As a matter of fact there are appreciable differences (almost 3 kcal.) even in 0.01 M solutions as the figure shows.

The existence of and therewith the necessity for considering these Q^* terms which Eastman introduced is thus established. It is also evident that the differences of partial molar entropies can not be determined by employing Peltier heats and thermo-electric forces alone [cf., on the contrary, Bruzs, Z. physik. Chem., **A161**, 83 (1932)].

A more detailed presentation of this material will be published shortly in a German journal.

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          RECEIVED JANUARY 6, 1933   PUBLISHED FEBRUARY 9, 1933

THE THERMAL INTERCONVERSION OF MIXED BENZOINS

Sir:

Julian and Passler [THIS JOURNAL, **54**, 4756 (1932)] record another case of the transformation of the mixed benzoin not formed by the cyanide condensation (anisbenzoin) into the isomer formed by the cyanide method (benzanisoin). The reverse transformation, which is the object of our work, has not hitherto been recorded. The present writers have found that pure benzanisoin (cyanide condensation), after heating for three hours at 125–130° and fractionation from cold dilute alcohol, gives appreciable amounts of anisbenzoin, m. p. 89°, identical with Asahina and Terasaka's compound. Evidently, above the melting point, an equilibrium lying far over to the side of benzanisoin exists. The amount of pure anisbenzoin isolated, after heating, from 20 g. of benzanisoin was 0.10 g. but considerably more was present.

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THE NEUTRON, THE ATOMIC NUCLEUS AND MASS DEFECTS

Sir:

Two general theories of the constitution of atomic nuclei have been proposed: (1) that the nucleus is built up largely from α-particles (Harkins and Wilson[1]) and (2) that the Harkins–Masson[2] nuclear formula $(p_2e)_z(pe)_{\mathrm{I}}$ (a), $(np)_z n_{\mathrm{I}}$ (b) or $(\alpha/2)_z n_{\mathrm{I}}$ (c), represents the constitution of any nucleus

(1) (a) Harkins and Wilson, Proc. Nat. Acad. Sci., **1**, 276 (1915); (b) THIS JOURNAL, **37**, 1368, 1383 (1915).

(2) (a) Harkins, THIS JOURNAL, **42**, 1956 (1920); Phil. Mag., **42**, 305 (1921). See also Ref. 1(b) and Durrant, THIS JOURNAL, **39**, 621–7 (1917). (b) Masson, Phil. Mag.