

# Online Companion for

## **Memiors on Highway Traffic**

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**Gordon F. Newell****BIBLIOGRAPHY****I. A. Refereed Publications****Archival Journals**

1. "Crystal statistics of a two-dimensional Ising lattice," *Physical Review*, 78 44-450 (1950).
2. "The electric quadruple moment of the deuteron," *Physical Review* 77, 141 (1950); 78, 711-714 (1950).
3. "Crystal statistics of a two-dimensional triangular Ising lattice," *Physical Review* 79, 876-882 (1950).
4. "Magnetic shielding constant of H<sub>2</sub>," *Physical Review* 80, 476-477 (1950).
5. "Unsteady-state separation performance of cascades I" (with E.W. Montroll), *J. Applied Physics* 23, 184-194 (1952).
6. "On the theory of the ising model of ferromagnetism" (with E.W. Montroll), *Reviews Modern Physics* 25, 159-160, 353-389 (1953).
7. "Vibration of a simple cubic lattice I" (with H.B. Rosenstock), *J. Chemical Physics* 21, 1607-1608 (1953).
8. "Vibration spectrum of a simple cubic lattice," *J. Chemical Physics* 21, 1877-1883 (1953).
9. "Mathematical models of freely-flowing highway traffic," *Operations Research* 3, 176-186 (1955).
10. "Specific heat of lamellar crystals," *J. Chemical Physics* 23, 2431-2438 (1955).
11. "Statistical analysis of the flow of highway traffic through a signalized intersection," *Q. Applied Math.* 13, 353-369 (1956).

12. "Vibration spectrum of graphite and boron nitride I, the two-dimensional spectrum," J. Chemical Physics 23, 1049-1060 (1956).
13. "Vibration spectrum and heat capacity of a chain polymer crystal" (with S.M. Genensky), J. Chemical Physics 26, 486-497 (1957).
14. "Vibration spectrum of graphite and boron nitride II, the three-dimensional spectrum," J. Chemical Physics 27, 240-250 (1957).
15. "Theory of oscillation type viscometers I, the oscillating cup" (with J. Kestin), Z. angew. Math. Phys. 8, 433-459 (1957).
16. "Theory of oscillation type viscometers II, the oscillating cup" (with D.A. Beckwith), Z. angew. Math. Phys. 8, 450-465 (1957).
17. "Some statistical problems encountered in a theory of pinning and break away of dislocations," Q. Applied Math. 16, 155-168 (1958).
18. "Extreme frequencies of lattice vibrations for disordered binary alloys," J. Phys. Chem. Solids 6, 1940-1944 (1958).
19. "Theory of oscillation type viscometers III, a thin disk" (with A. G. Azpeitia), Z. angew. Math. Phys. 9a, 97-118 (1958).
20. "Theory of oscillation type viscometers IV, a thick disk" (with A.G. Azpeitia), Z. angew. Math. Phys. 10, 15-34 (1959).
21. "Theory of oscillation type viscometers V, disk oscillating between fixed plates," Z. angew. Math. Phys. 10, 160-174 (1959).
22. "The effect of left turns on the capacity of a traffic intersection," Q. Applied Math. 17, 67-76 (1959).
23. "A theory of platoon formation in tunnel traffic," Operations Research 7, 589-598 (1959).
24. "A Continuum model for two-directional traffic flow" (with J.H. Bick), Q. Applied Math. 18, 192-204 (1960).
25. "The flow of highway traffic through a sequence of synchronized traffic signals," Operations Research 8, 390-405 (1960).

26. "Queues for a fixed-cycle traffic light," *Ann. Math. Statist.* 31, 589-597 (1960).
27. "Nonlinear effects in the dynamics of car-following," *Operations Research* 9, 209-229 (1961).
28. "Asymptotic extreme value distribution for one-dimensional diffusion processes," *J. Math. and Mechanics* 11, 481-496 (1962).
29. "Zero crossing probabilities for Gaussian stationary processes" (with M. Rosenblatt), *Ann. Math. Statist.* 33, 1306-1313 (1962).
30. "Theories of instability in dense highway traffic," *J. Operations Research Soc. Japan* 5, 9-54 (1962).
31. "Synchronization of traffic lights for high flow," *Q. Applied Math.* 21, 315-324 (1964).
32. "Asymptotic extremes for m-dependent random variables," *Ann. Math. Statist.* 35, 1322-1325 (1964).
33. "Queues for a vehicle-actuated traffic light" (with J.N. Darroch and R.W.J. Morris), *Operations Research* 12, 882-895 (1964).
34. "Approximate methods for queues with application to the fixed-cycle traffic light," *Soc. Industrial Applied Math. Rev.* 7, 223-240 (1965).
35. "Statistical thermodynamic theory for helix-coil transitions involving poly- and oligonucleotides, II, the case of partial binding" (with W.S. Magee and J.H. Gibbs), *J. Chem. Phys.* 43, 2115-2123 (1965).
36. "The M/G/4 queue," *J. Soc. Industrial Applied Math.* 14, 86-88 (1966).
37. "Equilibrium probability distributions for low density highway traffic," *J. Applied Probability* 3, 247-260 (1966).
38. "Products of zero-one processes and the multi-lane highway crossing problem" (with J.T. Lewis), *J. Math. Analysis Appl.* 16, 51-64 (1966).
39. "Closed queuing systems with exponential servers" (with W.J. Gordon), *Operations Research* 15, 254-265 (1967).
40. "Cyclic queuing systems with restricted length queues" (with W.J. Gordon), *Operations Research* 15, 266-277 (1967).

41. "Traffic signal synchronization on a one-way street" (with E. Bavarez), *Transportation Science* 1, 55-73 (1967).
42. "Stochastic properties of peak short-time traffic counts," *Transportation Science* 1, 167-183 (1967).
43. "Flow dependent traffic assignment on a circular city" (with T.N. Lam), *Transportation Science* 1, 318-361 (1967).
44. "Rapid Transit interstation spacings for minimum travel time" (with V. Vuchic), *Transportation Science* 2, 303-339 (1968).
45. "Queues with time-dependent arrival rates II: The maximum queue and the return to equilibrium," *J. Appl. Probability* 5, 436-451 (1968).
46. "Queues with time-dependent arrival rates II: The maximum queue and the return to equilibrium," *J. Appl. Probability* 5, 579-590 (1968).
47. "Queues with time-dependent arrival rates III: The mild rush hour," *J. Appl. Probability* 5, 591-606 (1968).
48. "Properties of vehicle-actuated signals I: One-way streets," *Transportation Science* 3, 30-52 (1969).
49. "Properties of vehicle-actuated signals II: Two-way streets" (with E.E. Osuna), *Transportation Science* 3, 99-125 (1969).
50. "A study of the gate use at Honolulu international airport" (with J.W. Edwards), *Transportation Science* 3, 183-191 (1969).
51. "Some properties of presence detectors," *Trans. Sci.*, 4, 311-321 (1970).
52. "Dispatching policies for a transportation route," *Trans. Sci.*, 5, 91-105 (1971).
53. "Optimal strategies for priority queues with nonlinear costs of delay" (with R. Haji), *SIAM. J. Applied Math.*, 20, 224-240 (1971).
54. "Three dimensional representatives of traffic flow" (with Y. Makigami and R. Rothery), *Trans. Sci.*, 5, 302-313 (1971).

55. "A relation between stationary queue and waiting time distributions" (with R. Haji), *J. Appl. Prob.*, 8, 617-620 (1971).
56. "Control strategies for an idealized public transportation system" (with E. Osuna), *Trans. Sci.*, 6, 52-72 (1972).
57. "Scheduling, location, transportation, and continuum mechanics; some simple approximations to optimization problems," *SIAM, J. Appl. Math.*, 25, 346-360 (1973).
58. "Optimal network geometry," *Transportation and Traffic Theory*, (ed. D. Buckley, A.H. and A.W. Reed), Sydney, 561-580 (1974).
59. "Control of pairing of vehicles on a public transportation route, two vehicles, one control point," *Trans. Sci.*, 8, 248-264 (1974).
60. "Optimal spacings for a rectangular grid transportation network - I A . hierarchy structure" (with M.Y. Fawaz), *Trans. Res.* 10, 111-120 (1976).
61. "Optimal spacings for a rectangular grid transportation network - II revised assignments" (with M.Y. Fawaz), *Trans. Res.* 10, 121-130 (1976).
62. "Some issues relating to metering or closing of freeway ramps. Part I, Control of a single ramp" (with B.L. Allen), *Trans. Sci.*, 10, 227-242 (1976)
63. "Some issues relating to metering or closing of freeway ramps. Part II, Translationally symmetric corridor" (with B.L. Allen) *Trans. Sci.*, 10, 243-268 (1976).
64. "Optimal parameters for a coordinated rail and bus transit system" (with S.C. Wirasinghe and V.F. Hurdle), *Trans. Sci.* 11, 359-374 (1977).
65. "Unstable Brownian motion of a bus trip," *Statistical Mechanics and Statistical Methods in Theory and Applications* (ed. U. Landman), Plenum Press, 645-667 (1977).
66. "Optimal dispatching strategies for vehicles having exponentially distributed trip times" (with K. Asgharzadeh), *Naval Res. Logistics Q.* 25, 489-509 (1978).
67. "Some issues relating to the optimal design of bus routes," *Trans. Sci.*, 13, 20-35 (1979).
68. "Airport capacity and delay," *Trans. Sci.*, 13, 201-241 (1979).
69. "Asymptotic distribution of Eigenvalues for the multidimensional Schrodinger equation," *J. Mathematical Physics* 21, 1033-2201 (1980).

70. "A diffusion approximation for correlation in queues" (with C.M. Woodside and B. Pagurek), *J. Applied Prob.* 17, 1033-2201 (1980).
71. "An analysis of elevator operation in moderate height buildings - I, A Single Elevator" (with Beryl Gamse), *Trans. Res., B*, 303-319 (1982).
72. "An analysis of elevator operation in moderate height buildings - II, Multiple elevators" (with Beryl Gamse), *Trans. Res., B*, 321-335 (1982).
73. "Approximations for superposition arrival processes in queues," *Management Sci.*, 30, 623-632 (1984).
74. "Physical distribution from a warehouse" (with C. Daganzo), *Trans. Res.* 19b, 397-408 (1985).
75. "Configuration of physical distribution networks" (with C. Daganzo), *Networks* 16, 113-132 (1986).
76. "Design of multiple-vehicle delivery tours - I. A ring-radial network" (with C. Daganzo), *Trans. Res.* 20b, 345-363 (1986).
77. "Design of multiple-vehicledelivery tours - II. Other metrics" (with C. Daganzo), *Trans. Res.* 20b, 365-376 (1986).
78. "Design of multiple-vehicle delivery tours - III. Valuable goods," *Trans. Res.* 20b, 377-390 (1986).
79. "The morning commute for non-identical travelers," *Trans. Sci.* 21, 74-88 (1987).
80. "Traffic flow for the morning commute," *Trans. Sci.* 21, (1987).
81. "Traffic flow for the morning commute," *Trans. Sci.* 22, 47-58 (1988).
82. "Comments on traffic dynamics," *Trans. Res.* 23b, 386-389 (1989).
83. "Asymptotic behavior of a melting interface," *SIAM Rev.* 32, 145-148 (1990).
84. "Handling operations and lot size trade-off" (with C. F. Daganzo), *Trans. Sci.* 27B, 167-183 (1993).
85. "Comments on spatial models of traffic," *Trans. Res.*, 27B, 185-188 (1993).

86. "A simplified theory of kinematic waves in highway traffic, I. General theory, II. Queuing at freeway bottlenecks, III. Multidestination flows," *Transpn. Res.* 27B, 281-287, 289-303, 305-313 (1993).
87. "An infinite sum of Erlang loss functions," *SIAM Rev.*, **36**, 112-114 (1994).
88. A Non-convex Traffic Assignment on a Rectangular Grid Network, @ *Trans. Sci.* 30, 1996, pp. 32-42.
89. Newell, G.F., A Two Elevators Serving UP-traffic, @ *Queuing Systems* 23, 1996, 57-76.
90. Newell, G.F., A The Rolling Horizon Scheme of Traffic Signal Control, @ *Transportation Research A*, 32, 39-44 (1998).
91. Newell, G.F., "A Moving Bottleneck," *Transportation Research B* 32, pp. 531-538 (1998)
92. Newell, G.F., "Strategies for Serving Peak Elevator Traffic," *Transportation Research B* 32, pp. 583-588 (1998)
93. Newell, G.F., "Delays Caused by a Queue at a Freeway Exit Ramp," *Transportation Research B* 33, pp. 337-350 (1999)

## **B. Conference and Symposium Proceedings**

1. "A theory of traffic flow in tunnels," Proc., Symposium on the Theory of Traffic Flow, Detroit, 1959, ed. R. Herman Elsevier, 1961, pp. 193-206.
2. "Distribution for the smallest distance between any pair of  $k^{\text{th}}$  nearest neighbor random points on a line," Proc., Symposium on Time Series Analysis, Providence, 1962, ed. M. Rosenblatt, John Wiley, 1963, pp. 89-103.
3. "Instability in dense highway traffic, a review," Proc., Second International Symposium on the Theory of Road Traffic Flow, London, 1963.
4. "Equilibrium analysis of a stochastic model of traffic flow" (with W.J. Gordon), Proc., Cambridge Phil. Soc. 60, 1964, pp. 227-236.
5. "Maintaining a bus schedule" (with R.B. Potts), Proc., Second Conference Australian Road Research Board, Melbourne, 1964, II, 1964, pp. 388-393.

6. "Optimal policies for the control of an undersaturated intersection" (with R.B. Grafton), Proc., Third Int. Symposium on the Theory of Traffic Flow, New York City, 1965, pp. 239-257.
7. "The delay problem for crossing an n lane highway" (with D.C. Gazis, P. Warren and G.H. Weiss), Proc., Third Int. Symposium on the Theory of Traffic Flow, New York City, 1965, pp. 267-279.
8. "Traffic signal synchronization for high flows on a two-way street," Proc., Fourth Int. Symposium on the Theory of Traffic Flow, Karlsruhe, 1968.
9. "Statistical properties of traffic counts" (with G. A. Sparks), Proc., Int. Conf. on Stochastic Point Processes, John Wiley, 1971, pp. 166-174.
10. "Graphical representations of queue evolution for multiple-server systems," Proc., Conf. on Math. Methods in Queuing Theory (1973), Lecture notes in Economics and Mathematical Systems #98, Springer-Verlag, 1974, pp. 63-79.
11. "Optimal Network Geometry," Transportation and Traffic Theory, (ed. D. Buckley, A. H. and A. W. Reed), Sydney, 1974, pp. 561-580.
12. "The effect of queues on the traffic assignment to freeways," Proc., Seventh Int. Symp. on Transportation and Traffic Flow Theory, pp. 311-340,
13. "Blocking effects for synchronized signals," Proc., 8th International Symp. on Transportation and Traffic Theory, Toronto, 1981.
14. "Queue evolution on freeways leading to a single core city during the morning peak" (with M. Kuwahara), Tenth Int. Symp. on Transportation and Traffic Theory, Cambridge, MA, 1987.
15. "Stochastic delays on signalized arterial highways," Proc., 11th Int. Symp. on Transportation and Traffic Theory, Yokohama, Japan, 1990.
16. Flow around distortions in a dense rectangular grid road network, I. Theory, II. Examples," *Proc.* 12th Int. Symposium on the Theory of Traffic Flow and Transportation, Elsevier, 1993, pp. 1-16, 17-36.
17. Flow Around Distortions in a Dense Rectangular Grid Network III Coupling of Cross-Flows,@ *Proc.*, of the 13th International Symposium on Transportation and Traffic Theory, Lyon, France, Elsevier, 1996.

18. Newell, Gordon F. A Flow Around Distortions in a Dense Rectangular Grid Network III Coupling of Cross-Flows, @ *Proceedings*, 13th International Symposium on Transportation and Traffic Theory, Lyon, France, Elsevier, 1996.
19. Newell, Gordon F., "Flows up-stream of a highway bottleneck", *Proceedings of the 14<sup>th</sup> International Symposium on Transportation and Traffic Theory*, Jerusalem, Israel, Pergamon, 1999.

## II. A. Nonrefereed Publications

### Technical Reports

1. *A Simplified Theory of Kinematic Waves*, Research Report UCB-RR-91-12, 1991.
2. *A Moving Bottleneck*, Research Report UCB-ITS-RR-93-3, 1993.
3. *Flow Around Distortions in a Dense Rectangular Grid Road Network III: Coupling of Cross-Flows*, UCB-ITS-RR 95-4, University of California, Berkeley, 1995.
4. *Two Elevators Serving U-Traffic*, UCB-ITS-RR-95-6, University of California, Berkeley, 1995.
5. Newell, G.F., *Delays Caused by a Queue at a Freeway Exit Ramp*, UCB, ITS, RR-98-2.
6. Newell, G.F. *Vehicle-Actuated Control of a Diamond Interchange*, UCB-ITS-RR-98-3.
7. Newell, G.F., *A Simplified Car-Following Theory: A Lower Order Model*, UCB-ITS-RR-99-1.

## III. Books and Chapters in Books

1. *Theory of Highway Traffic Signals*, Institute of Transportation Studies, 1988, 451 pages.
2. *Applications of Queuing Theory*, Chapman and Hall, Monographs on Applied Probability and Statistics, London, 1971, 148 pages.
3. *Traffic Flow Theory and Transportation* (Editor), *Proceedings*, 5th International Symposium on the Theory of Traffic Flow and Transportation, 1971, American Elsevier, New York, 1972, 453 pages.

4. "Unstable Brownian Motion of a Bus Trip," *Statistical Mechanics and Statistical Methods in Theory and Applications* (U. Landman, ed.), Plenum Press, 1977, pp. 645-667.
5. *Approximate Stochastic Behavior of n-Server Service Systems with Large n*, Lecture Notes in Economics and Mathematical Systems #87, Springer-Verlag, 1973, 118 pages.
6. *Approximate Behavior of Tandem Queues*, Lecture Notes in Economic and Mathematical Systems #171, Springer-Verlag, 1979, 410 pages.
7. *Traffic Flow on Transportation Networks*, MIT Press, Cambridge, Mass. (1980), 276 pages.
8. *Applications of Queuing Theory*, second edition, Chapman and Hall, London (1982), xvi + 303 pages.
9. *The M/M Service System with Ranked Servers in Heavy Traffic*, Lecture Notes in Economic and Mathematical Systems #231, Springer-Verlag (1984), 132 pages.
10. *Theory of Highway Traffic Flow, 1945-1965*, ITS, University of California (1995), 300 pages.