Some solutions of the problem of plane steady flow of a gas condensate mixture through a porous medium
Dinariev O.Yu., *Fluid Dynamics*, 1996, 31/2 (268-273). In English.

The plane problem of steady two-phase flow of a multicomponent mixture through a porous medium with phase transitions is considered. It is shown that the system of equations for the two-phase multicomponent flow process, together with the equations of phase equilibrium, can be solved in quadratures if the solution of two auxiliary problems is known. These are the problem of conformal mapping of the neighborhood of a well onto a rectangle and the purely physicochemical problem of the description of the mechanical and thermodynamic properties of a mixture. The solutions for a vertical well with a barrier and for a horizontal well in a finite pproductive stratum are found under certain assumptions concerning the properties of the mixture.

Subsonic gas-liquid cavitation flow past a disk
Zigangareeva L.M. & Kiselev O.M., *Fluid Dynamics*, 1996, 31/2 (334-338). In English.

The problem of axisymmetric subsonic gas-liquid cavitation flow past a disk in accordance with the Riabouchinsky scheme is solved. Formulas relating the main flow parameters with the cavitation number, the Mach number on the free boundary and the gas/liquid volume ratio under stagnation conditions are presented.

Stokes waves on a cavity surface in a rotating fluid
Amromin E.L., *Fluid Dynamics*, 1996, 31/6 (886-890). In English.

The axisymmetric flow of an inviscid incompressible fluid rotating about a cavity with constant presure is considered. Due to the centrifugal force, on the cavity surface waves may exist, in particular, waves with a break in the wave base where the cavity meridional sections form the angle $2\pi/3$, ie Stokes waves. A method of finding these waves from the boundary-value problem for the fluid velocity potential is described. For an infinite cavity, the dependence of the wave parameters on the cavitation number, calculated using the pressure in the cavity, is given.

(Ultraschalleinsatz in der Trinkwasseraufbereitung, Inaktivierung von Plankton - Entwicklung und Bau einer technischen Anlage) (Ultrasound and the treatment of drinking water: inactivation of plankton - development and construction of a technical system)
Mues A., *GWF Wasser-Abwasser*, 1996, 137/14 Spec. Iss. (S167-S172). In German.

Experiments in the field of zooplankton elimination during the drinking water purification cycle have shown that plankton can effectively be eliminated by applying a combination process of inactivation, flocculation, and filtration. Because of its purely physical inactivation with few side effects, ultrasound was demonstrated to be an excellent choice of technology. To transmit the technology to an actual field project, it was necessary to develop and construct a system capable of continuously treating water quantities of up to 4000 m^3/h with acoustic cavitation. The development led to a cavitation module for the inactivation of plankton with a capacity of 400 m^3/h, that was successfully tested at the Wahnbachtalsperrenverband near Koln.

(Une approche lagrangienne pour la simulation d'interactions particule/particule en ecoulement) (Lagrangian approach for the simulation of particle interactions in two phase flows)
Berlemont A., Chang Z. & Gouesbet G., *Houille Blanche*, 1996, 51/1-2 (57-63). In French.

Hydrodynamic interactions between particle pairs are studied following sedimentation theory. For two spheres, interactions are directly obtained through the resistance matrix which links interaction forces to particle relative velocities. For more than two spheres, the mobility matrix is estimated with a four order approximation on the particle distance, and then it is inversed to get the resistance matrix. A set of motion equations is then solved to describe the particle behaviours.

Recommendation of small hydraulic turbine types
Hydro Power and Equipment, 1996, 4/- (66-69). In English.

Specifications and applications of small types of hydraulic turbines are summarized. The following turbines are described: S-type, Kaplan, Francis, Banki, Pelton and Turgo. Turbine efficiencies, cavitation and applications are discussed.

Experimental investigations of the conditions of the onset of air entrainment by plunging liquid jets
Fetisov Yu.M., *Hydrotechnical Construction*, 1996, 30/2 (87-91). In English.

Intense air entrainment occurs at the place of contact of a plunging jet with the surface of a stationary liquid. The entrained air reduces the eroding capacity of a deflected or free-falling nappe when joining pools of hydraulic structures and decreases cavitation erosion of structural members. Jet aeration is finding wide use for saturating water with oxygen of air to improve its quality and for intensifying biological wastewater treatment processes. It was established that air entrainment can occur under conditions when the average jet velocity at the point of incidence reaches a certain value. The value of this velocity is called the minimum or critical air-entrainment velocity. An analysis of works pertaining to the subject of investigation indicates the complexity of interaction of the plunging jet with the liquid surface, the contradictoriness of theoretical approaches, and limitedness of experimental data. This article gives the results of experimental investigations of the conditions of onset of air entrainment by vertical jets issuing from smooth, long nozzles.

Hydropower requirement of the Zagorsk pumped-storage station: design features and operating experience
Kuleshov A.P., Magruk V.I., Mart'yanov S.I., Rodionov V.G., Khutoryanskii S.A. & Cherepanov M.M., *Hydrotechnical Construction*, 1996, 30/4 (184-191). In English.

This hydroelectric power station features vertical mixed-flow pump-turbines of the RONT-115/812-V-630 type from the Leningrad Metals Plant. The two-machine layout operates in the reversible mode. This article discusses in detail the design and operation of the pump-turbine including the runner, turbine shaft and seal,