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Nordic Pioneers of Biodynamic and Organic Agriculture

John Paull^{1,*} and Tord Tuttüren²



ABSTRACT

Fifty Nordic pioneers of biodynamic (BD) agriculture, and hence of organic agriculture, are identified. These individuals, from Norway (n = 23), Sweden (n = 12), Denmark (n = 10), and Finland (n = 5), joined the Experimental Circle of Anthroposophical Farmers and Gardeners in the years 1924–1946. These pioneers comprised both men (n = 35) and women (n = 14), with one member of undetermined gender. The Experimental Circle was headquartered at the Goetheanum, Dornach, Switzerland. One of these pioneers (Anna Wager-Gunnarson) attended the foundational course of biodynamic and organic agriculture, presented by Dr Rudolf Steiner (1861–1925), in eight lectures at Koberwitz (now Kobierzyce, Poland) in June 1924. The core element of the course was that agriculture was properly a biological rather than a chemical pursuit. The ‘Agriculture Course’ was subsequently issued (in German from 1926) as a subscriber-only published book to members (of the Anthroposophical Society) who joined the Experimental Circle. Each Circle member signed a non-disclosure agreement (NDA) and committed to testing the ideas of the course. A milestone was the 1938 book by Ehrenfried Pfeiffer, ‘Bio-Dynamic Farming and Gardening,’ which arguably released Experimental Circle members from their NDA. Nordic members joined progressively over the two decades following the Koberwitz course, with new memberships peaking in 1932 (n = 7), and continuing through the years of World War II (WWII). Biodynamic agriculture is still practiced in the Nordic countries of these pioneers, with Denmark presently accounting for 2,998 hectares, Sweden 873 ha, Norway 548 ha, and Finland 384 ha. The Nordic countries have developed strong organic sectors, with Sweden accounting for 610,543 ha of certified organic agriculture (which is 20.2% of its agricultural land), Finland 315,112 ha (14.4%), Denmark 299,998 (11.4%), and Norway 45,181 ha (4.6%). Iceland has no identified BD pioneers, presently no BD hectares, and 6,440 ha of organic agriculture (0.4% of total agriculture land). The identification of the 50 Nordic pioneers of the present paper provides recognition as early-adopters and invites further research on their life, legacy, and role in founding BD and organic agriculture in the region.

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¹University of Tasmania, Hobart, Tasmania, Australia.

²Steinerskolen I Indre Østfold, Askim, Norway.

*Corresponding Author:
e-mail: j.paull@utas.edu.au

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1. INTRODUCTION

The precursor of ‘organic farming’ was ‘biodynamic farming’, and the precursor of ‘biodynamic farming’ was ‘Anthroposophical farming’. The push for a differentiated agriculture occurred following World War I (WWI). Fuelled by European advances in chemistry, WWI witnessed mass slaughter in Europe on an industrial scale (Freemantle, 2015). The German Haber-Bosch process of ‘fixing’ nitrogen from the air (Haber, 2002) enabled the industrial-scale manufacture of explosives on an unprecedented scale. The further innovation of poison gas warfare, pioneered by Germany in WWI, combined with the new and ready availability of cheap explosives, set the stage for the most dastardly killing fields of history-up to that time.

In the wake of the WWI defeat of Germany, came fresh challenges for agriculture, and opportunities for the chemical industry. The chemistry of war was repurposed as the chemistry of farming. The



Haber-Bosch process was redirected to producing cheap and abundant synthetic fertilisers (Lamer, 1957; Smil, 2001). The weapons of chemical warfare were rebadged for a new ‘war on pests.’ There were fortunes to be made in this grand new commercial enterprise, and oversight by environmental protection agencies (EPAs) was more than half a century into the future (Lytle, 2007; Paull, 2013b).

The years between the two World Wars witnessed the banning of some (not all) chemical warfare (Charles, 2005; Neilands, 1971) and the beginning of the pushback against ‘chemical farming’. In the summer of 1924, the New Age philosopher Dr Rudolf Steiner (1861–1925) presented his Agriculture Course at the estate of Count Carl Keyserlingk (1869–1928) at Koberwitz (near Breslau, Germany, at the time; now Kobierzyce near Wrocław, Poland, since 1945) (Paull, 2011a; Steiner, 1924a, 1924b). Steiner proposed agriculture with a focus on biology rather than chemistry, and proposed treating the farm as an ‘organism’ rather than as a factory (Steiner, 1926).

At his eight-day Koberwitz course, Steiner founded the Experimental Circle of Anthroposophical Farmers and Gardeners (Steiner, 1929). The Experimental Circle was tasked with putting his agricultural ideas for a differentiated agriculture to the test, establishing what worked, and publishing the results. In the decades that followed, the membership of the Experimental Circle grew to span the world (Paull, 2011b).

From the outset, there were Nordic Anthroposophists present in the Biodynamics enterprise. At Koberwitz were Paula Bauer (of Kalv, Sweden) and Anna Gunnarsson (of Stockholm, Sweden) (Paull, 2020a). About half of the Koberwitzers joined the Experimental Circle at the course. From 1926 onwards, Circle members were issued with a personalised copy of the ‘Agriculture Course’ in German from the Goetheanum (Anthroposophy headquarters, Dornach, Switzerland) (Steiner, 1926).

Although the English translation of the Course was available shortly after the German printed edition, other translations were slow to follow (Steiner, 1929). Translations into Nordic languages took decades: a translation of the ‘Agriculture Course’ in Swedish appeared in 1966; Danish in 1976; Norwegian in 1992; while Finnish and Icelandic translations are yet to appear (perhaps projects for the Koberwitz Centenary in 2024?) (Paull, 2020b).

The Nordic countries comprise Denmark, Finland, Norway, Sweden, and (from 17 June 1944) Iceland. The present paper identifies those Nordics who joined the Experimental Circle, viz., the Nordic pioneers of Biodynamic farming (and thereby organic farming).

2. METHODS

Records held in the Goetheanum Library and Archives are the data source of the Nordic pioneers of Biodynamics (Course Register, 1926+). Anthroposophists who joined the Experimental Circle of Anthroposophical Farmers and Gardeners each signed a non-disclosure agreement (NDA) stating their name, where they proposed to carry out their experiments, and an undertaking not to disclose the practices. They each received a copy of the ‘Agriculture Course’ (in German), numbered and inscribed with their name. They undertook to return their copy of the ‘Agriculture Course’ should they cease to be a member of the Anthroposophical Society (or when they died).

The original records of the Experimental Circle are ‘mostly’ complete (however, the records from #89 to #149 and from #411 to #500 were not sighted and appear to be missing). In the archival record, data were entered, one line per member, as a running record, by many different hands over the years. Some entries are handwritten, and some entries are typed. Some data are missing in the record, some numbers are missing, and some numbers were issued several times (e.g., a book that was returned could be reissued to a new recipient with the original number retained). For the present paper, those Experimental Circle members with Nordic addresses or affiliations were extracted.

Names and addresses were recorded somewhat inconsistently in the archival record, with some names in full, some names with initials, some addresses recorded as a postal address, and others more generically (e.g., as a city but no street), and some not at all, e.g., Wårnjhelm, #87 (Lõfstrõm, 2008). The various scribes, writing styles, and legibilities mean that some guesswork was involved in transcribing the writing; the objective has been to present place names as they appear in the archival records (keeping in mind that place-name spellings have varied over time and have also varied according to the language of the scribe). Due to the nature of the written records, it appears likely (to the authors) that the spelling of some names and places may be subject to revision as further and better particulars are available. The default position of the authors has been to report (in Table I) the record of each Nordic Experimental Circle member as it appears in the archival record, and, generally, spelling variants are retained as per the archival record (e.g., both Olav and Olaf Funderud, <blank> and #543). Diacritical marks appear somewhat inconsistently in the archival record, and some inconsistencies may remain in Table I. The ‘Country’ column adopts the English spelling. The Gender column records the best inference of the authors; in the records, most entries lack a gendered title, while some records do include a gendered

title, e.g., ‘Frau’ (= Mrs = F), ‘Frl’ (= Fräulein = Miss = F), and ‘Herr’ (= Mr = M). Entries with titles have the titles retained in [Table I](#) (e.g., Baron & Graf).

TABLE I: THE NORDIC MEMBERS (N = 50) OF THE EXPERIMENTAL CIRCLE OF ANTHROPOSOPHICAL FARMERS AND GARDENERS (TO 1946)

Name	Place	Date issued	No.	M/F	Country
Carl Vett	Springforbi, Dänemark	[28.5.1926]	32	M	Denmark
Herr Henryk Wärnhelm	<blank>	[28.5.1926]	87	M	Finland
Uno Donner	Finnland	[c.1928]	174	M	Finland
Herr C. Krebs	Dyne per Strömstade	[c.1928]	230	M	Sweden
Frau A[nna] Wager-Gunnarsson*	Brahegatan 10, Stockholm, Schweden	[c.1928]	235	F	Sweden
Herr Albin Leonhardtson	Stockholm, Schweden	3.7.1929	257A	M	Sweden
Herr [Karl] Döbelin	Waldhaus Malsch, Amt Ettlingen	15.11.1929	277	M	Germany
Herr Louis Schubert	Saltsjöe, Storängen, Stockholm	21.4.1930	341	M	Sweden
Frau Mulin	Saterön-Gryts, Schweden	26.11.1930	378	F	Sweden
Frau Svanhild Høyem	Gudesgate 7, Trondheim, Norwegen	17.4.1931	394	F	Norway
Frl Hanne-Sofie Jebsen	Kalvedalsvei 45a, Bergen, Norwegen	12.10.1931	506	F	Norway
Herr Olav Funderud	Via Herrn K. Döbelin in Slitu, Norwegen	17.11.1931	<bl>	M	Norway
Herr Johanns Busch	Via Herrn K. Döbelin in Slitu, Norwegen	17.11.1931	<bl>	M	Norway
Herr Alf Larsen	Tjömö, Norwegen	13.4.1932	529	M	Norway
Herr Hallvard Blekastad	Gausdal, Norwegen	22.6.1932	532	M	Norway
Frl Ida Sofie Hansen***	Kongsberg, Norwegen	22.6.1932	533	F	Norway
Frau Ellen Solum	Fougstadgaten 29, Oslo	22.6.1932	534	F	Norway
Johannes Busch	Spydeberg, Norwegen	23.7.1932	542	M	Norway
Herr Olaf Funderud	Mysen, Norwegen	23.7.1932	543	M	Norway
Herr H O Tomasgaard	Spydeberg, Norwegen	25.7.1932	544	M	Norway
Herr Chr[istian] Morgenstjerne	Teatergt. 7, Oslo	25.7.1932	545	M	Norway
Herr Ernst Trier Fink	Bügebjerg, Aabenraa, Dänemark	15.2.1933	558	M	Denmark
Hr. Elis Hjorth	Kopenhagen	27.9.1933	569	M	Denmark
Frl Ingeborg Skulberg	Spydeberg in Ostfold, Norwegen	2.2.1934	586	F	Norway
Frau Fröhlich Stenersen	Ljan St, Norwegen	2.2.1934	587	F	Norway
Baron Holger Rosenkrantz	c/o K Döbelin, N[orth] Sletner, Slitu St, Norwegen	17.9.1934	596	M	Norway
Kurt Falk	Gut Gl. Klingstrup-Fünen, Dänemark	17.9.1934	597	M	Denmark
Hans Briegel	Mysen, Østfold Hoisdrs, Norwegen	3.1.1936	624	M	Norway
Gustav Ritter	Box 39 Mikaelgarden, Södertälje	26.6.1936	634	M	Sweden

TABLE I: CONTINUED

Name	Place	Date issued	No.	M/F	Country
Graf Erich Bernstorff-Gyldensteen	Gyldensteen, Høgen, Dänemark	12.10.1936	642	M	Denmark
Baron Preben Emil Wedell-Wedellsborg	Hellerupgaard, Hellerup, Dänemark	12.10.1936	643**	M	Denmark
Frl Anni Elauider	Luantola, Nummela, Finland	18.1.1937	645	F	Finland
Olav Aukrust	Lom b. Lillehammer, Norwegen	3.5.1937	655	M	Norway
Herbert Prausnitz	Borgia, Bö in Telemark, Norwegen	10.6.1937	657	M	Norway
Ove Thomassen	Austmarka, Norwegen	17.1.1938	665	M	Norway
Frau S. Tharaldsen-Ruud	Hof Skjeggerud, Sylling, Lier, Norwegen	23.8.1938	678	F	Norway
Hr O[le] Elstrup Rasmussen	Holsbaeck, Dänemark [Wedellsborg copy reissued]	30.9.1938	643**	M	Denmark
Sigurd M. Rascher	Åkarp, Schweden	9.11.1938	680	M	Sweden
Carl Yngve Krafft	Linga Gärd, Järna, Schweden	19.12.1938	682	M	Sweden
Carl Brumberg-Hansen	Øresundsvej 6, Ordstrup, Kopenhagen	8.4.1939	690	M	Denmark
Frau Jenny Brumberg Hansen	Øresundsvej 6, (Charlottenlund)	8.4.1939	691	F	Denmark
Henrielli Voss-Schrader	De Geerrgat 14 VII, Stockholm	18.11.1939	699	F	Sweden
Paul Schneider	Järna bei Stockholm	31.1.1940	702	M	Sweden
B. Wolontis	Grankulla, Finnland. ohne Verpf. Erkl.	29.4.1942	727	?	Finland
Frl M Luther	Pohjolag 62, Kottby, Helsingfors (ohne Verpf. Erklärung)	6.5.1942	729	F	Finland
Rut Nilsson	Wimmerby [Wimmerby], Schweden (ohne Verpf. Erklärung)	20.10.1942	734	F	Sweden
Bo Sturen	Linga Gärd, Järna, Schweden	24.1.1946	758	M	Sweden
Egil Kristiansen	Björgin, Garmo, Gubbrandsdal, Norwegen	29.1.1946	759	M	Norway
Hr. O[le] Bagge-Olsen	Roserholm, Hornslet, Dänemark (via Frau Inge Hansen, Kopenhagen)	23.3.1946	762	M	Denmark
Johan Nicolaysen	Nordsetervei 34, Lillehammer, Norwegen	26.10.1946	775	M	Norway
Herr Alf. H[off] Kvaernø	Trondhjem, Norwegen	21.12.1946	796	M	Norway

Note: *attended the Koberwitz course; **# reissued; ***crossed through; <bl> = blank; text in square brackets are author comments.

Notes in the address field of the archival record are retained in Table I. Such notes include: ‘in’ = in (e.g., #586); ‘bei’ = near (e.g., #702); ‘Ohne Verpflichtungserklärung’ = ‘without declaration of commitment’ (e.g., #727, #729, #734). For #597, the authors take ‘Gl.’ to be an abbreviation of ‘Gamle’ (= old; hence ‘Gut Gamle’ = old estate).

The record for Herr Albin Leonhardtson, Stockholm, Sweden, #257A, issued 3 July 1929, appears in Table I as per the archival record. The suffix ‘A’ appears on nineteen consecutive entry numbers, all on the same page of the archival record. The significance of the suffix is unknown (to the authors). The suffixed numbers do not appear to occur elsewhere in the record sans suffix. The German language edition of the ‘Agriculture Course’ (“Copyright 1929”, red cover) copy #257 (without suffix) has

been located and inspected by the authors. It is inscribed in that book as issued to: “Baron Dr v Veltheim-Ostrau”, and it is stamped with his personal stamp: “Sammlung des Dr Hans-Hasso v. Veltheim-Ostrau”. The record of this copy #257 issue to Veltheim-Ostrau was not located in the archival record. A later owner of #267 has personalised the copy with a signature (“Dr H. Berendt”) on the front right endpaper. This mystery (of the twins #257 and #257A) remains unresolved.

Dr Alfred Usteri (1869–1948) was a candidate for inclusion in [Table I](#) but was not included. His address appears in the archival record for copy #384 of the ‘Agriculture Course’ as “Reinach (Gratis) Norwegen” ([Course Register, 1926+](#)). His address appears for an earlier issue, #22, as “Reinach bei Basel” ([Course Register, 1926+](#)). He attended the Koberwitz course with the address then recorded as Reinach, Switzerland ([Paull, 2020a](#)). Reinach is in Switzerland: “In 1920, he finally settled near the Goetheanum, in the then idyllic village of Reinach. He lived there until the end of his life” ([Bracker, 2003](#), p. 1). It appears that Usteri had no association with Norway and that the archival record associating Usteri and Reinach with Norway is likely a typographical error.

Previous geographic listings of Experimental Circle members have reported those joining the Experimental Circle between the wars (e.g., [Paull, 2013a, 2018, 2019a, 2019b](#)). The book ‘Bio-Dynamic Farming and Gardening’ by Ehrenfried Pfeiffer (1899–1961) appeared in 1938 and arguably released Circle members from the NDA (and so the ‘secret’ nature of the Experimental Circle was thereby extinguished) ([Paull, 2011c; Pfeiffer, 1938a](#)). There were no new Anglo members of the Experimental Circle during WWII, so Anglo lists have a ‘natural’ pre-WWII cut-off. However, as shown in [Table I](#), there were new Nordic members joining after 1938 and during WWII. The present listing accounts for Nordic Experimental Circle members up to the end of 1946. The list of [Table I](#) is subject to future revision as further and better particulars materialise.

3. RESULTS

Fifty individual Nordic members joined the Experimental Circle of Anthroposophical Farmers and Gardeners up to the end of 1946 ([Table I](#)). There were both men ($n = 35$) and women ($n = 14$) (with one member of undetermined gender, viz. B. Wolontis, #727) ([Table II](#)).

TABLE II: DISTRIBUTION OF THE NORDIC MEMBERS OF THE EXPERIMENTAL CIRCLE OF ANTHROPOSOPIHICAL FARMERS AND GARDENERS BY GENDER (N = 50)

Gender	Frequency	Percentage
Male	35	70%
Female	14	28%
Not known	1	2%

Experimental Circle members ($n = 50$) came from Norway ($n = 23$), Sweden ($n = 12$), Denmark ($n = 10$), and Finland ($n = 5$); there were no members from Iceland ([Table III](#)). The timeline of members joining reveals the peak joining year was 1932. For some years, new memberships were zero. New members continued to join during World War 2 (WW2); the war slowed the uptake of memberships but did not extinguish it ([Fig. 1](#)).

TABLE III: DISTRIBUTION OF THE NORDIC MEMBERS OF THE EXPERIMENTAL CIRCLE OF ANTHROPOSOPIHICAL FARMERS AND GARDENERS BY THEIR COUNTRY OF AFFILIATION (N = 50)

Country	Frequency	Percentage
Norway	23	46%
Sweden	12	24%
Denmark	10	20%
Finland	5	10%
Iceland	0	0%

There are 51 line entries in [Table I](#); one member appears twice (Funderud, as <blank> in 1931 and #543 in 1932). A single recipient receiving multiple copies of the ‘Agriculture Course’ is not unknown (see [Paull, 2019a](#)). Anna Gunnarsson (#235) is the only Koberwitzer who appears in [Table I](#). Entry #533 is crossed through in the archival record; the number does not appear to have been issued to another.

For several early Circle members, the dates presented in [Table I](#) are attributed (and hence appear in square brackets). The Agriculture Course #643 appears twice, first issued in October 1936 and to a different

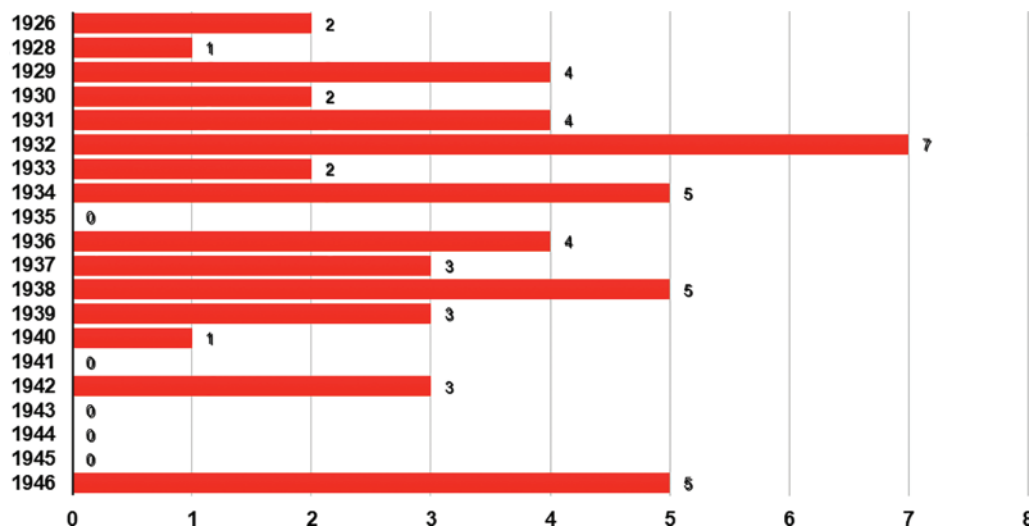


Fig. 1. Annual distribution of the 'Agriculture Course' to Nordic members of the Experimental Circle of Anthroposophical Farmers and Gardeners (n = 51, one member is accounted for twice).

recipient in September 1938. It was a known practice to reassign returned copies of the 'Agriculture Course' to new members.

Karl Döbelin, as #277, appears with a German address in 1929; he migrated to Norway the following year and is included in [Table I](#) on that basis, and accounted for in [Table III](#) as Country = Norway ([Tutturen, 2022](#)). Two recipients appeared in 1931, lacking an assigned number and stating they were supplied via Karl Döbelin (see [Table I](#)).

4. DISCUSSION AND CONCLUDING REMARKS

The 50 Nordic Biodynamics pioneers offer many starting points for further research ([Table I](#)). It appears that most pioneers were ethnic Nordics, and some were German immigrants. One Koberwitzer appears in [Table I](#) (Anna Wager-Gunnarsson as #235) ([Paull, 2020a](#)).

Karl Döbelin (1898–1976) appears in [Table I](#) as the recipient of #277 and also as the conduit for four Agriculture Courses for new Experimental Circle members (#587, #596, plus two that lack numbers, viz. Funderud and Busch). In 1950, Karl Döbelin became the inaugural chair of the Norwegian Biodynamic Association (Biologisk-dynamisk Forening i Norge; [Tutturen, 2022](#)). The story of the couple, Karl Döbelin and his wife, Waldtraut Stockmeyer (1888–1951), two Biodynamic German immigrants to Norway, has been related elsewhere (the Norwegian rendering of 'Döbelin' is 'Døbelin') ([Tutturen, 2022](#)). Waldtraut Stockmeyer appears in the list of Koberwitzers but not in [Table I](#) ([Paull, 2020a](#)). It was Stockmeyer who introduced Döbelin to Biodynamics ([Tutturen, 2022](#)).

Carl Vett (1871–1956) was the first Nordic member of the Experimental Circle ([Fig. 2](#)). Vett was a keen advocate for Biodynamics ([Nilo, 2003](#)). He published an early account of Biodynamics ([Vett, 1936](#)). He facilitated research by Karsten Iversen of the Danish State Institute for Plant Culture (with the cooperation of Ehrenfried Pfeiffer at the Goetheanum) to test the efficacy of the BD preparations (no significant differences reported) ([Iversen, 1936](#)).

Both of these accounts ([Iversen, 1936](#); [Vett, 1936](#)) were published outside of the auspices of the Experimental Circle and of the Anthroposophic press. They reveal Carl Vett as a maverick (and perhaps impatient) advocate of Biodynamics. These two accounts appeared (in Danish) despite the dual constraints of, firstly, Rudolf Steiner's personal injunction to keep BD practices secret until they were proven by the Experimental Circle and then published, and secondly, the terms of the NDA for members of the Experimental Circle. Despite this, they appeared two years before Ehrenfried Pfeiffer's book 'Bio-Dynamic Farming and Gardening' ([Pfeiffer, 1938a, 1938b](#)).

Vett's motivation for going public with Biodynamics in Denmark in 1936 may have been his foreboding of the developments in Nazi Germany that Anthroposophy and all books by Rudolf Steiner were banned in 1935 ([Paull, 2023](#)).

Vett wrote: "In a time of social unrest, characterised by the rise of National Socialism [nazistisk-socialistisk], it is a sad fact that new ideas, which go against the mainstream, struggle to make themselves known, or even considered for an impartial investigation. The rising influence of the suppressions by the socialising process makes it impossible for free (open minded) initiatives, which previously allowed ordinary people to support new ideas, which have not yet achieved the official scientific seal of approval" ([Vett, 1936](#), p. 27).



Fig. 2. Carl and Ingeborg Vett (cropped image) (Source: Magasin du Nord Museum, København; nd).

A British biodynamic farmer, Lord Northbourne (1896–1982), took Rudolf Steiner’s characterisation of ‘the farm as an organism’ and coined the term ‘organic farming’ (in 1940) and juxtaposed it with ‘chemical farming’ (Northbourne, 1940; Paull, 2014). It is organic farming, this child of biodynamics, that has successfully colonised global agriculture (albeit at a modest level; 1.6% of global agriculture is certified organic) (Willer *et al.*, 2023).

The Nordic countries have developed strong organics sectors. Together, they report 1,277,274 hectares of certified organic agriculture. Sweden reports 610,543 hectares of certified organic agriculture, and this accounts for 20.2% of the country’s agricultural land. Finland reports 315,112 ha of organics, accounting for 14.4% of agriculture. Denmark reports 299,998 ha of organics, accounting for 11.4% of agriculture. Norway reports 45,181 ha, accounting for 4.6% of agriculture. Iceland reports 6,440 ha of organic agriculture, accounting for 0.4% of agriculture. Globally, 1.6% of agriculture is certified organic (76.4 million ha), so the Nordic countries (except Iceland) are out-performing the world average (Willer *et al.*, 2023).

Biodynamic farming is still practised in the Nordic BD pioneering countries. The total of Nordic Biodynamic hectares is 4,803, accounting for 0.38% of the Nordic organic agriculture hectares. Denmark reports 2,998 ha of Biodynamic agriculture, accounting for 1.0% of its certified organics sector. Sweden reports 873 ha of BD, accounting for 0.14% of its organics sector. Norway reports 548 ha of BD, accounting for 1.2% of its organics sector. Finland reports 384 ha of BD, accounting for 0.85% of its organics sector. Iceland reports no BD hectares (Paull & Hennig, 2020).

Naming the Nordic pioneers of biodynamics and associating places and dates to their enterprises provides some recognition of these early adopters of biodynamic and organic agriculture and offers multiple loci for further research on their lives and legacies. As noted in the Methods section, there are some gaps in the records, so (as always) absence of evidence is not evidence of absence.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

- Bracker, H. -J. (2003). Usteri, Alfred: Botanist, painter. In B. V. Plato (Ed.), *Anthroposophie im 20. Jahrhundert: Ein Kulturimpuls in biografischen Porträts*. Verlag am Goetheanum.
- Charles, D. (2005). *Master Mind: The Rise and Fall of Fritz Haber, The Nobel Laureate Who Launched the Age of Chemical Warfare*. Ecco, HarperCollins Publishers.
- Course Register (1926+). *Verzeichnis der besitzer des landwirtschaftlichen kursus der von Dornach ausgegeben wurde* [List of owners of the agricultural course issued by Dornach]. Archive of the Goetheanum.
- Freemantle, M. (2015). *The Chemists' War 1914–1918*. Royal Society of Chemistry.
- Haber, F. (2002). The synthesis of ammonia from its elements Nobel Lecture, June 2, 1920. *Resonance*, 7(9), 86–94.
- Iversen, K. (1936). Forsøg med biologisk-dynamisk Gødskning [Experiments with biological-dynamic fertilization]. *Beretning fra Statens Forsøgsvirksomhed i Plantekultur*, 289, 210–222.
- Lamer, M. (1957). *The World Fertilizer Economy*. Stanford University Press.
- Lytle, M. H. (2007). *The Gentle Subversive: Rachel Carson, Silent Spring, and the Rise of the Environmental Movement*. Oxford University Press.
- Löfström, B. (2008). Biodynamisk odling—en kulturgärning för liv [Biodynamic cultivation—a cultural act for life]. In O. Granly, O. B. Hansen (Eds.), *Antroposofi i Norden: Fem land i samarbejde* (pp. 199–225). Antropos Forlag.
- Neilands, J. B. (1971). *Harvest of Death: Chemical Warfare in Vietnam and Cambodia*. Free Press.
- Nilo, J. (2003). Vett, Carl: World traveller, journalist, translator. In B. V. Plato (Ed.), *Anthroposophie im 20. Jahrhundert: Ein Kulturimpuls in biografischen Porträts*. Verlag am Goetheanum.
- Northbourne, L. (1940). *Look to the Land*. Dent.
- Paull, J. (2011a). Attending the first organic agriculture course: Rudolf Steiner's agriculture course at Koberwitz, 1924. *European Journal of Social Sciences*, 21(1), 64–70.
- Paull, J. (2011b). Biodynamic agriculture: The journey from Koberwitz to the world, 1924–1938. *Journal of Organic Systems*, 6(1), 27–41.
- Paull, J. (2011c). The secrets of Koberwitz: The diffusion of Rudolf Steiner's agriculture course and the founding of biodynamic agriculture. *Journal of Social Research & Policy*, 2(1), 19–29.
- Paull, J. (2013a). A history of the organic agriculture movement in Australia. In B. Mascitelli, A. Lobo (Eds.), *Organics in the Global Food Chain* (pp. 37–60). Connor Court Publishing.
- Paull, J. (2013b). The Rachel Carson letters and the making of Silent Spring. *Sage Open*, 3(July–September), 1–12.
- Paull, J. (2014). Lord Northbourne, the man who invented organic farming, a biography. *Journal of Organic Systems*, 9(1), 31–53.
- Paull, J. (2018). The pioneers of biodynamics in New Zealand. *Harvests*, 70(3), 38–40.
- Paull, J. (2019a). The pioneers of biodynamics in Great Britain: From Anthroposophic farming to organic agriculture (1924–1940). *Journal of Environment Protection and Sustainable Development*, 5(4), 138–145.
- Paull, J. (2019b). The pioneers of biodynamics in USA: The early milestones of organic agriculture in the United States. *American Journal of Environment and Sustainable Development*, 6(2), 89–94.
- Paull, J. (2020a). The Koberwitzers: Those who attended Rudolf Steiner's agriculture course at Koberwitz in 1924, world's foundational organic agriculture course. *International Journal of Environmental Planning and Management*, 6(2), 47–54.
- Paull, J. (2020b). Translations of Rudolf Steiner's agriculture course (Koberwitz, 1924): The seminal text of biodynamic farming and organic agriculture. *International Journal of Environmental Planning and Management*, 6(4), 94–97.
- Paull, J. (2023). Yields of biodynamic agriculture of Ernst Stegemann (1882–1943): Experimental circle data of the first biodynamic farmer. *European Journal of Agriculture and Food Sciences*, 5(5), 1–4.
- Paull, J., & Hennig, B. (2020). A world map of biodynamic agriculture. *Agricultural and Biological Sciences Journal*, 6(2), 114–119.
- Pfeiffer, E. (1938a). *Bio-Dynamic Farming and Gardening: Soil fertility renewal and preservation* (F. Heckel, Trans.). Anthroposophic Press.
- Pfeiffer, E. (1938b). *Die fruchtbarkeit der erde ihre erhaltung und erneuerung: Das biologisch-dynamische prinzip in der natur* [The Fertility of the Earth, Its Preservation and Renewal: The Biodynamic Principle in Nature]. Verlag Zbinden & Hugin.
- Smil, V. (2001). *Enriching the Earth: Fritz Haber, Carl Bosch, and the Transformation of World Food Production*. The MIT Press.
- Steiner, R. (1924a). To all members: The meetings at Breslau and Koberwitz; the Waldorf School; the longings of youth. *Anthroposophical Movement*, 1, 17–18.
- Steiner, R. (1924b). To all members: The meetings at Koberwitz and Breslau. *Anthroposophical Movement*, 1, 9–11.
- Steiner, R. (1926). *Landwirtschaftlicher kursus gehalten zu Koberwitz 7. bis 16. Juni 1924 [Agricultural Course Held in Koberwitz June 7th to 16th, 1924]* (1st ed.). Herausgegeben von der Naturwissenschaftlichen Sektion am Goetheanum.
- Steiner, R. (1929). *Agriculture Course (c.1929, first English Language Edition; trans George Kaufmann)*. Goetheanum.
- Tuttüren, T. (2022). Karl Døbelin og Waldtraut Stockmeyer på Nordre Sletner: En beretning om biodynamisk jordbruk i Eidsberg [Karl Døbelin and Waldtraut Stockmeyer at Nordre Sletner: An account of biodynamic farming in Eidsberg]. *Haakon: Historisk tidsskrift for Eidsberg Historielag*, 15(1), 94–111.
- Vett, C. (1936). *De biologisk-dynamisk landbrugsmetoder* [The Biological-Dynamic Agricultural Methods]. Aarhus Bogtrykkeri.
- Willer, H., Schlatter, B., & Trávníček, J. (Eds.) (2023). *The World of Organic Agriculture: Statistics & Emerging Trends 2023*. Research Institute of Organic Agriculture (FiBL) & IFOAM-Organics International.