

# Ilisimatusaat

Research projects at Ilisimatusarfik



ILISIMATUSARFIK 2020





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## The Qimmeq project – hunting for the soul of the sled dog

Manumina Lund Jensen, Ulunnguaq Markussen, Malou Papis and Morten Meldgaard

The Greenland sled dog is a fantastic animal. The one moment it is holding a furious polar bear at bay on an ice flow, the next it is pulling a heavy sled for kilometer after kilometer, loaded with tourists or meat and fish for the household. And on another day, it is concentrated on running at maximum capacity to win the annual dogsled race.

Here in Greenland, we practically take it for granted that there will always be sled dogs. But the alarm bells are ringing. The number of dogs is declining. The sea ice is retreating, dog food is becoming more expensive, and snowmobiles are replacing dogsleds as the preferred means of transport for hunting and fishing. While the sled dog is a proud and vibrant symbol of Greenlandic culture, the challenges are legion, and many people have doubts about the future. What can we do to keep the dogs alive together with the unique culture they are pulling along with them?

On that background, a small handful of people at Ilisimatusarfik, the University of Greenland, got together in

2015 and agreed to create an interdisciplinary project about the origins, cultural history and health of the sled dog. We were already captivated by the dog and started talking about how old the breed might be.

Where did it come from? Was it genetically mixed with wolves? How can one dog fulfil so many and so specialized functions? How can it physically handle such extensive hardship? How is it raised? And many more questions.

We created the “Qimmeq” project, established a project secretariat at Ilisimatusarfik, and we tied special ties to the Natural History Museum of Denmark in Copenhagen. We then proceeded to assemble a number of top-class researchers, disseminators and students from Greenland, Denmark, Spain, England, Norway, the USA and South Africa, all of whom share a passion for the sled dog.

The project has six main purposes:

1. We will use the research for the benefit of the Greenlandic community.
2. We will collect knowledge about and investigate the sled dog, its cultural history, genetics and health.
3. We will encourage, create and support interest and pride in the sled dog and dogsled culture, thereby helping to maintain a sustainable sled dog culture for the future.
4. We will contribute to a healthy sled dog population.
5. We will share our knowledge and research results, disseminating them to the Greenlandic and greater Arctic community and around the world.
6. We will be a role model for future research projects in Greenland.

Through workshops in Sisimiut, Ilulissat, Nuuk and Qasigiannnguit and through fieldwork throughout Greenland, we have established strong cooperation with, among others, the local sled dog owners and the Greenlandic dogsled association (Kalaallit Nunaanni Qimuser tartut Katuffiat, KNQK).





The project has shown that the Greenland sled dog has a unique and lengthy history, with more than 9,000-year-old roots in Siberia, and it represents the last large, living population of working dogs in the American continents. We have also discovered that the sled dog has immigrated to Greenland on two occasions—4,500 years ago and 900 years ago—and that it has developed unique genetic adaptations in relation to, for example, cold tolerance, endurance and metabolism. Important knowledge about the use of sled dogs has been gathered from throughout the country, and the health of the dogs has been examined.

We have succeeded in disseminating the new knowledge we have produced about the sled dog on the local, national and global levels.

Our videos have been viewed more than 25,000 times in Greenland, Denmark and 215 other countries. Our traveling exhibition and school textbooks have reached all of the larger towns in Greenland. There have been more than 50 reviews and interviews in television and



*The participants of the Qimmeq project outside Ilimmarfik, Nuuk.*

radio—mostly in the Greenland media—and we have 2,000 followers on Facebook, more than half of which are in Greenland.

The Qimmeq project has also contributed to important legislative work on the sled dog in Greenland, and we have established a good and trusting working relationship with KNQK and other associations, where the knowledge we have gathered can be put to use in the daily work with the dogs.

Have we contributed to saving the sled dog? Perhaps. It

is difficult to measure, but there is no doubt that the increased focus on the sled dog, dogsled culture and everything that goes with them have contributed to politicians, sled dog owners and tourists becoming more aware of this unique animal and the opportunities it provides to Greenland, to develop commerce, leisure activities and tourism.

The Greenland sled dog deserves a great tribute and a promising future!





The largest sponsors of the Qimmeq project are the VELUX foundations (DKK 4.5 million) and the Aage and Johanne Louis-Hansen Foundation (DKK 2.6 million). EU funds, other public research funds and smaller private foundations have also contributed. The total project budget is approximately DKK 10,000,000 (€1.3 million).

Researchers involved in the Qimmeq project have thus far produced 11 scientific articles, including an article in SCIENCE, 14 disseminating articles, one book of photography translated into three languages, one school textbook, five videos, a touring exhibition, four photography exhibitions, 50 lectures and presentations in Greenland and Denmark, three PhD dissertations, four master's degrees theses and much more.



**The Qimmeq project participants:**

Ilisimatusarfik (University of Greenland): Stenette van den Berg, Manumina Lund Jensen, Marianne Jensen, Navarana Lennert, Ulunnguaq Markussen, Morten Meldgaard, Francisca Davidsen Olsen, Malou Papis  
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The Natural History Museum of Denmark: Martin Bertelsen, Anders Drud, Anne Kathrine Gjerløff, Rikke Mørch, Frederik Wolff Tegllhus, Uffe Wilken  
University of Copenhagen, GLOBE Institute: Tatiana Feuerborn, Anders Johannes Hansen, Mikkel Sinding  
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Independent: Carsten Egevang, Pipaluk Lykke

**For more, see:**

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## Greenland – Rockwell Kent’s dreamland

Jette Rygaard

On 15 July 1929, the *Direction*, an American ship, was wrecked on rocks roughly 50 km from Godthaab. Three men were on board the ship, which had set sail from Nova Scotia in Canada five weeks earlier, including American artist Rockwell Kent (1882-1971). Kent was a successful painter, illustrator, graphic artist and author, and he had previously published accounts of his travels to Alaska and the Strait of Magellan (south of Chile). A sense of adventure and a random encounter had now brought him to Greenland. Together with his traveling companions, he was able to make it to land. And after the storm settled, he fell in love with the paradise that is summer in Greenland and felt that he had to return.

He did so a couple of years later and established himself in Illorsuit, where he built with his own hands both a traditional peat house and a second house of modern materials, which he ordered through The Royal Greenland Trading Department (Den Kongelige Grønlandske Handel). Here, he lived the life of a Greenlander in the years 1931-32 and 1934-35, hunting and fishing and befriending the locals. At the same time, he was also writing, painting and

drawing. By his own account, he produced his best work in Greenland, where he also met personalities like Knud Rasmussen (1879-1933) and Peter Freuchen (1886-1957).



*Kent built two houses for his personal use at Illorsuit, Greenland. The peat shed at the right was originally built for his son, but Kent soon appropriated it as his own place of work and refuge from the noise and bustle of the household.*

The country without private property – and not least its women – made an indelible impression on Rockwell Kent, the “wilderness socialist.” Kent was quick to find a Green-



*The artist at work.*



landic *kiffak* (housekeeper), Salamina, who, together with her children, moved into the little house that he had built for himself. Which did not get in the way of Kent also engaging in relations with other local beauties. It is possible to read about all of them in the books he wrote about his time in Greenland where “Illorsuit is like a stage upon which the epic drama of the lives of the people deploys unendingly.” Salamina must have meant something very special to Kent, as he named his book about Illorsuit after her. It was published in 1935 and translated into Danish the following year. The diary notes on which the book is based were published in almost unedited form in 1962.

When traveling around the parts of Greenland in which Kent has been, you’re a little more than 80 years too late to be able to meet anyone who can remember him. His houses in Illorsuit are no more. The only remaining artefact with a connection to Kent is the sign that was put up at a dance hall he donated and built for Illorsuit.

Conversely, traces of Kent can be found throughout the USA—in archives, libraries, in his art and in books. And it

was in fact in the Plattsburgh Archive in New York that I found a picture of the two houses he built in Illorsuit.

Already from an early age, Kent was very aware of his legacy. He documented everything in the form of paintings, photographs, diaries and a massive number of letters. His correspondence was so extensive that he hired a secretary at one point, Sally, who ended up becoming his third wife. The rest of her life was spent sorting, registering and organizing his art and photographs, writing letters and just generally looking after this rather vain artist.

Kent died in 1971, Sally surviving him by 29 years. After her death in 2000, restrictions were placed on the access

to much of Kent’s archive materials, and nobody had looked in the cardboard boxes until I received permission to open them in 2018. Naturally, this new material provides entirely new opportunities to describe and understand this artist, who lost his heart to Greenland in the

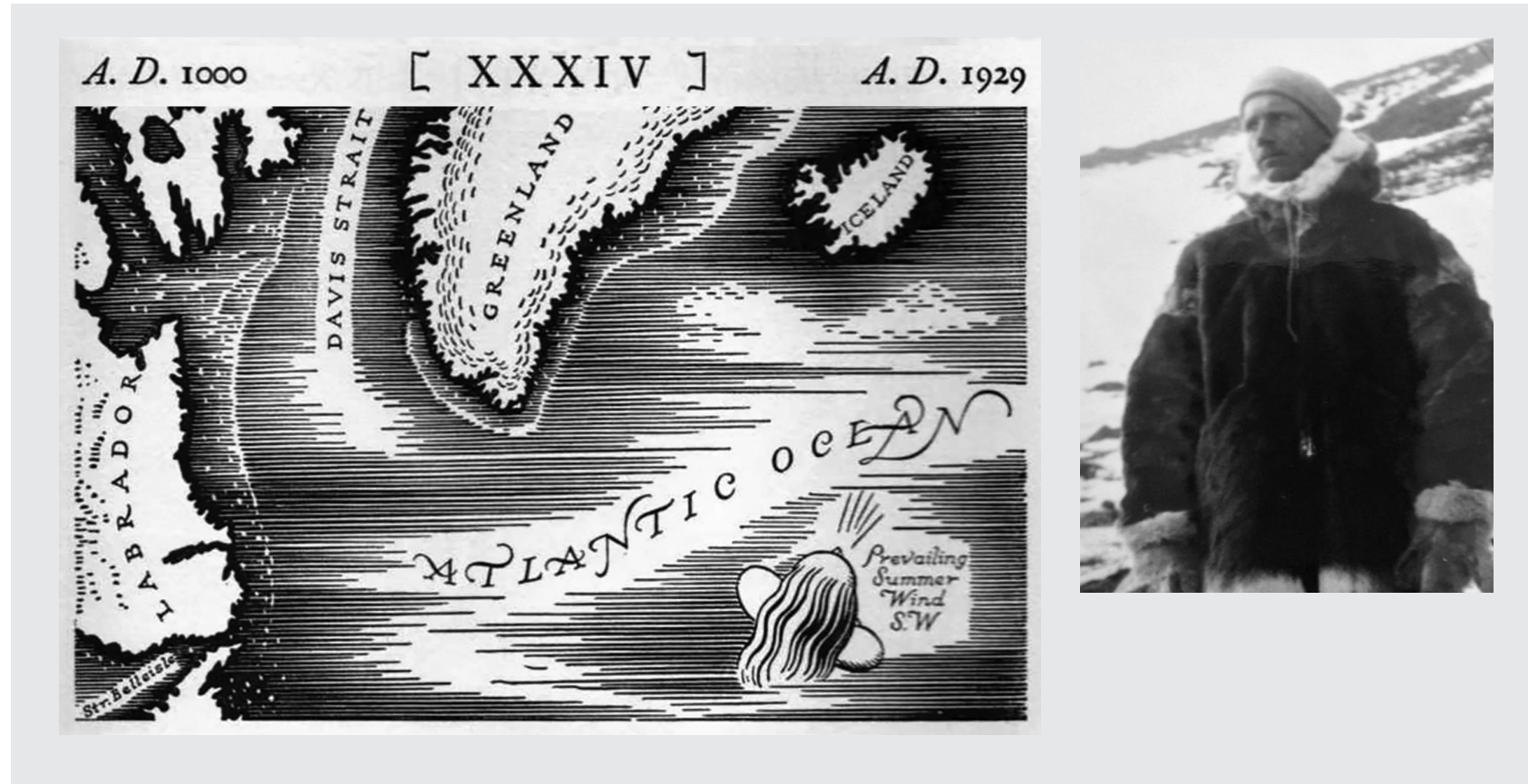


*Rockwell Kent’s self-portrait of the artist at work in the Greenlandic landscape.*





*Salamina with one of her children depicted by Rockwell Kent, 1932.*



middle of his life. I am therefore in the process of working through an extensive amount of material related to Kent from many archives in both the USA and Greenland, which will result in a number of publications about him and his time, about which much remains to be said. This is especially true of his time in Greenland—a country in which Americans remain very interested.

However, Kent’s perspective on Greenland should not go unchallenged. Together with two colleagues, I have held workshops with children in Sisimiut, Uummannaq, Nuuk and of course Illorsuit to get a sense of the young Greenlanders’ views on their own country, towns and settlements. A book put together by Susan Vanek and myself featuring the images and texts produced by these young people will be published in the spring of 2020.

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On a windy later-summer day in Atammik, the settlement residents—young and old alike—gather in front of the broad façade of the school, which is filled with long rows of photos that are hanging and swaying in the wind. They are portraits of the people from the settlement.

Portraits in which they each stand out with their own unique beauty and strength; their own particular expression. There are many portraits of people together: a son and father, a young married couple with children, a three generation, grandmother-mother-daughter

photograph, two good friends, two brothers, the entire team from the fish factory. It is in relationships that life attains the greatest value. The close relations emerge in the portraits with pride, intimacy and joy. They are also recognized by the spectators—all of us, who have gotten together on that day to view the many portraits with joy and recognition—portraits that are of course of us.

We are looking at portrait art. Carried out by the young students in the oldest grades in the local school—a school that is bursting with energy, and which at the same time is calm enough to ensure that the energy can unfold in learning. The portraits are art in the sense that they are a deliberate representation of a particular perspective, which is a product both of the manner in which the young students have taken the portraits, and of the choices that those in the portraits have made when posing for them. This is a creative, aesthetic process, one that involves the students as well as those in the portraits—as well as the viewers; that is, those who are looking at the portraits. In that sense, portrait art is a unifying process that adds to and strengthens cohesion.



*Knowledge is created from within the local community and in itself contributes to providing shared experiences of togetherness and joy.*



The portraits are full of pride and humor. They are light, almost fleeting in their hold on this moment in life. But they are also monumental in their tenacity, their composition, which emphasizes balance and wholeness. There is both a potential vulnerability in posing in this way and an admirable dignity in standing forth as oneself and as an expression of our common, shared life. This strength comes from within, from an inner life, a life force that becomes apparent through the very composition itself, the subjects of the portraits standing and looking directly into the camera—and thus at us, those who are looking at the portrait.

When students from Ilisimatusarfik, the University of

Greenland, saw the portraits, they explained that they felt great joy and that they made them think about people they cared about and good experiences. The portraits create a sense of intimacy together with the subject of the portrait and in fact with one another in the actual experience of the portraits. They evoke memories of close relations and good experiences with others as well as visions and an interest in creating good relationships. The students' accounts of how they experienced the portraits are in themselves a joyful experience and at the same time part of the study of the significance of the portraits as a way of both displaying and strengthening cohesion.

The Atammik portraits are significant both in themselves and as part of a research project examining the active role of art in creating sustainable, cohesive communities in towns and settlements. Art is understood as a creating and creative process capable of depicting our lives and world in creative and marvelous ways that directly affect our senses and emotions. Art is understood as aesthetic innovation through the active use of materials, shapes, colors, imagination and perspectives. The art is explored as a way of creating social unity and change. Both art and social change emerge from the creative force—the life force that is within every local community and within each of us as members of that particular community.



The portraits in Atammik illustrate how an artistic process can be used to show a world in which recognition, care and mutual respect become visible in the experience. The joy found in one another grows, leaps out of the portraits, and fills us.



The research project is action research, where events with aesthetic forms of expression are carried out, particularly photography, while at the same time we attempt to grow.

The project has been carried out in Atammik and Maniitsoq by photo-artist Tina Enghoff and Professor Peter

Berliner, with the participation of psychologist Elena de Casas, photographer Søren Zeuth, psychologist and artist Katsi Kleist, graduate student Augustine Rosing, school principal Elna Heilmann, settlement school principal Helene Fleischer, teacher Paarnannguaq Isaksen, teacher Sivert Rosing and Karen Pâpe, a student.

The project is supported by  
the Arts Council Norway,  
the Danish Arts Foundation (Statens Kunstfond) and  
the Department of Social Science,  
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## Outdoor school: a student-activating teaching method

Kirsten Føns

My PhD project investigates whether outdoor school can promote learning and motivation in elementary schools in Greenland.

### What is outdoor school?

Outdoor school is a teaching method that has gained ground in the school systems in the other Nordic countries in the last 15-20 years. And for good reason, as research has found that it allows for more movement in teaching, it motivates students, and can promote wellbeing and learning.

But outdoor school has yet to gain a foothold in Greenland. This PhD project will now attempt to change that. Working together with elementary schools in Nuuk and along the coast, the project aims at exploring the opportunities for developing outdoor school adapted to the context of Greenland.

Outdoor school is a pedagogical approach, where teaching regularly takes place outside of the classroom. It can be outdoors, whether in nature or in the urban space. Or in

museums, in a church, a business or the like. The teaching remains within the learning objectives of the curriculum and is closely integrated with the teaching in the classroom. The basic framework is an inside-outside-inside structure.

Inside—in the classroom—the visit to the external learning environment is prepared. Here, the theoretical background knowledge must be in place. This is where the planning and preparation takes place for what is going to happen in the external space.

In the external space, students typically work independently and in an investigation-based manner. The teaching becomes site-based and concrete, which creates a connection between the school's theoretical, academic knowledge and the world known to the student outside of the classroom.

Teaching in the external space is always reviewed afterwards in the classroom. Collected data and samples are treated and processed, calculations are made, results are







analyzed and compared with theoretical knowledge and hypotheses propounded beforehand, and student productions are put together and presented. This is also the time for reflection and evaluation.

**Outdoor school and forms of knowledge**

This alternation between inside-outside-inside and between theory and practice takes into account that the students have different learning styles; and because they work with different forms of knowledge and memory, the subject is better understood and remembered. Theory about learning operates with five forms of knowledge, all of which are involved and activated in the planned outdoor school:

*Catalogue knowledge* traditionally dominates in the school setting. This is the kind of knowledge one can acquire through books and learn, for example, from mathematical formulas and calculation.

*Analogue knowledge* is sensory, experiential knowledge, such as when students directly experience nature, weather and wind, or receive sensory impressions in, for example, a church sanctuary.

*Dialogic knowledge* is the knowledge that develops when students explain and discuss data, solutions and results with one another.

*Bodily knowledge* is something we acquire through our bodies, as we do not learn exclusively with our brains. Studies have shown that physically active children learn better than children who are passive.

*Phronesis* is experience-based, situation-specific judgment. It promotes the skill to act and citizenship.

The critical reader might rightly argue that the school has always taken students on field trips, done fieldwork and so forth. Fortunately! But the difference compared to outdoor school is the regularity and constant interaction between theory and practice.





**The first experience with outdoor school in Greenland**

The work with developing outdoor schools in the context of Greenland is still in its beginnings, so elaborate research results remain lacking. But the first experiences indicate that students enjoy this form of school and that they are good at maintaining their focus on what they are learning in the outdoor space. The level of tension between teacher and students and between students appears to fall in the outdoor school context. It is particularly interesting to note that teachers share about how some of the students who do not normally participate or show interest in school actually participate actively in outdoor school instruction.

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## Patient involvement in hospital practice in Greenland

— an ongoing research project

Lene Seibæk

We know that drawing on a patient’s own perspective on their illness and treatment can have a major impact on how active and satisfied they are with their care and treatment. We are therefore currently doing a project on patient involvement in collaboration between Queen Ingrid’s Hospital in Nuuk and the Greenland Center for Health Research. The project will produce knowledge about how patient involvement can best be adapted and introduced into the Greenland hospital system.

We also know that patient involvement can be difficult to introduce, even if you think it is a good idea. For there are many factors that influence the possibilities for involvement. For example, Danish is the main language in the Greenlandic health sector, but many patients do not speak or even understand Danish very well. The Danish-speaking staff therefore use interpreting assistance for up to half of the patient contacts. This in itself can constitute a barrier in relation to gaining a common understanding with respect to the involvement of the patient’s perspective. It is also important to remember that illness and hospital treatment are often a family

concern, so it is important not only to involve the patients themselves but also their families and other networks.

What is needed, then, for patients to become better involved while admitted to hospital?

In the course of 2018, we conducted three interviews and 12 informal meetings with a total of 23 staff members from eight different professional groups in the hospital: interpreters, secretaries, coordinators, nurses, doctors, development staff and managers. The preliminary results have indicated that the personnel are very interested in involving patients. But there is still a need to develop a shared understanding of what involvement can and should consist of and how it takes place.

Subsequently, two nurses have interviewed 14 patients of all ages and from different parts of the country about their experiences and interests while admitted to hospital. Here, the preliminary results show that the patients really want to be more active but that they require support to do so. One patient explains as follows:





I have met the physiotherapist, the doctor and the nurse and everything related to the procedure—but I haven’t heard anything about how the operation went. I haven’t been told [anything] about that. I haven’t asked about it. I don’t know why. I feel good. I woke up [laughs]...

There are also examples of patients keeping their concerns to themselves and therefore not receiving the help they need:

*When I was admitted, I couldn’t work and therefore wasn’t paid. So I haven’t been able to pay my bills. It has meant a lot, and I’ve been afraid of what would then happen—whether we would be put out on the street. Those kinds of thoughts have had me worried.*

Fortunately, the study also found good examples of involvement and cooperation:

*Interviewer: Do you feel involved in your course of treatment?*

*Patient: You better believe it. I feel as though my wishes*



*have been respected. I’m really grateful, and I think it’s good service.*

These are examples we must learn from and spread. We have therefore now jointly began working with the development and testing of patient involvement in practice.





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## How is the Church of Greenland dealing with the social problems?

Gimmi Olsen

In the autumn of 2017, The Church of Greenland was criticized in the media for “turning its back on social problems in society.” This represents a serious accusation against the church, and it would also be problematic on a theological level if the criticism was true. For despite the many errors committed by the Christian church throughout history, part of its nature has always been to be touched by and to react to human suffering and injustice.

But is the criticism justified? Does the Church of Greenland really turn its back on social problems? Unfortunately, it is not currently possible to provide a qualified answer, as investigations have yet to be conducted that would provide a basis from which we could assess this question. Generally speaking, little research has been carried out that focuses on the Church of Greenland, and there are not any comprehensive accounts of the Church’s social work. I therefore chose this as the subject for my PhD project, which I started in 2019.

Numerous studies have been carried out in other countries in recent years addressing the responsibility and role of the church in relation to social challenges. In theological jargon, social work carried out by the church is referred to as diaconia. According to the “science of diaconia,” a church expresses diaconia in terms of how it cares for precious human life in both attitude, words, and action—by loving one’s neighbor, by being an inclusive community, by protecting the work of creation and in terms of recognizing the dignity of the individual. But also by fighting for justice, the church speaking out against social injustices and becoming the voice of the weak against those who possess the power to change things for the better.

But what is the situation in Greenland? Diaconia research emphasizes that it is not possible to simply transfer diaconia from one culture to another (e.g., from the Nordic countries and Western Europe to the context of Greenland). It is crucial that diaconia is developed and practiced in the light of the culture of the specific location



and local community. My research is therefore based on the actual ecclesiastical and societal situation in Greenland, where Greenlandic values, ways of thinking and customs in relation to diaconia are taken seriously.

In addition to describing the societal and ecclesiastical context, I will also try to give the church a voice—and in





so doing find out what attitudes the church has concerning the social problems in Greenland and its responsibility and role towards them. And I will attempt to map out what the Church of Greenland actually does with social problems and how it has historically dealt with them. If it proves relevant, I will also try to find out what prevents the Church from doing what it actually wants to do.

To answer these questions, I study the available written sources. I also collect information from the bishop, priests, catechists, representatives of the congregations and other employees, and church volunteers, and I



will cast light on the expectations of the surrounding community to the church.

In so doing, I hope to be able to answer the critical questions presented in the media in the autumn of 2017: Is the Church of Greenland really turning its back on the social problems in Greenlandic society? Or how does it relate to them?



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## From Greenlandic to Danish – and back again

Liv Molich

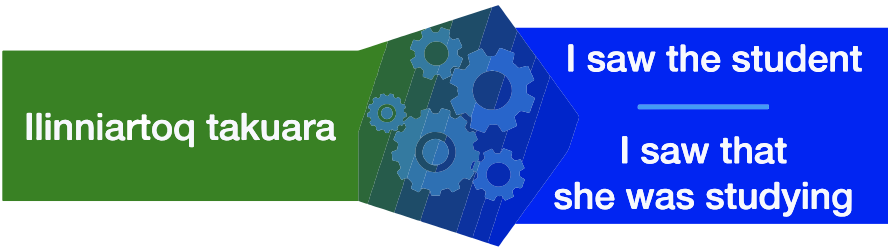
“Would you please translate what’s written here?”

This is a commonly heard question in many workplaces in Greenland—that’s life in a multi-lingual community and work environment. And that’s life when Google Translate is of no help. But can we not do something to ease the working days of those who do not understand all of the languages in which communication takes place?

The short answer is “Yes.” But it probably requires a slightly longer explanation: In 2017, a 5-year project started in Oqaasileriffik, the Language Secretariat of Greenland. In short, we are developing a computer program capable of translating to and from Greenlandic. The goal is to be able to enter a word or phrase in Greenlandic or Danish—and out comes the sentence in the other language. Voila!

The translation machinery has two sides: Greenlandic and Danish. And these two sides must be connected in the right way to produce a usable translation. This might appear simple to the user, but under the surface are thou-

sands of hours of work with describing and comparing the languages and with writing computer-readable language descriptions and glossaries. This is no mean feat, especially since Greenlandic and Danish are completely different languages.



*Choosing the correct translation isn’t always easy. But the one is usually more probable than the other—or can also be determined by context. The translation machine carries out a complex job under the surface to achieve the best solution.*

The Greenlandic language technology tools that enable us to analyze words and phrases have been under development in Oqaasileriffik since 2005. The Danish side of the machine, the translation engine and the transfer grammars have been developed in Denmark by GrammarSoft ApS.

```
"<Taava>"
"taava" Adv @CL-ADVL> MAP:4521:M0080AZ
; "taa" Gram/IV V Int 3Sg REMOVE:1841:0001Z
; "taa" Gram/TV Gram/Refl Gram/IV V Int 3Sg REMOVE:1841:0001Z
; "taaq" N Abs Sg 3SgPoss REMOVE:2656:0042A
"<qarasaasiaq>"
"qarasaasiaq" N Abs Sg @SUBJ> MAP:5074:M0523E
"<tamanik>"
"tamaq" N Gram/Cong Ins Pl @MIK-OBJ> ADD:5418:M0620 MAP:5713:M0840 SELECT:7167
; "tamaq" N Gram/Cong Ins Pl @ADVL> ADD:5418:M0620 MAP:5713:M0840 SELECT:7167
"<nutserisinnaassava>"
"nutser" Gram/TV HTR Der/vv Gram/IV SINNA Der/vv SSA Der/vv Gram/IV V Int 3Sg @PRED MAP:3899:M0000
"<?>"
"? " CLB
```

*For each word, we select the correct analysis, and we mark with @ how the sentence is related. A correct analysis of the sentence is important to be able to make the right translation. Here is an analysis of the Greenlandic sentence—a corresponding analysis is also done for the Danish phrase with which we are translating it.*

Can you get the computer to translate everything? While you can in principle, in practice it will not be possible



right away. In 2022, for example, it will be possible to translate a meeting notice or the latest newsletter. The program will produce a text that is not completely correct, but which can give an impression of what is in the original text.

```
oqaatigaa_V <trm^vtp?> <aeq^vtp> :nævne; D=('eqqartuussut')_dom :afsig;
D=((<(sem-c|act-s)> @OBJ) :meddele, :omtale; D=('assersuutigisatut')_SIC-
som=eksempel :anføre; P1=('NIQAR.vv')_nil D=(<H> @OBJ) :kalde_[PCP2->INF];
P1=('NIQAR.vv' 3S) :nævne_[V-><vU>±V]; P1=('NIQAR.vv' ([12][SP]|
3P)) :kalde_[PCP2->INF]; P1=('NIQAR.vv')_nil P2=(<der> ([12][SP]|
3P)) :kalde_[PCP2->INF]; D=(<H[a-z]+> @OBJ) :røbe, :anmelde; D=(<f-q>
@OBJ) :angive (fx størrelse); D=(AEQ) :angive (noget som noget); D=(INS
@ADVL) :sig; DB
```

*A sample of the dictionary used for translation from Greenlandic to Danish. Here, there is room to write rules for how and when, e.g. “oqaatigaa” should be translated “mention,” “pass judgment,” “give notice,” “refer to,” “give an example,” “call,” “reveal,” “report,” “indicate” or “say”.*

Obviously, the objective is not for colleagues to avoid having to talk together or help each other, or that interpreters should become unemployed. But a computer-generated translation can ease our daily lives and make it easier to decide what to send for translation.

Machine translation provides new possibilities: Suddenly, it is possible to navigate the computer and the Internet without being able to understand Danish or English. And on the whole, modern translation technologies enable us to communicate with one another across languages. Machine translation has put Greenlandic on the linguistic map, so to speak. This is important if we do not want to risk Greenlandic becoming a non-priority and ultimately becoming extinct, as is currently the case with many other small languages. Language technology renders the Greenlandic language competitive in a globalized world and means that the language can survive and continue to develop on its own terms.

The translation machine will not be perfect when the project ends in 2022. But every time we improve our machine or add a new word to the translation dictionary, the translation gets a little better. In that sense, it is a future-proof project that we can develop and improve for many years to come. It has long been possible to hear Danish and Greenlandic being read aloud via **speech synthesis**. And for even longer, it has been possible to have texts corrected by a **spellchecker**.

In 2022, the machine will be able to translate your texts. And the next step can be grammar check. In the future, it might be possible for you to speak Greenlandic to your phone, get it in writing, have it translated and then read aloud in Danish.

Is this just a dream? Perhaps. But we have the technology to make it come true, and the translation machine we develop is a big step in this direction.





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## Emergency management services and safety in Greenland

Uffe Jakobsen

MARPART is an international research project about “maritime emergency management services and international partnership” in the Arctic. It is investigating whether climate change will result in increased risk in connection with increased maritime traffic, offshore oil exploration and other forms of maritime activity. Iceland, northern Norway and north-west Russia are also involved in the project. The results have been presented in five reports and a number of journal articles. Ilisimatusarfik employees have carried out the Greenland-related analyses.

The part of the project pertaining to Greenland has addressed the following questions:

- Is climate change producing increased shipping traffic and other maritime activity?
- Has this increased activity led to increased risks and more accidents?
- How does the institutional structure of emergency management and rescue services play a role?
- What resources are available and what are the results

of the emergency services management and search and rescue efforts?

### Is climate change producing increased shipping traffic and other maritime activity?

The maritime activity in Greenland waters has developed differently in different sectors. There have been no major changes for a number of years in passenger traffic, freight transport or fisheries. The greatest changes have occurred in offshore oil exploration and tourism.

Between 2009 and 2013, shipping traffic increased in connection with oil exploration. The number of ships in Greenland waters increased from 2-3 annually to 21. Similarly, the number of passages increased from 8-9 to 97 annually. In 2013, however, this shipping traffic fell to the same level as in 2009, and it has fallen further since.

The picture is more mixed with respect to tourism. Fewer ships with more than 500 passengers are coming, whereas there are more smaller ships with fewer than 500 and



especially fewer than 200 passengers. The total number of vessels has increased from approximately 60 in 2011 to more than 90 in 2014 and even more since then.

Many people had expected increasing levels of maritime activity due to the warmer climate creating more permanently ice-free waters around Greenland. But this expectation has only partially been fulfilled.



**Has the increased activity led to increased risk and more accidents?**

The emergency management services have seen increased activity in Greenland waters. The vast majority of vessels requiring assistance have been small boats (less than 30 feet).

The average rescue rate is relatively high. Obviously, it would be best if everyone was rescued. But the overall criterion for success for the emergency management services is 94% on average. In the last 5 years, the rescue rate has fluctuated between 93.3% and 98.1%.

The most serious risk is that of accidents with large tourist ships in desolate areas, where many people can lose their lives or suffer serious injury. Such an accident would require extensive search and rescue resources.

**How does the institutional structure of emergency management and rescue services play a role?**

The emergency management services in Greenland are handled in cooperation between Danish and Greenland authorities, which obviously requires clear lines of communication, good coordination and good cooperation between the parties involved. Most of the work is carried out by the Greenland Police and Arctic Command. The Danish Defence Command thus handles both the military and a number of civilian tasks in Greenland, including emergency management services and rescue services, which are of great importance to the safety of society.

Among the complicating factors here are the great distances and unstable and extreme weather conditions, which mean that it can take a long time for assistance to arrive. These problems are only exacerbated by the fact that the emergency services are concentrated in Nuuk and along the west coast.

An illustrative event occurred in August 2015, where there were suspicions of oil pollution in the Denmark Strait between Greenland and Iceland. Due to the great distance and poor weather, more than five days passed before the





closest vessel available to the Arctic Command reached the area, at which time there was no remaining trace of pollution. This problem would be smaller if the resources available could be spread across more sites and if more ships and crew could be procured.

**What resources are available, and what are the results of the emergency management and the search and rescue efforts?**

Statistics show that the capacity is sufficient for the every-day search and rescue work within the set objectives.

But large cruise ships can become a problem. Two summers in a row, in 2016 and 2017, the cruise ship Crystal Serenity sailed from Seward in Alaska through the Northwest Passage to Ilulissat and on to Nuuk, continuing from there to New York with 1700 passengers. Had an accident occurred, the available resources in Greenland would have been insufficient, and it is highly doubtful that assistance from Denmark would have been able to arrive in time.

The project therefore indicates that the establishment of well-functioning regional or international cooperation is required for rescue operations to succeed under such conditions.

In continuation of the MARPART project, Ilisimatusarfik in the coming years also participates in the so-called MAREC-project investigating the requirements to mass rescue operations in complex environments.

The MARPART project has been sponsored primarily by the Norwegian Ministry of Foreign Affairs, and the MAREC project is supported by The Research Council of Norway.



For more about the MARPART project, see:  
<https://uk.uni.gl/research/marpart.aspx>



