

**IAH (IRISH GROUP)
REPORT ON FIELDTRIP TO RUSSIA
23RD –30TH AUGUST 2003**

**ORGANISED BY THE GEOLOGY FACULTY OF
ST. PETERSBURG UNIVERSITY**

Prepared by - Fionnuala Collins, IAH Fieldtrip Secretary.
Led by - Professor Arkady Voronov and Ms. Katja Viventsova
Attended by - 8 delegates

NAME	ORGANISATION
Bob Aldwell	Retired Geologist
Cormac Aldwell	Student
Alaistair Allen	University College Cork
David Ball	Hydrogeological Consultant
Fionnuala Collins	RPS-MCOS
Caoimhe Hickey	Trinity College Dublin & Geological Survey of Ireland (GSI)
Coran Kelly	GSI
Monica Lee	GSI

A fieldtrip to Russia was held between the 23rd and 30th August 2003 and was initially based in St Petersburg following which a 5 day excursion was made first eastwards and then northwards to the Republic of Karelia. Eight Irish delegates attended, seven of which are members of the IAH-Irish group. The fieldtrip was part of a programme of ongoing Russian-Irish co-operation and was organised by Professor Arkady Voronov and Ms. Katja Viventsova, both of St Petersburg University, in conjunction with Bob Aldwell, retired geologist, formerly of the Geological Survey of Ireland. An outline itinerary is given below.

Day	Itinerary
Saturday 23 rd August	Arrive St Petersburg. Visit Hermitage Museum
Sunday 24 th August	Sightseeing St. Petersburg. Peterhoff Palaces. Lake Lopukhinka
Monday 25 th August	St Petersburg University. Scientific Hydrogeological workshops. Tour of the University. Banquet. Departure for Tikhvin by train.
Tuesday 26 th August	Tikhvin Monastery. Walk in Karstic terrain along the disappearing River Ragusha.
Wednesday 27 th August	Meeting with Director of the Veps Forest Nature Park. Veps Forest. Visit karstic area and fish farm. Forest camp: lakeshore saunas and forest trails.
Thursday 28 th August	Lodeinoye Pole. Visit Old Russian Monastery
Friday 29 th August	Travel to Petrozavodsk, capital of Karelia. Visit Karelian Northern Water Problems Institute
Saturday 30 th August	Excursion round Petrozavodsk. Visit disused quarry & shores of Onega Lake. Overnight train to St Petersburg.
Sunday 31 st August	Return flight to Dublin via Helsinki.

Saturday 23rd August 2003

The group arrived in St. Petersburg via Helsinki. Following transfer to our accommodation on Vasilevsky Island, we returned to the city for a brief guided tour of the famous Hermitage Museum. We were all blown away by its splendour and got an excellent taste of its many treasures in our whistle-stop tour. There is estimated to be about 3 million artefacts in the collection.

The evening was spent on a night on the town for the 'young ones'. The more 'mature' of the party spent a lovely evening in the home of the Associate Professor Alexei Shvarts and his wife Marina, also a former lecturer at the University. Their home is in a tower block, about 12 stories high, on the edge of the city, overlooking forested parkland. We were introduced to the vodka toasting customs of the Russians that evening.

Sunday 24th August 2003

The morning was spent on a tour of the highlights of St. Petersburg which is built around a network of canals and rivers, the principal of which is the River Neva. Our excursion was led by Valery, our guide, and included visits to the Peter & Paul Fortress and the Cathedral of the Resurrection, or to use its other name Our Saviour on the Spilt Blood. This latter name refers to the reason for the building of this cathedral, namely to mark the spot where Tzar Alexander the Second was assassinated in 1881.

In the afternoon we headed southwest out of the city and had a brief stop to look at Putin's New Palace, reputedly renovated at a cost of 250 million euro and which is in pristine condition. Following this we stopped at a dam which impounds a lake fed by groundwater springs. This water feeds the fountains at the Peterhoff Palace which was our next port of call. Peterhoff and its sister palaces are located on the shores of the Gulf of Finland and stand in magnificently landscaped gardens which are noted for their spectacular fountains. The weather cleared up to give us a beautiful warm sunny afternoon with clear blue skies.



Fountains at Peterhoff Palace

That evening we visited a Radon Rich Lake called Lake Lopuchinka. The lake itself had a steely blue-grey colour and was devoid of any life. It was possible to see right to its bottom where dumped barrels were visible. A sample was taken from a spring arising at the edge of the Lake. The spring arises in a Dictyonema shale at the base of Ordovician Limestones. The shales are uranium rich. The lake once fed a Spa which has since closed. Professor Voronov pointed out that despite the health risks associated with inhalation of radon gas and drinking radon rich water, bathing in radon rich waters can be beneficial to the health and is used to treat certain disorders.

On our way home, David Ball spotted a *Shadouf* - the Egyptian term for an antiquated device for lifting buckets of water from a well, working on the lever effect. The Russian term is *Zurava*.

We also noticed the numerous *dachas* or country houses dotted in the countryside. Many Petersburgers have a dacha to which they escape to from the city to get their 'fix' of peace and tranquillity at weekends and in the summer.



Zurava at Mozolova

Monday 25th August 2003

We spent Monday at the University of St. Petersburg. The group was given a tour of the University. We were shown the original room where Peter the Great held a meeting with his ministers and made the decision to found the University in that very building. The room was very ornate and well maintained. We walked down the Great Hall where paintings, statues and busts of former great scientists of St Petersburg University are displayed, one of whom is Mendeleef (originator of the Periodic Table of Elements). He lived at the University for more than 20 years. Not all parts of the University are so well kept and some parts look quite shabby.

Following the tour a programme of brief lectures were given by some of the Irish delegates and by some of our Russian hosts. An outline programme is appended to this report.

David Ball & Fionnuala Collins went to view the radon testing equipment held at the University and witnessed the commencement of the analysis of the sample from Lake Lopuchinka.

The group were treated to a 'banquet' at the University, hosted by our Russian colleagues.

The group travelled to Tichvin by train that evening – a four hour journey which brought us approximately 200km east of St. Petersburg. Our accommodation was a group of chalets set in a forest.

Tuesday 26th August 2003

We visited the beautiful old Monastery at Tichvin, founded in the sixteenth century by Prince Vasily. We were all impressed with the beautiful old buildings and bell towers, and most of all by the breathtaking ancient frescoes of the interior.

The monastery is built on a river which is popular with the locals for fishing. We looked at the large dam on the river which impounds water for drinking water supplies.



Bell Towers at Tichvin



Tichvin Monastery

The Tichvin region is populated by the Veps a minority nationality whose language has Finnish roots. This time of year is mushroom season which are in abundant supply in the forests. We saw local people returning with baskets laden with mushrooms and we also sampled this fresh fare on numerous occasions during our trip.



The group walk the dry River Ragusha

Following lunch we took a walk down the disappearing Ragusha River. The walk commenced at a series of sinkholes. We watched the river flow diminish over a relatively short distance of a few hundred metres and we found ourselves walking over a virtually dry river bed. This damp environment is a haven for frogs but a bit treacherous for hydrogeologists and there were a few slips along the way. We walked perhaps a half a kilometre before the river, re-emerged fed by series of large volume springs in limestone bedrock.

That evening we all were treated to saunas at the forest cottages where we were staying.

Wednesday 27th August 2003

The Director of the Veps Forest Nature Reserve spoke to us about the nature of the area and the Veps culture. We were introduced to Ira, our Russian guide for the Veps Forest Park.

The Veps forest is a natural wonderland rich in pristine lakes, rivers and springs and a diverse range of plants and animals. If you want to see biodiversity, you'll find it in here. We saw many varieties of mushrooms, along with blueberries; raspberries; trees such as birch, Scots pine, fir; mosses galore; horse tails and so on.



*Mushrooms adorn the forest floor
Veps Forest, Karelia*

We stopped at Lake Pashozero which is about 14km long by a max on 1 km wide and up to 28 metres deep. We also viewed iron rich springs and visited a fish farm on the Lake.

Lunch was a magnificent feast of local fare prepared by Veps people at a settlement called Izba. Despite the abundance of space for building and the natural beauty of the area, most of the people still live in ugly communist style tower blocks of about 3-4 storeys high.

After lunch, we visited a traditional style Veps house, now uninhabited. It is made of wood and is two stories high and originally had a shop in its base. It also held wooden implements – for churning butter and for spinning yarn.

Further springs were then visited from which the flow has been diverted by locals to provide a water supply.

That evening was spent at our forest-cum-lakeshore base at Dolgozero. It was a beautiful sunny evening so we took in the tranquil views before sunset. We also had the sauna experience of our lives! Being beaten by strapping Russians with water laden birch branches at punishing temperatures (I'm told 80C) before plunging into the cool waters of the lake (I'm told 13C). This sequence was repeated several times until we all retired to the campfire, happy and refreshed!



*Relaxing on the jetty,
Lakeshore, Dolgozero.*

Thursday 28th August 2003

In the morning we explored the forest and picked mushrooms.

Following lunch we headed north on largely unsealed roads through forest to our destination at Lodeinoye Pole. The forest is underlain by large thicknesses (up to 100-150metres) of Quaternary deposits – visible as red sands.

That evening we visited the local monastery built on the banks of the River Svir. The old monastery dates from the fourteenth century when it was founded by Alexander Svirskiy, who has since been canonised. Parts of the old monastery are now used as a mental home. A modern monastery is built nearby. We viewed the remains of its founder encased in a glass box within its church. What is remarkable about the remains is that they haven't perished and the fingers, nails and skin of his hand are clearly visible. The rest of his body is covered in black cloth and his face is protected by a wooden box.



Old Monastery at Lodeinoye Pole

Friday 29th August 2003

We travelled to Petrozavodsk, the capital of the Republic of Karelia, part of which used to be in Finland before the Great Patriotic War (World War II). Petrozavodsk is built on the shores of Lake Onega and is a thriving, modern and pretty town with plenty of attractively landscaped parkland. The architecture varies from classical imperial, to the usual communist style blocks of the Krushev and Breshnev eras, to modern 'New Russian' Putin style houses. The latter are individualistic and are very attractive but are only afforded by the wealthy.

First we visited the Karelian Northern Water Problems Institute. Karelia is mainly dependant on surface water but they would like to develop groundwater as it represents a purer source in terms of water quality and therefore is less costly to develop.

The Institute are currently undertaking studies on climate change and we were given a very interesting and informative presentation on this topic. The studies are based on historical dendro-chronological, precipitation, temperature and ice cap data. The dendro-chronological data allowed interpretations to be undertaken back to the sixteenth century.

For those who would like to find out more on this topic, there is an English language version of the website of the Karelian Institute of Water Problems: <http://nwpi.krc.karelia.ru/e/>. The Russian language version is <http://nwpi.karelia.ru>.

We were also shown field radon sampling equipment. With this method, the sample container is evacuated before sampling in the field. There is also a vacuum in the chamber into which the radon gas migrates for analysis.

In the afternoon we stopped at a spring, popular with locals who were queuing to fill their large containers with drinking water. Further springs were visited in a diabase valley flanked by hills of shungite rich shales. Shungite is a rare carbon rich rock and is found only in Karelia. It is believed to be Proterozoic in age (2.5 billion to 500 million years ago). The spring water is both iron and radon rich.

We also visited the Marcial Waters Spa, founded by Peter the Great as the first Russian spa as well 'Kivach' waterfall, developed on resistant dolerite. This was the furthest north that we travelled, some 600km north-east of St Petersburg.

Saturday 30th August 2003

We took a tour of Petrozavodsk which included a visit to a Russian Orthodox ceremony and a stroll along the shores of Lake Onega. This was followed by souvenir shopping. After that we visited a disused quarry; some artesian wells and again, the lakeshore. We also visited another beautiful church dating from the eighteenth century. There was a Russian Orthodox ceremony taking place and we were treated to the heavenly sounds of the Russian choir.

After dinner, we took the night train bound for St. Petersburg.



*The Church on Spilt Blood,
St Petersburg*

Sunday 31st August 2003

The group transferred to the airport and undertook the journey home via Helsinki.

The group would like to thank (*spasiba*) the following for facilitating the trip:

Professor Arkady Voronov, St Petersburg University;

Bob Aldwell, Retired (Hydro) Geologist, formerly of the Geological Survey of Ireland.

Special *spasiba* is extended to Ms. Katja Viventsova of St. Petersburg University for all her great efforts and patience in the organising of the trip.

Fionnuala Collins
IAH (Irish Group) Fieldtrip Secretary.

**ST.PETERSBURG STATE UNIVERSITY
GEOLOGICAL FACULTY**

**AUGUST 25, 2003 10.00 - 14.00
AUDITORIUM 70
RUSSIAN-IRISH HYDROGEOLOGICAL SEMINAR**

Program:

- Приветствие декана Геологического факультета Булдакова И.В.
Buldaikov I. V. Dean of Geological Faculty. Greeting
Боб Алдвелл Приветствие
Aldwell Bob Greeting
Воронов А.Н. Вступление
Voronov A.N. Introduction
1. Вивенцова Е.А. Экологическое состояние Финского залива Балтийского моря.
Viventsova E.A. Environmental state of the Gulf of Finland, Baltic Sea.
 2. Ф. Коллинс. Стратегия осушения территории Большого Дублина
Collins, Fionnuala The Greater Dublin Strategic Drainage Strategy
 3. Болл Д. Значение женского ума в гидрогеологии.
Ball, David The Importance of the Feminine Brain in Hydrogeology
 5. Шварц А.А. Современные подходы к оценке качества подземных вод в России.
Shvarts A.A. Modern approaches to the groundwater quality assessment in Russia
 6. А. Алиен. Низкотемпературная геотермальная энергия в гравийных водоносных горизонтах Корка
Allen Alistair Row. Low Temperature Geothermal Energy in Gravel Aquifers in Cork
 7. Виноград Н.А. Гидрогеологические условия Ленинградской области
Vinograd N.A. Hydrogeology of St. Petersburg Region *Natasha*.
 8. К.Келли Деятельность отдела подземных вод Геологической службы Ирландии
C. Kelly The work of the Groundwater Section GSI
- Discussion