

VÄITÖSKIRJAKOKOELMA / LIST of PhD -THESES

PhD –theses provided or contributed by the Arch. Res. institute:

1. **Jokinen, Henri. 2020.** Population dynamics of flounders in the northern Baltic Sea – declines, cryptic species and environmental drivers. Faculty of Biological and Environmental Sciences, *Doctoral programme in wildlife biology*. University of Helsinki. Helsinki, Finland. 116 p.
2. **Rousi, Heta. 2020.** Zoobenthos as indicators of marine habitats in the northern Baltic Sea. *Environmental and Marine Biology, Faculty of Science and Engineering*. Åbo Akademi University Finland. 108 p.
3. **Suutari, Milla. 2020.** Potential of filamentous macroalgae and sessile invertebrates for bioremediation and valorization in the northern Baltic Sea. Faculty of Biological and Environmental Sciences, *Doctoral programme in wildlife biology*. University of Helsinki. Helsinki, Finland. 96 p.
4. **Tverin, Malin. 2020.** Factors affecting the fatty acid profile of adipose tissues used to assess individual dietary history of grey seals and great cormorants in the Baltic Sea. Molecular and Integrative Biosciences Research Programme, *Faculty of Biological and Environmental Sciences Physiology and Neuroscience*. University of Helsinki. Helsinki, 2020. 105 p.
5. **Mäkinen, Katja. 2019.** Climate-induced variability in northern Baltic Sea zooplankton - Assessing driving forces and effects on higher trophic levels. *Annales Universitatis Turkuensis Ser AII – Tom 358*. 150 p.
6. **Rugiu, Luca. 2018.** Tolerance of Baltic Sea rocky littoral communities to climate change. *Annales Universitatis Turkuensis Ser AII – Tom 343*. 163 p.
7. **Sormunen, Jani. 2018.** Questing ticks, hidden causes: tracking changes in *Ixodes ricinus* populations and associated pathogens in southwestern Finland. *Annales Universitatis Turkuensis Ser AII – Tom 349*. 165 p.
8. **Takolander, Antti. 2018.** Assessing the effecte of climate change on Baltic Sea macroalgae – implications for the foundations species *Fucus vesiculosus* L. LUOVA – *Doctoral programme in Wildlife Biology Research*. University of Helsinki. 112 p.
9. **Feuth, Eeva. 2017.** Lyme borreliosis in Finland - studies on environmental exposure, disease susceptibility and epidemiology. *Annales Universitatis Turkuensis Ser D – Tom 1306*. 142 p.
10. **Forsström, Tiia. 2017.** Introduced marine crab species in the northern Baltic Sea: from detection to impacts. *Annales Universitatis Turkuensis Ser AII – Tom 335*. 105 p.

- 11. Puttonen, Irma. 2017.** Phosphorus in the sediments of the Northern Baltic Sea archipelagos – internal P loading and its impact on eutrophication. Diss. Åbo: Åbo Akademi University. 160 p.
- 12. Gagnon, Karine. 2016.** Top-down and bottom-up impacts of the Great Cormorant (*Phalacrocorax carbo sinensis*) on coastal benthic communities in the Baltic Sea. *Annales Universitatis Turkuensis Ser All – Tom 318*. 107 p.
- 13. Haavisto, Fia. 2016.** Macroalgal defenses against herbivory: causes and consequences of intraspecific variation. *Annales Universitatis Turkuensis Ser All – Tom 319*. 104 p.
- 14. Luhtala, Hanna. 2016.** Geographical studies of underwater light dynamics in the coastal archipelago of SW Finland, Baltic Sea. *Annales Universitatis Turkuensis Ser All – Tom 314*. 121 p.
- 15. Kalske, A. 2015.** Plant-herbivore interaction in a fragmented landscape: local adaptation and inbreeding. *Annales Universitatis Turkuensis Ser All – Tom 302*. 104 p.
- 16. Suominen, T. 2015.** Spatiotemporal features of coastal waters in southwest Finland. *Annales Universitatis Turkuensis Ser All – Tom 305*. 124 p.
- 17. Vesterinen, E. 2015.** Food webs in the era of molecular revolution – Like resolving the Gordian knot with a tricorder? *Annales Universitatis Turkuensis Ser All – Tom 307*. 126 p.
- 18. Rinne, H. 2014.** Macroalgae across environmental gradients – tool for managing rocky coastal areas of the northern Baltic Sea. Diss. Åbo: Åbo Akademi University. 143 p.
- 19. Kirkkala, T. 2014.** Long-term nutrient load management and lake restoration. Case of Säkylän Pyhäjärvi (SW Finland). PhD -thesis. *Annales Universitatis Turkuensis Ser All – Tom 286*. 112 p.
- 20. Laukkonen, L. 2014.** Population genetics, food-plant specialization, and local adaption of insect herbivores living in a fragmented landscape. PhD -thesis. *Annales Universitatis Turkuensis Ser All – Tom 285*. 107 p.
- 21. Majaneva, S. 2014.** Understanding the biodiversity and ecological importance of Ctenophores – Lessons from Arctic and Baltic *Mertensia ovum*. PhD-thesis. Walter and Andrée de Nottbeck Foundation Scientific Reports – No 41. 130 p.
- 22. Junker, K. 2013.** Predictability of marine ecosystems in changing climate. Doctoral thesis. Rostock University. Rostock 2013.
- 23. Sylvander, P. 2013.** Thiamine dynamics in the pelagic food web of the Baltic Sea. PhD-thesis. Stockholm University. Stockholm 2013.

- 24. Holliland, Per B. 2012.** Trophic interactions and behavior – Studies relevant to a Baltic Sea manipulation. PhD-thesis. Stockholm University. Stockholm 2012.
- 25. Lilley, Thomas. 2012.** Butyltin compounds in the food web: impacts on chironomids and Daubenton's bats. PhD-thesis. *Annales Universitatis Turkuensis Ser All* – Tom 273. 116 p.
- 26. Vehmaa, Anu. 2012.** Climate driven changes in temperature, pH and food quality – Effects on copepod reproduction. – Diss. Åbo: Åbo Akademi University. 113 pp.
- 27. Koivisto, Maria Elisabeth. 2011.** Blue mussel beds as biodiversity hotspots on the rocky shores of the northern Baltic Sea. PhD-thesis. Faculty of Biological and Environmental Sciences. University of Helsinki. 108 p.
- 28. Muola, Anne. 2010.** The geographic mosaic of coevolving plant-herbivore interactions: genetic variation, local adaptation and plant secondary chemistry. PhD-thesis. *Annales Universitatis Turkuensis Ser All* – Tom 258. 112 p.
- 29. Tuovinen, Nanna 2010.** Past, present and future – Assessing changes in aquatic environments using subfossil diatoms. PhD-thesis. *Annales Universitatis Turkuensis Ser All* – Tom 250. 102 p.
- 30. Lagus, Annika. 2009.** Role of nutrients in regulation of the phytoplankton community in the Archipelago Sea, northern Baltic Sea. PhD-thesis. *Annales Universitatis Turkuensis Ser All* – Tom 239. 127 p.
- 31. Salo, Pälvi. 2009.** On lethal and nonlethal impacts of native, alien and intraguild predators - evidence of top-down control. PhD-thesis. *Annales Universitatis Turkuensis Ser All* – Tom 240. 130 p.
- 32. Vesakoski, Outi. 2009.** Local and sexual divergence in host-use traits and anti-predator adaptations in the marine herbivore *Idotea balthica*. PhD-thesis. *Annales Universitatis Turkuensis Ser All* – Tom 235. 111 p.
- 33. Fey, Karen. 2008.** Detimental effects of alien mink predation on small mammal populations and cascading effects on plants in the Baltic Sea archipelago. PhD-thesis. *Annales Universitatis Turkuensis Ser All* – Tom 221. 118 p.
- 34. Korpinen, Samuli. 2008.** Nutrient enrichment and water depth modify consumer control in rocky shore macroalgal communities. PhD-thesis. *Annales Universitatis Turkuensis Ser All* – Tom 222. 118 p.
- 35. Rönkä, Mia. 2008.** Assessment of Coastal Bird Populations and Habitats on the Finnish Coast of the Baltic Sea: Implications for Monitoring and Management. PhD-thesis. *Annales Universitatis Turkuensis Ser All* – Tom 129. 158 p.

- 36. Mäkinen, Anita. 2007.** Consequences of eutrophication in the Baltic Sea – can structure and functions of the phytobenthos persist? PhD-thesis. Department of Biology, Åbo Akademi University. Painosalama. 211 p.
- 37. Katajisto, Tarja 2006.** Benthic resting eggs in the life cycles of calanoid copepods in the northern Baltic Sea. PhD-thesis. *Walter and Andrée de Nottbeck foundation scientific reports*. No. 29. 159 p.
- 38. Tolvanen, Harri 2006.** Spatial information in coastal geography: studies of processes, landforms, ecosystems and management. PhD-thesis. *Annales Universitatis Turkuensis Ser All – Tom 197*. 108 p.
- 39. Virtasalo, Joonas J. 2006.** Late-Weichselian – Flandrian depositional history of the Archipelago Sea, northern Baltic Sea. PhD-thesis. *Annales Universitatis Turkuensis Ser All – Tom 196*. 156 p.
- 40. Westerbom, Mats 2006.** Population dynamics of blue mussels in a variable environment at the edge of their range. PhD-thesis. Faculty of Biosciences, University of Helsinki. Oy Nord Print Ab. 130 pp.
- 41. Olin, Mikko. 2005.** Fish communities in South-Finnish lakes and their responses to biomanipulation assessed by experimental gillnetting / Mikko Olin. - Diss. Helsinki: Mikko Olin , 2005. ISBN 952-91-8759-9 (Nid.), ISBN 952-10-2516-6 (PDF)
- 42. Kotilainen, Mia. 2004.** Dune stratigraphy as an indicator of holocene climatic change and human impact in northern Lapland, Finland / Mia Kotilainen. - Diss.: - Diss. Helsinki: Suomalainen Tiedeakatemia, 2004. - (*Annales Academiae Scientiarum Fennicae*. ISSN 1239-632X; 166.). ISBN 951-41-0959-7 (Nid.)
- 43. Lettinens, Eva 2004.** Saaristolaisen kokemus omasta kulttuuristaan. Eläminen merestä ja meren kanssa. *Annales Universitatis Turkuensis. Ser C – Tom 221*. 225 p.
- 44. Orav-Kotta, Helen. 2004.** Habitat choice and feeding activity of benthic suspension feeders and mesograzers in the northern Baltic Sea. – Diss.Tartu: Dissertationes Biologicae Universitatis Tartuensis 89. Tartu 2004.
- 45. Peuhkuri, Timo. 2004.** Tiedon roolit ympäristökiistassa – Saaristomeren rehevöityminen ja kalankasvatus julkisen keskustelun ja päätöksenteon kohteena. PhD-thesis. *Annales Universitatis Turkuensis Ser C – Tom 220*. 271 p.
- 46. Salovius-Laurén, Sonja. 2004.** Drifting and attached macroalgae: distribution, degradation and utility for macroinvertebrates. PhD-thesis. Department of Biology, Åbo Akademi University. Åbo Akademi tryckeri.
- 47. Setälä, Outi. 2004.** Studies on planktonic brackish water microprotozoans with special emphasis on the role ciliates as grazers / Outi Setälä. - Diss. Helsinki: Walter And Andrée De Nottbeck Foundation , 2004 -

(*Scientific Reports / Walter And Andrée De Nottbeck Foundation*, ISSN 0358-6758; No. 25). ISBN 951-98521-5-8 (nid.), ISBN 952-10-2188-8 (PDF)

- 48. Hemmi, Anne. 2003.** Eutrophication and grazing pressure on the brown alga *Fucus vesiculosus* by the herbivorous isopod *Idotea baltica*. PhD-thesis. *Annales Universitatis Turkuensis Ser All – Tom 172.* 142 p.
- 49. Laine, Päivi. 2003.** Regulation of reproductive success in Baltic Herring (*Clupea harengus membras*): individual effort meets the environment. PhD-thesis. *Annales Universitatis Turkuensis Ser All – Tom 166.* 106 p.
- 50. Nordström, Mikael. 2003.** Introduced predator in the Baltic Sea archipelagos: variable effects of feral mink on bird and small mammal populations. PhD-thesis. *Annales Universitatis Turkuensis Ser All – Tom 158.* 118 p.
- 51. Nyqvist, Marina. 2003.** Colonisation of drifting filamentous algae by coastal benthic invertebrates in relation to time, depth and distance from shore. – Diss. Åbo: Åbo Akademi, 2003.
- 52. Boström, Minna 2002.** Epibenthic predators and their prey – interactions in coastal food web. PhD-thesis. Department of Biology, Åbo Akademi University. Åbo Akademi tryckeri.
- 53. Engström-Öst, Jonna. 2002.** Effects on cyanobacteria on plankton and planktivores / Jonna Engström-Öst. - Diss. Helsinki: (*Scientific Reports / Walter and Andrée de Nottbeck Foundation*, ISSN 0358-6758; No. 24), ISBN 951-98521-4-X (Nid.) , ISBN 952-10-0267-0 (Verkkojulk., PDF).
- 54. Godhe, Anna. 2002.** Benthic and pelagic dinoflagellate stages: environmental settings, cyst viability, and molecular identification / Anna Godhe. - Diss. Göteborg: Göteborg University, Department of Marine Ecology, 2002. ISBN 91-89677-05-6.
- 55. Lahdes, Eila. 2002.** Temperature adaption of crustaceans: thermal tolerance and membrane properties with special reference to cold sea species. - Diss. Turku: University of Turku. Finnish Institute of Marine Research Contributions 6, Helsinki 2002.
- 56. Leimu, Roosa. 2002.** Ecological and genetic consequences of population size in perennial herbs. PhD-thesis. *Annales Universitatis Turkuensis Ser All – Tom 155.* 143 p.
- 57. Toresen, Reidar. 2002.** Environmental influence on herring (*Clupea harengus* L.) abundance. – Diss. Bergen. University of Bergen, 2002.
- 58. Tuovinen, Tapani. 2002.** The burial cairns and the landscape in the archipelago of Åland, SW Finland, in the bronze age and the iron age / Tapani Tuovinen. - Diss. Oulu: University of Oulu, 2002. - (*Acta Universitatis Ouluensis*. ISSN 0355-3205; 46). ISBN 951-42-6801-6 (Nid.), ISBN 951-42-6802-4 (Verkkojulk.)

- 59. Boström, Christoffer. 2001.** Ecology of seagrass meadows in the Baltic Sea / Christoffer Boström. - Diss. Åbo : Åbo Akademi University, Department of Biology, Environmental and Marine Biology, 2001. ISBN 952-12-0810-4.
- 60. Rönnberg, Cecilia. 2001.** Effects and consequences of eutrophication in the Baltic Sea: Specific patterns in different regions / Cecilia Rönnberg. Åbo: Åbo Akademi University, Department of Biology, Environmental and Marine Biology, 2001. ISBN 952-12-0935-6.
- 61. Viherluoto, Maiju. 2001.** Food selection and feeding behaviour of Baltic Sea mysid shrimps / Maiju Viherluoto. - Diss. Helsinki: Walter och Andrée de Nottbeck Foundation, 2001 - Scientific Reports No. 23. ISSN 0358-6758; ISBN 951-98521-2-3, ISBN 951-45-9828-8.
- 62. Aro, Eero. 2000.** The spatial and temporal distribution patterns of cod (*Gadus Morhua Callarias L.*) in the baltic sea and their dependence on environmental variability: implications for fishery management / Eero Aro. - Diss. Helsinki: *Finnish Game and Fisheries Research Institute*, 2000. ISBN 951-776-271-2 (nid.).
- 63. O'Brien, K. 2000.** The macrofauna of Kinsale Harbour (Co. Cork,south coast of Ireland) with particular reference to the population dynamics, reproduction, and ecology of the bivalves *Abra alba* (Wood) and *Mysella bidentata* (Montagu). – Diss. Galway: National University of Ireland, 2000.
- 64. Hänninen, Jari 2000.** Consequences of large-scale perturbations to marine ecosystems and their species composition. PhD-thesis. *Annales Universitatis Turkuensis Ser All – Tom 128.* 102 p.
- 65. Kotta, Jonne. 2000.** Impact of eutrophication and biological invasions on the structure and functions of benthic macrofauna. – Diss. Tartu: *Dissertationes Biologicae Universitatis Tartuensis.* 160 s. ISBN 9985-56-513-4.
- 66. Kraufvelin, Patrik. 2000.** Detecting change in marine zoobenthic communities by large-scale and long-term mesocosm experiments and field studies. – Diss. Åbo: Åbo Akademi University. 58 pp.
- 67. Jutila, Heli. 1999.** Vegetation and seed bank of grazed and ungrazed Baltic coastal meadows in SW Finland / Heli M. Jutila b. Erkkilä. - Diss. Turku: Turun Yliopisto, 1999 - (*Turun Yliopiston Julkaisuja.* ISSN 0082-6979; Osa 115). ISBN 951-29-1339-9 (nid.)
- 68. Koski, Maria. 1999.** Feeding and production of common planktonic copepods: the effect of food and temperature. – Diss. Helsinki. Walter and Andrée de Nottbeck Foundation Scientific Reports16. 34 s.
- 69. Kurkilahti, Mika. 1999.** Nordic multimesh gillnet: Robust gear for sampling fish populations / Mika Kurkilahti. - Diss. Helsinki: *Finnish Game and Fisheries Research Institute*, 1999. ISBN 951-776-241-0 (nid.)

- 70. Kääriä, Juha. 1999.** Reproduction of the Baltic herring (*Clupea harengus membras* L.): Factors affecting the selection of spawning beds in the Archipelago Sea, in SW Finland / Juha Kääriä. - Diss. Turku: Turun Yliopisto, 1999 - (*Turun Yliopiston Julkaisuja*. ISSN 0082-6979; Osa 116). ISBN 951-29-1361-5 (nid.).
- 71. Merilaita, Sami. 1999.** Cryptic coloration, microhabitat choise and polymorphism in *Idotea Baltica* (Isopoda) / Sami Merilaita. Uppsala: AUU, 1999. - (Comprehensive Summaries of Uppsala Dissertations from the Faculty of Science and Technology, ISSN 1104-232X; 432). ISBN 91-554-4398-2.
- 72. Rantamäki, Pirjo. 1999.** Biochemical effects of crude oil on the common mussel *Mytilus edulis*. *Annales Universitatis Turkuensis*, Ser Al.- TOM 251. Turku, 1999. 176 pp.
- 73. Ahlbeck-Rehn, Jutta. 1998.** Omoralens ansikte: En studie av de galna kvinnorna på Själö Hospital 1889-1944/ Jutta Ahlbeck-Rehn. Åbo: Åbo Akademi, Sociologiska Institutionen, 1998. - (Meddelanden från Ekonomisk-Statsvetenskapliga Fakulteten vid Åbo Akademi. ISSN 0358-5654; 492). ISBN 952-12-0316-1 (nid.)
- 74. Raid, Tiit 1998.** Herring in the north-eastern Baltic Sea in the 1970-1990s: Ecology, stock structure and fishery / Tiit Raid. - Diss. Helsinki: T. Raid , 1998.
- 75. Itkonen, Arto. 1997.** Past trophic responses of boreal shield lakes and the Baltic Sea to geological, climatic and anthropogenic inputs as inferred from sediment geochemistry / By Arto Itkonen. - Diss. Turku: Turun Yliopisto, 1997 - (*Turun Yliopiston Julkaisuja*. ISSN 0082-6979; Osa 103). ISBN 951-29-1050-0 (nid.)
- 76. Laurén-Määttä, Camilla. 1996.** *Daphnia pulex* and exposure to toxic cyanobacteria: Population and food chain experiments / Camilla Laurén-Määttä. - Diss. Turku: Turun Yliopisto, 1996. (*Turun Yliopiston Julkaisuja*. ISSN 0082-6979; Osa 90). ISBN 951-29-0856-5 (Nid.)
- 77. Arrhenius, Fredrik. 1995.** Feeding ecology of Baltic Sea herring (*Clupea Harengus L.*): Field and model studies of a dominant zooplanktivor / Fredrik Arrhenius. - Diss. Stockholm: Stockholm Univ. Dept. of Systems Ecology, 1995. ISBN 91-7153-393-1.
- 78. Jormalainen, Veijo. 1994.** Predation and mating contest as selective agents in the aquatic isopod *Idotea baltica* (Pallas) / Veijo Jormalainen. - Diss. Turku: University Of Turku, 1994 - (*Reports from the Department of Biology / University of Turku*, ISSN 0358-2264; No. 43). ISBN 951-29-0218-4 (nid.)
- 79. Lehtilä, Kari. 1994.** Implications of plant structure for plant-animal interactions and plant life-history strategies / Kari Lehtilä. - Diss. Turku: University of Turku, 1994 - (*Reports from the Department of*

Biology / University of Turku, ISSN 0358-2264; No. 42). ISBN 951-29-0215-X (nid.)

- 80. Viitasalo, Markku.** 1994. Seasonal succession and long-term changes of mesozooplankton in the northern Baltic Sea / Markku Viitasalo. - Diss. Helsinki: Finnish Institute of Marine Research, 1994 - (*Finnish Marine Research*, ISSN 0357-1076; N:o 263). ISBN 951-47-9838-4 (nid.)
- 81. Lyytikäinen, Päivi.** 1993. The performance of diprionid sawflies in relation to tree origin, defoliation and foliar chemistry / Päivi Lyytikäinen. - Diss. Helsinki: University of Helsinki, Department of Applied Zoology, 1993. - (*Julkaisuja / Helsingin Yliopisto, Soveltavan eläintieteen laitos*, ISSN 1235-0664; 19). ISBN 951-45-6553-3 (nid.)
- 82. Ovaska, Jari.** 1993. Compensatory photosynthesis as a response to foliage damage in birch (*Betula L.*) / Jari Ovaska. - Diss. Turku : University Of Turku, 1993 - (*Reports from the Department of Biology / University of Turku*, ISSN 0358-2264; No. 35). ISBN 951-29-0075-0 (nid.)
- 83. Pakarinen, Elisabet.** 1993. Food plant quality and predation as modifiers of slug behaviour/ Elisabet Pakarinen. - Diss. Turku : Turun Yliopisto, 1993 - (*Reports from the Department of Biology*, ISSN 0358-2264; No. 34). ISBN 951-29-0059-9 (nid.).
- 84. Rajasilta, Marjut.** 1992. Timing of spawning in the Baltic herring (*Clupea harengus membras*) in the Archipelago Sea, SW Finland: Regulatory mechanisms and consequences for offspring production / Marjut Rajasilta. - Diss. Turku: Turun yliopisto: 1992 - (*Turun yliopiston julkaisuja*. ISSN 0082-6979; 81). ISBN 951-880-820-1 (nid.)
- 85. Walls, Mari.** 1989. Consumer-induced response: Ecological and evolutionary consequences. – Diss. Turku: Turun yliopiston: - (*Reports from the Department of Biology* 21. Turku, 1989.
- 86. Vuorinen, Ilppo.** 1986. Selective planktivory – Effect on vertical migration and life-cycle parameters of zooplankton. – Diss: Helsinki. Finnish Marine Research 253. Helsinki 1986.
- 87. Kankaala, Paula.** 1984. On the ecology and productivity of zooplankton in the northern Baltic / Paula Kankaala. - Diss. Stockholm: University of Stockholm, Stockholm 1984.
- 88. Vainio, Juhani.** 1981. Flyttningsrörelse och avfolkning i sydvästra finlands skärgård (Korpo, Rimito och Merimasku 1950-1974) = Migration and desettlement in the archipelago of south-western Finland (Korpo, Rimito And Merimasku In 1950-1974) / Juhani Vainio. - Diss. Turku: Turun Yliopisto; 1981. - (*Turun Yliopiston Julkaisuja*. ISSN 0082-6979; 65, ISSN 0082-6979; 65, ISBN 951-642-066-4 (Nid.)

- 89. Heino, Aarre 1979.** The pattern of organic content and some heavy metals in the bottom sediments of Airisto, SW-Finland. *Turun yliopiston maantieteen laitoksen julkaisuja*. n:o 89.
- 90. Pyökäri, Mauri 1979.** Mixed sand and gravel shores in the southwestern Finnish archipelago. – *Ann. Acad. Sci. Fenn. Series A III Geologica-Geographica*.
- 91. Leppäkoski, Erkki. 1975.** Assessment of degree of pollution on the basis of macrozoobenthos in marine and brackish-water environments / Erkki Leppäkoski. - Diss. Åbo: Åbo Akademi, 1975 - (Acta Academiae Aboensis. ISSN 0001-5105; 35,2). ISBN 951-648-173-6 (Nid.)
- 92. Ravanko, Orvokki. 1968.** Macroscopic green, brown, and red algae in the southwestern archipelago of Finland. PhD-Thesis. Publications from the Department of Botany, University of Turku, no. 124. 50 p.