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## IDENTIFICATION IN THE »ORMEN FRISKE» DISASTER<sup>1</sup>

*by*

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On June 21—22, 1950 the Swedish replica Viking ship "Ormen Friske" was lost off Heligoland in a violent storm. The whole crew of fifteen young Swedish men were drowned. Eight of the bodies were found and identified in various ways. Those last recovered were greatly changed, as they had been lying in the North Sea for a couple of months, and the identification was extremely difficult.

This was the first complicated case that was subjected to odontological identification combined with an investigation by the National Institute of Technical Police in Sweden, and we had no personal odontological experience in this sphere to fall back upon.

As the accident occurred in foreign waters, the interests of the relatives were looked after by the Swedish Foreign Office, and most of the bodies being recovered in Germany, the proper German authorities were requested to attend to the identification. At an early stage I suggested to the Foreign Office that any and all dental records of treatment of the individuals concerned should be collected with a view to facilitating the identification. This was done, though the records obtained were not complete. The dental records were placed at the disposal of the German authorities performing the identification. In several cases the identification was simple enough, one of the crew having, for

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instance, a false eye. In other cases, the identification was extremely difficult. In one case there appeared to be strong reasons to suspect -- at least from the odontological point of view -- that an error had been made.

A month after the disaster, the greatly changed corpse of a man was recovered on the shore of Amrum, one of the North Frisian islands. It was quite naked apart from a wrist-watch of the make Tissot with a watchmaker's marks. Various circumstances prompted the supposition that this was the body of a member of the crew of the "Ormen Friske". The local German police authorities arrived at the conclusion that it was probably the body of "E", a man about 23 years old. Their conclusion was based on a general description of the individual, the length of the body and a very summary examination of the teeth of the corpse. On the following day the local dentist was summoned, and he made up a dental record of the Amrum corpse. The very same day the police authorities received an extract from the dental records covering E's last dental treatment in Sweden, that treatment having taken place the year before. It was especially pointed out in the extract that 6— had recently been extracted.<sup>1</sup> In the Amrum corpse, however, 6— was present, which caused some doubt regarding the correctness of the identification. E's father requested the dentist who had last treated E. to compare the dental status of the corpse with the records covering E's dental treatments. The Swedish dentist pointed out five essential deviations, emphasized that 6— had been extracted by him, and concluded his comments with the words: "the corpse found can in all probability *not* be identical with the body of E." A medico-legal examination was then made by two experts in forensic medicine from a German "Institut für gerichtliche und soziale Medizin", and a detailed description was given of the greatly changed and decayed corpse. The description mentioned as an important feature by which the corpse might be identified "the almost terraced vaulting of the os occipitale", which E's parents claimed that they had noticed in E. As a matter of fact this

<sup>1</sup> In this paper the teeth are designated according to the *Haderup* nomenclature: + denotes the upper jaw, — the lower jaw. When the + or — is placed to the right of the tooth number, the right side is indicated and vice versa. 6—thus means the right mandibular first molar.

feature is not at all a rare one, as it occurs in about 8—10 per cent of all Swedes, according to the information I have received. A dental record accompanied the report by the experts in forensic medicine, and the following statement is worth noting: "Soweit sich überhaupt zwischen einer Zahnkarte und einem späterhin an einer Leiche erhobenen Befund Vergleiche anstellen lassen, ist für diesen konkreten Fall zu sagen, dass zwischen der schwedischen Zahnkarte und unserem Befund im grossen und ganzen nur einem Punkte ein auffälliger Unterschied besteht". And this referred to a silicate cement filling in a tooth incorrectly designated by the experts in forensic medicine. This and various other discrepancies between the dental status of E. and that of the corpse could be seen in the reports. — E's father went to Germany, and upon his own request he was admitted to see the corpse. He writes: "For me, personally, the actual sight of the corpse in the mortuary was decisive. My stay there was not restricted as to time. I was allowed to stand there as long as I liked. And certainty came to me from what I saw. The recognition was absolute, and in spite of everything, it was fundamentally of the same kind as the recognition that always occurs when one is confronted with a person one knows well". As regards the watch, which was of a make that E. had never possessed, E's father stated that his son often mislaid things, and that he might have mislaid his old watch and bought himself a new one on the journey. The German police authorities subsequently made out a report, based on the statement received from the experts in forensic medicine and on the father's recognition. Their concluding words read, "danach bestehen keine Zweifel, dass es sich bei dem Toten um E. handelt".

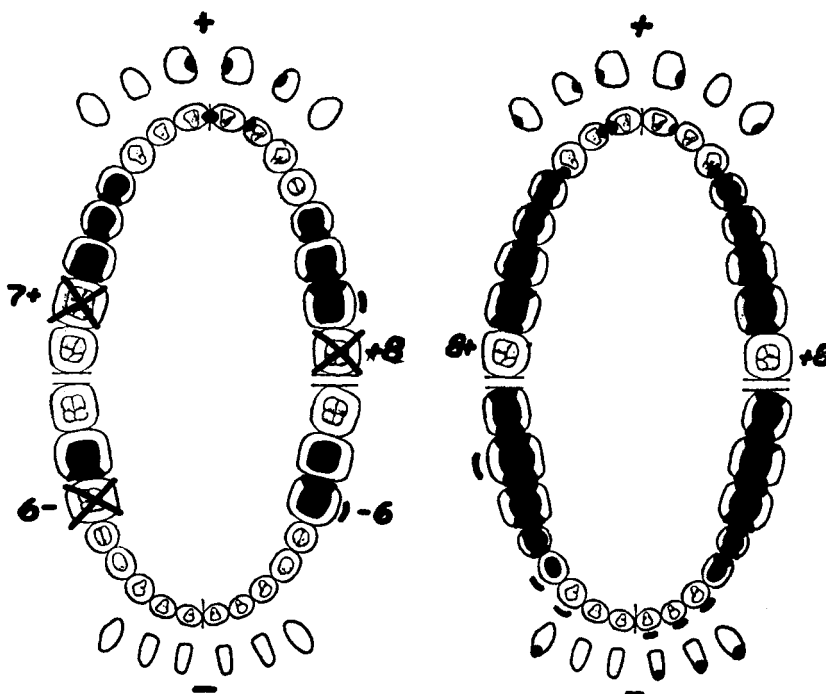
When the question of identification proved complicated, the Swedish Foreign Office requested the assistance of the National Institute of Technical Police in Stockholm, but when the report on the identification subsequently came from Germany, the Foreign Office recalled its request. I handed in a statement to the National Institute of Technical Police in which, after comparing the dental findings, I said "the dental status of the corpse, which has proved difficult to identify, does *not* agree with the dental status of E." The Foreign Office was advised by telephone by the National Institute of Technical Police "that the correct-

ness of the identification made in Germany must be seriously questioned, first of all in view of the statements of the two Swedish dentists". No attention was paid to this, however, and the corpse was buried. Meanwhile, the investigations by the National Institute of Technical Police disclosed that the wrist-watch found on the Amrum corpse had been sold on the 12th of August, 1942, by a watchmaker in Jönköping, Sweden, to a person by the name of M., who was a member of the lost crew. My studies of the various dental records had at an early date led me to believe that the Amrum corpse probably was that of M. I continued, however, to collect dental records from dentists who had treated the victims of the disaster. I did so with a view to facilitating the identification when and if further corpses were found. Generally good dental records of the victims were obtained, in some cases also roentgenograms. It goes without saying that the dental records varied considerably as regards completeness and thoroughness, but some information of value was obtained in every case. As far as M. was concerned, I managed, by contacting his relatives, to obtain X-ray photographs taken of his skull a few years prior to the wreck in connection with a road accident and which also showed dental fillings and root-fillings.

It then remained for me to study the dental status and conclusions regarding the Amrum corpse. First I compared the dental record of the Amrum corpse with the partial dental record obtained for E. If the Amrum corpse was that of E., their dental records should have a number of details in common, and there could not be any very great differences.

It will be seen, however, that the following differences existed:

Three true molars were thus extracted in E. (7+, 6— and +8) but were stated to be present in the Amrum corpse. The extractions were so recent that the extraction spaces could not have closed but must be clearly visible. The +8 extracted in E. cannot be compared with the tooth that was "nicht durchgebrochen" in the Amrum corpse, not with any degree of certainty, at any rate, as the German experts in forensic medicine did not prove their statement by an X-ray examination or by chiselling. The two other teeth constitute good evidence, however, especially 6—, the dental records showing that endeavours were made to



*E's partial dental record.*

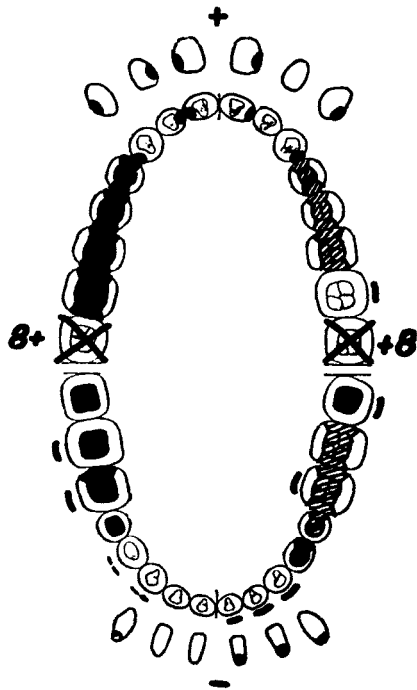
- 1) 7+ extracted.
- 2) 6- extracted.
- 3) +8 extracted.
- 4) 1+ mes. silicate cement filling.
- 5) +1 mes. silicate cement filling.
- 6) +2 mes. silicate cement filling.
- 7) +7 buc. amalgam filling.

*Dental record of the Amrum corpse.*

- 7+ MOD amalgam filling.
- 6- MOD amalgam filling.
- +8 "nicht durchgebrochen".
- not found.
- not found.
- "intact".
- not found.

fill the root of that tooth on no less than four different occasions before it was extracted. There can consequently be no mistake or writing error on the dental chart with reference to this tooth. — Three silicate cement fillings in E's front teeth could not be traced in the teeth of the corpse, nor could a buccal amalgam filling. It did not seem reasonable to suppose that these fillings or the cavities in which they had been inserted could have been overlooked by a dentist and two experts in forensic medicine, who made the examination in Germany.

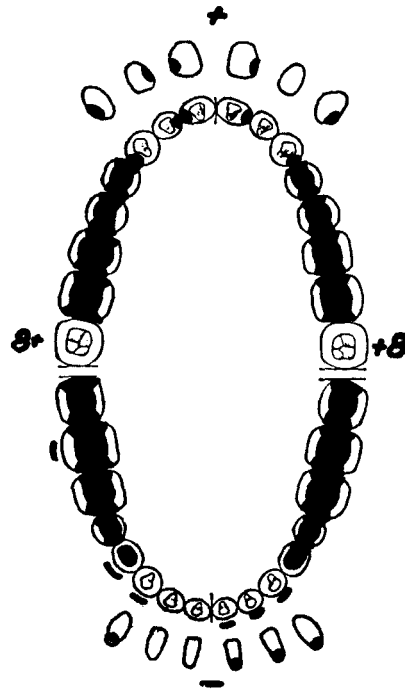
Considering the number of discrepancies between the two dental records and, most especially, considering the *character* of



*M.'s partial dental record.*

(According to the records of two Swedish dentists plus X-ray photos of the skull.)

- 1) All teeth present a bare year prior to the disaster, except 8+ and +8.
- 2) 32 dental fillings found.
- 3) The positions and appearance of the fillings identical.  
(silicate cement: 2+ mes., 1+ dist., +1 dist.  
Cervical fillings: amalgam --1 buc., --2 buc., --3 buc.  
and large amalgam fillings in the molar area)
- 4) Radiograph of 7+ and 6- discloses characteristic root fillings.
- 5) Radiograph: Front teeth sloping forwards in the upper and lower jaw. Regular dental arches. Dolichocephalic. Occipital part of the head heavy.



*Dental record of the Amrum corpse.*

(According to a German dentist and two German experts in forensic medicine.)

All teeth present except 8+ and +8, according to the Amrum dentist. (According to the experts in forensic medicine 8+ "schimmert eben durch", +8 "nicht durchgebrochen"; but no proof).

33 dental fillings found.  
The positions and appearance of the fillings identical.  
(Zahnfarbene Füllung: 2+ mes., 1+ dist., +1 dist.  
Metallfüllungen: --1 buc., --2 buc., --3 buc.  
Metallfüllungen: throughout in the molar area)  
No radiographs.

Front teeth sloping forwards. Dolichocephalic. Occipital part of the head projecting, terraced.

these differences, I arrived at the conclusion that the Amrum corpse *could not be identical with that of E.*

The possibility of the identity of the Amrum corpse with that of E. being precluded, I went on to compare the dental status of the Amrum corpse with those of the other victims whose bodies had not with certainty been recovered. All *except M.* could be eliminated.

Owing to M's frequent changes of place of residence it was impossible to trace more than two dentists who had treated him. The X-ray photographs of his skull, taken 2—3 years before in connection with a road accident, consequently proved to be of great value. Certainly the centering was towards the cranial base, so that the teeth with fillings acting as X-ray contrast, were in the periphery of the X-rays and partly covered each other, but nevertheless valuable information was obtained. Among other things it was seen that the roots of two teeth were filled and the appearance of these two fillings became known. A dental record was then prepared showing the fillings that had definitely existed, i.e. fillings that existed according to the records of the dentists who had treated M. as well as the fillings seen and localized with certainty on the X-ray films. All these fillings were marked in full black contours. Fillings that were not definitely discernible on the X-ray films, i.e. those which overlapped on the films were merely suggested in the record.

It then remained to study how the two dental records compared. The agreement was striking.

Now let us look at the *differences* in the two dental records. The fact that M. *may* have had some more fillings made during the period immediately preceding the departure of the ship need scarcely be mentioned. As, in addition, all the various dentists who may have treated him could not be traced, his dental record as given above must be looked upon as a partial one.

#### DIFFERENCES

<i>in M's partial dental record.</i>	<i>in the dental record of the Amrum corpse.</i>
1) +7 buc., —8 buc., —6 ling. amalgam fillings.	Not found.
2) 8— occ., 7— occ., 6— DO, 5— occ., —8 occ. amalgam fillings.	8— MOD, 7— MOD, 6— MOD, 5— MOD, 4— occ., "metal fillings".

Another few minor differences existed, but they were not so certain and of less importance. As regards 1), these comparatively unget-at-able fillings may have been overlooked in the Amrum corpse. With reference to 2), these fillings may, shortly before M's departure, have been enlarged.

The disagreements that exist are few and easily explained. They are of but little importance compared with the many and striking points of agreement. In my report to the National Institute of Technical Police I consequently summed up my conclusions as follows: "This comparison of the dental records indicates, with probability almost amounting to certainty, that the Amrum corpse is that of M. Absolute certainty can only be reached by a renewed examination of the cranium, jaws and teeth of the corpse that has been buried, the examination also to include X-ray examination".

The final report of the National Institute of Technical Police as submitted to the Swedish Foreign Office was to the same purport "... first of all in virtue of the odontological examination; furthermore, the wrist-watch found on the corpse is not E's but certainly belonged to M."

As two different families still considered that they had a claim to the Amrum corpse, which had been buried in Sweden under E's name, and E. and M. were of different confessions of faith, the county administration recommended that the body be disinterred and that a renewed examination be made at a Swedish Institute of Pathology by experts in forensic medicine and odontology. This examination, which took place approximately a year after the disaster, confirmed the correctness of the odontological examination point by point. The differences which I had found to exist between the dental records of M. and the Amrum corpse were due to the observations of the German experts in forensic medicine being erroneous in the case of fillings in at least eight teeth. Radiographs were taken of the skull of the Amrum corpse and proved to be exactly identical with those of M. which I had previously managed to obtain, and they showed slight traces of a healed cranial fracture. The rootfillings in 7+ and 6— were visible in the X-ray picture, too. The report from the Institute of Pathology concluded with the words: "The

corpse that was buried as being the body of E. is not so, but is for certain the body of M.”

In the meantime, the National Institute of Technical Police in co-operation with Danish police authorities had made a very thorough and skillful identification of two corpses that had been washed ashore in Denmark and which had been buried as men unknown. One of the corpses had no head. As these corpses were dressed and as the clothes could be identified, it could be ascertained that one of them was the body of E. The remains of the victims of the disaster could then be buried under their correct names, and the painful feeling that a mistake had possibly been made was removed.

Now, what do we learn from this, our first really complicated case of odontological identifications? Extreme thoroughness is an absolute necessity. The dental records of deceased must be obtained from their dentists as far as that is possible. If it proves impossible or if the information obtained is very incomplete, relatives and friends can frequently give some information regarding dental characteristics, even though such data certainly are far less conclusive than carefully checked dental records. Examinations made under difficult or primitive conditions must, if anything, be even more thorough. X-ray photographs must always be taken of teeth and jaws for comparison with X-ray photos taken earlier. Had that been done in our particularly case, the corpse would never have been buried under the wrong name. When dental records based on different recording systems are compared, this must be done with extreme care in order to avoid errors.

At the time when the case now discussed was being solved, the official documents reflected a certain disbelief in the possibilities of odontological identification, not only on the part of the German experts in forensic medicine but also on the part of the Swedish authorities. Odontological identification has its limitations, but it should always be tried when the identification is uncertain. In this special case the method proved to be capable of solving problems of identification when other methods failed. It is not always possible to obtain satisfactory information as to dental records but in most cases it is. According to Swedish law every dentist in the country must keep a careful record of the patient's name and address, of the treatment given and the

date of the treatment. The dental records must be kept for at least ten years. X-ray examinations are frequently made use of.

To *recognize* is not the same thing as to *identify* a body, which may be greatly changed in appearance. This was most strikingly demonstrated in the present case.

In this case two families of different denominations laid claim to a body and both considered that their claims were well founded. Apart from the fact that an investigation of this kind must be followed up till no doubts remain, the question is of social importance. In Sweden no death-certificate is issued until three years after the date when, on very strong grounds, a person may be considered to have lost his life, for instance in a disaster, and the body has not been recovered or identified. Not until then are life insurances paid, and not until then can, for instance, the widow remarry, and in the meantime all the various authorities concerned are kept busy on the case.

Here should also be mentioned the fact that it was possible to give an immediate reply to an enquiry received from some Dutch authorities. They sent to Sweden the dental record of a body found off the coast of Holland, which might have been the body of one of the victims of the "Ormen Friske" disaster. This supposition was easily refuted by a comparison of the dental findings with those in our records and a reply to that effect could be sent straight away.

Greater attention must be paid to odontological identification and the subject forensic odontology must be given a firmer status. At present, when identification authorities in Sweden consider it to be necessary, the services of a few interested in forensic odontology are requested and it is a matter of voluntary effort. At the Royal School of Dentistry in Stockholm the subject forensic odontology is quite voluntary.

Those interested receive twelve hours of teaching each term. A proposed organisation was drafted long ago, and the Royal Medical Board are expected to go into the matter shortly.

The "Ormen Friske" investigation, the odontological part of which was carried out by myself at the request of the National Institute of Technical Police and which was based on close collaboration between myself and the institute, proved instructive

and interesting in many other respects, too, such as in the spheres of technical police science and forensic medicine.

In conclusion I would like to say: Do not neglect the possibilities of odontological identification when it is a matter of difficult identifications. It should be started at the same time as the other identification work and the task should be given to dental surgeons versed in the methods and interested in the work.

#### RÉSUMÉ

##### IDENTIFICATION APRÈS LE NAUFRAGE DU »ORMEN FRISKE»

En 1950 un bateau suédois "Ormen Friske" (une copie d'un bateau des Vikings) faisait naufrage sur la mer du Nord avec 15 hommes à bord. Il était extrêmement difficile d'identifier certaines victimes. Une clinique universitaire de médecine légale à l'étranger a procédé alors à une identification acceptée par les autorités suédoises et un permis d'inhumer a été délivré. Cette identification a été pourtant contestée par les odontologues suédois, qui ont entrepris un examen minutieux des films de radios dentaires appartenant aux victimes. Ces travaux ont mené à une mise au point, avec de nouvelles autopsies et de nouvelles radios dentaires comme preuves à l'appui. — Après une catastrophe de ce genre on ne délivre en Suède de certificat de décès qu'après trois années écoulées. Pendant les trois ans d'attente les différentes autorités continuent leurs recherches. — Ceci démontre clairement l'importance d'une expertise odontologique dans les identifications particulièrement complexes.

#### ZUSAMMENFASSUNG

##### IDENTIFICATION NACH SCHIFFBRUCH DES »ORMEN FRISKE»

Als 1950 eine Kopie des Wikingerschiffes "Ormen Friske" mit 15 Mann in der Nordsee unterging, bereitete die Identifizierung einiger Opfer erhebliche Schwierigkeiten. An einer ausländischen rechtsmedizinischen Universitätsklinik wurde eine der Identifizierungen durchgeführt, welche von den schwedischen Behörden anerkannt wurde. Danach wurde die Erlaubnis zur Beisetzung

gegeben. Diese Identifizierung musste jedoch von schwedisch zahnärztlichen Gesichtspunkten aus als nicht befriedigend abgelehnt werden. Nach genauem Durchgang von Zahnstatus und Röntgenaufnahmen der Umgekommenen konnte eine Richtigstellung erfolgen, die durch eine erneute Obduktion, verbunden mit Röntgenaufnahmen, bestätigt wurde. — In Schweden kann ein Umgekommenener erst drei Jahre nach einer solchen Katastrophe für tot erklärt werden. — Der vorliegende Fall zeigt deutlich, wie notwendig es ist, bei allen schwierigen Identifizierungen zahnärztliche Sachverständige hinzuzuziehen.

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