

**UMTRI-90-9**

**DRIVING SIMULATORS: A CLASSIFIED BIBLIOGRAPHY**

**Prepared by**

**Research Information and Publications Center  
Transportation Research Institute  
University of Michigan  
Ann Arbor, MI 48109-2150**

**R. Kronfol & A. Grimm, eds.**

**March 1990**

## **INTRODUCTION**

This bibliography contains 245 references to documents concerned with the application of or the design of driving simulators dating from 1974 to the present. All documents referenced are in the Research Information and Publications Center of The University of Michigan Transportation Research Institute. Eight subject groupings dealing with simulator applications have been identified; references dealing with design issues are in a separate section. Within the sections, items are arranged by author. An index to corporate organizations is also included. Comments and suggestions for inclusion are welcome.

R. Kronfol  
A. Grimm

## **CONTENTS**

Alcohol/ Drugs	1
Design	5
Driver Education	8
Handicapped/ Disabled	10
Human Performance	11
Human Stress/ Fatigue	18
Risk Taking	20
Signs/ Signals	21
Vision	23
Corporate Author Index	25

## ALCOHOL/DRUGS

Allen, R. W./ Jex, H. R./ McRuer, D. T./ DiMarco, R. J. Alcohol effects on driving behavior and performance in a car simulator. Systems Technology, Inc., Hawthorne, Calif. Sept 1975. 8 p. IEEE Transactions on Systems, Man, and Cybernetics, Vol. SMC-5, No. 5, Sept 1975, pp. 498-505. Sponsored by: National Highway Traffic Safety Administration, Office of Driver Performance Research, Washington, D.C.

Amos, M./ Eckelt, U. Untersuchungen der Strassenverkehrstuechtigkeit mit Hilfe eines Kraftfahrzeugsimulators nach zahnaerztlich-chirurgischen Eingriffen/ Testing the driving fitness after dental surgical interventions by means of an automobile simulator. Hochschule fuer Verkehrswesen "Friedrich List", Dresden, Germany DR/ Medizinische Akademie "Carl Gustav Carus", Dresden, Germany DR. 1982. 11 p. Zahn-, Mund- und Kieferheilkunde, Vol. 70, No. 2, 1982, pp. 137-147.

Attwood, D. A. Effects of moderate levels of blood alcohol on responses to information from simulated automobile rear-signal systems. Canada, Transport Canada, Road Safety Unit, Downsview, Ontario. March 1978. 10 p. Accident Analysis and Prevention, Vol. 10, No. 1, March 1978, pp. 11-20.

Bech, P. Mental illness and simulated driving: before and during treatment. Psychochemistry Institute, Copenhagen, Denmark. 1975. 8 p. Pharmakopsychiatrie/ Neuro-Psychopharmakologie, Vol. 8, No. 4, 1975, pp. 143-150.

Beideman, L. R./ Stern, J. A. Aspects of the eyeblink during simulated driving as a function of alcohol. Washington University, St. Louis, Behavior Research Laboratory, Mo. Feb 1977. 5 p. Human Factors, Vol. 19, No. 1, Feb 1977, pp. 73-77. Sponsored by: Public Health Service, Bethesda, Md.

Browning, J. J./ Wilde, G. J. S. The effect of beverage alcohol on perceived risk under realistic and simulated traffic conditions. Queen's University, Kingston, Canada. June 1975. 35 p. Sponsored by: Canadian Ministry of Transport, Road and Motor Vehicle Traffic Safety Office, Ottawa.

Burford, R./ French, I. W./ LeBlanc, A. E. The combined effects of alcohol and common psychoactive drugs: I. Studies on human pursuit tracking capability. Nucro-Technics Laboratories, Scarborough, Canada. 1975. 9 p. Israelstam, S., and Lambert, S., eds. Alcohol, Drugs, and Traffic Safety. Proceedings. Toronto, Addiction Research Foundation, 1975. Pp. 423-431. Sponsored by: Insurance Bureau of Canada.

Burley, D./ Silverstone, T., ed. Medicines and road traffic safety. St. Bartholomew's Hospital, London, England. Clinical Neuroscience Publishers, London, England. May 1988. 166 p. International Clinical Psychopharmacology, Vol. 3, Supplement 1, May 1988.

Dott, A. B./ McKelvey, R. K. Influence of ethyl alcohol in moderate levels on the ability to steer a fixed-base shadowgraph driving simulator. Family Health, Inc., New Orleans, La./ Monash University, Clayton, Australia. June 1977. 6 p. Human Factors, Vol. 19, No. 3, June 1977, pp. 295-300.

Dureman, I./ Norrman, B. Clinical and experimental comparison of diazepam, chlorazepate and placebo. Uppsala University, Sweden. 1975. 6 p. Psychopharmacologia, Vol. 40, No. 4, 1975, pp. 279-284.

Gawron V. J./ Ranney, T. A. The effects of alcohol dosing on performance on a closed course and in a driving simulator. Calspan Corporation, Buffalo, N.Y./ Liberty Mutual Research Center, Hopkinton, Mass. Sept 1988. 25 p. Ergonomics, Vol. 31, No. 9, Sept 1988, pp. 1219-1244. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C.

Gerchow, J. Über den Einfluss der Kleinen Alkoholdosen auf die Verkehrssicherheit unter besonderer Berücksichtigung der Ergebnisse des sog. Wolfsburger Versuches/ On the influence of small doses of alcohol on traffic safety with special attention to the results of the so-called Wolfsburg study. Johann Wolfgang Goethe-Universität, Zentrum der Rechtsmedizin, Frankfurt, Germany. Sept 1976. 17 p. Blutalkohol, Vol. 13, No. 5, Sept 1976, pp. 341-357.

Korttila, K./ Linnoila, M./ Ertama, P./ Haeckinen, S. Recovery and simulated driving after intravenous anesthesia with thiopental, methohexital, propanidid, or alphadione. Helsingin Yliopisto, Finland/ Espoo Institute of Technology, Finland. Sept 1975. 9 p. Anesthesiology, Vol. 43, No. 3, Sept 1975, pp. 291-299. Sponsored by: Wihurin Säätiö, Finland/ Liikennevakuutusyhdistys, Helsinki, Finland.

Laurell, H./ Toernros, J. The carry-over effects of triazolam compared with nitrazepam and placebo in acute emergency driving situations and in monotonous simulated driving. Statens Vaeg- och Trafikinstitut, Linköping, Sweden. March 1986. 5 p. Acta Pharmacologica et Toxicologica, Vol. 58, No. 3, March 1986, pp. 182-186.

Linnavuo, M./ Ylilaeaakkola, P./ Mattila, M. J./ Maeki, M./ Seppälä, T. A new device to measure drug-induced changes on reactive and coordinative skills of human performance. Helsingin Teknillinen Korkeakoulu, Espoo, Finland/ Helsingin Yliopisto, Finland/ Finland Central Organization for Traffic Safety, Helsinki/ Finland National Public Health Institute, Helsinki. Aug 1987. 6 p. Pharmacology and Toxicology, Vol. 16, No. 2, Aug 1987, pp. 142-147.

McMillen, D. L./ Smith, S. M./ Wells-Parker, E. The effects of alcohol, expectancy, and sensation seeking on driving risk taking. Mississippi State University, Mississippi State/ Georgia University, Athens. 1989. 7 p. Addictive Behaviors, Vol. 14, No. 4, 1989, pp. 477-483.

Miller, H. R./ Allen, R. W./ Stein, A. C. Driver factors, simulators and other instrumented measurement approaches. National Highway Traffic Safety Administration, Washington, D.C./ Systems Technology, Inc., Hawthorne, Calif. Oct 1983. 15 p. Crash Avoidance. Warrendale, Pa., SAE, Oct 1983. Pp. 75-89. Report No. SAE 830563.

Milner, G. Driving skills, alcohol and psychotropic drug interaction. Western Australia Mental Health Service, Perth. 1971. 4 p. Kiloh, L. G., and Bell, D. S., eds. International Congress on Alcoholism and Drug Dependence. 29th. Australia, Butterworths, 1971. Pp. 295-298.

Mortimer, R. G./ Sturgis, S. P. Alcohol and simulated car-following performance. Illinois University, Urbana, Department of Health and Safety Education/ Liberty Mutual Insurance Company, Research Laboratories, Hopkinton, Mass. 1980. 9 p. American Association for Automotive Medicine. 24th Conference. Proceedings. Morton Grove, AAAM, 1980. Pp. 26-34.

Moskowitz, H. Validity of driving simulator studies for predicting drug effects in real driving situations. California University, Los Angeles, School of Engineering. 1975. 9 p. Israelstam, S., and Lambert, S., eds. Alcohol, Drugs, and Traffic Safety. Proceedings. Toronto, Addiction Research Foundation, 1975. Pp. 295-303. Sponsored by: National Institute on Alcohol Abuse and Alcoholism, Rockville, Md./ National Highway Traffic Safety Administration, Washington, D.C.

Moskowitz, H. Marijuana and driving. California University, Los Angeles, Department of Psychology/ California State University, Los Angeles. Feb 1976. 6 p. Accident Analysis and Prevention, Vol. 8, No. 1, Feb 1976, pp. 21-26. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C./ National Institute on Alcohol Abuse and Alcoholism, Rockville, Md./ National Institute on Drug Abuse, Rockville, Md.

Moskowitz, H./ Ziedman, K. Eye movements and skills performance measures under alcohol in a driving simulator. Southern California Research Institute, Los Angeles. 1979. 5 p.  
Bensel, C. K., ed. Compass for Technology. Proceedings of the Human Factors Society 23rd Annual Meeting. Santa Monica, Human Factors Society, 1979. Pp. 389-393. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C.

Oguchi, Y. Simulator applications to determine effects of disturbances on automobile driving characteristics. Shibaura Institute of Technology, Department of Engineering, Japan. 1973. 10 p. Report No. SM1.

Perrine, M. W. Alcohol experiments on driving-related behaviour: a review of the 1972-1973 literature - alcohol countermeasures literature review. Final report. National Safety Council, Chicago, Ill. Nov 1974. 78 p. Sponsored by: National Highway Traffic Safety Administration, Office of Driver and Pedestrian Programs, Washington, D.C. Report No. DOT/HS 801 266.

Ranney, T. A./ Gawron, V. J. The effects of pavement edgelines on performance in a driving simulator under sober and alcohol-dosed conditions. Calspan Corporation, Buffalo, N.Y. Oct 1986. 15 p. Human Factors, Vol. 28, No. 5, Oct 1986, pp. 511-525. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C./ Federal Highway Administration, Washington, D.C.

Regina, E. G./ Smith, G. M./ Keiper, C. G./ McKelvey, R. K. Effects of caffeine on alertness in simulated automobile driving. Massachusetts General Hospital, Boston/ Public Health Service, Injury Control Research Laboratory, Providence, R.I. 1974. 7 p. Journal of Applied Psychology, Vol. 59, No. 4, 1974, pp. 483-489. Sponsored by: Bristol-Myers Company, New York, N.Y.

Rimm, D. C./ Sininger, R. A./ Faherty, J. D./ Whitley, M. D./ Perl, M. B. A balanced placebo investigation of the effects of alcohol vs. alcohol expectancy on simulated driving behavior. North Texas State University, Denton. 1982. 6 p. Addictive Behaviors, Vol. 7, No. 1, 1982, pp. 27-32.

Sharma, S. Barbiturates and driving. Southern California Research Institute, Los Angeles/ California University, Los Angeles, Department of Psychology. Feb 1976. 5 p. Accident Analysis and Prevention, Vol. 8, No. 1, Feb 1976, pp. 27-31.

Smiley, A./ Moskowitz, H. M./ Ziedman, K. Effects of drugs on driving: driving simulator tests of secobarbital, diazepam, marijuana, and alcohol. Southern California Research Institute, Los Angeles. Government Printing Office, Washington, D.C. 1985. 26 p. Sponsored by: National Institute on Drug Abuse, Rockville, Md./ National Highway Traffic Safety Administration, Washington, D.C. Report No. (ADM)85-1386.

Smiley, A./ Brookhuis, K. A. Alcohol, drugs, and traffic safety. Human Factors North, Inc., Toronto, Ontario, Canada/ Groningen State University, Traffic Research Centre, Netherlands. 1987. 22 p. Rothengatter, J. A., and de Bruin, R. A., eds. Road Users and Traffic Safety. Assen, Van Gorcum and Company B.V., 1987. Pp. 83-104.

Smiley, A. M./ Moskowitz, H./ Zeidman, K. Driving simulator studies of marijuana alone and in combination with alcohol. Southern California Research Institute, Los Angeles. 1981. 10 p. American Association for Automotive Medicine. 25th Annual Conference. Proceedings. Morton Grove, Ill., AAAM, 1981, Pp. 107-116. Sponsored by: National Institute on Drug Abuse, Rockville, Md./ National Highway Traffic Safety Administration, Washington, D.C.

Soede, M. Onderzoek naar de invloed van alcohol en afleidingstaak op het gedrag van de berijder van een fietssimulator/ Effect of alcohol and distraction task on the behavior of a person riding a bicycle simulator. Nederlands Instituut voor Praeventieve Geneeskunde TNO, Leiden/ Technische Hogeschool Delft, Netherlands. May 1977. 52 p.

Stein, A. C./ Allen, R. W./ Cook, M. L./ Karl, R. L. A simulator study of the combined effects of alcohol and marihuana on driving behavior. Phase I. Final report. Systems Technology, Inc., Hawthorne, Calif. Feb 1983. 85 p. Report No. TR-1066-2/ DOT/HS 806 414.

Stein, A. C./ Allen, R. W./ Cook, M. L./ Karl, R. L. A simulator study of the combined effects of alcohol and marihuana on driving behavior. Phase II. Final report. Systems Technology, Inc., Hawthorne, Calif. Feb 1983. 109 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C. Report No. TR-1066-2/ DOT/HS 806 405.

Stein, A. C./ Allen, R. W. The combined effects of alcohol and marijuana on driving behavior. Systems Technology, Inc., Hawthorne, Calif. 1984. 16 p. American Association for Automotive Medicine. 28th Annual Conference. Proceedings. Arlington Heights, Ill., AAAM, 1984. Pp. 289-304.

Stein, A. C./ Allen, R. W./ Cook, M. L. The interaction of alcohol and fatigue on driver simulator performance. Systems Technology, Inc., Hawthorne, Calif. 1985. 14 p. American Association for Automotive Medicine. 29th Annual Conference. Proceedings. Arlington Heights, Ill., AAAM, 1985. Pp. 91-104.

Stein, A. C./ Allen, R. W. The effects of alcohol on driver decision making and risk taking. Systems Technology Inc., Hawthorne, Calif. 1986. 21 p. American Association for Automotive Medicine. 30th Annual Conference. Proceedings. Arlington Heights, Ill., AAAM, 1986. Pp. 59-79.

Toernros, J./ Laurell, H. Dagen-efter-effekter av alkohol paa koerfoermaagan i simulerad bilkoerning/ Hang-over effects of alcohol on driver performance in simulated driving. Statens Vaeg- och Trafikinstitut, Linkoeping, Sweden. 1987. 23 p. Report No. 314.

Willumeit, H. P./ Neubert, W./ Ott, H./ Hemmerling, K. G. Driving ability following the subchronic application of lormetazepam, flurazepam and placebo. Berlin Technische Universitaet, Institut fuer Fahrzeugtechnik, Germany FR/ Schering Aktiengesellschaft, Berlin, Germany FR. Nov 1983. 7 p. Ergonomics, Vol. 26, No. 11, Nov 1983, pp. 1055-1061.

Young, R. K./ Valentine, D./ Williams, M. Alcohol and accidents. Texas University, Austin, Council for Advanced Transportation Studies. March 1977. 60 p. Sponsored by: Texas Office of Traffic Safety, Austin. Report No. RR-49.

Ziedman, K./ Smiley, A./ Moskowitz, H. Effects of drugs on driving: driving simulator tests of Diazepam and Secobarbital. Southern California Research Institute, Los Angeles. 1979. 4 p. Bensel, C. K., ed. Compass for Technology. Proceedings of the Human Factors Society 23rd Annual Meeting. Santa Monica, Human Factors Society, 1979. Pp. 259-262. Sponsored by: National Institute on Drug Abuse, Rockville, Md./ National Highway Traffic Safety Administration, Washington, D.C.

Ziedman, K./ Moskowitz, H./ Niemann, R. A. The effects of alcohol on the driver's visual information processing. Final report. Southern California Research Institute, Los Angeles. Sept 1980. 141 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C. Report No. DOT/HS 805 748.

## DESIGN

Advanced vehicle-highway technology and human factors research. Hearing. House of Representatives, Congress, One Hundred First, First Session, Committee on Science, Space, and Technology, Washington, D.C. Government Printing Office, Washington, D.C. 1989. 145 p. Report No. 33.

[Society of Automotive Engineers of Japan course on driving simulators. Proceedings.] Society of Automotive Engineers of Japan, Tokyo. 1975. 63 p.

Allen, R. W./ Klein, R. H./ Ziedman, K. Automobile research simulators: a review and new approaches. Systems Technology, Inc., Hawthorne, Calif./ Southern California Research Institute, Los Angeles. 1979. 7 p. Transportation Research Record, No. 706, 1979, pp. 9-15.

Allen, R. W./ Stein, A. C./ Aponso, B. L./ Rosenthal, T. J./ Hogue, J. R. A low cost, part task driving simulator based on microcomputer technology. Systems Technology, Inc., Hawthorne, Calif. Jan 1990. 14 p. Report No. 890669.

Biehl, B. Simulatoren - ein Fortschritt fuer die Erforschung des Verkehrsverhaltens?/ Simulators - a progress for the research relating to traffic psychology? Mannheim Universitaet, Germany FR. 1976. 4 p. Zeitschrift fuer Verkehrssicherheit, 22. Jahrgang 1976, I. Quartal, Heft 1, pp. 3-6.

Blaauw, G. J. Simulatie en wegontwerp/ Simulation and road design. Institute for Perception - TNO, Soesterberg, Netherlands. 1979. 70 p. Report No. IZF 1979-C21.

Casali, J. G./ Wierwille, W. W. Potential design etiological factors of simulator sickness and a research simulator specification. Virginia Polytechnic Institute and State University, Blacksburg. 1986. 9 p. Transportation Research Record, No. 1059, 1986, pp. 66-74.

Dickinson, S. J./ Davis, L. S. An expert vision system for autonomous land vehicle road following. Technical report. Maryland University, College Park. Oct 1987. 39 p. Sponsored by: Defense Advanced Research Projects Agency, Arlington, Va./ Army Corps of Engineers, Engineer Topographic Laboratories, Fort Belvoir, Va. Report No. CAR-TR-330/ CS-TR-1932.

Drosdol, J./ Panik, F. The Daimler-Benz driving simulator - a tool for vehicle development. Daimler-Benz AG, Stuttgart, Germany FR. 1985. 19 p. Report No. SAE 850334.

Drosdol, J./ Kaeding, W./ Panik, F. The Daimler-Benz driving simulator: new technologies demand new instruments. Daimler-Benz AG, Germany FR. 1986. 14 p. Nordstroem, O., ed. The Dynamics of Vehicles on Roads and on Tracks. Proceedings. Lisse, Swets and Zeitlinger, 1986. Pp. 44-57.

Fiala, E. Die Wechselwirkungen zwischen Fahrzeug und Fahrer als kybernetisches Funktionsprinzip/ The interaction between vehicle and driver as a problem in control engineering. Berlin Technische Universitaet, Institut fuer Kraftfahrzeuge, Germany FR. 1966. 9 p. Report No. Preprint C6.

Franzke, H. G. Fahrzeugsimulation zur Untersuchung des Systems Fahrer-Fahrzeug-Strasse/ Vehicle simulation for the study of the driver-vehicle-road system. Berlin Technische Universitaet, Institut fuer Kraftfahrzeuge, Germany. Oct 1973. 12 p. Report No. SM1e.

Franzke, H. G. Ein Fahrimulator fuer Strassenverkehr bei verbesselter Sichtinformation/ A driving simulator for road traffic with improved visual information. 1976. 6 p. Zeitschrift fuer Verkehrssicherheit, 22. Jahrgang 1976, I. Quartal, Heft 1, pp. 13-18.

Fukui, K./ Shirakawa, I./ Miki, K./ Hayashi, Y./ Sugimoto, G./ Hasegawa, J. Newly designed driving simulator using "drum tester" for a motion system. Toyota Motor Company, Central Research and Development Labs, Inc., Japan. July 1986. 8 p. JSAE Review, Vol. 7, No. 2, July 1986, pp. 52-59.

Gohring, E./ von Glasner, E. C./ Hainbuch, C. Increasing the active safety of commercial vehicles by using an electronically controlled power steering system. Mercedes-Benz Aktiengesellschaft, Germany FR. 1989. 16 p. Report No. SAE 892518.

Green, P./ Olson, A. The development and use of the UMTRI driving simulator. Michigan University, Ann Arbor, Transportation Research Institute. Oct 1989. 34 p. Report No. UMTRI-89-25.

Hahn, S./ Kaeding, W. The Daimler-Benz driving simulator - presentation of selected experiments. Daimler-Benz AG, Stuttgart, Germany FR. 1988. 9 p. Report No. SAE 880058.

Haug, E./ Kim, S. S./ Stoner, J./ Andersen, D./ Lee, W. S./ Malwitz, D./ Turpin, D./ Sinacori, J./ Allen, W./ Companion, M./ Goldiez, B./ McAreavy, J./ Gay, R. Conceptual design of a national advanced driving simulator. Interim report. Iowa University, Iowa City, College of Engineering/ Contraves-Goerz Corporation, Pittsburgh, Pa./ Evans and Sutherland Computer Corporation, Salt Lake City, Utah/ Sinacori, J. B., Associates/ Systems Technology, Inc., Hawthorne, Calif./ University of Central Florida, Orlando. 3 May 1989. 328 p.

Jones, E. R./ Hennessy, R. T./ Deutsch, S., eds. Human factors aspects of simulation. National Research Council, Washington, D.C. National Academy Press, Washington, D.C. 1985. 162 p.

Lindstroem, M./ Nordmark, S./ Nordstroem, O. Handling research in a driving simulator computer simulation in real time. Statens Vaeg- och Trafikinstitut, Linkoeping, Sweden. 1982. 10 p. Wickens, A. H., ed. The Dynamics of Vehicles on Roads and on Tracks. Proceedings. Lisse, Swets and Zeitlinger, 1982. Pp. 29-38.

Miki, K./ Fukui, K./ Hayashi, Y./ Hasegawa, J. Dynamic characteristics of motor vehicles on "drum tester" - for a motion system of a driving simulator. Toyota Motor Company, Central Research and Developments Labs, Inc., Japan. 1986. 12 p. Report No. SAE 861374.

Nordmark, S./ Lidstroem, M./ Palmkvist, G. Moving base driving simulator with wide angle visual system. May 1984. 7 p. FISITA Congress. XXth. [Volume 3. Proceedings.] Warrendale, Pa., SAE, May 1984. Pp. 3.266-3.272. Report No. SAE 845100.

Nordmark, S./ Jansson, H./ Lidstroem, M./ Palmkvist, G. A moving base driving simulator with wide angle visual system. Statens Vaeg- och Trafikinstitut, Linkoeping, Sweden. Jan 1985. 31 p.

Patrick, L. M./ Van Kirk, D. J./ Nyquist, G. W. Vehicle accelerator crash simulator. Wayne State University, Department of Engineering, Detroit, Mich./ Michigan State University, East Lansing. 1968. 22 p. Stapp Car Crash Conference. Twelfth. Proceedings, Society of Automotive Engineers, 1968, pp. 402-423. Sponsored by: General Services Administration, Washington, D.C./ Navy Department, Washington, D.C. Report No. SAE 680791.

Raahs, K. Vaegojaemhetssimulator--en funktionsbeskrivning/ Road roughness simulator--a function description. Statens Vaeg- och Trafikinstitut, Linkoeping, Sweden. 1979. 52 p. Report No. 184.

Richter, B. Simulation des Fahrer-Fahrzeug-Verhaltens im Projektstadium/ Simulation of driver-vehicle behavior in the design stage. 1974. 7 p. FISITA. Congres International. XVe. Paris, Societe des Ingenieurs de l'Automobile, 1974. Pp. 35-41.

Richter, B. Driving simulator studies: the influence of vehicle parameters on safety in critical situations. Volkswagenwerk AG, Research and Development Center, Wolfsburg, Germany. 1975. 9 p. International Automobile Tire Conference. Proceedings. Warrendale, Society of Automotive Engineers, 1975. Pp. 91-99. Report No. SAE 741105.

Riseman, E. M./ Hanson, A. R./ Kitchen, L. J. End of year technical report: dynamic image interpretation for autonomous vehicle navigation. Massachusetts University, Amherst. 1987. 31 p.

Roberts, K. M. The FHWA highway driving simulator. Federal Highway Administration, McLean, Va. 1980. 6 p. Public Roads, Vol. 44, No. 3, Dec 1980, pp. 97-102.

Ruehmann, P. Aufbau einer Bewegungs-Sichtsimulationsanlage fuer Landfahrzeuge/ Construction of a motion and visual simulator for ground vehicles. Muenchen Technische Universitaet, Institut fuer Ergonomie, Germany. Oct 1973. 11 p. Report No. SM10.

Sorgatz, U. Limits and reliability of theoretical evaluation of vehicle lateral dynamics. Volkswagenwerk AG, Wolfsburg, Germany FR. 1976. 9 p. Pacejka, H. B., ed. The Dynamics of Vehicles on Roads and on Railway Tracks. Proceedings. Amsterdam, Swets and Zeitlinger, 1976. Pp. 110-118.

Stedtnitz, W./ Appel, H. Experimental and analytical simulation of liquid sloshing in tank trucks. Berlin Technische Universitaet, Institut fuer Kraftfahrzeuge, Germany FR. 1988. 11 p. FISITA. Congress. XXIInd. Automotive Systems Technology: the Future. Volume II. Technical Papers. [Proceedings.] Warrendale, SAE, 1988. Pp. 2.137-2.147. Report No. SAE 885110.

Tomaske, W. Fahrsimulation mit translatorischer Beschleunigungsdarstellung/ Driving simulation with translational movement. Jan 1985. 7 p. ATZ, 87. Jahrgang, No. 1, Jan 1985, pp. 23-29.

Watts, G. R./ Quimby, A. R. Design and validation of a driving simulator for use in perceptual studies. Transport and Road Research Laboratory, Crowthorne, England. 1979. 19 p. Report No. TRRL LR 907.

Weigand, F. K. A high-fidelity, task-independent motion base control system for a highway vehicle simulaor. Purdue University, Lafayette, Ind. Dec 1974. 109 p. Sponsored by: National Science Foundation, Washington, D.C.

Weir, D. H./ Heffley, R. K./ Ringland, R. F. Simulation investigation of driver/vehicle performance in a highway gust environment. Systems Technology, Inc., Hawthorne, Calif. May 1972. 21 p. Conference on Manual Command. Eight Annual. Proceedings. Wright-Patterson AFB, Air Force Systems Command, Flight Dynamics Laboratory, May 1972. Pp. 449-469. Sponsored by: Federal Highway Administration, Office of Research, Washington, D.C.

Wierwille, W. W. Driving simulator design for realistic handling. Virginia Polytechnic Institute and State University, Blacksburg. 1975. 14 p. Sachs, H. K., ed. International Conference on Vehicle System Dynamics. Third. Proceedings. Amsterdam, Swets & Zeitlinger, 1975. Pp. 186-199. Sponsored by: General Motors Corporation, Detroit, Mich.

Yatabe, T./ Matsumoto, S. Automobile driving simulator with full-electronic color visual display device. 1974. 7 p. FISITA. Congres International. XVe. Paris, Societe des Ingenieurs de l'Automobile, 1974. Pp. 58-64.

## DRIVER EDUCATION

Emergency vehicle driver training in Virginia. Smith, Wilbur, and Associates, Richmond, Va. 1973. 28 p. Sponsored by: Virginia Highway Safety Division, Richmond.

Aaron, J. E./ Strasser, M. K. Driving task instruction; dual-control, simulation, and multiple-car. Southern Illinois University, Carbondale, Safety Center/ California State University, San Jose. Macmillan Publishing Company, Inc., New York, N.Y. 1974. 439 p.

Allen, R. W./ Jex, H. R. Driving simulation - requirements, mechanization and application. Systems Technology, Inc., Hawthorne, Calif. Feb 1980. 12 p. Report No. SAE 800448.

Barker, L./ Polson, J./ DuPont, P. Driver screening simulator evaluation program. Final report. Southeastern Oklahoma State University, Durant, Okla. July 1978. 157 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C. Report No. DOT/HS-803 595.

Baron, M. L./ Williges, R. C. Transfer effectiveness of a driving simulator. Illinois University, Urbana. Feb 1975. 10 p. Human Factors, Vol. 17, No. 1, Feb 1975, pp. 71-80.

Eichert, E. S., III/ Frey, A. H. Holography in driver education, training, testing, and research. Final report. Randomline, Inc., Huntingdon Valley, Pa. Jan 1977. 103 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C. Report No. DOT/HS 803 152/ DOT/HS 803 035 (canceled)

Gilliland, M. G. Applications of computer-generated imagery to driver training, highway research, and design. General Electric Company, Daytona Beach, Apollo and Ground Systems Department, Fla. 1973. 33 p. North Carolina Symposium on Highway Safety, Vol. 8, 1973, pp. 1-33.

Griffeth, R. W./ Rogers, R. W. Effects of fear-arousing components of driver education on student's safety attitudes and simulator performance. South Carolina University, Columbia. Aug 1976. 6 p. Journal of Educational Psychology, Vol. 68, No. 4, Aug 1976, pp. 501-506.

Jolly, K. W. Notes for the course of driver education used in the Salford road safety experiment. Salford University, Road Safety Research Unit, England. 1975. 275 p. Sponsored by: Automobile Association, London, England/ Company of Veteran Motorists, London, England/ Transport and Road Research Laboratory, Crowthorne, England.

Jones, M. H./ Coppin, R. S. The California Driver Training Evaluation Study - a reply to W. G. Patterson. University of Southern California, Los Angeles/ California State Department of Motor Vehicles, Division of Administration, Research and Statistics Section, Sacramento. July 1975. 2 p. Journal of Traffic Safety Education, Vol. 22, No. 4, July 1975, pp. 7, 32.

Nagata, M./ Kuriyama, H. Development and application of driving simulator for training. Institute of Vocational Training, Sagamihara, Japan/ Industrial Products Research Institute, Ibaraki, Japan. July 1982. 9 p. JSAE Review, No. 8, July 1982, pp. 73-81.

Nagata, M./ Kuriyama, H. Development and application of a driving simulator for training. Institute of Vocational Training, Sagamihara, Japan/ Industrial Products Research Institute, Ibaraki, Japan. Jan 1983. 13 p. International Journal of Vehicle Design, Vol. 4, No. 1, Jan 1983, pp. 23-35.

O'Brien, J. F. The simulator as a driver testing device. New York State Department of Motor Vehicles, Division of Research and Development, Albany. Aug 1977. 50 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C.

O'Brien, J. F. Is there a place for the simulator in driver licensing? A New York study examines the feasibility of using the simulator to partially automate the testing process. New York State Department of Motor Vehicles, Albany. Aug 1978. 5 p. Traffic Safety, Vol. 78, No. 8, Aug 1978, pp. 8-10, 34-35.

Williges, R. C./ Triggs, T. J. Simulation in driver training. Monash University, Human Factors Group, Clayton, Australia. Nov 1977. 51 p. Sponsored by: Australian Commonwealth Department of Transport, Melbourne. Report No. HFR-6.

Wright, V./ Forman, R. Bus driver training simulator assessment. Final report. Transportation Systems Center, Cambridge, Mass. Jan 1980. 40 p. Sponsored by: Urban Mass Transportation Administration, Washington, D.C. Report No. DOT TSC-UMTA-80-20/ UMTA-MA-06-0074-80-1.

## HANDICAPPED/ DISABLED

Anger, R. T./ Wayne, R. W. The performance of automotive hand controls. Westinghouse Corporation, Baltimore, Md./ State University of New York, Buffalo, Department of Mechanical Engineering. 1978. 8 p. Sponsored by: Easter Seal Research Foundation, Chicago, Ill. Report No. ASME-78-WA/DSC-38.

Boydston, L. E./ Dessel, D. S./ Miller, J. M. Assessment of perceptually disabled individuals driving skills with a driving simulator. Michigan University, Ann Arbor, Center for Ergonomics. 1980. 3 p. Corrck, G. E., Haseltine, E. C., and Durst, R. T., Jr., eds. Human Factors: Science for Working and Living. Proceedings of the Human Factors Society 24th Annual Meeting. Santa Monica, Human Factors Society, 1980. Pp. 111-113.

Boydston, L. E./ Kessel, D. S. Techniques for assessment and training of perceptually disabled drivers. Michigan University, Ann Arbor, Center for Ergonomics. 21 Feb 1980. 41 p. Sponsored by: National Institute of Handicapped Research, Washington, D.C.

Gregory, D. R. Education of the disabled driver. 1981. 9 p. American Association for Automotive Medicine. 25th Annual Conference. Proceedings. Morton Grove, Ill., AAAM, 1981, Pp. 475-483.

Hogan, H. A./ Szeto, A. Y. J. A simulator for objectively evaluating prospective drivers of the Scott van. Louisiana Tech University, Ruston, Department of Biomedical Engineering. 1982. 9 p. Bulletin of Prosthetics Research, Vol. 19, No. 1, Spring 1982, pp. 19-27. Sponsored by: Louisiana Division of Vocational Rehabilitation, Baton Rouge.

Kochhar, D. S./ Miller, J. M./ Boydston, L. E. An approach to training the disabled driver. Michigan University, Ann Arbor. Oct 1981. 6 p. Sponsored by: Health, Education and Welfare Department, Washington, D.C.

Kochhar, D. S./ Frembgen, S. Validation of simulator evaluation of disabled drivers. Michigan University, Ann Arbor. 1983. 3 p. Sponsored by: National Institute of Handicapped Research, Washington, D.C.

Less, M./ Colverd, E. C./ DeMauro, G. E./ Young, J. Teaching driver education to the physically disabled. Human Resources Center, Albertson, N.Y. 1978. 61 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C.

Sendelbaugh, J. W. Driver simulator communication mode for hearing-impaired students. Northern Illinois University, DeKalb, Department of Communication Disorders. Aug 1980. 5 p. American Annals of the Deaf, Vol. 125, No. 5, Aug 1980, pp. 542-546.

Sendelbaugh, J. W. Simulators can be adapted to train deaf drivers. Northern Illinois University, DeKalb, Department of Communication Disorders. 1981. 4 p. Traffic Safety, Vol. 81, No. 6, Nov/Dec 1981, pp. 20-21, 27-28.

Thompson, R. R./ Repa, B. S./ Leucht, P. M. Evaluating the driving potential of the handicapped using a simulator. General Motors Corporation, Research Laboratories, Engineering Mechanics Department, Warren, Mich. Feb 1980. 8 p. Report No. SAE 800421.

Zider, S. J./ Gold, M. W. Behind the wheel training for individuals labeled moderately retarded. Gold, Marc, and Associates, Inc., Urbana, Ill. May 1981. 8 p. Exceptional Children, Vol. 47, No. 8, May 1981, pp. 632-639. Sponsored by: Illinois University, Urbana.

## HUMAN PERFORMANCE

A special report to the legislature on the findings of the mobile telephone safety study. California Highway Patrol, Sacramento. March 1987. 157 p. Sponsored by: California Office of Traffic Safety, Sacramento/ National Highway Traffic Safety Administration, Washington, D.C. Report No. Senate Concurrent Resolution No. 8.

Alexandridis, A. A./ Repa, B. S./ Wierwille, W. W. The influence of vehicle aerodynamic and control response characteristics on driver-vehicle performance. General Motors Corporation, Research Laboratories, Warren, Mich./ Virginia Polytechnic Institute, Blacksburg, Va. 1979. 9 p. Report No. SAE 790385.

Allen, R. W./ McRuer, D. T. The effect of adverse visibility on driver steering performance in an automobile simulator. Systems Technology, Inc., Hawthorne, Calif. 1977. 12 p. Sponsored by: Federal Highway Administration, Office of Research, Washington, D.C. Report No. SAE 770239.

Allen, R. W./ Hogge, J. R./ Schwartz, S. H. A simulator for research in driver, vehicle, and environment interaction. Systems Technology, Inc., Hawthorne, Calif. Jan 1977. 32 p. Report No. P-184.

Allen, R. W./ Parseghian, Z./ Van Valkenburgh, P. G. Age effects on symbol sign recognition. Final report. Systems Technology, Inc., Hawthorne, Calif. Dec 1980. 121 p. Sponsored by: Federal Highway Administration, Washington, D.C. Report No. TR-1133-1/FHWA-RD-80-126.

Allen, R. W./ Weir, D. H. Analysis of man-in-the-loop performance measurement technology for crash avoidance research. Final report. Systems Technology, Inc., Hawthorne, Calif. March 1984. 185 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C./ Transportation Systems Center, Cambridge, Mass. Report No. STI-TR-1200-1/ DOT/HS 806 718.

Anselm, D./ Danner, M./ Kirmaier, N./ Koening, H. L./ Mueller-Limmroth, W./ Reis, A./ Schauerte, W. Einfluss von luftelektrischen Impulsfeldern auf das Fahr- und Reaktionsverhalten. Probanden im Kraftfahrzeug-Fahrsimulator/ Effect of air-electric fields on driving and reaction patterns. Test subjects in the car driving simulator. Allianz-Zentrum fuer Technik, GmbH, Ismaning, Germany FR/ Institut fuer Biomedizinische Technik, Muenchen, Germany FR/ Muenchen Technische Universitaet, Germany FR. 10 June 1977. 4 p. Muenchener Medizinische Wochenschrift, Vol. 119, No. 23, 10 June 1977, pp. 813-816.

Baxter, J./ Harrison, J. Y. A nonlinear model describing driver behavior on straight roads. New South Wales University, School of Mechanical and Industrial Engineering, Australia. Feb 1979. 11 p. Human Factors, Vol. 21, No. 1, Feb 1979, pp. 87-97.

Blaauw, G. J. Driving experience and task demands in simulator and instrumented car: a validation study. Progress report II. Institute for Perception TNO, Soesterberg, Netherlands. 1980. 33 p. Report No. IZF 1980-9.

Blaauw, G. J. Driving experience and task demands in simulator and instrumented car: a validation study. Institute for Perception TNO, Soesterberg, Netherlands. Aug 1982. 14 p. Human Factors, Vol. 24, No. 4, Aug 1982, pp. 473-486.

Boadle, J. Vigilance and simulated night driving. Cambridge University, Department of Geophysics, England/ New South Wales University, Kensington, Australia. March 1976. 9 p. Ergonomics, Vol. 19, No. 2, March 1976, pp. 217-225.

Bouis, D./ Voss, M./ Geiser, G./ Haller, R. Visual vs auditory displays for different tasks of a car driver. Fraunhofer-Institut fuer Informations- und Datenverarbeitung, Karlsruhe, Germany FR. 1979. 5 p. Bensel, C. K., ed. Compass for Technology. Proceedings of the Human Factors Society 23rd Annual Meeting. Santa Monica, Human Factors Society, 1979. Pp. 35-39. Sponsored by: Germany, Bundesanstalt fuer Strassenwesen, Koeln, Germany FR/ Forschungsvereinigung Automobiltechnik, Frankfurt, Germany FR.

Burger, R. W., Jr./ Kemmerer, R./ Moskowitz, H. A. Data analysis for driver performance studies. Volume I - PDP-8 data acquisition system for driver simulation laboratories. Final report. Amex Systems, Inc., Lawndale, Calif. Feb 1976. 262 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C. Report No. 0105/ DOT/HS 801 830.

Chenchanna, P. Vehicle parameter optimisation based on driving simulator studies. Berlin Technische Universitaet, Institut fuer Kraftfahrzeuge, Germany. Oct 1973. 19 p. Report No. SM1d.

Chenchanna, P. Methods of optimization of vehicle design parameters in the driver-vehicle-environment system/ Verfahren zur Optimierung der konstruktiven Fahrzeugparameter im System Fahrer-Fahrzeug-Umwelt. Berlin Technische Universitaet, Institut fuer Kraftfahrzeuge, Germany. Jan 1974. 13 p. Originally published in ATZ, 76. Jahrgang, Nr. 1, Jan 1974, pp. 14-19; see HSRI-51704. Sponsored by: Verband der Automobilindustrie e.V., Frankfurt-am-Main.

Chenchanna, P. Beitrag zur Optimierung der Fahrzeugparameter im System Fahrer-Fahrzeug-Umwelt/ Contribution to the optimization of vehicle parameters in the driver-vehicle-environment system. Berlin Technische Universitaet, Institut fuer Kraftfahrzeuge, Germany. (1975?) 86 p.

Currie, L. Habit as the source of an inappropriate response. Polytechnic, Department of Psychology, London, England. July 1975. 8 p. Ergonomics, Vol. 18, No. 4, July 1975, pp. 435-442.

Edwards, D. S./ Hahn, C. P./ Fleishman, E. A. Evaluation of laboratory methods for the study of driver behavior: relations between simulator and street performance. American Institute for Research, Washington, D.C./ Advanced Research Resources Organization, Silver Spring, Md. Oct 1977. 8 p. Journal of Applied Psychology, Vol. 62, No. 5, Oct 1977, pp. 559-566. Sponsored by: Public Health Service, Environmental Control Administration, Washington, D.C.

Fowkes, M. Presenting information to the driver. Motor Industry Research Association, Nuneaton, England. Oct 1984. 9 p. Displays, Oct 1984, pp. 215-223.

Frank, L. H./ Casali, J. G./ Wierwille, W. W. Effects of visual display and motion system delays on operator performance and uneasiness in a driving simulator. Virginia Polytechnic Institute and State University, Blacksburg, Va. April 1988. 17 p. Human Factors, Vol. 30, No. 2, April 1988, pp. 201-217. Sponsored by: Navy Department, Washington, D.C.

Fukui, K./ Miki, K./ Hayashi, Y./ Hasegawa, H. Analysis of driver and a "four wheel steering vehicle" system using a driving simulator. Toyota Motor Corporation, Japan. 1988. 13 p. Report No. SAE 880641.

Furukawa, Y./ Nakaya, H. Effects of steering response characteristics on control performance of driver-vehicle system. Tochigi R & D Center, Japan/ Honda R & D Company, Ltd., Asaka, Japan/ Shibaura Institute of Technology, Tokyo, Japan. April 1985. 10 p. JSAE Review, No. 16, April 1985, pp. 74-83.

Furukawa, Y./ Nakaya, H. Effects of steering response characteristics on control performance of the driver-vehicle system. Tochigi R & D Center, Japan/ Honda R & D Company, Ltd., Asaka, Japan/ Shibaura Institute of Technology, Tokyo, Japan. Sept 1986. 17 p. International Journal of Vehicle Design, Vol. 7, No. 5/6, Sept 1986, pp. 262-278.

Galer, M./ Baines, A./ Simmonds, G. Ergonomics aspects of electronic dashboard instrumentation. Loughborough University of Technology, Institute for Consumer Ergonomics, England ; EFrd Motor Company Ltd., Research and Engineering Centre, Basildon, England. 1980. 9 p. Oborne, D. J. and Levis, J. A., eds. Human Factors in Transport Research. Volume 1 - Vehicle Factors: Transport Systems, Workspace, Information and Safety. New York, Academic Press, 1980. Pp. 301-309.

Gatling, F. P. Highway advisory radio in construction areas. Final report. Federal Highway Administration, Systems Development and Technology Group, Washington, D.C. Dec 1977. 16 p. Report No. FHWA-RD-77-168.

Godthelp, H. Studies on human vehicle control. Institute for Perceptin TNO, Soesterberg, Netherlands. 1984. 160 p.

Godthelp, J./ van der Horst, A. R. A./ Burrij, S./ van de Lagemaat, C. Open and closed loop steering in a lane change manoeuvre. Institute for Perception TNO, Soesterberg, Netherlands. 1983. 38 p. Report No. IZF 1983-22.

Grubb, M. G. Driver behavior at intersections: an analysis of accident related variables. Old Dominion University, Norfolk, Va. 1986. 5 p. Human Factors Society. 30th Annual Meeting. Proceedings. Volume I. Santa Monica, Human Factors Society, 1986. Pp. 251-255. Sponsored by: Federal Highway Administration, Washington, D.C.

Hagen, R. E. Sex differences in driving performance. Anacapa Sciences, Inc., Santa Barbara, Calif. April 1975. 7 p. Human Factors, Vol. 17, No. 2, April 1975, pp. 165-171.

Harano, R. M./ Peck, R. C./ McBride, R. S. The prediction of accident liability through biographical data and psychometric tests. California State Department of Motor Vehicles, Division of Administration, Research and Statistics Section, Sacramento/ Human Resources Research Organization, Alexandria, Va. March 1975. 37 p. Journal of Safety Research, Vol. 7, No. 1, March 1975, pp. 16-52. Sponsored by: Federal Highway Administration, Washington, D.C.

Hayashi, Y. Optimum control of a driver/four-wheel-steered-vehicle system. Toyota Motor Company, Ltd., Central Research and Development Laboratories, Inc., Japan. 1988. 12 p. Apetaur, M., ed. The Dynamics of Vehicles on Roads and on Tracks. Proceedings. Lisse, Swets and Zeitlinger, 1988. Pp. 145-156.

Hicks, T. G./ Wierwille, W. W. Comparison of five mental workload assessment procedures in a moving-base driving simulator. Virginia Polytechnic Institute and State University, Blacksburg, Va. April 1979. 15 p. Human Factors, Vol. 21, No. 2, April 1979, pp. 129-143. Sponsored by: General Motors Corporation, Detroit, Mich.

Hirose, T./ Matsumoto, S./ Inomata, S. Car-following simulation using automobile driving simulator. Mechanical Engineering Laboratory, Tokyo, Japan. 1976. 8 p. FISITA. International Automobile Technical Congress. XVIth. Tokyo, SAE of Japan, Inc., 1976. Pp. 6.131-6.138. Report No. 6-17.

Hoover-Siegel, L. L. GMR's driving simulator: motionless driving. General Motors Corporation, Research Laboratories, Warren, Mich. 1981. 3 p. SAE Australasia, Vol. 41, No. 3, May-June 1981, pp. 126-128.

Johnston, A. W./ Cole, B. L. Investigations of distraction by irrelevant information. Melbourne University, Australia. Sept 1976. 21 p. Australian Road Research, Vol. 6, No. 3, Sept 1976, pp. 3-23. Sponsored by: Australian Road Research Board, Victoria.

Jonsson, S./ Jonsson, B. Function of the muscles of the upper limb in car driving. Umeaa Kungliga Universitetet, Department of Anatomy, Sweden/ Swedish National Board of Occupational Safety and Health, Umeaa. July 1975. 14 p. Ergonomics, Vol. 18, No. 4, July 1975, pp. 375-388. Sponsored by: Swedish Work Environment Fund/ Swedish Council for Medical Research.

Jonsson, S./ Jonsson, B. Function of the muscles of the upper limb in car driving. IV: The pectoralis major, serratus anterior and latissimus dorsi muscles. Umeaa Kungliga Universitetet, Department of Anatomy, Sweden/ Swedish National Board of Occupational Safety and Health, Umeaa. Nov 1975. 7 p. Ergonomics, Vol. 18, No. 6, Nov 1975, pp. 643-649. Sponsored by: Swedish Work Environment Fund/ Swedish Council for Medical Research.

Jonsson, S./ Jonsson, B. Function of the muscles of the upper limb in car driving. V: the supraspinatus, infraspinatus, teres minor and teres major muscles. Umeaa Kungliga Universitetet, Department of Anatomy, Sweden/ Swedish National Board of Occupational Safety and Health, Umeaa, Sweden. Nov 1976. 7 p. Ergonomics, Vol. 19, No. 6, Nov 1976, pp. 711-717. Sponsored by: Swedish Council for Medical Research, Stockholm.

Klein, R. H./ McRuer, D. T./ Weir, D. H./ Allen, R. W./ Humes, R. W./ Zellner, J. W. Automobile controllability - driver/vehicle response for steering control. Volume II - supporting experimental results. Final report. Systems Technology, Inc., Hawthorne, Calif. Feb 1975. 306 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C. Report No. TR-1040-1-II/ DOT/HS 801 406.

Landauer, A./ Campbell, B. J./ Biehl, B. Research methods; ergonomic (man-vehicle) studies. Feb 1974. 4 p. Driver Behaviour; Principal Conclusions and Recommendations of the First International Conference on Driver Behaviour. Courbevoi, International Drivers' Behaviour Research Association, Feb 1974. Pp. 41-44.

Lings, S./ Dalgaard, J. B. Bilatrap. Et redskab til vurdering af trafikhabilitet/ Car dummy - a tool in assessment of driving competence. Aarhus Universitet, Retsmedicinsk Institut, Denmark. 11 May 1981. 3 p. Ugeskrift for Laeger, Vol. 143, No. 20, 11 May 1981, pp. 1291-1293.

McGovern, D. E. Control of high speed telepresence ground vehicles. Sandia National Laboratories, Albuquerque, N.M. 1985. 19 p.

McLane, R. C./ Wierwille, W. W. The influence of motion and audio cues on driver performance in an automobile simulator. Virginia Polytechnic Institute and State University, Blacksburg, Va. Oct 1975. 14 p. Human Factors, Vol. 17, No. 5, Oct 1975, pp. 488-501. Sponsored by: General Motors Corporation, Detroit, Mich.

McRuer, D./ Klein, R. Effects of automobile steering characteristics on driver vehicle system dynamics in regulation tasks. Systems Technology, Inc., Hawthorne, Calif. May 1975. 32 p. Report No. Paper 174.

McRuer, D. T./ Klein, R. H. Automobile controllability - driver/vehicle response for steering control. Volume I - summary report. Final report. Systems Technology, Inc., Hawthorne, Calif. Feb 1975. 270 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C. Report No. TR-1040-1-I/ DOT/HS 801 407.

McRuer, D. T./ Klein, R. H. Comparison of driver dynamics with actual and simulated visual displays. Systems Technology, Inc., Hawthorne, Calif. 1976. 3 p. Transportation Research Record, No. 611, 1976, pp. 46-48. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C.

Miyagi, M./ Sano, M./ Oguchi, Y. Basic experiment on steering task and controllability of man-automobile systems using a static simulator. Shibaura Institute of Technology, Tokyo, Japan. (1973) 7 p. Report No. SM5.

Nakaya, H./ Sano, S./ Furukawa, Y./ Oguchi, Y. Effects of vehicles' yaw and lateral acceleration responses on drivers control performance. Toyo Kogyo Company, Ltd., Hiroshima, Japan. Nov 1982. 6 p. Report No. 82109.

Neboit, M. Interet et limites de la simulation dans les etudes sur le comportement des conducteurs/ Interest in and limits of studies of driver behavior simulation. Organisme National de Securite Routiere, Arcueil, France. Sept 1982. 28 p. Report No. 57.

Oguchi, Y./ Sawada, T./ Nakaya, H. Change of GSR under the effect of lateral force disturbance with use of a lateral motion simulator. Shibaura Institute of Technology, Tokyo, Japan. (1973) 8 p. Report No. SM6.

Olson, P. L. Evaluation of an LED high-mounted signal lamp. Final report. Michigan University, Ann Arbor, Transportation Research Institute. Feb 1987. 34 p. Sponsored by: Stanley Electric Company, Ltd., Tokyo, Japan. Report No. UMTRI-87-13.

Reid, L. D./ Solowka, E. N./ Billing, A. M. A systematic study of driver steering behaviour. Toronto University, Institute for Aerospace Studies, Ontario, Canada/ Ontario Ministry of Transportation and Communications, Downsview, Canada. June 1981. 16 p. Ergonomics, Vol. 24, No. 6, June 1981, pp. 447-462. Sponsored by: General Motors of Canada, Oshawa, Ontario.

Reid, L. D./ Graf, W. O./ Billing, A. M. The fitting of linear models to driver response records. Toronto University, Institute for Aerospace Studies, Ontario, Canada/ Ontario Ministry of Transportation and Communications, Downsview, Canada. Feb 1982. 11 p. Sponsored by: General Motors of Canada, Ltd., Oshawa, Ontario. Report No. SAE 820304.

Repa, B. S. Driver performance in controlling a driving simulator with varying vehicle response characteristics. General Motors Corporation, Research Laboratories, Warren, Mich./ Virginia Polytechnic Institute and State University, Blacksburg. 1976. 16 p. Report No. SAE 760779.

Repa, B. S./ Alexandridis, A. A./ Howell, L. J./ Wierwille, W. W. The influence of vehicle characteristics on driver-vehicle performance in simulated and actual driving. General Motors Corporation, Research Laboratories, Engineering Mechanics Department/ Virginia Polytechnic Institute and State University, Blacksburg. 29 Aug 1977. 14 p.

Repa, B. S./ Alexandridis, A. A./ Howell, L. J./ Wierwille, W. W. Study of vehicle steering and response characteristics in simulated and actual driving. General Motors Corporation, Research Laboratories, Engineering Mechanics Department, Warren, Mich./ Virginia Polytechnic Institute and State University, Department of Industrial Engineering and Operations Research, Blacksburg. 1978. 10 p. Report No. SAE 780011.

Repa, B. S./ Alexandridis, A. A./ Howell, L. J./ Wierwille, W. W. The influence of vehicle control dynamics on driver-vehicle performance. General Motors Corporation, Research Laboratories, Warren, Mich./ Virginia Polytechnic Institute and State University, Blacksburg, Va. 1978. 14 p. Slibar, A., and Springer, H., eds. The Dynamics of Vehicles on Roads and on Tracks. Proceedings. Amsterdam, Swets and Zeitlinger, 1978. Pp. 320-333.

Repa, B. S./ Leucht, P. M./ Wierwille, W. W. The effect of simulator motion on driver performance. General Motors Corporation, Research Laboratories, Engineering Mechanics Department, Warren, Mich./ Virginia Polytechnic Institute and State University, Blacksburg. Feb 1982. 14 p. Report No. SAE 820307.

Richter, B. Ein dynamischer Fahrsimulator zur Untersuchung des Systems Fahrer-Fahrzeug-Strasse/ A dynamic driving simulator for the investigation of the driver-vehicle-road system. Volkswagenwerk AG, Wolfsburg, Germany. 1976. 5 p. Zeitschrift fuer Verkehrssicherheit, 22. Jahrgang 1976, I. Quartal, Heft 1, pp. 8-12.

Rogers, S. B./ Wierville, W. W. The occurrence of accelerator and brake pedal actuation errors during simulated driving. Virginia Polytechnic Institute and State University, Blacksburg. Feb 1988. 11 p. Human Factors, Vol. 30, No. 1, Feb 1988, pp. 71-81.

Sakata, H./ Yoshimoto, K./ Hirano, T. A study on speed control by human drivers in car-following. SPAR Aerospace Ltd., Weston, Ontario, Canada/ Tokyo University, Japan. July 1989. 8 p. JSAE Review, Vol. 10, No. 3, July 1989, pp. 52-59.

Sano, S./ Furukawa, Y./ Oguchi, Y./ Nakaya, H. Effects of vehicle response characteristics and driver's skill level on task performance and subjective rating. Honda Research and Development Company, Wako, Japan/ Shibaura Institute of Technology, Tokyo, Japan. 1981. 14 p. International Technical Conference on Experimental Safety Vehicles. Eighth. [Proceedings]. Washington, D.C., NHTSA, 1981. Pp. 1035-1048.

Sawyer, D./ Stewart, R./ Talley, W. T. Familiarity effects of daytime rear running lights. Essex Corporation, Alexandria, Va. 18 Oct 1985. 21 p. Sponsored by: American Automobile Association, Foundation for Traffic Safety, Washington, D.C.

Seidemann, O. Die Fahrprobe am Fahrsimulator - ein Verfahren zur Beurteilung der Verkehrseignung von Kraftfahrern/ The driving test at the driving simulator - a procedure for the judgement of fitness to drive. 1976. 6 p. Zeitschrift fuer Verkehrssicherheit, 22. Jahrgang 1976, I. Quartal, Heft 1, pp. 28-33.

Sivak, M./ Flannagan, M. J./ Olson, P. L./ Bender, M./ Conn, L. S. Evaluation of brake-lamp photometric requirements. Final report. Michigan University, Ann Arbor, Transportation Research Institute. Sept 1986. 97 p. Sponsored by: National Highway Traffic Safety Administration. Report No. UMTRI-86-28.

Solowka, E. N./ Reid, L. D. An automobile and simular comparison of driver behavior in a collision avoidance manoeuvre. Toronto University, Institute for Aerospace Studies, Downview, Canada. Jan 1983. 18 p. George, F. L., ed. Conference on Manual Control. Eighteenth Annual. Proceedings. Wright-Patterson AFB, Ohio, Wright Aeronautical Laboratories, Jan 1983. Pp. 168-185. Sponsored by: General Motors of Canada, Toronto.

Spoerli, S. Ergebnisse einer vom nationalfonds finanzierten Empirischen Untersuchung zu Problemen der Fahrtauglichkeitsdiagnostik mit Hilfe von Teilsimulation/ Results of a nationally funded study on the problem of assessing driving qualifications using a part-task simulator. Institut fuer Psychologische Forschung und Beratung, Lucerne, Switzerland. Oct 1973. 13 p. Report No. SM2f.

Stone, L. W./ Ellingstad, V. S. Validation of a laboratory procedure for simulating critical interval overtaking. South Dakota University, Vermillion, Human Factors Psychology Laboratory. Human Factors, Vol. 17, No. 3, June 1975, pp. 243-247.

Wastell, C./ Wise, I./ Colin, J. F. The effect of surgical operation on the 'brake-clutch simulator' Westminster Hospital, London, England. 1977. 4 p. Braking of Road Vehicles. Conference. London, Mechanical Engineering Publications, 1977. Pp. 213-216. Report No. C43/76.

Wierwille, W. W./ Fung, P. P. Comparison of computer-generated and simulated motion picture displays in a driving simulation. Virginia Polytechnic Institute and State University, Blacksburg. Dec 1975. 14 p. Human Factors, Vol. 17, No. 6, Dec 1975, pp. 577-790. Sponsored by: General Motors Corporation, Detroit, Mich.

Wierwille, W. W./ Gutmann, J. C./ Hicks, T. G./ Muto, W. H. Secondary task measurement of workload as a function of simulated vehicle dynamics and driving conditions. Virginia Polytechnic Institute and State University, Blacksburg. Dec 1977. 9 p. Human Factors, Vol. 19, No. 6, Dec 1977, pp. 557-565. Sponsored by: General Motors Corporation, Detroit, Mich.

Wierwille, W. W./ Gutmann, J. C. Comparison of primary and secondary task measures as a function of simulated vehicle dynamics and driving conditions. Virginia Polytechnic Institute and State University, Blacksburg, Va. April 1978. 12 p. Human Factors, Vol. 20, No. 2, April 1978, pp. 233-244. Sponsored by: General Motors Corporation, Detroit, Mich.

Wierwille, W. W./ Casali, J. G./ Repa, B. S. Driver steering reaction time to abrupt-onset crosswinds, as measured in a moving-base driving simulator. Virginia Polytechnic Institute and State University, Blacksburg/ General Motors Corporation, Research Laboratories, Warren, Mich. Feb 1983. 14 p. Human Factors, Vol. 25, No. 1, Feb 1983, pp. 103-116.

Witt, H./ Hoyos, C. G. Advance information on the road: a simulator study of the effect of road markings. Muenchen Technische Universitaet, Germany. Dec 1976. 12 p. Human Factors, Vol. 18, No. 6, Dec 1976, pp. 521-532.

## HUMAN STRESS/ FATIGUE

Arnberg, P. W./ Aastroem, G. Vaegojaemnheters inverkan paa bilfoerares prestation och troethet. En litteraturgenomgaang och ett simulatorexperiment/ The influence of road roughness on drivers' performance and tiredness. A literature survey and simulator experiment. Statens Vaeg-och Trafikinstitut, Linkoeping, Sweden. 1979. 60 p. Report No. 181.

Bleise, G./ Klee, R. J./ Koerner, W. Vergleichende Untersuchungen des Sitzklimas von Autositzen/ Comparative investigation of climatic comfort in car seats. Oct 1983. 5 p. ATZ, 85. Jahrgang, No. 10, Oct 1983, pp. 603-607.

Casali, J. G./ Wierwille, W. W. The effects of various design alternatives on moving-base driving simulator discomfort. Virginia Polytechnic Institute and State University, Blacksburg. Dec 1980. 16 p. Human Factors, Vol. 22, No. 6, Dec 1980, pp. 741-756. Sponsored by: General Motors Corporation, Detroit, Mich.

Casali, J. G./ Frank, L. H. Perceptual distortion and its consequences in vehicular simulation: basic theory and incidence of simulator sickness. Virginia Polytechnic Institute and State University, Blacksburg. 1986. 9 p. Transportation Research Record, No. 1059, 1986, pp. 57-65. Sponsored by: Office of Naval Research, Arlington, Va.

Donges, E. Experimentelle Untersuchung des menschlichen Lenkverhaltens bei simulierter Strassenfahrt. Teil 1/ Experimental investigation of human stressing behavior in a simulated road driving task. Part 1. May 1975. ATZ, 77. Jahrgang, Nr. 6, June 1975, pp. 141-146.

Drory, A. Effects of rest and secondary task on simulated truck-driving task performance. Ben-Gurion University of the Negev, Beer Sheva, Israel. April 1985. 7 p. Human Factors, Vol. 27, No. 2, April 1985, pp. 201-207. Sponsored by: Council for Scientific and Industrial Research, National Institute for Personnel Research, Johannesburg, South Africa.

Findley, L. J./ Fabrizio, M. J./ Knight, H./ Norcross, B. B./ LaForte, A. J./ Suratt, P. M. Driving simulator performance in patients with sleep apnea. Virginia University, Charlottesville. Aug 1989. 2 p. American Review of Respiratory Disease, Vol. 140, No. 2, Aug 1989, pp. 529-530. Sponsored by: American Lung Association, Va./ Tuberculosis Foundation, Va.

Flannagan, M./ Sivak, M./ Ensing, M./ Simmons, C. J. Effect of wavelength on discomfort glare from monochromatic sources. Michigan University, Ann Arbor, Transportation Research Institute. Nov 1989. 23 p. Sponsored by: Michigan University, Ann Arbor, Industry Affiliation Program for Human Factors in Transportation Safety. Report No. UMTRI-89-30.

Frank, L. H./ Casali, J. G./ Wierwille, W. W. Effects of visual display and motion system delays on operator performance and uneasiness in a driving simulator. Virginia Polytechnic Institute and State University, Blacksburg. 1987. 5 p. Human Factors Society. 31st Annual Meeting. Proceedings. Volume 1. Santa Monica, Human Factors Society, 1987. Pp. 492-496.

Garavy, K. Measurement of the driver's transfer and coherence function during a fatigue test in a simulator. Berlin Technische Universitaet, Institut fuer Kraftfahrzeuge, Germany FR. 1980. 6 p. Willumeit, H. P., ed. The Dynamics of Vehicles on Roads and on Tracks. Proceedings. Lisse, Swets and Zeitlinger, 1980. Pp. 115-120.

Green, P. Human factors test of a driver alertness device. Final report. Michigan University, Ann Arbor, Transportation Research Institute. Dec 1985. 83 p. Sponsored by: Amway Corporation, Ada, Mich. Report No. UMTRI-85-49.

Hardee, H. L./ Dingus, T. A./ Wierwille, W. W. Driver drowsiness detection using subsidiary task and driving performance measures. Virginia Polytechnic Institute and State University, Department of Industrial Engineering and Operations Research, Blacksburg. 1986. 5 p. Human Factors Society. 30th Annual Meeting. Proceedings. Volume I. Santa Monica, Human Factors Society, 1986. Pp. 398-402. Sponsored by: General Motors Corporation, Research Laboratories, Transportation Research Department, Warren, Mich.

Hontschik, H. Eine schwingungstechnische und arbeitsphysiologische Untersuchungsmethode fuer Kraftfahrzeuge/ A test method of motor-vehicles from the point of view of vibrations and work physiology. Dec 1974. 63 p. Technical Aspects of Road Safety, 60, Dec 1974, pp. 3.1-3.63.

Imbeau, D. Effects of instrument panel luminance and hue on simulator driving performance and driver preferences. Virginia Polytechnic Institute and State University, Blacksburg. Dec 1987. 201 p.

Ranney, T. A./ Gawron, V. J. Driving performance as a function of time on the road. Liberty Mutual Insurance Company, Research Center, Hopkinton, Mass./ Calspan Corporation, Buffalo, N.Y. 1987. 4 p. Human Factors Society. 31st Annual Meeting. Proceedings. Volume 2. Santa Monica, Human Factors Society, 1987. Pp. 766-769. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C.

Seko, Y./ Kataoka, S./ Senoo, T. Analysis of driving behavior under a state of reduced alertness. Nissan Motor Company, Ltd., Vehicle Research Laboratory, Yokosuka, Japan. April 1985. 7 p. JSAE Review, No. 16, April 1985, pp. 66-72 Reprinted in International Journal of Vehicle Design, Vol. 7, No. 5/6, 1986, pp. 291-303.

Sivak, M./ Simmons, C. J./ Flannagan, M. J. Effect of headlamp area on discomfort glare. Michigan University, Ann Arbor, Transportation Research Institute. Oct 1988. 19 p. Sponsored by: Michigan University, Ann Arbor, Industry Affiliation Program for Human Factors in Transportation Safety. Report No. UMTRI-88-41.

Skipper, J. H./ Wierwille, W. W. Drowsy driver detection using discriminant analysis. Virginia Polytechnic Institute and State University, Blacksburg. Oct 1986. 14 p. Human Factors, Vol. 28, No. 5, Oct 1986, pp. 527-540. Sponsored by: General Motors Corporation, Research Laboratories, Operating Systems Research Department, Warren, Mich.

Snook, S. H./ Dolliver, J. J. Driver fatigue: a study of two types of countermeasures. Liberty Mutual Insurance Company, Hopkinton, Mass. 1976. 8 p. International Ergonomics Association. 6th Congress. Proceedings. Santa Monica, Human Factors Society, 1976. Pp. 304-311.

Toernros, J./ Laurell, H. Laangvarig kroppsstraengning i kombination med soemnrist: effekt paa prestation i simulerad bilkoerning och paa enkel reaktionstid/ Effects from extended heavy exercise combined with sleep deprivation on performance in simulated car-driving and simple reaction time. Statens Vaeg- och Trafikinstitut, Linkoeping, Sweden. 1987. 21 p. Report No. 520.

## RISK TAKING

Hatterick, G. R./ Bathurst, J. R. Accident avoidance skill training and performance testing. Final report. URS/Matrix Company, Falls Church, Va. March 1976. 343 p. Sponsored by: National Highway Traffic Safety Administration, Office of Driver and Pedestrian Programs, Washington, D.C. Report No. PR-0530-28/ DOT/HS 801 852.

Howells, R. A./ Buck, J. R./ Knight, J. L., Jr./ Weiss, S. M./ MacMillan, A. G. Decision making in intersection entry accidents. Purdue University, West Lafayette, Ind./ Bell Telephone Laboratories, Inc., Holmdel, N.J. 1980. 27 p. International Motorcycle Safety Conference. Proceedings. Volume IV. Linthicum, Motorcycle Safety Foundation, 1980. Pp. 1585-1611. Sponsored by: Motorcycle Safety Foundation, Linthicum, Md.

Janssen, W. H. The detection of impending collision in curved intersection approaches. Institute for Perception TNO, Soesterberg, Netherlands. 1984. 19 p. Sponsored by: Institute for Road Safety Research SWOV, Leidschendam, Netherlands. Report No. IZF 1984 C-3.

Robinson, G. H. Toward measurement of attention as a function of risk and risk preference in man-machine systems. Wisconsin University, Madison, Industrial Engineering Department. June 1975. 7 p. Human Factors, Vol. 17, No. 3, June 1975, pp. 236-242. Sponsored by: Public Health Services, Bethesda, Md.

Sivak, M./ Soler, J. Driver risk-perception in Spain and the U.S.A. Michigan University, Ann Arbor, Transportation Research Institute/ Valencia University, Spain. Dec 1986. 17 p. Sponsored by: U.S. - Spain Joint Committee for Scientific and Technological Cooperation, Madrid, Spain. Report No. UMTRI-86-49.

Sivak, M./ Soler, J. Driver self-assessment in Spain and the U.S.A. Michigan University, Ann Arbor, Transportation Research Institute/ Valencia University, Spain. March 1987. 20 p. Sponsored by: U.S. - Spain Joint Committee for Scientific and Technological Cooperation, Madrid, Spain. Report No. UMTRI-87-11.

Sivak, M./ Soler, J./ Traenkle, U./ Spagnhol, J. M. Cross-cultural differences in driver risk-perception. Michigan University, Ann Arbor, Transportation Research Institute/ Valencia University, Spain/ Muenster Universitaet, Psychologisches Institut, Germany FR/ Uberlandia Federal University, Brazil. Aug 1989. 8 p. Accident Analysis and Prevention, Vol. 21, No. 4, Aug 1989, pp. 355-362. Sponsored by: U.S.-Spain Joint Committee for Scientific and Technological Cooperation, Madrid, Spain.

Sivak, M./ Soler, J./ Traenkle, U. Cross-cultural differences in driver risk-taking. Michigan University, Ann Arbor, Transportation Research Institute/ Valencia University, Spain/ Muenster Universitaet, Psychologisches Institut, Germany FR. Aug 1989. 7 p. Accident Analysis and Prevention, Vol. 21, No. 4, Aug 1989, pp. 363-369. Sponsored by: U.S.-Spain Joint Committee for Scientific and Technological Cooperation, Madrid, Spain.

Sivak, M./ Soler, J./ Traenkle, U. Cross-cultural differences in driver self-assessment. Michigan University, Ann Arbor, Transportation Research Institute/ Valencia University, Spain/ Muenster Universitaet, Psychologisches Institut, Germany FR. Aug 1989. 5 p. Accident Analysis and Prevention, Vol. 21, No. 4, Aug 1989, pp. 371-375. Sponsored by: U.S.-Spain Joint Committee for Scientific and Technological Cooperation, Madrid, Spain.

Soler, J./ Sivak, M. Driver risk-taking in Spain and the U.S.A. Valencia University, Spain/ Michigan University, Ann Arbor, Transportation Research Institute. Aug 1987. 12 p. Sponsored by: U.S. - Spain Joint Committee for Scientific and Technological Cooperation, Madrid (Spain). Report No. UMTRI-87-34.

## SIGNS/SIGNALS

Fidell, S. Effectiveness of audible warning signals for emergency vehicles. Bolt, Beranek and Newman, Inc., Canoga Park, Calif. Human Factors, Vol. 20, No. 1, Feb 1978, pp. 19-26. Sponsored by: Society of Automotive Engineers, Warrendale, Pa.

Hummer, J. E. Effects of supplemental interchange signing on driver control behavior. Final report. Michigan State University, East Lansing. March 1986. 70 p. Sponsored by: Federal Highway Administration, Office of Safety and Traffic Operations Research and Development, Washington, D.C. Report No. FHWA/RD-86/077.

Klipple, A. G./ Roberts, K. M. Study of the national standards for directional and other official signs. Laboratory evaluation. Final report. Federal Highway Administration, Office of Research, Washington, D.C. Oct 1975. 37 p. Report No. FHWA-RD-75-117.

Knoblauch, R. L./ Pietrucha, M. T. Motorists' comprehension of regulatory, warning, and symbol signs. Volume I: executive summary. Final report. BioTechnology, Inc., Falls Church, Va. Feb 1987. 31 p. Sponsored by: Federal Highway Administration, Washington, D.C. Report No. FHWA/RD-86/111.

Knoblauch, R. L./ Pietrucha, M. T. Motorists' comprehension of regulatory, warning, and symbol signs. Volume II: technical report. Final report. BioTechnology, Inc., Falls Church, Va. Feb 1987. 125 p. Sponsored by: Federal Highway Administration, Washington, D.C. Report No. FHWA/RD-86/112.

Knoblauch, R. L./ Pietrucha, M. T. Motorists' comprehension of regulatory, warning, and symbol signs. Volume III: appendices. Final report. BioTechnology, Inc., Falls Church, Va. Feb 1987. 211 p. Sponsored by: Federal Highway Administration, Washington, D.C. Report No. FHWA/RD-86/113.

McClelland, I. L. Audible warning signals for police vehicles. Loughborough University of Technology, Institute for Consumer Ergonomics, England. Sept 1980. 6 p. Applied Ergonomics, Vol. 11, No. 3, Sept 1980, pp. 165-170. Sponsored by: Great Britain Home Office, Police Scientific Development Branch, Sanbridge, England.

Mast, T. M./ Ballas, J. A./ Peters, J. I. Instrumented vehicle research on highway information systems. Federal Highway Administration, Office of Research, Washington, D.C. Sept 1976. 7 p. Public Roads, Vol. 40, No. 2, Sept 1976, pp. 53-59.

Mortimer, R. G./ Sturgis, S. P. Evaluation of an accelerator position signal. [Abridged.] Illinois University, Champaign, Department of Health and Safety Education/ Highway Safety Research Institute, Ann Arbor, Mich. 1976. 3 p. Transportation Research Record, No. 600, 1976, pp. 33-35. Sponsored by: National Highway Traffic Safety Administration.

Mortimer, R. G./ Sturgis, S. P. Evaluation of an accelerator position signal. Illinois University, Champaign, Department of Health and Safety Education/ Highway Safety Research Institute, Ann Arbor, Mich. 22 Jan 1976. 33 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C.

Mortimer, R. G./ Sturgis, S. P. Evaluation of a high-deceleration braking signal in a driving simulator. Illinois University, Urbana/ Liberty Mutual Insurance Company., Research Center, Hopkinton, Mass. 1977. 4 p. Neal, A. S., and Palasek, R. F., eds. Gateways to the Future. Proceedings of the Human Factors Society 21st Annual Meeting. Santa Monica, Human Factors Society, 1977. Pp. 558-561.

Nygaard, B. Vaag isning i korsningar paa det allmaenna vaegnaetet/ Road signs in intersections on the public highway network. Statens Vaeg- och Trafikinstitut, Linkoeping, Sweden. 1985. 70 p. Report No. 284.

Olson, P. L. Minimum requirements for adequate nighttime conspicuity of highway signs. Final report. Michigan University, Ann Arbor, Transportation Research Institute. Feb 1988. 110 p. Sponsored by: 3M Company, St. Paul, Minn. Report No. UMTRI-88-8.

Perrine, M. W./ Odendaal, J. R. The traffic environment; drivers' perception and judgement. Feb 1974. 4 p. Driver Behaviour; Principal Conclusions and Recommendations of the First International Conference on Driver Behaviour. Courbevoi, International Drivers' Behaviour Research Association, Feb 1974. Pp. 2-5.

Rosemann, A. Einfluss von Rueckleuchtenystemen auf die Bremsreaktionszeit von Kraftfahrzeugfahrern/ Effect of rear-lamp systems upon the braking reaction time of motorists. Volkswagenwerk AG, Wolfsburg, Germany FR/ Berlin Technische Universitaet, Institut fuer Lichttechnik, Germany FR. 1977. 7 p. Zeitschrift fuer Verkehrssicherheit, 23. Jahrgang, Heft 4, IV. Quartal, 1977, pp. 125-151.

Sabra, Z. A. Driver response in active advanced warning signs at high-speed signalized intersections. Final report. West Virginia University, Morgantown, Department of Civil Engineering. Dec 1985. 98 p. Sponsored by: Federal Highway Administration, Washington, D.C. Report No. FHWA/RD-86/130.

Stein, A. C./ Johnson, W. A. Effective signing to reduce truck downgrade runaways. Systems Technology, Inc., Hawthorne, Calif. 1984. 13 p. American Association for Automotive Medicine. 28th Annual Conference. Proceedings. Arlington Heights, Ill., AAAM, 1984. Pp. 77-89.

Witt, H. Experimentelle Untersuchungen mit einem Fahrsimulator zur Ueberpruefung der Wirksamkeit von Voranzeichen des Strassenverlaufs durch Fahrbahnmarkierungen/ Experimental tests with a driving simulator for the examination of the effectiveness of warnings relating to the course of a road, by using lane markings. Muenchen Technische Universitaet, Institut fuer Psychologie und Erziehungswissenschaft, Germany FR. 1976. 9 p. Zeitschrift fuer Verkehrssicherheit, 22. Jahrgang 1976, I. Quartal, Heft 1, pp. 19-27.

## VISION

Blaauw, G. J./ Riemersma, J. B. J. Interpretation of roadway designs by an analysis of drivers' visual scanning and driving behavior on straight and curved roadway sections. Institute for Perception TNO, Soesterberg, Netherlands. 1975. 107 p. Report No. IZF 1975-C5.

Connors, M. M. Conspicuity of target lights: the influence of flash rate and brightness. Technical note. National Aeronautics and Space Administration, Ames Research Center, Moffett Field, Calif. Sept 1975. 18 p. Report No. A-5792/ NASA TN D-7961.

Connors, M. M. Conspicuity of target lights: the influence of color. Technical note. National Aeronautics and Space Administration, Ames Research Center, Moffett Field, Calif. Nov 1975. 14 p. Report No. A-5791/ NASA TN D-7960.

Donohue, R. J. Driver's use of indirect visibility systems. General Motors Corporation, General Motors Technical Center, Warren, Mich. 1975. 3 p. Society of Photo-Optical Instrumentation Engineers Seminar Proceedings, Vol. 57, 1975, pp. 34-36.

Janssen, W. H. Perception of movement during night-time driving. 1975. 10 p. Congres International sur la Vision et la Securite Routiere. Ier. Conferences. Linas-Montlhery, Prevention Routiere Internationale, 1975. Pp. 173-182.

McRuer, D. T./ Klein, R. H. Comparison of human driver dynamics in simulators with complex and simple visual displays and in an automobile on the road. Systems Technology, Inc., Hawthorne, Calif. May 1975. 9 p. Sponsored by: National Highway Traffic Safety Administration, Washington, D.C. Report No. Paper 173.

Le Moigne, J. Domain-dependent reasoning for visual navigation of roadways. Maryland University, College Park. Oct 1986. 34 p. Sponsored by: Defense Advanced Research Projects Agency, Arlington, Va./ Army Engineering Topographic Laboratories. Report No. CAR-TR-230/ CS-TR-1721.

Olsen, R. A. Peripheral vision and driving. Pennsylvania Transportation Institute, University Park. April 1978. 30 p. Sponsored by: Statens Vaeg- och Trafikinstitut, Linkoeping, Sweden. Report No. Working Paper 6.

Pages, R. Conditions de vision sur route/ Conditions of road visibility. Comite National Francais de l'Eclairage, Paris. Dec 1975. 9 p. Ingenieurs de l'Automobile, No. 12, Dec 1975, pp. 458-466.

Pulling, N. H./ Wolf, E./ Sturgis, S. P./ Vaillancourt, D. R./ Dolliver, J. J. Headlight glare resistance and driver age. Liberty Mutual Insurance Company, Research Center, Hopkinton, Mass./ Retina Foundation, Boston, Mass. 1978. 5 p. Baise, E. J. and Miller, J. M., eds. People on the Move. Proceedings of the Human Factors Society 22nd Annual Meeting. Santa Monica, Human Factors Society, 1978. Pp. 59-63.

Pulling, N. H./ Wolf, E./ Sturgis, S. P./ Vaillancourt, D. R./ Dolliver, J. J. Headlight glare resistance and driver age. Liberty Mutual Insurance Company, Research Center, Hopkinton, Mass./ Eye Research Institute of Retina Foundation, Boston, Mass. Feb 1980. 10 p. Human Factors, Vol. 22, No. 1, Feb 1980, pp. 103-112.

Quane, W. L. Visual perception and the driving task. Illinois State University, Normal, Traffic and Safety Section. Highway Users Federation for Safety and Mobility, Washington, D.C. (1975) 18 p.

Rompe, K./ Engel, G. The influence of scattered light in windshields on driver's vision during night driving. Technische Ueberwachungsverein Rheinland e.V., Institut fuer Verkehrssicherheit, Koeln, Germany FR. 1984. 11 p. Report No. SAE 840385.

Wiekhorst, L. A./ Vaccaro, F. T. Flight simulator: field of view utilized in performing tactical maneuvers. Final report. Air Force Department, Washington, D.C. Sept 1986. 30 p. Report No. AFHRL-TP-86-29.

Ziedman, K./ Sharma, S./ Niemann, R. A. Computerized data acquisition and analysis of visual search behavior in a simulated driving situation. Southern California Research Institute, Los Angeles/ California University, Los Angeles. Oct 1975. 2 p. Hale, R. N., McKnight, R. A., and Moss, J. R., eds. Human Factors in Our Expanding Technology. Human Factors Society. 19th Annual Meeting. Proceedings. Santa Monica, Human Factors Society, Oct 1975. Pp. 486-487.

## CORPORATE AUTHOR INDEX

- Aarhus Universitet, Retsmedicinsk Institut, Denmark  
    HUMAN PERFORMANCE Lings, S./ Dalgaard, J. B.
- Advanced Research Resources Organization, Silver Spring, Md.  
    HUMAN PERFORMANCE Edwards, D. S./ Hahn, C. P./ Fleishman, E. A.
- Air Force Department, Washington, D.C.  
    VISION Wiekhorst, L. A./ Vaccaro, F. T.
- Allianz-Zentrum fuer Technik, GmbH, Ismaning, Germany FR  
    HUMAN PERFORMANCE Anselm, D./ Danner, M./ Kirmaier, N./ Koenig, H. L./ Mueller-Limmroth,  
        W./ Reis, A./ Schauerte, W.
- American Institute for Research, Washington, D.C.  
    HUMAN PERFORMANCE Edwards, D. S./ Hahn, C. P./ Fleishman, E. A.
- Amex Systems, Inc., Lawndale, Calif.  
    HUMAN PERFORMANCE Burger, R. W., Jr./ Kemmerer, R./ Moskowitz, H. A.
- Anacapa Sciences, Inc., Santa Barbara, Calif.  
    HUMAN PERFORMANCE Hagen, R. E.
- Bell Telephone Laboratories, Inc., Holmdel, N.J.  
    RISK TAKING Howells, R. A./ Buck, J. R./ Knight, J. L., Jr./ Weiss, S. M./ MacMillan, A.  
        G.
- Ben-Gurion University of the Negev, Beer Sheva, Israel  
    HUMAN STRESS/FATIGUE Drory, A.
- Berlin Technische Universitaet, Germany FR  
    ALCOHOL/DRUGS Willumeit, H. P./ Neubert, W./ Ott, H./ Hemmerling, K. G.  
    HUMAN PERFORMANCE Chenchanna, P.  
    DESIGN Franzke, H. G.  
    HUMAN PERFORMANCE Chenchanna, P.  
    HUMAN STRESS/FATIGUE Garavy, K.  
    DESIGN Fiala, E.  
    DESIGN Stedtnitz, W./ Appel, H.  
    HUMAN PERFORMANCE Chenchanna, P.  
    SIGNS/SIGNALS Rosemann, A.
- BioTechnology, Inc., Falls Church, Va.  
    SIGNS/SIGNALS Knoblauch, R. L./ Pietrucha, M. T.
- Bolt, Beranek and Newman, Inc., Canoga Park, Calif.  
    SIGNS/SIGNALS Fidell, S.
- California Highway Patrol, Sacramento  
    HUMAN PERFORMANCE
- California State Department of Motor Vehicles, Sacramento  
    DRIVER EDUCATION Jones, M. H./ Coppin, R. S.  
    HUMAN PERFORMANCE Harano, R. M./ Peck, R. C./ McBride, R. S.
- California State University, Los Angeles  
    ALCOHOL/DRUGS Moskowitz, H.
- California State University, San Jose  
    DRIVER EDUCATION Aaron, J. E./ Strasser, M. K.
- California University, Los Angeles  
    VISION Ziedman, K./ Sharma, S./ Niemann, R. A.  
    ALCOHOL/DRUGS Sharma, S.  
    ALCOHOL/DRUGS Moskowitz, H.  
    ALCOHOL/DRUGS Moskowitz, H.
- Calspan Corporation, Buffalo, N.Y.  
    ALCOHOL/DRUGS Gawron V. J./ Ranney, T. A.  
    ALCOHOL/DRUGS Ranney, T. A./ Gawron, V. J.  
    HUMAN STRESS/FATIGUE Ranney, T. A./ Gawron, V. J.

Cambridge University, Department of Geophysics, England  
HUMAN PERFORMANCE Boadle, J.

Canada, Transport Canada, Road Safety Unit, Downsview, Ontario  
ALCOHOL/DRUGS Attwood, D. A.

Comite National Francais de l'Eclairage, Paris  
VISION Pages, R.

Contraves-Goerz Corporation, Pittsburgh, Pa.  
DESIGN Haug, E./ Kim, S. S./ Stoner, J./ Andersen, D./ Lee, W. S./ Malwitz, D./ Turpin, D./ Sinacori, J./ Allen, W./ Companion, M./ Goldiez, B./ McAreavy, J./ Gay, R.

Daimler-Benz AG, Germany FR  
DESIGN Drozdol, J./ Kaeding, W./ Panik, F.  
DESIGN Drozdol, J./ Panik, F.  
DESIGN Hahn, S./ Kaeding, W.

Espoo Institute of Technology, Finland  
ALCOHOL/DRUGS Korttila, K./ Linnoila, M./ Ertama, P./ Haekkinen, S.

Essex Corporation, Alexandria, Va.  
HUMAN PERFORMANCE Sawyer, D./ Stewart, R./ Talley, W. T.

Evans and Sutherland Computer Corporation, Salt Lake City, Utah  
DESIGN Haug, E./ Kim, S. S./ Stoner, J./ Andersen, D./ Lee, W. S./ Malwitz, D./ Turpin, D./ Sinacori, J./ Allen, W./ Companion, M./ Goldiez, B./ McAreavy, J./ Gay, R.

Eye Research Institute of Retina Foundation, Boston, Mass.  
VISION Pulling, N. H./ Wolf, E./ Sturgis, S. P./ Vaillancourt, D. R./ Dolliver, J. J.

Family Health, Inc., New Orleans, La.  
ALCOHOL/DRUGS Dott, A. B./ McKelvey, R. K.

Federal Highway Administration  
DESIGN Mast, T. M./ Ballas, J. A./ Peters, J. I.  
DESIGN Roberts, K. M.  
SIGNS/SIGNALS Klipple, A. G./ Roberts, K. M.  
HUMAN PERFORMANCE Gatling, F. P.

Finland Central Organization for Traffic Safety, Helsinki  
ALCOHOL/DRUGS Linnavuo, M./ Ylilaeaakkola, P./ Mattila, M. J./ Maeki, M./ Seppaelae, T.

Finland National Public Health Institute, Helsinki  
ALCOHOL/DRUGS Linnavuo, M./ Ylilaeaakkola, P./ Mattila, M. J./ Maeki, M./ Seppaelae, T.

Fraunhofer-Institut fuer Informations- und Datenverarbeitung, Karlsruhe, Germany FR  
HUMAN PERFORMANCE Bouis, D./ Voss, M./ Geiser, G./ Haller, R.

General Electric Company, Daytona Beach, Apollo and Ground Systems Department, Fla.  
DRIVER EDUCATION Gilliland, M. G.

General Motors Corporation  
VISION Donohue, R. J.  
HUMAN PERFORMANCE Repa, B. S./ Alexandridis, A. A./ Howell, L. J./ Wierwille, W. W.  
HUMAN PERFORMANCE Repa, B. S./ Leucht, P. M./ Wierwille, W. W.  
HANDICAPPED/DISABLED Thompson, R. R./ Repa, B. S./ Leucht, P. M.  
HUMAN PERFORMANCE Repa, B. S.  
HUMAN PERFORMANCE Repa, B. S./ Alexandridis, A. A./ Howell, L. J./ Wierwille, W. W.  
HUMAN PERFORMANCE Alexandridis, A. A./ Repa, B. S./ Wierwille, W. W.  
HUMAN PERFORMANCE Wierwille, W. W./ Casali, J. G./ Repa, B. S.  
HUMAN PERFORMANCE Hoover-Siegel, L. L.

Georgia University, Athens  
ALCOHOL/DRUGS McMillen, D. L./ Smith, S. M./ Wells-Parker, E.

Gold, Marc, and Associates, Inc., Urbana, Ill.  
HANDICAPPED/DISABLED Zider, S. J./ Gold, M. W.

Groningen State University, Traffic Research Centre, Netherlands  
ALCOHOL/DRUGS Smiley, A./ Brookhuis, K. A.

Helsingin Teknillinen Korkeakoulu, Espoo, Finland  
ALCOHOL/DRUGS Linnavuo, M./ Ylilaeaekkoelae, P./ Mattila, M. J./ Maeki, M./ Seppaelae, T.  
Helsingin Yliopisto, Finland  
ALCOHOL/DRUGS Korttila, K./ Linnoila, M./ Ertama, P./ Haekkinen, S.  
ALCOHOL/DRUGS Linnavuo, M./ Ylilaeaekkoelae, P./ Mattila, M. J./ Maeki, M./ Seppaelae, T.  
Highway Safety Research Institute, Ann Arbor, Mich.  
SIGNS/SIGNALS Mortimer, R. G./ Sturgis, S. P.  
Hochschule fuer Verkehrswesen "Friedrich List", Dresden, Germany DR  
ALCOHOL/DRUGS Amos, M./ Eckelt, U.  
Honda R & D Company, Japan  
HUMAN PERFORMANCE Furukawa, Y./ Nakaya, H.  
HUMAN PERFORMANCE Sano, S./ Furukawa, Y./ Oguchi, Y./ Nakaya, H.  
House of Representatives, Congress, One Hundred First, First Session, Washington, D.C.  
DESIGN  
Human Factors North, Inc., Toronto, Ontario, Canada  
ALCOHOL/DRUGS Smiley, A./ Brookhuis, K. A.  
Human Resources Center, Albertson, N.Y.  
HANDICAPPED/DISABLED Less, M./ Colverd, E. C./ DeMauro, G. E./ Young, J.  
Human Resources Research Organization, Alexandria, Va.  
HUMAN PERFORMANCE Harano, R. M./ Peck, R. C./ McBride, R. S.  
  
Illinois State University, Normal, Traffic and Safety Section  
VISION Quane, W. L.  
Illinois University, Champaign-Urbana  
SIGNS/SIGNALS Mortimer, R. G./ Sturgis, S. P.  
DRIVER EDUCATION Baron, M. L./ Williges, R. C.  
ALCOHOL/DRUGS Mortimer, R. G./ Sturgis, S. P.  
Industrial Products Research Institute, Ibaraki, Japan  
DRIVER EDUCATION Nagata, M./ Kuriyama, H.  
Institut fuer Biomedizinische Technik, Muenchen, Germany FR  
HUMAN PERFORMANCE Anselm, D./ Danner, M./ Kirmaier, N./ Koening, H. L./ Mueller-Limmroth,  
W./ Reis, A./ Schauerte, W.  
Institut fuer Psychologische Forschung und Beratung, Lucerne, Switzerland  
HUMAN PERFORMANCE Spoerli, S.  
Institute for Perception TNO, Soesterberg, Netherlands  
HUMAN PERFORMANCE Godthelp, H.  
RISK TAKING Janssen, W. H.  
HUMAN PERFORMANCE Godthelp, J./ van der Horst, A. R. A./ Burrij, S./ van de Lagemaat, C.  
HUMAN PERFORMANCE Blaauw, G. J.  
HUMAN PERFORMANCE Blaauw, G. J.  
DESIGN Blaauw, G. J.  
VISION Blaauw, G. J./ Riemersma, J. B. J.  
Institute of Vocational Training, Sagamihara, Japan  
DRIVER EDUCATION Nagata, M./ Kuriyama, H.  
Iowa University, Iowa City, College of Engineering  
DESIGN Haug, E./ Kim, S. S./ Stoner, J./ Andersen, D./ Lee, W. S./ Malwitz, D./ Turpin,  
D./ Sinacori, J./ Allen, W./ Companion, M./ Goldiez, B./ McAreavy, J./ Gay, R.  
  
Johann Wolfgang Goethe-Universitaet, Zentrum der Rechtsmedizin, Frankfurt, Germany  
ALCOHOL/DRUGS Gerchow, J.  
  
Liberty Mutual Insurance Company, Hopkinton, Mass.  
HUMAN STRESS/FATIGUE Snook, S. H./ Dolliver, J. J.  
SIGNS/SIGNALS Mortimer, R. G./ Sturgis, S. P.  
VISION Pulling, N. H./ Wolf, E./ Sturgis, S. P./ Vaillancourt, D. R./ Dolliver, J. J.  
HUMAN STRESS/FATIGUE Ranney, T. A./ Gawron, V. J.  
ALCOHOL/DRUGS Mortimer, R. G./ Sturgis, S. P.  
ALCOHOL/DRUGS Gawron V. J./ Ranney, T. A.

Loughborough University of Technology, Institute for Consumer Ergonomics, England

HUMAN PERFORMANCE Galer, M./ Baines, A./ Simmonds, G.

SIGNS/SIGNALS McClelland, I. L.

Louisiana Tech University, Ruston, Department of Biomedical Engineering

HANDICAPPED/DISABLED Hogan, H. A./ Szeto, A. Y. J.

Mannheim Universitaet, Germany FR

DESIGN Biehl, B.

Maryland University, College Park

VISION Le Moigne, J.

DESIGN Dickinson, S. J./ Davis, L. S.

Massachusetts General Hospital, Boston

ALCOHOL/DRUGS Regina, E. G./ Smith, G. M./ Keiper, C. G./ McKelvey, R. K.

Massachusetts University, Amherst

DESIGN Riseman, E. M./ Hanson, A. R./ Kitchen, L. J.

Mechanical Engineering Laboratory, Tokyo, Japan

HUMAN PERFORMANCE Hirose, T./ Matsumoto, S./ Inomata, S.

Medizinische Akademie "Carl Gustav Carus", Dresden, Germany DR

ALCOHOL/DRUGS Amos, M./ Eckelt, U.

Melbourne University, Australia

HUMAN PERFORMANCE Johnston, A. W./ Cole, B. L.

Mercedes-Benz Aktiengesellschaft, Germany FR

DESIGN Gohring, E./ von Glasner, E. C./ Hainbuch, C.

Michigan State University, East Lansing

SIGNS/SIGNALS Hummer, J. E.

DESIGN Patrick, L. M./ Van Kirk, D. J./ Nyquist, G. W.

Michigan University, Ann Arbor

HANDICAPPED/DISABLED Kochhar, D. S./ Miller, J. M./ Boydston, L. E.

HANDICAPPED/DISABLED Kochhar, D. S./ Frembgen, S.

HANDICAPPED/DISABLED Boydston, L. E./ Kessel, D. S.

HANDICAPPED/DISABLED Boydston, L. E./ Dessel, D. S./ Miller, J. M.

Michigan University, Ann Arbor, Transportation Research Institute

RISK TAKING Sivak, M./ Soler, J.

HUMAN STRESS/FATIGUE Green, P.

RISK TAKING Sivak, M./ Soler, J./ Traenkle, U./ Spagnhol, J. M.

RISK TAKING Sivak, M./ Soler, J./ Traenkle, U.

RISK TAKING Soler, J./ Sivak, M.

DESIGN Green, P./ Olson, A.

HUMAN PERFORMANCE Sivak, M./ Flannagan, M. J./ Olson, P. L./ Bender, M./ Conn, L. S.

HUMAN PERFORMANCE Olson, P. L.

SIGNS/SIGNALS Olson, P. L.

HUMAN STRESS/FATIGUE Sivak, M./ Simmons, C. J./ Flannagan, M. J.

HUMAN STRESS/FATIGUE Flannagan, M./ Sivak, M./ Ensing, M./ Simmons, C. J.

Mississippi State University, Mississippi State

ALCOHOL/DRUGS McMillen, D. L./ Smith, S. M./ Wells-Parker, E.

Monash University, Clayton, Australia

ALCOHOL/DRUGS Dott, A. B./ McKelvey, R. K.

DRIVER EDUCATION Williges, R. C./ Triggs, T. J.

Motor Industry Research Association, Nuneaton, England

HUMAN PERFORMANCE Fowkes, M.

Muenchen Technische Universitaet, Germany

HUMAN PERFORMANCE Witt, H./ Hoyos, C. G.

Muenchen Technische Universitaet, Germany FR

HUMAN PERFORMANCE Anselm, D./ Danner, M./ Kirmaier, N./ Koenig, H. L./ Mueller-Limmroth, W./ Reis, A./ Schauerte, W.

DESIGN Ruehmann, P.

SIGNS/SIGNALS Witt, H.

Muenster Universitaet, Psychologisches Institut, Germany FR  
RISK TAKING Sivak, M./ Soler, J./ Traenkle, U./ Spagnhol, J. M.  
RISK TAKING Sivak, M./ Soler, J./ Traenkle, U.  
RISK TAKING Sivak, M./ Soler, J./ Traenkle, U.

National Aeronautics and Space Administration, Ames Research Center, Moffett Field, Calif.  
VISION Connors, M. M.

National Highway Traffic Safety Administration, Washington, D.C.  
ALCOHOL/DRUGS Miller, H. R./ Allen, R. W./ Stein, A. C.

National Research Council, Washington, D.C.  
DESIGN Jones, E. R./ Hennessy, R. T./ Deutsch, S.

National Safety Council, Chicago, Ill.  
ALCOHOL/DRUGS Perrine, M. W.

Nederlands Instituut voor Praeventieve Geneeskunde TNO, Leiden  
ALCOHOL/DRUGS Soede, M.

New South Wales University, Kensington, Australia  
HUMAN PERFORMANCE Boadle, J.  
HUMAN PERFORMANCE Baxter, J./ Harrison, J. Y.

New York State Department of Motor Vehicles, Albany  
DRIVER EDUCATION O'Brien, J. F.

Nissan Motor Company, Ltd., Vehicle Research Laboratory, Yokosuka, Japan  
HUMAN STRESS/FATIGUE Seko, Y./ Kataoka, S./ Senoo, T.

North Texas State University, Denton  
ALCOHOL/DRUGS Rimm, D. C./ Sininger, R. A./ Faherty, J. D./ Whitley, M. D./ Perl, M. B.

Northern Illinois University, DeKalb, Department of Communication Disorders  
HANDICAPPED/DISABLED Sendelbaugh, J. W.

Nucro-Technics Laboratories, Scarborough, Canada  
ALCOHOL/DRUGS Burford, R./ French, I. W./ LeBlanc, A. E.

Old Dominion University, Norfolk, Va.  
HUMAN PERFORMANCE Grubb, M. G.

Ontario Ministry of Transportation and Communications, Downsview, Canada  
HUMAN PERFORMANCE Reid, L. D./ Graf, W. O./ Billing, A. M.  
HUMAN PERFORMANCE Reid, L. D./ Solowka, E. N./ Billing, A. M.

Organisme National de Securite Routiere, Arcueil, France  
HUMAN PERFORMANCE Neboit, M.

Pennsylvania Transportation Institute, University Park  
VISION Olsen, R. A.

Polytechnic, Department of Psychology, London, England  
HUMAN PERFORMANCE Currie, L.

Psychochemistry Institute, Copenhagen, Denmark  
ALCOHOL/DRUGS Bech, P.

Public Health Service, Injury Control Research Laboratory, Providence, R.I.  
ALCOHOL/DRUGS Regina, E. G./ Smith, G. M./ Keiper, C. G./ McKelvey, R. K.

Purdue University, Lafayette, Ind.  
DESIGN Weigand, F. K.  
RISK TAKING Howells, R. A./ Buck, J. R./ Knight, J. L., Jr./ Weiss, S. M./ MacMillan, A. G.

Queen's University, Kingston, Canada  
ALCOHOL/DRUGS Browning, J. J./ Wilde, G. J. S.

Randomline, Inc., Huntingdon Valley, Pa.  
DRIVER EDUCATION Eichert, E. S., III/ Frey, A. H.

Retina Foundation, Boston, Mass.  
VISION Pulling, N. H./ Wolf, E./ Sturgis, S. P./ Vaillancourt, D. R./ Dolliver, J. J.

Salford University, Road Safety Research Unit, England  
DRIVER EDUCATION Jolly, K. W.  
Sandia National Laboratories, Albuquerque, N.M.  
HUMAN PERFORMANCE McGovern, D. E.  
Schering Aktiengesellschaft, Berlin, Germany FR  
ALCOHOL/DRUGS Willumeit, H. P./ Neubert, W./ Ott, H./ Hemmerling, K. G.  
Shibaura Institute of Technology, Japan  
ALCOHOL/DRUGS Oguchi, Y.  
HUMAN PERFORMANCE Sano, S./ Furukawa, Y./ Oguchi, Y./ Nakaya, H.  
HUMAN PERFORMANCE Furukawa, Y./ Nakaya, H.  
HUMAN PERFORMANCE Miyagi, M./ Sano, M./ Oguchi, Y.  
HUMAN PERFORMANCE Oguchi, Y./ Sawada, T./ Nakaya, H.  
Sinacori, J. B., Associates  
DESIGN Haug, E./ Kim, S. S./ Stoner, J./ Andersen, D./ Lee, W. S./ Malwitz, D./ Turpin, D./ Sinacori, J./ Allen, W./ Companion, M./ Goldiez, B./ McAreavy, J./ Gay, R.  
Smith, Wilbur, and Associates, Richmond, Va.  
DRIVER EDUCATION  
Society of Automotive Engineers of Japan, Tokyo  
DESIGN  
South Carolina University, Columbia  
DRIVER EDUCATION Griffeth, R. W./ Rogers, R. W.  
South Dakota University, Vermillion, Human Factors Psychology Laboratory  
HUMAN PERFORMANCE Stone, L. W./ Ellingstad, V. S.  
Southeastern Oklahoma State University, Durant, Okla.  
DRIVER EDUCATION Barker, L./ Polson, J./ DuPont, P.  
Southern California Research Institute, Los Angeles  
VISION Ziedman, K./ Sharma, S./ Niemann, R. A.  
ALCOHOL/DRUGS Smiley, A./ Moskowitz, H. M./ Ziedman, K.  
ALCOHOL/DRUGS Ziedman, K./ Moskowitz, H./ Niemann, R. A.  
ALCOHOL/DRUGS Ziedman, K./ Smiley, A./ Moskowitz, H.  
ALCOHOL/DRUGS Moskowitz, H./ Ziedman, K.  
DESIGN Allen, R. W./ Klein, R. H./ Ziedman, K.  
ALCOHOL/DRUGS Sharma, S.  
Southern Illinois University, Carbondale, Safety Center  
DRIVER EDUCATION Aaron, J. E./ Strasser, M. K.  
SPAR Aerospace Ltd., Weston, Ontario, Canada  
HUMAN PERFORMANCE Sakata, H./ Yoshimoto, K./ Hirano, T.  
St. Bartholomew's Hospital, London, England  
ALCOHOL/DRUGS Burley, D./ Silverstone, T., ed.  
State University of New York, Buffalo, Department of Mechanical Engineering  
HANDICAPPED/DISABLED Anger, R. T./ Wayne, R. W.  
Statens Vaeg- och Trafikinstitut, Linkoeping, Sweden  
ALCOHOL/DRUGS Laurell, H./ Toernros, J.  
SIGNS/SIGNALS Nygaard, B.  
DESIGN Nordmark, S./ Jansson, H./ Lidstroem, M./ Palmkvist, G.  
DESIGN Lindstroem, M./ Nordmark, S./ Nordstroem, O.  
DESIGN Raahs, K.  
HUMAN STRESS/FATIGUE Arnberg, P. W./ Aastroem, G.  
ALCOHOL/DRUGS Toernros, J./ Laurell, H.  
HUMAN STRESS/FATIGUE Toernros, J./ Laurell, H.  
Swedish National Board of Occupational Safety and Health, Umeaa  
HUMAN PERFORMANCE Jonsson, S./ Jonsson, B.

Systems Technology, Inc., Hawthorne, Calif.

DESIGN Haug, E./ Kim, S. S./ Stoner, J./ Andersen, D./ Lee, W. S./ Malwitz, D./ Turpin, D./ Sinacori, J./ Allen, W./ Companion, M./ Goldiez, B./ McAreavy, J./ Gay, R.  
HUMAN PERFORMANCE Allen, R. W./ McRuer, D. T.  
HUMAN PERFORMANCE Allen, R. W./ Hogge, J. R./ Schwartz, S. H.  
ALCOHOL/DRUGS Allen, R. W./ Jex, H. R./ McRuer, D. T./ DiMarco, R. J.  
DESIGN Weir, D. H./ Heffley, R. K./ Ringland, R. F.  
ALCOHOL/DRUGS Stein, A. C./ Allen, R. W.  
ALCOHOL/DRUGS Stein, A. C./ Allen, R. W./ Cook, M. L.  
HUMAN PERFORMANCE Allen, R. W./ Weir, D. H.  
ALCOHOL/DRUGS Stein, A. C./ Allen, R. W.  
SIGNS/SIGNALS Stein, A. C./ Johnson, W. A.  
ALCOHOL/DRUGS Stein, A. C./ Allen, R. W./ Cook, M. L./ Karl, R. L.  
ALCOHOL/DRUGS Miller, H. R./ Allen, R. W./ Stein, A. C.  
HUMAN PERFORMANCE Allen, R. W./ Parseghian, Z./ Van Valkenburgh, P. G.  
DRIVER EDUCATION Allen, R. W./ Jex, H. R.  
HUMAN PERFORMANCE Klein, R. H./ McRuer, D. T./ Weir, D. H./ Allen, R. W./ Humes, R. W./ Zellner, J. W.  
HUMAN PERFORMANCE McRuer, D. T./ Klein, R. H.  
DESIGN Allen, R. W./ Klein, R. H./ Ziedman, K.  
VISION McRuer, D. T./ Klein, R. H.  
DESIGN Allen, R. W./ Stein, A. C./ Aponso, B. L./ Rosenthal, T. J./ Hogue, J. R.

Technische Hogeschool Delft, Netherlands

ALCOHOL/DRUGS Soede, M.

Technische Ueberwachungsverein Rheinland e.V., Institut fuer Verkehrssicherheit, Koeln, Germany  
FR

VISION Rompe, K./ Engel, G.

Texas University, Austin, Council for Advanced Transportation Studies

ALCOHOL/DRUGS Young, R. K./ Valentine, D./ Williams, M.

Tochigi R & D Center, Japan

HUMAN PERFORMANCE Furukawa, Y./ Nakaya, H.

Tokyo University, Department of Mechanical Engineering, Japan

HUMAN PERFORMANCE Sakata, H./ Yoshimoto, K./ Hirano, T.

Toronto University, Institute for Aerospace Studies, Downview, Canada

HUMAN PERFORMANCE Solowka, E. N./ Reid, L. D.

HUMAN PERFORMANCE Reid, L. D./ Graf, W. O./ Billing, A. M.

HUMAN PERFORMANCE Reid, L. D./ Solowka, E. N./ Billing, A. M.

Toyo Kogyo Company, Ltd., Hiroshima, Japan

HUMAN PERFORMANCE Nakaya, H./ Sano, S./ Furukawa, Y./ Oguchi, Y.

Toyota Motor Company, Japan

DESIGN Fukui, K./ Shirakawa, I./ Miki, K./ Hayashi, Y./ Sugimoto, G./ Hasegawa, J.

DESIGN Miki, K./ Fukui, K./ Hayashi, Y./ Hasegawa, J.

HUMAN PERFORMANCE Hayashi, Y.

HUMAN PERFORMANCE Fukui, K./ Miki, K./ Hayashi, Y./ Hasegawa, H.

Transport and Road Research Laboratory, Crowthorne, England

DESIGN Watts, G. R./ Quimby, A. R.

Transportation Systems Center, Cambridge, Mass.

DRIVER EDUCATION Wright, V./ Forman, R.

Uberlandia Federal University, Brazil

RISK TAKING Sivak, M./ Soler, J./ Traenkle, U./ Spagnhol, J. M.

Umeaa Kungliga Universitetet, Department of Anatomy, Sweden

HUMAN PERFORMANCE Jonsson, S./ Jonsson, B.

University of Central Florida, Orlando

DESIGN Haug, E./ Kim, S. S./ Stoner, J./ Andersen, D./ Lee, W. S./ Malwitz, D./ Turpin, D./ Sinacori, J./ Allen, W./ Companion, M./ Goldiez, B./ McAreavy, J./ Gay, R.

University of Southern California, Los Angeles  
DRIVER EDUCATION Jones, M. H./ Coppin, R. S.  
Uppsala University, Sweden  
ALCOHOL/DRUGS Dureman, I./ Norrman, B.  
URS/Matrix Company, Falls Church, Va.  
RISK TAKING Hatterick, G. R./ Bathurst, J. R.

Valencia University, Spain  
RISK TAKING Sivak, M./ Soler, J.  
RISK TAKING Sivak, M./ Soler, J./ Traenkle, U./ Spagnhol, J. M.  
RISK TAKING Sivak, M./ Soler, J./ Traenkle, U.  
Virginia Polytechnic Institute and State University, Blacksburg  
HUMAN PERFORMANCE Repa, B. S./ Alexandridis, A. A./ Howell, L. J./ Wierwille, W. W.  
HUMAN PERFORMANCE Repa, B. S.  
DESIGN Wierwille, W. W.  
HUMAN PERFORMANCE Rogers, S. B./ Wierville, W. W.  
HUMAN PERFORMANCE Frank, L. H./ Casali, J. G./ Wierwille, W. W.  
HUMAN STRESS/FATIGUE Skipper, J. H./ Wierwille, W. W.  
DESIGN Casali, J. G./ Wierwille, W. W.  
HUMAN STRESS/FATIGUE Casali, J. G./ Frank, L. H.  
HUMAN PERFORMANCE Wierwille, W. W./ Casali, J. G./ Repa, B. S.  
HUMAN STRESS/FATIGUE Casali, J. G./ Wierwille, W. W.  
HUMAN PERFORMANCE Hicks, T. G./ Wierwille, W. W.  
HUMAN PERFORMANCE Wierwille, W. W./ Gutmann, J. C.  
HUMAN PERFORMANCE Wierwille, W. W./ Gutmann, J. C./ Hicks, T. G./ Muto, W. H.  
HUMAN STRESS/FATIGUE Frank, L. H./ Casali, J. G./ Wierwille, W. W.  
HUMAN STRESS/FATIGUE Imbeau, D.  
HUMAN PERFORMANCE Wierwille, W. W./ Fung, P. P.  
HUMAN PERFORMANCE McLane, R. C./ Wierwille, W. W.  
HUMAN STRESS/FATIGUE Hardee, H. L./ Dingus, T. A./ Wierwille, W. W.  
HUMAN PERFORMANCE Repa, B. S./ Leucht, P. M./ Wierwille, W. W.  
HUMAN PERFORMANCE Alexandridis, A. A./ Repa, B. S./ Wierwille, W. W.

Virginia University, Charlottesville  
HUMAN STRESS/FATIGUE Findley, L. J./ Fabrizio, M. J./ Knight, H./ Norcross, B. B./ LaForte, A. J./ Suratt, P. M.  
Volkswagenwerk AG, Wolfsburg, Germany  
DESIGN Richter, B.  
HUMAN PERFORMANCE Richter, B.  
DESIGN Sorgatz, U.  
SIGNS/SIGNALS Rosemann, A.

Washington University, St. Louis, Behavior Research Laboratory, Mo.  
ALCOHOL/DRUGS Beideman, L. R./ Stern, J. A.  
Wayne State University, Department of Engineering, Detroit, Mich.  
DESIGN Patrick, L. M./ Van Kirk, D. J./ Nyquist, G. W.  
West Virginia University, Morgantown, Department of Civil Engineering  
SIGNS/SIGNALS Sabra, Z. A.  
Western Australia Mental Health Service, Perth  
ALCOHOL/DRUGS Milner, G.  
Westinghouse Corporation, Baltimore, Md.  
HANDICAPPED/DISABLED Anger, R. T./ Wayne, R. W.  
Westminster Hospital, London, England  
HUMAN PERFORMANCE Wastell, C./ Wise, I./ Colin, J. F.  
Wisconsin University, Madison, Industrial Engineering Department  
RISK TAKING Robinson, G. H.