Ahead of his time

DR. FREDERIK PAULSEN (1909-1997)
THE MAN WHO FOUNDED FERRING

Birgit Amon
Fredrik Paulsen’s house in Alkersum on Föhr (aerial photo)
An outsider today who wishes to win an insight into the man Dr. Frederik Paulsen, quickly gains the impression that he is confronted with two separate people: on the one hand the successful physician, scientist and businessman and on the other hand the „Friesian“ Paulsen, who, particularly in the final decades of his life, became very involved in furthering the cause of his people, the Friesians. No one could have been better suited than he to combine both these spheres of interest. He gave the firm he founded in Sweden in the Fifties the name Ferring, thus using the name by which the natives of the island of Föhr identify themselves in their own language.
Contents

Preface 6

I. Childhood and school years 1909–1933 8
Non-conformist ideas 9
The Kapp Putsch in Kiel 10
„Papa voted for Denmark“ 10
Early political activities 11
Medicine - a bread-and-butter training 12

II. In Conflict with the Third Reich: Imprisonment and Emigration 1933–1935 13
The leaflet campaign 13
„I am a Friesian“ 14
18 months in prison 14
Out through the back door 15
Doctorate in Basel 16
Northward bound 17

III. The peptide pioneer
Stockholm 1935–1950 17
An unpaid job 19
Working for Organon 19
Ability and good luck 20
The perfect solution 21
The billion dollar business 21
„Hi wiar soarig...“ 22
The laboratory in the basement 22
ACTH know-how 23
„Just get started!“ 23
The Big Names say no 24

IV. His own business
From a two-man enterprise to a world-wide company 1950–1970 25
The Nordic Hormone Laboratory 26
Lecturer in Malmö 26
From one research scientist to another 27
A lack of pituitaries… 27
…and money 28
A new name: Ferring 28
New premises 29
The dawn of the synthesis era 30
Contact with research scientists 31
Minirin – the „money machine“ 32
Gaviscon – the lucky break 32
Custom-made medication 33
Retirement 34

V. Active in the Friesian cause:
The Föhr years 1970–1997 35
Fering – the „secret language“ 35
His eye fixed on the future 36
The „Nordfrisisk Instituut“ 37
Foundations… 38
…and tributes 39
Too „big“ for Friesland 40

Closing remarks 41

Bibliography 42
Preface

At the beginning of last year, while searching for a way in which to adequately mark the long-standing and close links of our company with research in the field of endocrinology, and particularly paediatric endocrinology, I became acquainted with the paediatric endocrinologist, Prof. Dr. Wolfgang Sippell. During our meeting the idea of writing this book was born, since the promotion and fostering by Ferring of a continuous exchange of experience and opinions among young scientists on an international level at professional training courses and conferences are a direct result of Dr. Frederik Paulsen’s thinking and philosophy.

This book, Ahead of his time – Dr. Frederik Paulsen (1909 – 1997) – the man who founded Ferring, is dedicated in appreciation and recognition of an outstanding personality in the field of science and business. Dr. Frederik Paulsen was „a man who always directed his thoughts toward the future. He was particularly concerned to open up future perspectives for young people. In this respect he displayed an impressive „sixth sense“ with regard to developments to come, an ability which contributed toward his success both as a scientist and a businessman. He also included his native island of Föhr in his plans for the future“. Frederik Paulsen: „It conforms with the Friesian identity to be in opposition to the prevailing Zeitgeist“.

Once one has gained an overview of Dr. Frederik Paulsen’s life, one cannot fail to be impressed by his exceptional achievements. As a young man in Germany, he exhibited great courage during a difficult period of that country’s history. He crowned his professional career by founding a company which was to operate world-wide. And finally, with his ideas and tireless efforts, he established the basis for securing Föhr’s language and culture with the „Ferring Foundation“. Here, again, he was „ahead of his time“.

Although I never had the honour of knowing Dr. Frederik Paulsen personally, the research for this book has left a lasting impression on me, as well as a deep and heartfelt respect for the man. Frederik Paulsen had an extraordinary ability to build international bridges between scientists and researchers on the one hand and the Ferring business on the other, forging close links between the two. At the same time, however, he never lost touch with his roots, a „Ferringer“ from the island Föhr.

Dr. Frederik Paulsen died on 3 June 1997 at his home in Alkersum on Föhr. This book is dedicated to keeping alive the memory of the founder of Ferring and his philosophy of life among scientists and researchers who are active world-wide in the field of endocrinology as well as for the growing staff at Ferring.
I would like to express my particular gratitude to the author, Mrs. Birgit Amon, for her excellent co-operation. It is thanks to her tireless efforts, tenacity and conscientious research that the publication of this book was at all possible.

Kiel, March 1999
Ferring GmbH

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I. Childhood and school years
1909–1933

Friedrich Paulsen (who took the name Frederik when he emigrated to Sweden), the Friesian from Föhr, was born on the German mainland – in Dagebüll on the west coast of Schleswig-Holstein, a small port which is the starting point for ferry traffic to the Friesian islands of Föhr and Amrum. He is nonetheless a true Feringer: both his parents came from old Föhr families, his father, Otto Paulsen, with roots in Goting and Borgsum and his mother, Keike née Arfsten, from Alkersum. In 1961, Frederik Paulsen bought the parental home, which had been built in 1634 and had remained in the Arfsten family ever since, and remodelled it to become his retirement residence. This gave him particular pleasure because he had enjoyed a close relationship with his mother and had admired in her the strength which was a trait of the women of Föhr. „On our island it was the women who ruled, a well-functioning matriarchy. Besides caring for the children, they tended the cattle and the fields, built dikes and roads and cut peat, heather and reeds for fuel. The women were stalwart and self-assured, sometimes more so than the men would have liked.” (Paulsen in an interview in 1993).

But now back to Dagebüll where Friedrich Paulsen was born on 31st July 1909. His father had a position there as a post office official, but from the first floor of the house in which they lived it was possible to see over the dike across the water to Föhr, the small (82 square kilometres) North Friesian island in the tidal flats which was always a focal point in the life of Friedrich/Frederik. Since his parents were determined to secure secondary education for all five of their remaining children (two sons had died early from measles), his father gave up his plans to take over the Post Office in Wyk on the island of Föhr. Instead, the family moved first to Erfde (1913) and finally, in 1917, to Kiel. It was here that the sons Paul, Frie-
During his school days Friedrich Paulsen indulged his penchant for the Arts. Not only was he a frequent member of the audience at the Stadttheater which had moved to the Kleiner Kiel in 1907, but he could also be seen on the stage in walk-on parts (particularly in opera productions). The new medium of films fascinated him to such an extent that he sometimes went to three or four performances on the same day. He even found a means of making money out of his obsession with the cinema; while still in the eighth grade he wrote film critiques for the Norddeutsche Zeitung, which in turn, thanks to press tickets, provided him with free admission (in the best seats). He also became a passionate reader, which he remained for the rest of his life. At school his favourite subjects were literature, history and philosophy. His sister, Hilde Portofee, wrote in 1984 that his teachers “noticed him because of his independent, non-conformist way of thinking”.

This self-assuredness and determination to follow his own path were characteristic of Friedrich/Frederik Paulsen’s life. He did not grow up in an ivory tower, committed only to the ideals of a classical education. Towards the end of World War I Kiel found itself at the centre of German politics for
The Kapp Putsch in Kiel

At the time Friedrich Paulsen was, of course, too young to actively participate in political events, however his older brother, Paul, wanted to take part in the Kapp Putsch which had begun in Berlin on 13th March 1920. Under the leadership of the East Prussian landowner Kapp, the opponents of the Republic tried to seize power in Germany, and in Kiel this precipitated something akin to civil war. Paul, who sided with the Putsch supporters, threw himself into the tumult as a bicycle courier but was called to order by his forceful mother who forbade her eldest son any further participation in the movement.

the first, and so far only, time in the course of its history. The Sailors’ Mutiny of November 1918 sparked the revolution which quickly spread throughout the country and Workers’ and Soldiers’ Councils were established in Germany for the first time.

The Kapp Putsch in Kiel

Frederik Paulsen (far left) with his brother Paul and sisters Käthe and Hilde (seated)
The referendum on the demarcation of the German-Danish border was held at the time of the Putsch. In the first zone (North Schleswig, north of the current border) 75% voted for Denmark and on 14th March approximately 80% of the second zone (Middle Schleswig) voted for Germany. Thus the present border, running from north of Flensburg in the east to south of Tondern in the west, was established. On 14th March the Paulsen parents had travelled to Föhr in order to vote, and on their return Mother Paulsen admitted in tears to her older children that „something dreadful has happened, Papa voted for Denmark. But don’t tell anyone or he will lose his position as a German civil servant“.

In the restless, volatile, polarising years of the Weimar Republic, the young people in particular wanted to take an active part in political events. Frederik Paulsen reminisced: „During the Weimar Republic it was a disgrace if a young man wore no badge as a sign of his convictions or Weltanschauung. Even the most radical political opponent was better than the coward without a badge or flag“. Friedrich Paulsen therefore decided to enter the political arena. In search of a political party which would allow him to distribute leaflets and placards and provide him with the much sought-after supporter’s insignia, the 15-year-old unwittingly stumbled on the German People’s Party which had managed to win 7.4% of the votes in the Reichstag elections in May 1924 but which, of all parties was considered to be racial, anti-Semitic and extremely nationalistic. He soon realised his mistake however; an appearance by Adolf Hitler in Kiel had such a negative effect on the pupil that from then on he wanted nothing more to do with the right-wing spectrum and later, as a student, he allied himself with communist and socialist groups with considerable consequences for his career and future life.
Political motives also played a role with regard to his choice of career, a decision which had to be made in 1928 on completion of his Abitur (high school leaving examination). After a lengthy discussion with his father, Friedrich decided to study medicine – in spite of his preference for the liberal arts. „He did realise „, Hilde explains her brother’s decision thus „, that in the politically and economically unstable Twenties it made sense to study something with which one could also earn one’s living in any country.“

*Frederik Paulsen: a passionate reader throughout his entire life*
While he was studying medicine in Kiel, Frankfurt, Graz and then again in Kiel, Friedrich Paulsen had no idea how farsighted and wise his decision would prove to be. He completed his thesis (on colloid-osmotic pressure in the blood of pregnant women) at the University Gynaecological Clinic, Kiel. It was here in 1933, in the middle of taking his finals, that political events caught up with the „leftist“ student. With his political leanings, he came into conflict with the National Socialists immediately and had, indeed, already received warnings from some of the university professors.

His undoing was the translation of an article from the English „Manchester Guardian“ which took a critical stance on certain events in Kiel and which Friedrich distributed to his friends in the form of a leaflet and gave to a member of the Communist Party for publication in an illegal newspaper. The article dealt with „one of the first murders engineered by the Hitler Regime“ (Paulsen). In the night of 11th/12th March 1933, Dr. Wilhelm Spiegel, a lawyer and Chairman of the City Council, was shot in his home in Forstweg 42 by two men claiming to be auxiliary policemen, one of whom was wearing an SA uniform. For many years Friedrich had been in the same class at school as Spiegel’s son, Rolf. The article in the Manchester Guardian also mentioned the case of Ernst Oberfohren. The former member of the Reichstag for the German National People’s Party, which as a result of its coalition with the NSDAP helped Hitler to power on January 30th, had been found shot in his house in Bismarckallee on 7th May 1933. Historians are now agreed that Oberfohren, who had distanced himself from the Nazis, was afraid that he would soon become a victim of National Socialist violence and, not able to withstand the psychological pressure, had committed suicide. At the time, however, many opponents of the regime suspected that the Nazis had had a direct hand in his death. Friedrich Paulsen also believed the version of events as portrayed in the Manchester Guardian (as did
Following his leaflet campaign, Friedrich Paulsen was arrested by the Gestapo in his parents’ home in Esmarchstrasse 55 at the beginning of September. Neither the flyers nor the typewriter on which they were written were found during the meticulous search of the apartment. Friedrich’s friend, Countess Hedwig Ide Reventlow, who had typed out the translation, had taken it with her and later „disposed“ of the incriminating evidence by throwing it into the Kiel Canal from the Levensauer Bridge. Friedrich Paulsen was taken to the police station in Blumenstrasse. When two policemen started to beat him prior to the actual interrogation, he shouted out angrily: „I am a Friesian, and you do not beat a Friesian and go unpunished“. In Friedrich’s memory, this remark so surprised the policemen that they actually stopped hitting him. After many months in detention awaiting trial (interrupted by a brief Christmas „vacation“ on bail) he was found guilty on 6th March 1934 of „aiding and abetting in preparation of a treasonable offence in coincidence with aiding and abetting with regard to the Law Against the Formation of New Parties of 14 July 1933“ and condemned to 18 months imprisonment – minus the months he had already spent in prison. Friedrich’s defence council was his own brother Paul, an extremely capable and astute lawyer.
This sentence was a shock to Friedrich, who had actually been expecting an acquittal, since all he had done was translate an article from a legally acquired foreign newspaper which, even under the laws of the day, was not an offence. Instead, he found himself in prison in Neumünster where he was placed in a cell which had previously been occupied by the author Hans Fallada („Kleiner Mann, was nun?“, „Wer einmal aus dem Blechnapf frißt“).

Early on the morning of 7th April 1935 Friedrich Paulsen was released to „freedom“, weighing only 41 kilos as a result of the meagre meals provided in prison. In an interview at the age of 83, he reminisced: „I have my family to thank for my survival. My parents and brother had planned everything carefully. The Gestapo was waiting at the front door to take me to a concentration camp, but my father and my brother had arranged with the prison chaplain that he release me through the back door, through the chapel. Had I gone home, I would have been arrested again immediately“. Armed with a passport, a ticket and some Swiss Francs, he took the next train from the station in Neumünster to Basel. He arrived there safely and somewhat the wiser: „That was my first lesson in dictatorship. Political connections are worthless, the only thing that really counts is one’s family.“
He could continue to rely on the support of his family, but meanwhile, through his own efforts, he set about completing his medical studies as quickly as possible, still needing to take examinations in optometry, psychiatry and dermatology in order to sit his Finals. On 2nd July 1935 he passed the main examination in medicine at the University of Basel, followed a few days later by the doctoral degree ceremony with the doctoral dissertation which had been almost completed in Kiel. Now Dr. Friedrich Paulsen was ready to enter the working world, but the prospects for the young German emigrant were not very bright.

**Doctorate in Basel**

*Frederik Paulsen with his parents (before World War II)*
He had already considered emigrating while still in prison, assuming quite rightly that there would be no place for a non-conformist “rebellious” young man like him in Germany in the coming years. Plans to stay with relatives in the United States did not seem very promising and he felt his prospects would also not be very good if he tried his luck in Denmark. When he was offered an unpaid job in Sweden he did not hesitate to accept it. On the morning of 31st July 1935, his 26th birthday, he left Copenhagen full of optimism bound for Malmö. In his unpublished Memoirs he describes how he felt at the time: “The ship was not very large and I sat all the way at the front on an anchor windlass, watching the Swedish coast get closer and closer as we approached it. I felt a spiritual uplifting and I was completely happy. I was certain that I would be able to master my life in this new country.”

He was not mistaken in his feelings. In spite of the fact that Sweden in no way rolled out the red carpet to welcome the young German emigrant, he overcame the initial difficulties with his ability to make decisions and with his initiative and creativity, and made his way resolutely in his new country. He was, however, no longer politically active; on leaving Germany, he had sworn that he would never again become involved.
in this area. Proof of the extent to which he and his achievements were recognised is the fact that he was allowed to become a Swedish citizen (which he remained until his death) as early as 1942, in spite of the fact that it was all but impossible at that time for a foreign national from a country currently at war to become a naturalised citizen of Sweden. This unusual and remarkable exception was made in Paulsen’s case because he had very influential and prominent supporters in the fields of medicine and research who considered his work to be of the utmost importance, and the fact that his first wife was Swedish no doubt also played a role. In 1939 he had married Margareta Liliequist in Stockholm. In 1940 his first son, Otto, was born, followed during the next ten years by five further children – Karin, Kristina, Ase, Maika and Frederik, the youngest son who runs the Ferring company today. The German emigrant Friedrich Paulsen had become the Swedish citizen Fredrik Paulsen who, after he was naturalised, carried out his military service as a doctor in the Swedish army.
On his arrival in Malmö, Paulsen travelled straight to Jönköping (on the southern tip of the Vättersee) in order to take up his unpaid job for Dr. Eskil Kyling in the hospital there. Again his family stood by him, supporting him financially as much as they could in view of the strict restrictions on transferring foreign currency at the time. Once Frederik realized that it would be impossible for him, as a German emigrant, to obtain a Swedish work permit and thus be able to work at a hospital or scientific institute as he wished, he decided to look for a research position with one of the foreign pharmaceutical companies.

He had already decided that, in the future, he was going to concentrate on endocrinology, a field which had interested him since his student days (especially during his time in Frankfurt). In 1936, when he had been in Sweden for barely a year, Frederik Paulsen’s name appeared on a publication on hormones – and he had written the paper in Swedish! Frederik Paulsen, who, with his job applications, had included a brief analysis of the Swedish hormone market and a prognosis regarding its possible future developments, received offers from both the German Hoechst Company (whose director of research, Professor Hörlein, was „a great anti-Nazi“ according to Paulsen) and the Dutch company, Organon. He applied „Friesian“ logic in making his decision: „I was faced with a difficult decision“, he writes in his memoirs. „From an objective viewpoint, my prospects at Hoechst were better, but I chose Organon, partly for political reasons and partly because of a Föhr tradition where, for centuries, it has been the custom to first seek work in Holland“. It was also the custom on Föhr to give preference to the smaller unit over the larger unit when in doubt. Just how wise his „Friesian decision“ was became apparent the following year when foreign branches of German industry also had to be „cleansed“ of Jewish and politically undesirable employees.
This arrangement proved to be an excellent and ingenious solution in an otherwise almost hopeless situation. As a German, Paulsen would not have been able to find employment or earn any money either in Holland or in Sweden, but as the employee of a Dutch firm in Sweden he did not need a work permit from either of these two countries. He presented himself to the directors of Organon in Oss (Brabant), and was deeply impressed by the director of research, Dr. Marius Tausk, whom he respected and to whom he remained grateful all his life, and was introduced to his new tasks. The Dutch suggested that he open a research office at their partner firm in Sweden, Pharmacia, and set up a hormone department there. This was a somewhat convoluted set-up since „I actually worked for Organon but Pharmacia paid my salary and was officially my employer“. This arrangement started to cause problems only after the war when a conflict of interests arose between the two companies. Out of loyalty Paulsen chose Organon and remained with the company until the end of the Forties.

It was thanks to him that the originally small company of Pharmacia which, when he started working there „had no products of their own and merely sold pills to pharmacies“ (Paulsen), had, in the intervening years, become one of the leading pharmaceutical companies world-wide. Since the development and launch of the blood substitute Dextran, which were initiated by Paulsen, demonstrate in exemplary fashion how competence, luck, coincidence, a “good nose” as well as good contacts among research workers can result in a scientific and economic success story, it is briefly recapitulated here (sometimes in Frederik Paulsen’s own words).
When Finland was attacked by the Soviet Union in November 1939, Sweden believed that it, too, would be drawn into the war. The pharmaceutical industry began to consider how it should react to this situation and Frederik Paulsen was asked to make some suggestions. On the way to a lecture at which he was to present his ideas on a blood substitute, he bumped into his friend and colleague, Anders Grönwall from Lund, who was on his way to Uppsala and Paulsen took him to his lecture with him. Paulsen had "summarised the eight conditions for an effective blood substitute on the blackboard: it would have to absorb water in the same way as blood; be harmless; be capable of being broken down by the body etc. My friend listened but made no comment. He phoned me the next day: "This substitute you were talking about, I have it here. My predecessor here at the laboratory was working for a sugar factory and discovered what was blocking up their pipes. Bacteria transform glucose into a polymer called dextran which clots and causes obstructions. It can be sterilised and broken down by the body, it is harmless, it can be assigned any water-binding capacity and can be stored indefinitely. So now you have what you need."

Paulsen suggested that Pharmacia produce dextran and estimated that they would have to spend at least 200,000 Swedish Crowns before they could expect even one öre in return. In the end, the investment expenditure was three million Swedish Crowns, "but they made billions out of it."
This little detour did not distract Paulsen from his own field of research – hormones – for very long. And here again he was faced with a difficult decision. „The hormone industry in those days concentrated solely on steroids, sexual hormones. This meant estrogens for women and belonged really in the sphere of gynaecology“, Paulsen reminisced later. And since, throughout his career, he always avoided „overcrowded areas, such as the field of steroid research in those days“, he turned his attention to the thus-far „completely disregarded peptide hormones“, convinced that there was great potential in this field. In his biography of Frederik Paulsen („Ein Friese geht nicht verloren“) Jakob Tholund, headmaster of a school in Wyk on Föhr, said that – according to Paulsen – „memories of Föhr’s seafaring history also played a role in the decision for peptides. When whalers cut up the carcasses, they often noticed that the animals’ pituitary glands had been destroyed, clearly as a result of stress during the death struggle“. Tholund continues : “Frederik had read the following sentence in a humorous account of whaling by a Föhr storyteller: ‘Hi wiär so arig, dat ham a braanjknoop baast.’ (He was so angry, his pituitary gland burst.)“ Perhaps it really was this fantastic story which put the young scientist on the scent which led to the development of the stress hormone ACTH from the anterior lobe of the pituitary gland. He carried out his work in the basement of the Biochemical Institute in Stockholm. His most important colleague was a Danish woman, Eva Frandsen (born 1918), who had completed her education as a chemical engineer in Copenhagen in 1942 and found work with Pharmacia in Stockholm in 1943. After his divorce in 1958, Frederik Paulsen married Eva, who remained „the central figure in his personal and professional life until his death“ (Tholund).
Almost completely on their own, Frederik and Eva (but mainly Eva) produced hormones for Organon and other research institutes in the basement laboratory. Neither Organon nor Pharmacia showed much interest; peptide hormones had, as yet, no commercial value. The situation changed dramatically when, in 1948, the two American scientists Philip S. Hench and Edward C. Kendall discovered “that one of our hormones, namely ACTH, had a similarly dramatic effect on asthma and polyarthritis as cortisol.” Suddenly demand increased – “and we were the only people producing ACTH” Paulsen recalled. The only other person working with pituitary hormones at that time, apart from the Paulsen team in the basement of the Biochemical Institute, was Professor Cho Hao Li in Berkeley. In 1948/1949 Paulsen decided to visit Li in California, but before he was able to obtain the necessary travel documents Li came to Stockholm. According to Paulsen it soon became apparent “that we were ahead of him. We had more hormones and a better purification process. He learned more from us than we did from him.” At this point it should be pointed out that Professor Li’s is still the only name mentioned both in the endocrinology textbooks and medical history books in connection with the isolation of ACTH, whereas the achievements of Frederik Paulsen and Eva Frandsen remain unrecorded.

After meeting Li, Paulsen felt even more strongly “that we would have no competition worth mentioning if we decided to start commercial production of ACTH and the

ACTH know-how

„Just get started!“

A Ferring chemist extracting ACTH
other pituitary hormones" and, at the same
time, he came under considerable pressure
from his friends in the medical field. Since
the Twenties, Sweden was the only country
where research into protein chemistry had
been conducted intensively and systemati-
cally and it was the world leader in the field
of pituitary hormones. Professor Jan Wal-
denström from Malmö admonished his
good friend Paulsen: "We’ve helped you all
these years and now you must help us to get
ACTH”, and he challenged Paulsen by say-
ing: “Just get started with production, or I
will ask Leo (a Swedish pharmaceutical
company) to do it”.

Paulsen and Eva Frandsen had the neces-
sary know-how for extracting, purifying
and producing ACTH but they had no
money. Neither Organon nor Pharmacia
showed any interest, so Paulsen offered his
methods to the largest pharmaceutical com-
panies. At the age of 83 he spoke of this
phase in an extensive videotaped interview:
"First I sent studies of the effects of ACTH
as compared to cortisone to Merck in Ame-
rica. They answered half a year later, after
they had checked the results themselves,
and confirmed the superiority of ACTH
over cortisone. But they informed me that
Merck did not deal in substances with a
molecular weight of more than 2000. They
synthesised smaller molecules. The peptide
hormone is a protein molecule and is so
complicated that it was thought at that time
to contain the secret of life. Synthesising it
was considered impossible. Karl Folckers,
research director at Merck, who was later to
become my best friend, wrote to me – but
on that occasion this top scientist was
wrong.“

Ciba (now Novartis) in Switzerland also
responded negatively. Once again the super-
iority of ACTH was confirmed, but mass
production was considered impossible
because of a scarcity of pituitary glands.
"That is why everyone else chose to
concentrate on cortisone – and left ACTH
to us."

The Big Names Say no
As a consequence of the hesitant, negative reactions of the „big names“ on the market, the peptide pioneer Paulsen considered going into business and production himself. An enormous problem lay in obtaining adequate amounts of raw material, pituitary glands from pigs. In a speech on the occasion of the 40th anniversary of Ferring in 1990, Paulsen again stressed the now inconceivable dependency on the slaughterhouses at that time and pointed out that both Organon in Holland and Novo in Denmark were founded by slaughterhouse owners. Since Paulsen had no capital of his own, it followed that he would have to co-operate with Sweden’s largest slaughterhouse. Their research division showed interest and asked him for detailed documents, whereupon they terminated the discussions and went into business alone (in the long run unsuccessfully). After a further negative experience with a large Danish slaughterhouse, Paulsen decided to enter into partnership with two smaller firms which supported him by organising the supply of pigs’ pituitary glands from Danish slaughterhouses. Since, throughout his life, Paulsen always followed his grandmother’s advice never to borrow money, the early days were extremely difficult.
Premises of approximately 60 m² were rented in the buildings of a laboratory works (Barneckows technical-chemical laboratory) in Malmö, and the new enterprise was given the name „Nordiska Hormonlaboratoriet Aktiebolag“ (Nordic Hormone Laboratory). The name said it all: The new company, so Paulsen in a speech on the occasion of Ferring’s 25th birthday, was intended to be „a Nordic enterprise which concerned itself with hormones, their production, chemical and physiological research, and their application for medicine.“ The main focus of the firm was to be pituitary hormones, which is why a stylised version of a pituitary gland was chosen in the mid-Sixties as the company’s trademark. „And that is how“ his sister Hilde Portofée wrote in 1948 in a commemorative volume dedicated to her brother „without capital – only through thrift and innovative scientific thinking – a company came into being which now has sister companies in Germany, Denmark, England, France and Great Britain.“

Because of its proximity to Denmark and the Danish slaughterhouses, the location in Malmö was ideal. In the early days, Eva Frandsen was in charge of the laboratory and production. Frederik Paulsen was responsible for pharmacology and marketing and he also accepted a position as lecturer at the Pharmacological Institute of the Dental Academy in Malmö. The fact that he was offered this position demonstrates once again the high regard in which his work and activities were held by the Swedish scientific community. In the final year of the war, Paulsen had played a decisive role in the founding of the Swedish Endocrine Society and – closely connected with this – the publication of „Acta Endocrinologica Scandinavica“ after the war. In the mid-Fifties it was Frederik Paulsen who advocated the admission of the Deutsche Gesellschaft für Endokrinologie (DGE), the German Endocrine Society which was founded in 1953, into the circle of „Acta Endocrinologica“ countries, thus helping it to gain international acceptance.
The excellent contacts to Swedish research scientists paid off in other ways too. Arne Tiselius, the biochemist and Nobel prize winner from Uppsala whom Paulsen knew well, lent the fledgling businessman the necessary equipment, which would have been way beyond the financial capacity of the new firm to buy, from his own laboratory. „Co-operation with other research scientists was crucial from the very beginning“ said Paulsen, who had nothing but praise for the generosity of his Swedish colleagues. It is no wonder that one of the Ferring mottoes is still today: „From One Research Scientist to Another“.

The fact that the „Nordic Hormone Laboratory“ not only survived but quickly expanded was due mainly to superior technology. Not only was it possible when extracting the hormone from the pigs’ pituitary glands to achieve such an exceptional degree of purity by using special methodology and purification that this standardised hormone extract was scientifically reproducible and could also be used in hospitals, but a special drill was also developed (and patented), with which one person could extract up to 200 pituitary glands in an hour.

The supply of enough raw materials was a great problem, which necessitated considerable logistics and organisation. From the start it was clear to Paulsen that the resources would be insufficient to supply the entire world, so he concentrated on the nearest markets: Sweden and Denmark. Canada was also included, but less as a customer than as a supplier of the much-needed pituitary glands from the large slaughterhouses in that country. „Sales practically regulated themselves“ said Paulsen, „the supply of raw materials determined our strategy.“
The refined method of ACTH production also aroused interest abroad and, in the early Fifties, a French pharmaceutical company, Laboratoire Byla, wanted to purchase the method. Since the small Nordic Hormone Laboratory desperately needed money, Eva Frandsen was sent to Paris to instruct colleagues there. (Fredrik Paulsen later enjoyed recounting this episode as the time he „sold“ his wife to France). Compared with the situation in Scandinavia, conditions in French slaughterhouses were so antediluvian at that time that an organised extraction of pituitary glands was out of the question. „But we got our money so it did not matter“ said Eva Paulsen, summing up this brief French interlude.

In 1954 Paulsen was able to redeem the Danish capital that had been invested in the firm „Nordiska Hormonlaboratoriet AB“ in Malmö. At this point the company was given the name under which it is known today – Ferring. Paulsen had practical and rational reasons for renaming the company; he wanted a name which would be easily comprehensible and easy to pronounce in as many countries as possible. His reason for choosing „Ferring“, however, was deeply personal. His Friesian fellow comrade-in arms and friend, Jakob Tholund, said that in so doing Paulsen „unequivocally demonstrated his close connections with his native Föhr, since the Friesian word „Fering“ is a key word for the islanders. For them it has a triple meaning and encompasses everything that is important to the native inhabitants of Föhr: Fering is the name of their island language and fering is also the name of their splendid, traditional north Friesian costume, and they themselves are „Feringer“ – inhabitants of the island of Föhr. By giving his company the name Ferring, Paulsen, the young scientist and businessman, thus identified himself with the central values of his ancestors on the North Friesian tideland island.“
The re-naming of the company was followed in 1956 by visible proof that business was on the upswing, when the firm moved from the rented rooms to its first self-owned factory in Limhamn/Malmö. It was soon necessary to extend the premises, and not only in Sweden; subsidiaries were opened in Germany and Denmark. The success of the early years is attributable to productive co-operation with Swedish hospitals, which led to many therapeutic innovations and improvements in the field of ACTH. Even then, according to Paulsen’s wife Eva: „he always advocated using as small a dosage as possible. With respect to his ideas about medicines he was at least 10 years ahead of his time.“
But Ferring was still dependent on the both tedious and time-consuming extraction of ACTH from pigs’ pituitary glands, which depended on the complicated and organisationally difficult procurement of raw materials. It was, therefore, a vital breakthrough when, in 1961, the chemical synthesis of peptide hormones on an industrial scale succeeded and Ferring was able to start production as one of the first pharmaceutical companies world-wide. The extraction phase of the Fifties was followed by the synthesis era of the Sixties, a new chapter in the history of the company, and competence in the field of peptides is still a trademark of Ferring today.

The dawn of the synthesis era

Lars Karlsson, the chemist who first succeeded in synthesising peptides
The conquest of a respectable share of the world market began in 1959 when the chemically pure extraction of the posterior pituitary peptides vasopressin and oxytocin became possible, and continued in the early Sixties when it became possible to produce them synthetically to technical specifications. Lars Karlsson played a significant role in this development. In enticing him from Lund University to join Ferring, Frederik Paulsen once again proved to be a visionary, being the first person to employ an organic chemist in a biochemical company. Frederik Paulsen said in 1992: „Before this, all our research scientists had been biochemists. I think it was one of our wisest decisions to employ Karlsson. He led us into a field which paved the way to Ferring’s current position“. And here, again, coincidence played a part. The Copenhagen physiologist Niels Thorn asked for a supply of marked vasopressin since he wanted to be able to trace the course of the hormone through the body. According to Paulsen, Ferring agreed to this „as a favour to him, because he had always helped us“, and Lars Karlsson produced the tagged vasopressin for which Ferring was then the only source world-wide. „Any research scientist who wanted to work with it had to come to us. One of these was the protein chemist, Dr. Vladimir Pliska, from the Czech Academy of Sciences in Prague. He was supplied with the vasopressin but was not satisfied with its stability. And so he came to Malmö, worked with Lars Karlsson for a year and helped to stabilise it.“

Contact with research scientists

Lars Karlsson passing on his knowledge of chemistry to the younger generation
This is where the story of the exchange of ideas between research scientists really begins. During his time in Malmö, Pliska also met the Dane, Thorn, who suggested that he change the vasopressin molecule in such a way that its blood pressure increasing properties could be separated from its anti-diuretic effects. Pliska returned to Prague, altered the structure of vasopressin and – Paulsen’s laconic comment: „The result was DDA VP, Ferring’s „money machine” on which we have a world-wide monopoly and which is used to treat the relatively rare illness diabetes insipidus“.

Under the name of Minirin and in various forms, DDAVP (desmopressin) remains Ferring’s best-selling product to this day.

At the beginning of the Sixties, Ferring had already landed a lucky break, and in that case, too, chance had played an active part in the form of a research science assistant. A Swedish clinic had commissioned the company to create a new contrast medium with a specific weight of less than 1, with which one could produce physiologically correct images of the gastrointestinal tract. Helmer Hagstam, who in 1951 was the very first employee of the company (at that time still „Nordiska Hormolaboratoriet“) took up the problem. Since the clinical tests surprisingly showed therapeutic results, an unexpected side-effect of this research work was the launching of the stomach medication „Gaviscon“, which proved itself a real „money spinner“ in the following years.
Of course Frederik Paulsen knew that it was the exception for research work to result in such convincing and profitable products as DDAVP or GAVISCON – „most work results in nothing“ he once said. And yet all these success stories exhibit a common pattern: the attempt to avoid the well-beaten scientific trail and seek out little-known areas, the fostering of an exchange of communication and expertise between scientists – and being prepared to give luck a chance.

The production of DDAVP in the early Seventies heralded a new era in the history of the company: the ability to produce analogues of naturally-occurring hormones with an isolated biological effect made it possible to produce „custom-made“ medication for specific illnesses.
Retirement

Around this time – at the age of 60 – Fredrik Paulsen slowly started to withdraw from the day to day work as director of the company. He approved of the fact that the Ferring Company, a family enterprise currently run by his youngest son Frederik, now operates as a multinational group with its headquarters in Holland and production units in Sweden, Denmark and Germany, and with a world-wide network of subsidiaries and agents. „No company can make a living from a few diabetes insipidus patients in Scandinavia. One needs the whole world to survive. If Ferring continues its tradition of developing new medications for rare illnesses, it needs the whole world as a market.“

Even after his retirement from the company, Frederik Paulsen, whose most important ability was to apply his extensive knowledge and turn it into profit by motivating employees and colleagues, point them towards new fields of research and initiate new projects, still played a part in the company as a provider of ideas. Way into his old age he continued to propagate research for its own sake: „My successors in the company would do well to remember that it is often more profitable to work on a scientific project with no thought to the possible gains than to seek something that can increase sales and bring in money. Goal-oriented research is remarkably unproductive. True results are achieved in part by lucky coincidence and in part through scientific work which stimulates the interest of other scientists.“
Having become acquainted with the research scientist and businessman, it is now time to discover the „Friesian“ Frederik Paulsen. His retirement from the Ferring Company and return to his native island by no means meant that he would now lead a quiet life as a pensioner. At last he had time to devote himself more intensively to „his cultural interests and tasks which he saw as becoming involved in Friesian affairs and the problems of minorities“ his sister Hilde Portofée recorded.

Fredrik Paulsen had fallen back on Föhr traditions when making many important personal and business decisions. He saw his homecoming in the same light: „We from Föhr have always been scattered throughout the world, but we always return in our old age. In this respect we are no different from the Chinese – we spare no effort to come home again.“ The fact that he identified himself so strongly as a Friesian from Föhr certainly has much to do with the native language of this ethnic group. For him the North Friesian language and, above all, the particular „fering“ idiom of the island Föhr, was like a secret language. He realized this first in 1934 when he was imprisoned in Neumünster and met a friend, Werner Johannen, from Kiel with whom he shared a cell for a while. Whereas before Johannen (who came from the North Sea island Amrum) and Paulsen, the Friesian from Föhr, had spoken only German to each other, they discovered in prison „that it was a great advantage to be able to converse in a language no one else understood. We could build a wall around ourselves – our own world. This was the only way we were able to survive.“ And although he never ceased to promote the Friesian language, in his later years he reiterated his theory of a secret language: „We don’t want others to learn it and be able to understand us. We want a substitute for the political status we have lost. “
His eye fixed on the future

It was not in keeping with Frederik Paulsen’s character to pine for the good old days. Just as in the course of his scientific-business activities, so too in his efforts for the Friesian cause he distanced himself from all hidebound attitudes and narrow-mindedness – with his eye fixed on the future. Even before the war he had become a member of the „Fryske Akademie“ in Ljouwert/Leeuwarden; after the war, as someone who had been persecuted by the Nazis and an emigrant, he was able to act as an unprejudiced and convincing mediator abroad. As early as 1945, he made contact with the (Dutch) West Friesians. In spite of his strong attachment to his roots, he nonetheless always looked „further than the end of his Friesian nose“ and kept an eye on the problems of minority groups throughout Europe and the world. In 1949 he was among the founding members of the „Föderalistische Union Europäischer Völkergruppen“ (FUEV) (Federalist Union of European Ethnic Groups) in Versailles. 40 years later, again in Versailles, as one of the speakers at the FUEV anniversary, he emphasised the importance of ethnic groups in the construction of a united Europe: „If the nations and people are the building blocks, then the regions, especially the border regions, in which most language minorities and ethnic groups live, are the mortar which holds the large blocks together.”

Frederik Paulsen with his sister Hilde Portofée in front of his house in Alkersum
On a national level, in 1949, the year in which the FUEV was founded, Frederik Paulsen was among the founders of the „North Friesian Institute“ which he chaired from 1970 – 1982. The hefty disputes which arose in the early years between the German nationally-oriented members and the Friesians who looked beyond the Danish border may well have reminded him of the conflict that had arisen in his parental home at the time of the German-Danish referendum. 15 years later, the North Friesian Institute, whose work had mainly consisted of publishing an annual yearbook, decided to found the „Nordfriisk Instituut“, which was established in Bredstedt (on the west coast of Schleswig-Holstein) in 1965. Frederik Paulsen’s home base for his activities was his mother’s home in Alkersum, which he had bought in 1961 as a desolate ruin and carefully and lovingly restored, as he later did with several adjacent houses. A library located in a renovated barn became the heart of this ensemble. With its priceless collection of Friesian literature, it was to be the starting point for serious research as well as a place where scientists from many fields (linguists and medical scientists alike) could enjoy meeting and holding symposia. Not only did Frederik Paulsen inspire many publications, he also used the books from his own collection when writing papers about the Friesian past and future prospects.
Foundations...

The crowning glory of Frederik Paulsen’s life’s work with regard to matters Friesian is the Ferring Foundation which he established in 1988. According to Jakob Tholund, this foundation „should be considered as an attempt to create an institution where it would be possible to plan creatively for the island’s future and find methods of coping with developments it would have to confront in the future.“ Thus research into living conditions on Föhr and in the region as a whole, as well as possible improvements, are just as much a part of the Foundation’s stated objectives as the preservation and promotion of the Friesian language and culture; the Foundation’s orientation towards the future is concretely manifested in its promotion of young people by awarding scholarships to enable them to acquire a qualified vocational education. The Foundation is yet another example which demonstrates that it is not possible to
separate Paulsen the Friesian from the businessman Paulsen. From the very beginning of his business life, he willingly supported colleagues and provided the peptide hormones which were isolated and later synthesised in his company free of charge to interested scientists for their research work – a generosity which he incorporated into his company’s philosophy and which led to the promotion of countless scientific meetings. He was also one of the initiators of the Kiel Ferring Foundation which, since 1983, biennially awards a Ferring Prize amounting to 20,000 DM to scientists at the Faculty of Medicine at the Christian-Albrechts-University in Kiel for two notable studies in the field of endocrinology; the prize winners should not be older than 40. He also enthusiastically supported another idea to promote the next generation of highly-qualified scientists: since 1987 approximately 35 young paediatric endocrinologists from all over Europe are invited to the annual „Summer School“ of the ESPE (European Society for Paediatric Endocrinology) where, as „students“, they spend three days presenting and discussing their newest research findings with about 15 top international endocrinologists (teachers). Since 1995, Ferring also sponsors an „ESPE Winter School“ at which young paediatric endocrinologists from Eastern Europe attend a one week „crash course“, during which they receive instruction in all areas of modern endocrinology from professors from western and central Europe.

Public tributes for a man such as Paulsen were inevitable – and they were awarded for his activities in both his fields of endeavour. In 1991 he received the 1st Class Distinguished Service Cross of the Federal Republic of Germany. In 1988 he was awarded the Hans-Momsen Prize established by the District of Nordfriesland, and in 1989, on his 80th birthday, the German Society of Andrology made him an honorary member. In 1995 the „Dr. Frederik Paulsen Honorary Lecture“ held on the occasion of an international research conference on the posterior pituitary peptide, oxytocin, was dedicated to him.
For his Föhr contemporaries and comrades-in-arms, Frederik Paulsen was a „personality of the century“. In an article for the „Nordfriesland“ newspaper he once noted: „When studying the lives of the most important Friesians, one cannot resist the heretical thought that their lives’ tragedy stemmed from the fact that they were too big for Friesland or Friesland was too small for them.“ He himself was most certainly too „big“ for Friesland – but this fact did not cast a shadow over his career. When he went out into the world and built up a world-encompassing enterprise, he remained securely anchored in his Friesian roots and traditions, and when he returned to Föhr, he brought the „big wide world“ with him, thanks to his extensive interests and activities.

On 3 June 1997 Fredrik Paulsen died at his home in Alkersum; his final resting place is in the St. Johannis cemetery in Nieblum on Föhr.
When I started my research for this book, I became aware of the sobering and frustrating fact that medical history has taken no note of Dr. Fredrik Paulsen and that there are practically no publications on him or his achievements. Even the Ferring Company archives, which provided some of the photographs for this book, had surprisingly little else in the way of written information apart from a few brochures. It is, therefore, all the more pleasing to know that his long-lasting campaign on behalf of the Friesian ethnic group has been recognised on numerous occasions. We are indebted to Jakob Tholund who collected his numerous essays on Frederik Paulsen and published them in a study which is as informative as it is sympathetic under the title „Ein Friese geht nicht verloren. Frederik Paulsen zum Gedächtnis“.

Tholund, headmaster in Wyk on Föhr, was able to base his portrait of Frederik Paulsen on personal conversations and Paulsen’s written Memoirs, since he was both a Friesian comrade-in-arms of Paulsen’s and a friend of the family. Special thanks go to Mrs. Eva Paulsen, Alkersum/Föhr and to Frederik’s oldest son, Dr. Otto Paulsen, Malmö, for making these Memoirs and other speeches and manuscripts available to us; Mrs. Eva Paulsen was also very helpful and forthcoming with information during numerous telephone conversations. The majority of the photographs published in this book also came from the family’s private archives.

The Memoirs, originally intended mainly for family use, have never been published. The years 1909-1935 (subdivided into: Childhood and student years 1928-1933; 30th January 1933, Hitler’s seizure of power; Basel) are written in great detail and exist in typewritten form in German. The Memoirs following his emigration cover the early years in Sweden up to 1936 (also typewritten but in Swedish); Frederik Paulsen ceased work on his Memoirs in 1992 and, apart from a fragment in 1994, did not continue them.

These Memoirs are extremely valuable as an authentic account of Frederik Paulsen’s life and times. Thomas Pusch, MA., a historian at the Institut für Schleswig-Holsteinische Zeit- und Regionalgeschichte (Schleswig) who is working on „Experiences of Political Refugees and Re-immigration – Schleswig-Holstein emigrants and Scandinavian Exile“, and thus, also, on Paulsen’s „case“ for his doctoral thesis, confirms the extraordinary accuracy of these personal memories. Paulsen’s arrest and conviction 1933/34 are „on record“, as Pusch discovered during his researches; the indictment papers and sentence are stored in the Federal Archives/Reich Department in Berlin Lichterfelde (Nationalsozialistische Justizakten, NJ 8288, NJ 12164).

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My tears of farewell had scarcely dried when I plunged into the ocean and was forced by the strong current of the ebb tide into a new time and place.
How Ferring began
returning to its leaders at the Ferring companies
of the 40th anniversary. 1990.

dear colleagues and friends,
in 1950

40 years ago this company was officially
registered here in Malmö under the
name "Nordiska Hormonlaboratorium"
= Nordic Hormonlab, oratory. This date
is established. It is much more difficult
to establish in what year the idea to this
company was born.

Let me begin with one source to this idea:
Some time at the end of the war - a Dutch
friend of mine, Dr. Freund, who wasWorking
professor at the institute of pharmacology in
Amsterdam sent me a memorandum. As he
was a Jew, he had to hide during the
later years of the German occupation. He had
a good hiding place behind one of these
old large watch grandfather clocks Stand where
and there he had to stay in the darkness
for many hours, when he could do
nothing. That's why I think is the thought
Two much of this thinking become later
important to me. One was the idea to found
a newsletter to the German Central Bureau,
which had been the only international abstracting
journals for the main fields of science before
the war. So we started soon after the war the
"Excerpta Medica", which for many years became

FERRING
PHARMACEUTICALS