracy has improved little in the past 40 years or so, although more variables are now predicted over greater regions of the atmosphere. Long's introductory remarks on the role of numerical weather forecasting in the past decade, however, may be misleading to the general scientific reader and deserve some comment.

The numerical (or dynamic) forecasts now used subjectively by the forecasting meteorologist differ from his other sources of information in at least two important and fundamental respects. In the first place, the numerical forecasts represent the result of a systematic application of dynamical equations to the problem of large-scale atmospheric flow and are in this sense objective and reproducible. Secondly, the numerical forecasts may be (and have been) systematically improved by the introduction of more realistic models and previously neglected physical effects, as well as by improvement of the numerical procedures employed in the solutions. From a practical viewpoint the test of a forecast is, of course, its accuracy, and in this respect the present numerical predictions are disappointing in some ways. The low-level forecasts issued, for example, by the Joint Numerical Weather Prediction Unit in Suitland, Md., are not superior to those produced by the usual synoptic means; the higher-level (500 millibar) numerical forecasts, on the other hand, are now more accurate for periods up to 3 days than other comparable forecasts. This recent improvement has resulted from the systematic error reduction noted above. In view of the many physical and mathematical approximations incorporated in present operational models, I feel that their performance is more surprising than disappointing; relatively simple dynamical methods are here effectively competing with all of the synoptic calculations and intuitive skill of the forecaster.

From a broader viewpoint, the numerical integrations represent an attempt to verify the same set of basic dynamical equations with which Long is concerned, although for larger-scale phenomena, in which different physical effects are important. While the comparison of theory and observation is here poorer than in the more restricted experiments of Long, I feel there is good reason to entertain more optimism than he suggests is in order. The small but systematic improvement in the prediction of the large-scale flow is here, I believe, a significant improvement. As this scale of motion is progressively better understood, the results of research on small-scale phenomena—of which Long's studies of tornado-like circulations is an excellent example—may then be incorporated into the overall dynamical picture and should result in further systematic forecast improvement, especially for the smaller-scale motions which are closely associated with our subjective impressions of "weather."

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Binocular Fusion of Colors

In an article entitled "Colors of all hues from binocular mixing of two colors" that appeared in *Science* **[131,** 608 (1960)], the following statement was made by Geschwind and Segal. "The problem of binocular fusion of colors has interested investigators since Hecht's demonstration in 1928 that presenting red to one eye and green to the other led to a subjective sensation of yellow. . . . Hurvich and Jameson . . . confirmed these results; it is today generally accepted that such fusion is readily obtainable in most subjects."

A major finding of the article by Hurvich and Jameson cited by Geschwind and Segal was the following: "The fact that does clearly emerge from these results is that, unless there is a yellow