Oral administration of 5–7.5 mg. of folic acid to two normal human subjects increased their serum cholinesterase activities by 33 and 16 per cent within five hours.

It is concluded from these experiments that liver extract and folic acid act by increasing, in some manner, the formation of cholinesterase in the body.

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Some Effects of Electronic Transitions Upon Precision Thermometry

Recent measurements of the electrical resistance of various materials at elevated temperatures have disclosed the following information which may be of value in precision thermometry:

(1) The electrical resistance of a pure conductor is a straight-line function of temperature, but the slope changes appreciably between certain specific temperatures.

(2) Since the temperatures at which these discontinuities have been found are independent of purity, concentration, or heat treatment, the resistance-temperature curve for an alloy will be affected to some extent at each of the temperatures which are characteristic of each of its components. These temperatures may be used as an accurate method of calibration in the proper temperature range. The discontinuities in the curve for carbon, for example, are particularly satisfactory for calibration in the range above the melting point of gold.

(3) Errors may be introduced in certain ranges of temperature by the common practice of drawing calibration curves smooth instead of as straight lines changing in slope at these specific temperatures. These errors may be as large as 6° C. in a chromel-alumel thermocouple or as large as 2° C. in a platinum resistance thermometer. The chromel-alumel thermocouple is free from these errors below about 160° C., and the platinum thermometer is not affected markedly except in the range 160°–932° C., most of the trouble being between 160° and 800° C.

(4) Heat treatment is equally as important as purity in affecting the temperature coefficient of resistance for platinum. Depending upon the heat treatment, values of the coefficient as high as 1.400 or as low as 1.366 have been secured, using the same specially prepared high-purity wire.

Further information on these points will be published in the near future.

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Some Thoughts on "Gene Action"

Dr. Deakin's recent letter (*Science*, 1946, 103, 570–572) prompts me to add some thoughts which I noted down some time ago on the same subject. I am presenting them merely in the hope that they may invite extended discussion of this problem.

It has been generally accepted that the control of hereditary factors is closely associated with the desoxyribonucleic acid (DRA)—protein components of the chromosomes. A widely held concept has attributed to these components the ability of catalyzing enzyme processes or has assigned to them a principal role in the production of enzymes. In view of some recent work, however, the question may be raised whether all action (or some action) of DRA may not be in the nature of *inhibiting* enzyme processes, either qualitatively or quantitatively. Among the recent work to which this might be applied are the data by Avery and co-workers on the specific transformation of bacterial types of DRA, the data by Dickinson on the suppression of bacterial mutation through enzyme inhibitors, as well as the results of Lindegren on yeast and Sonneborn on *paramecium*. Furthermore, *in vitro* tests by Greenstein have actually demonstrated the ability of DRA to inhibit enzyme reactions. If the action of DRA in the chromosomes is totally or partly of an inhibiting nature, it implies that the extrachromosomal material contains many more ultimately possible enzyme reactions than those actually realized during the development and life of an organism, since many of them would be blocked by the chromosomal constituents. This block may or may not be a total one. The inhibition may be in some cases a quantitative one, delaying time and amount of action of a particular enzyme. A loss in DRA would result in the release of one or more additional enzymatic processes. This possibility may be realized in the well-known mutation due to chromosomal deficiencies. This concept would assign a much greater importance to extrachromosomal constituents than has hitherto been customary. Extrachromosomal constituents, as long as they remain stable, would limit the extent of variation possible through changes in the chromosomes, since the ultimately possible enzyme reactions would theoretically be exhausted if none of them is blocked by chromosomal constituents (microevolution). However, changes or extrachromosomal constituents may occur, but far less frequently than changes of chromosomal constituents. Such changes would then permit the realization of completely different enzyme processes, dependent on the extent of their quantitative or qualitative inhibition by chromosomal constituents (macroevolution).

Incidentally, the inhibiting-factor hypothesis is not altogether a new concept. Bateson, for example, speculated along these lines as early as 1913 (*Problems of genetics*. Yale Univ. Press, esp. pp. 94–96).

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Meteor Crater, Arizona

In December 1945 Nelson H. Darton restated to the Geological Society of America, and also to the Association of American Geographers, his belief that Meteor Crater, east of Flagstaff on the Arizona Plateau, is of volcanic rather than meteoritic origin. He cited a decision of the U. S. Board on Geographic Names in which the name *Crater Mound* was officially adopted, and he urged that the use of the term *Meteor Crater* be discontinued. Since notices of Mr. Darton's views have been published in *Science News Letter* and other nontechnical media, it seems timely to indicate that the majority of geologists,