detects the influence of the Yale Summer Institutes in Dynamical Astronomy, which the author undoubtedly attended.

The chapters cover two-body motion, orbit determination, analytical dynamics, general perturbations, special considerations for artificial satellites, nongravitational forces, special perturbations (for which the author seems to have a "blind spot", since most of this chapter consists of Musen's numerical general theory), reduction of radio observations, orbit improvement, transfer orbits, and a final chapter on the problem of three bodies. The organization of the references leaves much to be desired. One must only deplore the dissipation of the author's obvious competence on such a "broad-brush", transparent treatment as this is.

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53[S].—COMMITTEE ON FUNDAMENTAL CONSTANTS OF THE NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL, A. G. MCNISH (Chairman), "New values for the physical constants," *National Bureau of Standards Technical News Bulletin*, October, 1963.

A new consistent set of values for the fundamental physical constants has been recommended by the above committee. It is anticipated that these will be adopted by the International Unions of Pure and Applied Chemistry and Physics. A full report of the background entering into this set of values was discussed by J. W. M. DuMond and E. R. Cohen at the Second International Conference on Nuclidic Masses, Vienna, July 1963.

The *meter* is defined as 1650763.73 wavelengths *in vacuo* of the unperturbed transition $2p_{10} - 5d_5$ in ^{86}Kr. The *second* is 1/31556925.9747 of the tropical year at 12^h ET, 0 January 1900. (The latter definition does not appear to be very neat operationally, since it is not clear how a direct comparison could be made. As a colleague remarks: "Times have changed since then.")

Of the famous atomic constants we mention here only the proposed values:

$$\begin{aligned} c &= 2.997925 \pm 0.000003 \cdot 10^{10} \text{ cm/sec}, \\ e &= 4.80298 \pm 0.00020 \cdot 10^{-10} \text{ esu}, \\ h &= 6.6256 \pm 0.0005 \cdot 10^{-27} \text{ erg sec}. \end{aligned}$$

All errors listed are 3 standard deviations, and it is stated: "It is therefore unlikely that the true value of any of the constants differs from the value given in the table by as much as the stated uncertainty." Consistent with the above values is

$$\frac{hc}{2\pi e^2} = 137.0388 \pm 0.0019,$$

which, at least on the face of it, contradicts Eddington's notion that this ratio equals 137 exactly.

A plastic wallet-sized card listing some of these constants is available from the National Bureau of Standards for 5 cents.

D. S.