General Subjects (session 1)

Tunnelling in the 1980s and 1990s p. 3
The practice of tunnel immersion operations p. 11
Future tunnelling works in the greater Paris area p. 25
The risks involved in major infrastructural projects p. 37

Soft Ground Tunnelling

Comparative case studies (sessions 2, 4 and 6)

Design studies for tunnels for Hong Kong's new airport railway p. 53
Preliminary study of alternative crossings of the Dutch High Speed Railway Line with the waterways Hollands Diep and Oude Maas. Tunnels versus bridges p. 65

Developments in immersed tunnels p. 79

Mined stations for the Los Angeles Metro p. 89
Comparative design for a road-tunnel under the estuary Weser p. 105
Slow traffic tunnel Heinenoord, comparing 5 tunnelling methods p. 115
The underground crossing of Toulon - choice of execution methods p. 123
The option of construction method for shallow buried metro station p. 133
Criteria for the choice between cut-and-cover and underground tunnelling methods p. 141
Technical feasibility, costs and planning of drilled tunnels in Western Holland p. 153
North-South light rail in Amsterdam; building from surface or bored tunnelling? p. 165
Cut and cover methods and immersed and submerged floating tunnels (sessions 8, 10 and 12) p. 177

Increasing the railway capacity underneath Schiphol Airport
Studies on steel-concrete-steel sandwich construction for submerged tube tunnels p. 193
The Rotterdam Railwaytunnel; design, construction, organisation p. 203
Underground station Wilhelminapier, Rotterdam p. 231
The Noord Tunnel, a special tunnel p. 241
The Fort Point Channel Tunnel of the Boston Central Artery Project p. 257
The design of the Piet Heintunnel, Amsterdam p. 267
Wijker tunnel: environmental impact of dewatering of the approaches p. 281
Forces due to ship manoeuvring during immersion of tunnels p. 291
Osterleden, Stockholm - the Saltsjon crossing - Comparative studies of two alternative solutions p. 303

Second life of construction docks for immersed tunnels p. 313
Submerged floating tunnels, a new type of structures with particular advantages for environmental protection p. 325

Underground methods (sessions 14, 16, 18 and 20)

Design and construction planning of underwater Trans-Tokyo Bay Highway Tunnel p. 331
Heathrow express high-speed rail link London, UK p. 341
Tunnelling under Cairo using bentonite slurry machines p. 351
Design and construction of the London Water Ring Main p. 363
Conceptional requirements for soft ground tunnel boring machines p. 377
Long distance pipe jacking through hard sticky clay and extremely soft ground in Sayreville, New Jersey  p. 391

Large cross section tunnel excavation by chemical foam injection EPB shield  p. 401

The PMF super shield tunnelling process - expanding applications for earth pressure-balanced shield tunnelling  p. 411

Mined and cut-and-cover stations for a modern-generation subway system  p. 421

Performance observations during construction of the large span Milan metro station  p. 433

In situ measurement and calculation of displacement field above slurry shields  p. 443

Prefabricated linings for metropolitan underground railway tunnels constructed using mechanised shields  p. 453

The method of non-settling shield driving of tunnels  p. 463

Execution of 27% downward gradient by slurry shield construction method  p. 473

Rock Tunnels

TBM driven tunnels and comparative case studies (sessions 3, 5, 7 and 9)

Experience with large diameter tunnel boring machines in Switzerland  p. 485

Channel Tunnel, the effect of logistics on tunnelling  p. 497

Construction of Hong Kong's first TBM driven tunnels  p. 509

A method to determine necessary thrust force for TBM  p. 519

The tunnelling experience of Taiwan South Link railway project  p. 529

Hydraulic tunnel excavation by TBM in schist: the effect of rock variability, as monitored by the machine control instruments  p. 539

Planning considerations on options for rock tunnelling  p. 547

Hard rock boring at the Svartisen Hydroelectric Project  p. 561

Lesotho Highlands Water Project - TBM excavated water tunnels in weak bedded rock  p. 575

Tunnel and detector hall construction for the Superconducting Super Collider project in Dallas, Texas, United States  p. 595

Mechanized construction method for long mountain tunnel  p. 605

Planning of the Gotthard Base Tunnel  p. 615

Tunnelling options in chalk marl Dhiarizos Diversion Tunnel - Cyprus  p. 627

Design of 10.6 km long headrace tunnel for Dul Hasti Hydroelectric Project (India)  p. 645

Dowelled segments for tunnels linings  p. 661

Conventional driven tunnels (sessions 15 and 17)

Empirical analysis of minimum rock cover for subsea rock tunnels  p. 677

The Channel tunnel - use of geotechnical monitoring to assist the design and construction of tunnels through an ancient landslip at Castle Hill  p. 689

Somport tunnel  p. 699

Excavation of test tunnels in strongly-swelling ground for the Iwate project  p. 709

Dynamic response of rock bolt systems at Pen y Clip Tunnel in North Wales  p. 719

Construction of tunnel without blasting in densely built-up residential area  p. 729

Consideration of the profile accuracy attainable in tunnel excavation by drilling and blasting  p. 741

Horizontal jet grouting at a tunnel portal excavated in poor ground  p. 749
Research and Development (sessions 11 and 13)

Tunneling in urban areas, interaction with loaded foundation piles p. 761
Study of the self-supported segment assembly robot for shield machine of tunnel p. 771
The choice between EPB- and slurry shields; selection criteria by practical examples p. 781

Development of three centered slurry type shield method at station by effectively using the running shield for double-track subway p. 795
Cost optimisation of transportation tunnel projects on the basis of structural health monitoring p. 805
Controlling and optimizing highway tunnel costs p. 817
Vibrations from explosives, high energy hydraulic hammers and TBMs; experience from Italian tunnels p. 829
Analysis of mechanized excavation system performance and rock mass impacts p. 839

(Private)Financing and Risk Allocation in Tunnelling (sessions 19 and 21)

Risk analysis in privately financed tunnelling projects p. 855
Improved risk allocation for tunnel construction projects p. 875
Financing of the Liefkenshoekunnel in Antwerp (Belgium) p. 887
Infrastructure tunnels procured by private finance p. 895
Analysis of profitability of subway business as a means of mass public transit systems p. 907

Table of Contents provided by Blackwell's Book Services and R.R. Bowker. Used with permission.