ments on the propagation of weak concentration shock waves and small, but finite, amplitude periodic waves are presented; good agreement is found with classic solutions of Burger's equation. Batchelor's instability conditions are given for bubbly flows, and his model for the bulk modulus of elasticity of the dispersed phase is used to obtain estimates of the critical volume concentration at which a uniform bubbly flow becomes unstable to planar disturbances. Observations of the onset of instabilities of bubbly flow in a pipe are described, and compared with what would be expected from Batchelor's theory.

On the motion of laminar wing wakes in a stratified fluid
Spalart P.R., *Journal of Fluid Mechanics,* 1996, 327/- (139-160). In English.
We present numerical solutions for two-dimensional laminar symmetric vortex systems descending in a stable stratified fluid, within the Boussinesq approximation. Three types of flows are considered: I) tight vortices; II) those deriving from an elliptical wing lift distribution; III) those deriving from a 'high-lift' distribution, with a part-span flap on the wing. The descent velocity increases exponentially with time, as the distance between vortices decreases and the circulation of the vortices proper is conserved. With moderate stratification, wakes with sufficient energy also attain the accelerating regime, until the vortex cores make contact. However, they first experience a rebound, which is both of practical importance and out of reach of simple formulas. Type III wakes produce two durable vortex pairs which tumble, and mitigate the buoyancy effect by exchanging fluid with the surroundings.

High-frequency acoustic noise emission excited by laser-driven cavitation
Likhterov L., *Journal of Fluid Mechanics,* 1996, 318/- (77-84). In English.
A high-frequency part of the acoustic noise spectrum excited by laser-driven cavitation in liquid is investigated theoretically. It is assumed that the liquid is inviscid and compressible and the surface tension may be neglected. The specific heat ratio is taken to be 5/3. It is shown that, in the first approximation, the spectral density of the acoustic energy emitted by a cavity explosion varies as the -4/7 power of the frequency and asymptotically decreases by ~ 3.4 dB/octave.

Stability of stratified flow of large depth over finite-amplitude topography
Prasad D., Ramirez J. & Akylas T.R., *Journal of Fluid Mechanics,* 1996, 320/- (369-394). In English.
The flow of a Boussinesq density-stratified fluid of large depth past the algebraic mountain ('Witch of Agnesi') is studied in the hydrostatic limit using the asymptotic theory of Kantzios and Akylas (1993). The upstream conditions are those of constant velocity and Brunt-Vaisala frequency. On the further assumptions that the flow is steady and there is no permanent alteration of the upstream flow conditions (no upstream influence), Long's model (1953) predicts a critical amplitude of the mountain above which local density inversions occur, leading to convective overturning.

The stability of two-phase flow over a swept wing
Coward A.V. & Hall P., *Journal of Fluid Mechanics,* 1996, 329/- (247-273). In English.
We use numerical and asymptotic techniques to study the stability of a two-phase air/water flow above a flat porous plate. This flow is a model of the boundary layer which forms on a yawed cylinder and can be used as a useful approximation to the air flow over swept wings. We also investigate the instability of inviscid stationary modes. We calculate the effective wavenumber and orientation of the stationary disturbance when the fluids have identical physical properties. Using pertubation methods we obtain corrections due to a small stratification in viscosity, thus quantifying the interfacial effects. Our analytical results are in agreement with the numerical solution which we obtain for arbitrary fluid properties.

Experiments on density-gradient anisotropies and scalar dissipation of turbulence in a stably stratified fluid
Thoroddsen S.T. & Van Atta C.W., *Journal of Fluid Mechanics,* 1996, 322/- (383-409). In English.
The anisotropic behaviour of density-gradient fluctuations in stably stratified grid turbulence and the consequences for simplified (isotropic) estimates of scalar dissipation rates χ were experimentally studied in a thermally stratified wind tunnel at moderate Reynolds numbers (Re_λ 20). The correlation method was used to estimate the mean-square cross-stream and streamwise density gradients. Cross-stream gradients were measured using two cold wires. Gradient spectral relations show that this buoyancy-induced anisotropy persists at all length scales. Better closure of the scalar variance balance was attained than in previously reported measurements by other researchers. This is attributed to our use of cold-wire temperature sensors having larger length-to-diameter ratio then used in the previous measurements.

Fluid-structure interaction and cavitation in a single-elbow pipe system
Tijsseling A.S., Vardy A.E. & Fan D., *Journal of Fluids and Structures,* 1996, 10/4 (395-420). In English.
The simultaneous occurrence of fluid-structure interaction (FSI) and vaporous cavitation in the transient vibration of freely suspended horizontal pipe systems is investigated by numerical simulation and physical experiment. Extended waterhammer and beam equations, including the relevant FSI mechanisms, are solved by the method of characteristics. Column separation and cavitation are accounted for by a lumped parameter model.

Localized convection in rotating stratified fluid
Whitehead J.A., Marshall J. & Hufford G.E., *Journal of Geophysical Research,* 1996, 101/C11 (25705-25721). In English.
The convective overturning of a rotating stratified fluid is studied in the laboratory. The experiments are motivated by physical scaling arguments which attempt to predict the length and velocity scales of the convective chimney as it adjusts under gravity and rotation and breaks up through baroclinic instability. In this idealized problem the depth of penetration is found to depend only on the size and strength of the forcing and the