where stress (σ) and strain (ϵ) have units of kilograms square centimeters and microstrains $\times 10^{-6}$, respectively. The cross-sectional area (A) of the dosator, where the bonded strain gauges are located, was reported as 0.174 cm^2. Therefore, the expected sensitivity (microstrains per kilogram) from longitudinal compression can be calculated:

$$\text{sensitivity} = (E \times A \times 10^{-6})^{-1} \qquad \text{(Eq. 3)}$$

This value is 2.92 microstrains/kg.

Then, to calculate the contribution to the sensitivity from lateral strain, the Poisson ratio (μ) for steel of 0.3 is used (3). The value for the lateral sensitivity was calculated as 0.88 microstrain/kg. The total sensitivity for this instrumented dosator is the sum of the lateral and longitudinal components, which is 3.80 microstrains/kg. This value compares well with that observed (1), 3.96 microstrains/kg.

The preceding discussion does not invalidate this type of strain-gauge application, but it does clarify and explain the sensitivity obtained.

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(2) K. Arthur, "Transducer Measurements," Tektronix Inc., Beaverton, Ore., 1970, pp. 74–77.
(3) T. Lyman, "Metals Handbook: Properties and Selection of Metals," vol. 1, American Society for Metals, Metals Park, Ohio, 1969, p. 422.

John S. Kent ˣ
Mark T. Yost
Institute of Pharmaceutical Sciences
Syntex Research
Palo Alto, CA 94304

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ˣ To whom inquiries should be directed.

Clarification of Nomenclature

Keyphrases □ Capsule-filling machine, automatic—strain gauges, explanation of activity □ Instrumentation—automatic capsule-filling machine, explanation of activity of strain gauges

To the Editor:

Kent and Yost (1) commented on the Wheatstone bridge design for an automatic capsule-filling machine (2). The described position of the gauges on the modified dosator piston to measure the force applied to the dosator piston and to provide temperature compensation is common in experimental stress analysis (3) and pharmaceutical research (4, 5).

Theoretical stress calculations are not required for accurate calibration of the instrumented piston. The calculations offered by Kent and Yost for the net strain, ϵ_{net}, at the strain-gauge bonding site are well known for this bridge application and may be simply expressed as (3):

$$\epsilon_{net} = (1 + \mu)\epsilon_A \qquad \text{(Eq. 1)}$$

where μ is the Poisson ratio and ϵ_A is the axial strain as calculated from Hooke's law.

Kent and Yost agree that this type of calculation does not invalidate the design of the Wheatstone bridge in question nor the validity of the work presented. The issue is the use of the term "passive" to describe the temperature-compensating gauges in Fig. 3 of Ref. 2. Other terms have been applied to these same gauges (4, 6–9). Knoechel *et al.* (4) used the term "dummy" gauges. Arthur (6) stated: "It sometimes happens that it is convenient to use 'dummy' gages for temperature compensation." Neubert (7) mentioned that the dummy gauges "should be mounted in a direction of minimum strain. . . ."

Perhaps the best term for the temperature-compensating gauges in the bridge arrangement in question is *Poisson gauges* (9), in recognition of the fact that these gauges also contribute to the total sensitivity of the piston.

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(4) E. L. Knoechel, C. C. Sperry, H. E. Ross, and C. J. Lintner, *J. Pharm. Sci.*, **56**, 109 (1967).
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(8) Tech Note TN-128-2, Micro-measurements, Romulus, Mich., 1976, p. 2.
(9) Tech Note NN-139, Micro-measurements, Romulus, Mich., 1974, p. 2.

L. E. Small
L. L. Augsburger ˣ
Department of Pharmacy (Pharmaceutics)
School of Pharmacy
University of Maryland
Baltimore, MD 21201

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Accepted for publication August 11, 1977.
ˣ To whom inquiries should be directed.

Effect of Hemodialysis on Cefazolin Protein Binding

Keyphrases □ Cefazolin—protein binding, effect of hemodialysis □ Protein binding—cefazolin, effect of hemodialysis □ Binding, protein—cefazolin, effect of hemodialysis □ Hemodialysis—effect on protein binding of cefazolin □ Antibacterials—cefazolin, protein binding, effect of hemodialysis

To the Editor:

Cefazolin, a semisynthetic derivative of 7-aminocephalosporanic acid, is indicated for use in infections caused by various Gram-positive and Gram-negative bacteria. Cefazolin is very highly bound to serum proteins; over the therapeutic range of 1–200 μg/ml, greater than 80% of the total drug in plasma is in the bound form (1–4). In the presence of renal impairment, the fraction bound