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DISTURBING FUNCTION

Meffroy (1) computed the periodic part of the disturbing function to find new secular terms of the third order in the expansion for the semi-major axis, in connection with Poisson's theorem on the invariability of the major axes of the planetary orbits.

Heinrich (2) writes that he has succeeded in eliminating the reciprocal distance of planets from the right-hand sides of the equations of motion by the operation, which he has previously discovered. The operation leads to an integral equation for a simple linear coupling of the major axes, which can be solved without the intervention of a small divisor. He has in mind to apply the theory to the motion of the Moon, the Trojans, Gauss's elliptic ring, and some of the characteristic asteroids.

Izsak (3) has published tables for the Laplace coefficients and their Newcomb derivatives. Izsak, Barnett, Efimba and Gerard (4) worked on the construction of Newcomb operators on a digital computer.

Mulholland (5) invented a method of computing the Laplace coefficients on electronic computers. He transformed the infinite series for the Laplace coefficients into forms better suited for computation by means of Gamma functions.

Kaula (6) and Musen, Bailie, Upton (7) published the analytical expansion of the lunar and solar disturbing functions for use in the theory of a close Earth satellite along the line of Kozai (8), Groves (9) and Kaula (10). The expansion will be naturally of use for the motion of a natural satellite with arbitrary inclination and eccentricity, when the ratio of the mean distances of the disturbed and the disturbing bodies is small enough. Kaula's (6) development is advantageous when it is desired to conserve computer storage space or to include the luni-solar perturbations in the same computation with perturbations due to tesseral harmonic terms of the Earth's potential. A quasi-potential for the solar radiation pressure effect for use in the equations of motion is also written in terms of the Keplerian elements.

Elenevskaya (11) has obtained a development of the disturbing function for an eccentricity approaching unity, by expanding in powers of $(1 - e)$.

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PLANETARY THEORY

For facilitating the ephemerides computation by means of an electronic computer the method of Strömgren has been improved by using a set of elements other than the Keplerian, since