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Waves Maintained by Simple Harmonic Surface Pressure in Water of Uniform Depth. Forced Oscillations; 4.1 Introduction; 4.2 The surface pressure is periodic for all values of x; 4.3 The variable surface pressure is confined to a segment of the surface
4.4 Periodic progressing waves against a vertical cliff5. Waves on Sloping Beaches and Past Obstacles; 5.1 Introduction and summary; 5.2 Two-dimensional waves over beaches sloping at angles =/2n; 5.3 Three-dimensional waves against a vertical cliff; 5.4 Waves on sloping beaches. General case; 5.5 Diffraction of waves around a vertical wedge. Sommerfeld's diffraction problem; 5.6 Brief discussions of additional applications and of other methods of solution; Subdivision B Motions Starting from Rest. Transients; 6. Unsteady Motions; 6.1 General formulation of the problem of unsteady motions
6.2 Uniqueness of the unsteady motions in bounded domains6.3 Outline of the Fourier transform technique; 6.4 Motions due to disturbances originating at the surface; 6.5 Application of Kelvin's method of stationary phase; 6.6 Discussion of the motion of the free surface due to disturbances initiated when the water is at rest; 6.7 Waves due to a periodic impulse applied to the water when initially at rest. Derivation of the radiation condition for purely periodic waves; 6.8 Justification of the method of stationary phase
6.9 A time-dependent Green's function. Uniqueness of unsteady motions in unbounded domains when obstacles are presentSubdivision C Waves on a Running Stream. Ship Waves; 7. Two-dimensional Waves on a Running Stream in Water of Uniform Depth; 7.1 Steady motions in water of infinite depth with p = 0 on the free surface; 7.2 Steady motions in water of infinite depth with a disturbing pressure on the free surface; 7.3 Steady waves in water of constant finite depth; 7.4 Unsteady waves created by a disturbance on the surface of a running stream
8. Waves Caused by a Moving Pressure Point. Kelvin's Theory of the Wave Pattern created by a Moving Ship

Sommario/riassunto

Offers an integrated account of the mathematical hypothesis of wave motion in liquids with a free surface, subjected to gravitational and other forces. Uses both potential and linear wave equation theories, together with applications such as the Laplace and Fourier transform methods, conformal mapping and complex variable techniques in general or integral equations, methods employing a Green's function. Coverage includes fundamental hydrodynamics, waves on sloping beaches, problems involving waves in shallow water, the motion of ships and much more.