

pate extensively in all phases of the experiment. The only ignorance required when the blind technique is used is ignorance of the specific treatment given to the animal whose tissues are being examined.

Weinberger points out that bias can unconsciously creep into observations when the pathologist concentrates on treatment groups (overreading), and that a blind pathologic examination is a useful means to reduce this bias. We agree.

The real issue raised by Weinberger is whether the blind technique is worth the effort necessary for its proper implementation. We believe that the blind technique helps reduce bias and, in so doing, increases the repeatability of a study, protects those reading the slides from charges of bias, and increases the validity of the results. The blind technique is therefore worth a great deal of effort, but how much is too much? We look forward to elucidation of the conditions where blind techniques are important and where they are not important and to results of studies carried out partially with the blind technique and partially not. Such reports would help us and others make recommendations on protocol design in these large-scale animal studies. We also look forward to the development of any other techniques that reduce bias.

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### The Confusion over Bacteriophage $\phi$ X-174

In 1935 Sertic and Boulgakov (1) analyzed a large number of *Enterobacteriaceae* phages and classified them into 14 antigenic types. They designated these types with the Roman numerals I through XIV. The lowercase Greek letter  $\phi$  indicated that the phage was virulent for several bacterial species, and Arabic numbers identified the particular isolate. One of these phages,  $\phi$ X-174, later became quite prominent in the field of molecular biology as a model virus containing single-stranded DNA, and a wave of papers emerged in the late 1950's (2). And that is when the real confusion started, because many workers in the field incorrectly called it

"phi ex," instead of "phi ten" as originally proposed by Sertic and Boulgakov (1). But to top off the confusion, a recent book (3) uses still another erroneous denotation  $\phi$ X174 ("phi chi" 174). The symbols  $\gamma$  (4) and  $\times$  (5) instead of Roman numeral ten have also been used in the past. I wonder how many new designations the  $\phi$ X-174 phage may yet acquire, because of the unfortunate original choice of the Roman numeral ten and the carelessness of authors or printers.

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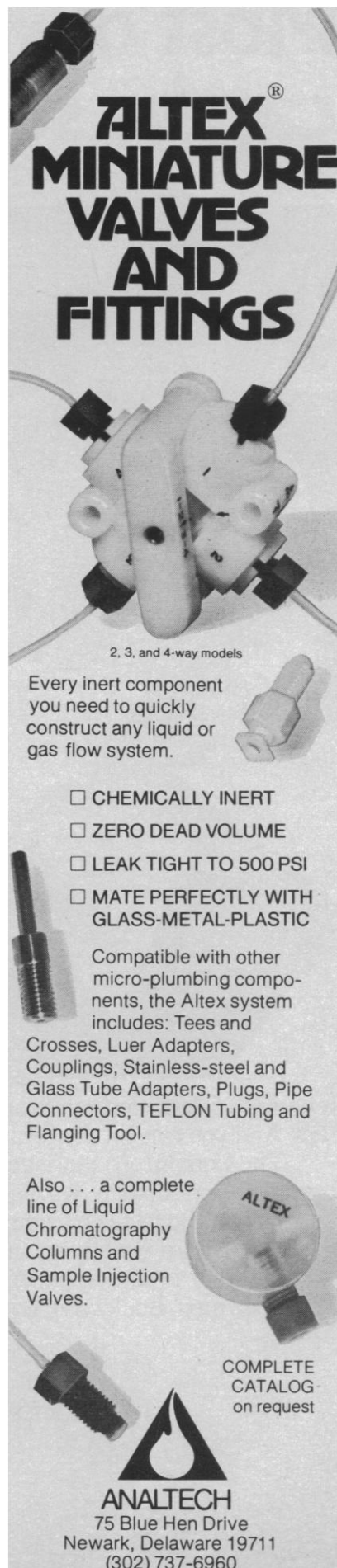
### Humidifiers and Energy Conservation

The use of home humidifiers has recently been promoted in advertisements as a means of providing more comfort in houses with the thermostat turned down. I grant the value of humidification for personal health and for prolonging the life of furniture. However, many advertisers erroneously describe the humidifier as an energy-saving device because it allows lower temperatures with comfort.

These advertisers and even some heating engineers appear to overlook latent heat of vaporization. The evaporation of 10 gallons of water a day (modest for the humidification of most houses) requires more than 80,000 British thermal units, or the consumption of about 80 cubic feet of natural gas per day. This is approximately 10 percent of the natural gas needed to heat a modest home in an average winter day. Either the furnace or an auxiliary source must provide this heat, even if humidification is accomplished merely by placing pans of water on radiators.

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