4. A. J. Chorin, *Numerical study of slightly viscous flow*, J. Fluid Mech. **57** (1973), 785.
5. _____, *Random choice solution of hyperbolic systems*, J. Comput. Phys. **22** (1976), 517.
6. _____, *Vortex models and boundary layer instability*, SIAM J. Sci. Statist. Comput. **1** (1980), 1.
7. _____, *The evolution of a turbulent vortex*, Comm. Math. Phys. **83** (1982), 517.
8. P. Colella, *Glimm's method for gas dynamics*, SIAM J. Sci. Statist. Comput. **3** (1982), 76.
9. R. Courant, K. O. Friedrichs and H. Lewy, *Über die partiellen differenzengleichungen der mathematischen physik*, Math. Ann. **100** (1928), 32.
10. A. F. Ghoniem, A. J. Chorin and A. K. Oppenheim, *Numerical modelling of turbulent flow in a combustion tunnel*, Philos. Trans. Roy. Soc. London A **304** (1982), 303.
11. J. Glimm, *Solutions in the large for nonlinear hyperbolic systems of equations*, Comm. Pure Appl. Math. **18** (1965), 697.
12. D. Gottlieb and S. Orszag, *Numerical analysis of spectral methods*, SIAM Publications, 1977.
13. O. H. Hald, *Convergence of vortex methods for Euler's equations*, SIAM J. Numer. Anal. **16** (1979), 726.
14. M. Holt, *Numerical methods in fluid mechanics*, Springer, New York, 1980.
15. P. D. Lax, *Weak solutions of nonlinear hyperbolic equations and their numerical computation*, Comm. Pure Appl. Math. **7** (1954), 159.
16. P. D. Lax and B. Wendroff, *Systems of conservation laws*, Comm. Pure Appl. Math. **13** (1960), 363.
17. T. P. Liu, *The deterministic version of the Glimm scheme*, Comm. Math. Phys. **57** (1977), 135.
18. L. Richardson, *Weather prediction by numerical process*, Cambridge, 1922.
19. R. D. Richtmyer and K. W. Morton, *Difference methods for initial value problems*, Interscience, New York, 1967.
20. F. Thomasset, *Implementation of finite element methods for Navier-Stokes equations*, Springer, New York, 1982.
21. M. Van Dyke, *An album of fluid motion*, Parabolic Press, Stanford, 1982.
22. N. J. Zabusky and M. D. Kruskal, *Interactions of solitons in a collisionless plasma and the recurrence of initial states*, Phys. Rev. Lett. **15** (1965), 240.
23. Proc. Sixth AIAA Computational Fluid Dynamics Conf., Danvers, Mass., 1983.

ALEXANDRE JOEL CHORIN

BULLETIN (New Series) OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 9, Number 3, November 1983

0273-0979/83 $1.00 + $.25 per page

Spectral theory and wave operators for the Schrödinger equation, by A. M. Berthier, Research Notes in Mathematics, Vol. 71, Pitman Advanced Publishing Program, Boston, London, and Melbourne, 1982, 306 pp., $24.95. ISBN 0-2730-8562-X

In the physics literature, many authors discussing quantum phenomena begin by telling us what the classical Hamiltonian (i.e. the generator of the time evolution) for the system would be if the system were classical, and then "quantize" this Hamiltonian. This subjunctive approach to quantum phenomena suggests a facetious operational definition for doing quantum mechanics: taking an attitude towards a physical system which otherwise would behave the way we used to think it behaved. In fact, some of our more glib colleagues never really distinguish whether they are discussing things classically or quantum mechanically. I mention these things to illustrate that even after more than