The problem as I see it is the great difficulty in describing suitable performance measures for evaluating an individual's accomplishments. This is especially true in that portion of our endeavors associated with the advancement of knowledge. In the use of resources supplied by others, one is naturally led to two choices: (1) fund all activities with the expectation that the nature of the research on the average is such that some societal good will result, or (2) design in advance certain areas for research, establish criteria for selecting proposed work and make the necessary funds available to accomplish these goals. To me it appears apparent that only option (2) is viable in the long run, though it might indeed be possible to use option (1) under limited circumstances.

Management by Objective, as briefly described by Thomas M. Tobin (February, page 83) appears to me to be a way of enabling the researcher to describe his activities in terms of the organizational goals and make possible his active participation in the establishment of these goals. Listing of anticipated milestones is necessarily part of the process. However, management that does not recognize that unexpected results might significantly change the time schedule for accomplishing what was promised, or that new directions frequently must be sought, is shortsighted and indeed may be subject to Anthony J. Duben's concern (September, page 11) of stifling creativity.

In summary, some accountability for the expenditure of funds is necessary. Participation by the researcher in establishing the performance measures is desirable. Fair application of the general principles by the supervisor is essential.

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Astronomical nomenclature

Astronomers deal in small angles, the expression of which seems to baffle editors and printers of some journals. One way of expressing a second of arc is by the use of two dashes, but some editors interpret this to mean inches and have saddled some of my colleagues with photometer diaphragms more than a foot across. The editor of a most distinguished physics journal returned a paper dealing with the angular diameters of stars with the admonition that in his journal they did not use the English system of units and would we please convert to metric. Stifling the rejoinders that rose to our lips we diplomatically replied that we realized there was room for misapprehension and offered a different form of words to express the unit of our trade—the one thousandth part of an angular second. How should we express this? Système International, the adopted standard, uses the same nomenclature for all units. "m" is a meter, μm is a micrometer (to be measured with a micrometer), a nanometer (arguably a female omnivore who gobbled up Angstrom) is one thousandth of this. Seconds are "s," usually meaning seconds of time, and units go all the way from the stately dance of the Gigasec to the high speeds of the ms, ns and ps. Seconds of arc present a problem. One journal insists we say "milli-arc sec" which, unlike milliamp, is hyphenated, and is illogical since it is the sec which is millied and not the arc. The logical notation is "arc ms" for one thousandth of an angular second, but then some pencil-happy copy editor thinks we mean "arc m" and writes "arc mins" thus expanding our result by 60 000 times and leaving us with large quantities of egg (kegg or even Megg) on our innocent faces. We have stood unswervingly ($\sigma < 10^{-5}$ radians) for many Ms by the notation "arc ms" and trust logic may prevail.

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Tribute to Infeld

This year represents the tenth anniversary of the death of Leopold Infeld, former collaborator of Albert Einstein and one of the most important scientists of Poland after the Second World War.

Infeld was born in Cracow in 1898. He earned his doctorate degree in 1921 there. As a research scientist Infeld is well known as the coauthor of papers dealing with spin in a curved space–time (with B. L. van der Waerden),[1] with nonlinear electrodynamics (with Max Born),[2] and most importantly with the dynamics of ponderable bodies in the general theory of relativity (with Banesh Hoffmann and Einstein, widely known as the EIH theory).[3] Together with Einstein he wrote a popular book, *The Evolution of Physics*.[4]

As an academic teacher, Infeld gave rise to generations of theoretical physicists, first at Toronto and subsequently at Warsaw. I have had the good fortune of knowing Infeld from 1936 to his death in 1968. He was an outstanding theoretical physicist, a great academic teacher, and a human being deeply committed to the betterment of the human condition. Recently the Polish Academy of Sciences has published a book, edited by his son Eryk Infeld, which commemorates the different aspects of Leopold Infeld's life and work.[5]

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De Sitter argument

A recent news story (March, page 14) claimed that the work of K. Brecher on x-ray pulses from binary sources was the best confirmation ever of the de Sitter argument for the second Einstein postulate. The reason for this being that while "extinction" effects could have attenuated the velocity dependence of visible light from a binary source, x-ray velocities would not have been so altered.

In the x-ray region, the *normal dispersion* index of refraction, n, of many substances is minutely less than unity. For such materials, the Fox "extinction" length hypothesis of $\lambda/(n-1)$ breaks down; the light wave, anticipating the medium interface, would be "extinguished" before it crossed the boundary. J. G. Fox[1] presented the expression $\lambda/(n-1)$ as "an experimental fact which is well known in physical optics." No reference to the alleged experiments on this *fact* was presented. In his experiment with T. A. Filippas,[1] J. G. Fox[2] observed, in a footnote, that in the absence of experimental data on extinction: "Uncertainty about how to estimate [not measure] the effect for γ rays delayed publication of the experiment for many months." On the very next page Fox[2] declares: "Finally we have fairly good direct experimental verification of the extinction length for x-rays.[12]" The superscript 12 refers to Fox's own experiment[1] with Filippas, which was delayed in publication for many months by *uncertain estimates* of the "extinction" length, and which later, within the space of one page, is regarded as direct experimental verification—given no other experimental references to this alleged *fact*. The specific quantitative hypothesis of "extinction" first wrongly asserted to be "an experimental fact which is well known in physical optics," led to "uncertainties about how to estimate the effect," which uncertain estimates are then quickly declared to be "good direct *experimental* verification of the extinction length."

It is unfortunate that so many physicists have for so long been misled by the de Sitter type of argument alone, and, more recently, in conjunction with an experimentally unsupported or tested